



# T. & R. Bulletin

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## The Journal of the Inc. Radio Society of Great Britain

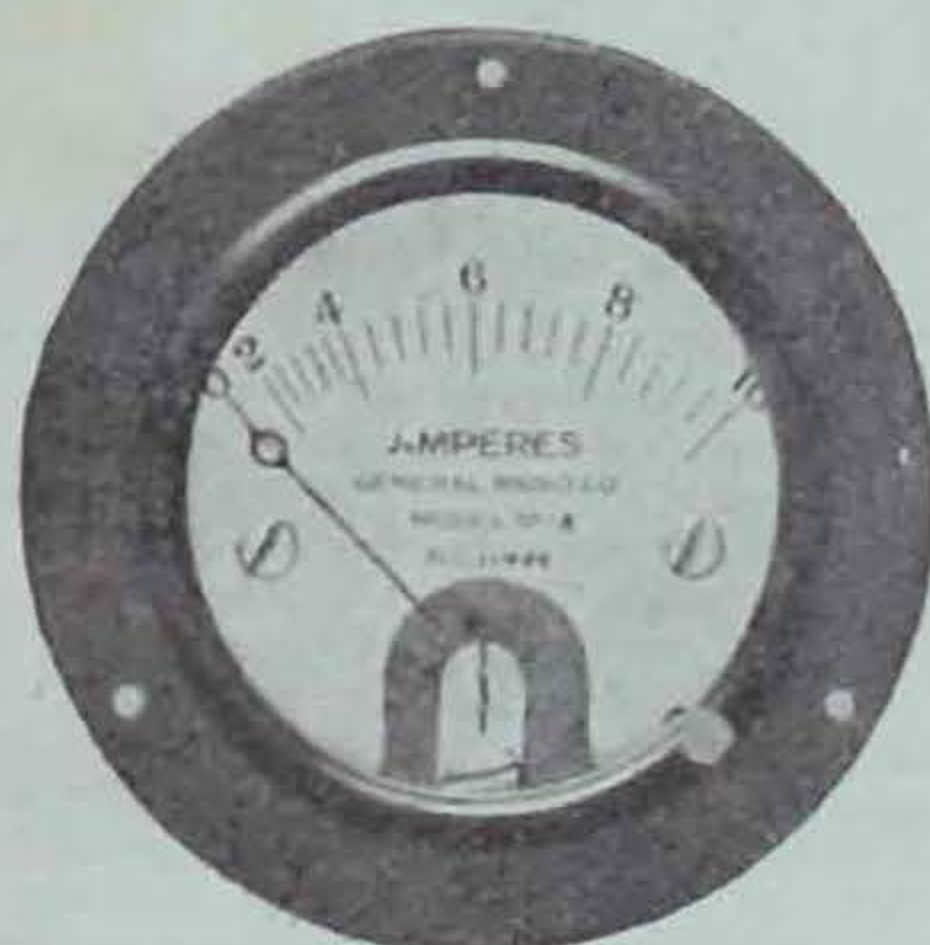
(BRITISH EMPIRE RADIO UNION)



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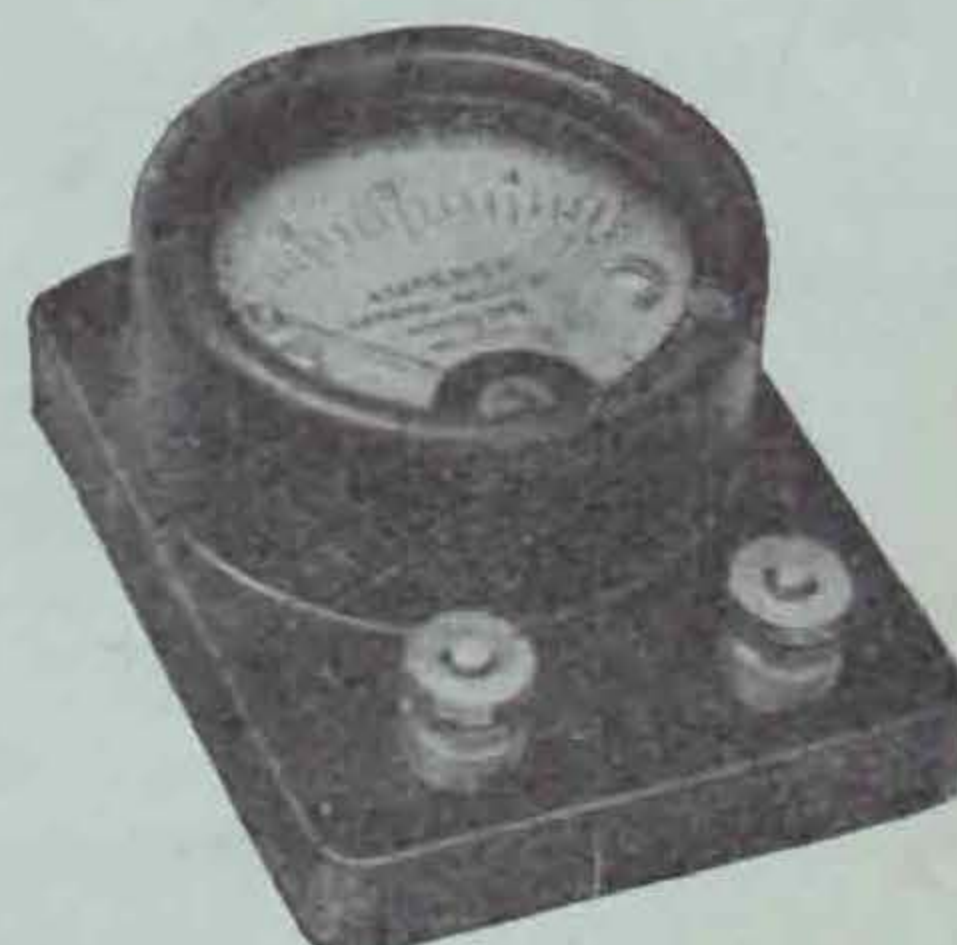
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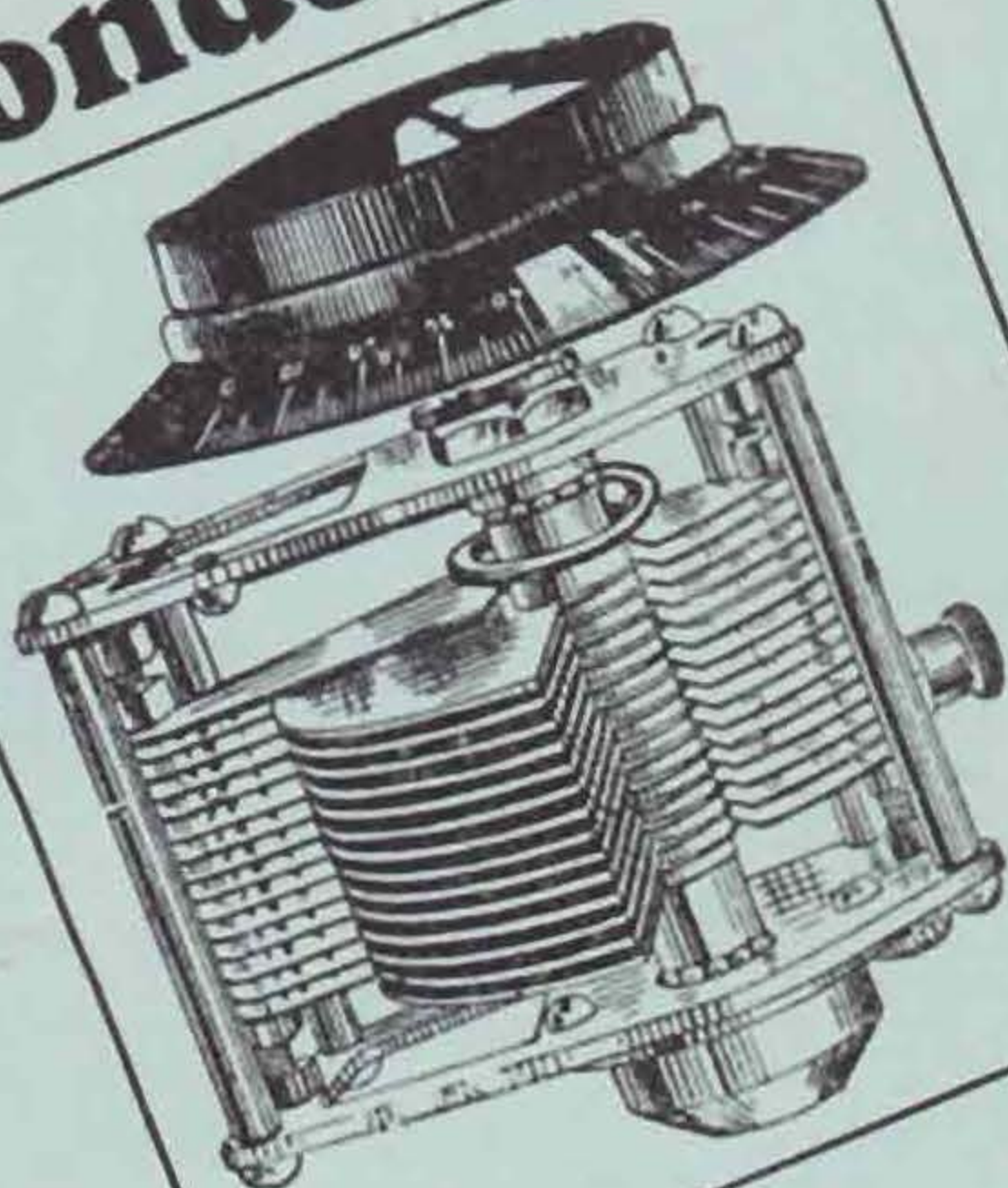
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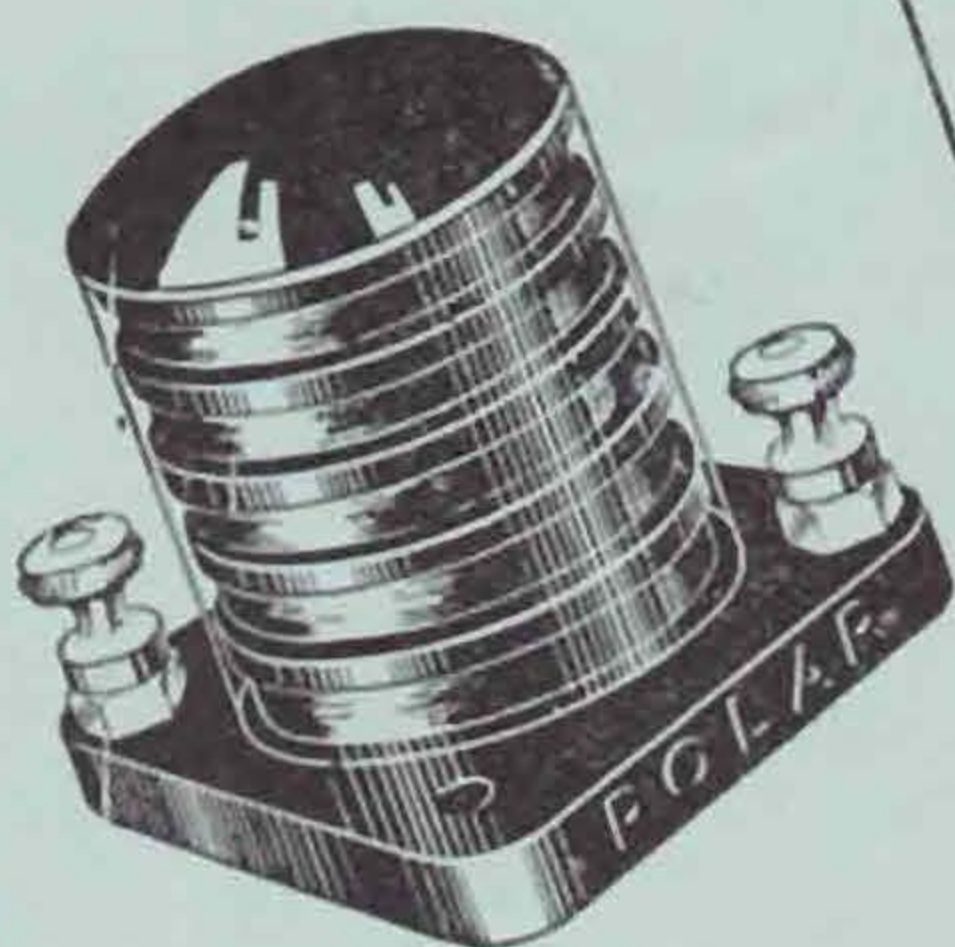
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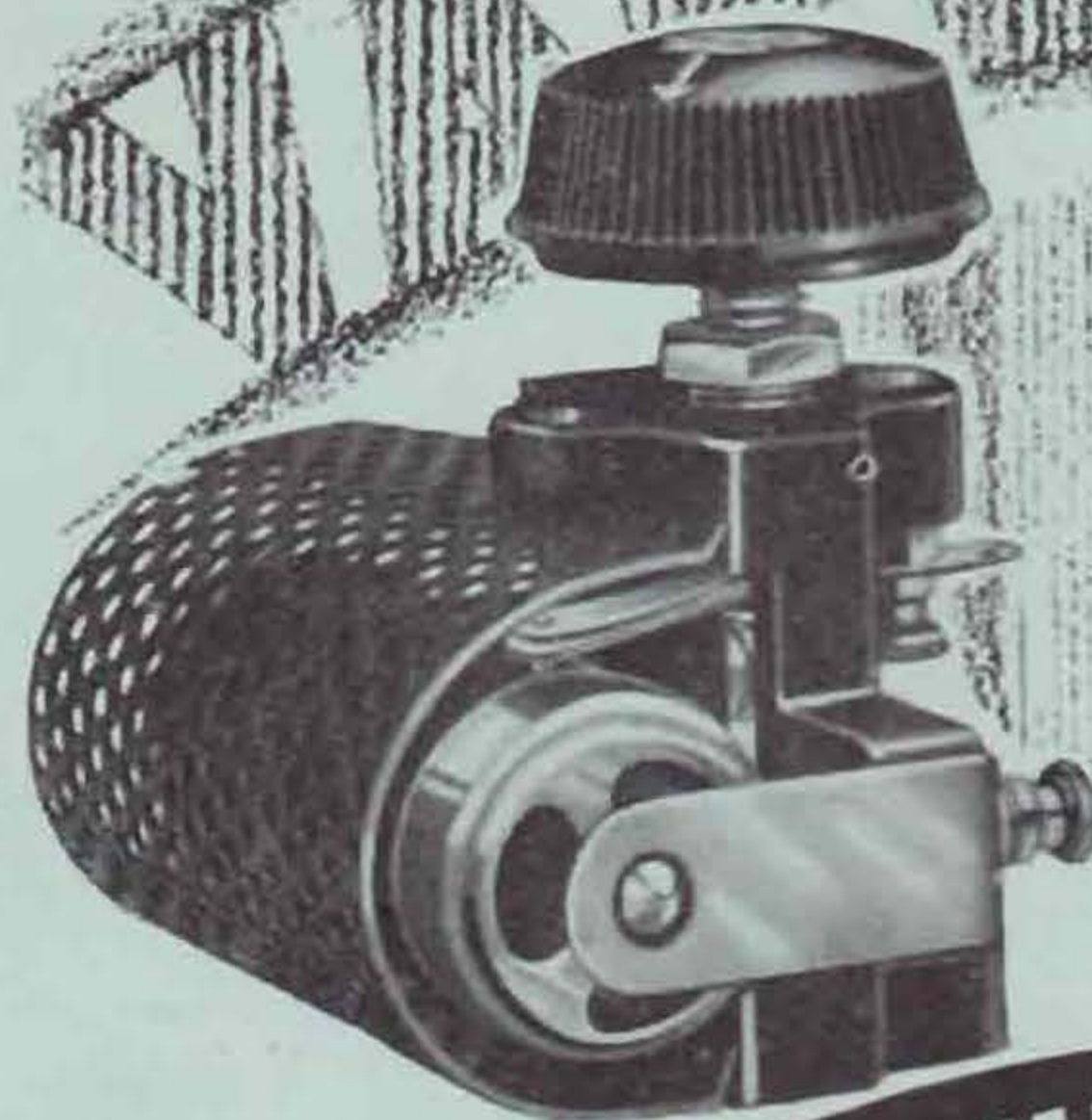
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# **TQR**

# **BULLETIN.**

***The only British Wireless Journal Published by Amateur Radio Experimenters***

*All correspondence and matter for publication to be addressed to the Hon. Secretary, 53, Victoria St., London, S.W. 1.  
Tel.: Victoria 4412.*

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MARCH, 1930.

Vol. 5. No. 9.

## **EDITORIAL.**

### **About Ourselves.**

**W**E, at Headquarters, feel at times that we are widely separated from the other members of the Society, excepting, of course, those who live in or near London. This does not mean, however, that we do not do our best to look after the interests of the scattered membership to the same extent that the Londoners' interests are cared for. In many cases we feel that the interests of the Provincial members deserve more careful consideration; the London members can, to a certain extent, look after their own affairs. Grumbles can soon be settled over the 'phone or by personal visits. We wish we could see all the membership more often, because personal contact between the members in the counties and those elected to serve them in London is one of the surest ways of continuing the present good will that exists throughout the Society. With few exceptions we are obliged to wait until the autumn of each year for that pleasure.

We frequently wonder how the members feel regarding the Society with all its sub-sections and ramifications. We try to make THE BULLETIN as much a record of Society activities as a semi-technical journal. It has to perform a dual purpose. We wonder how many members read anything more than their own C.B. Group report and their own District report (the latter having been unmercifully cut down in order to leave room for other things). Who knows what the W.B.E. Certificate is, or what the B.E.R.U. is, or that there is a cup to be awarded each year to the member who contributes the best published work to add to our knowledge of crystal control? Announcements of these and many other things of interest to members have appeared in past issues of THE BULLETIN, but we know there are many members who know nothing whatever about them.



Reverting to the District Notes section of THE BULLETIN, we know there are some who resent the drastic editing, both by the District Representative and again by ourselves, of the month's reports. We would, however, remind our members that this is in agreement with the wishes of last Convention. We try to cut down all reports to an equal extent, deleting common occurrences and leaving such items that will prove of general interest. Possibly of all things handled at the Editor's desk, this task of editing the District Notes is the one that calls for the greatest care. We do not feel justified in allocating any further pages to this section, although were it within our power to increase the size of THE BULLETIN we would not hesitate to do so. It must be realised that the size of THE BULLETIN is limited by two main considerations—first, by the revenue from membership; and second, by the revenue from advertisements. Other considerations are put in the shade by these two, both of which lie largely in the hands of the individual members. Manufacturers cannot be expected to advertise in any publication from which they obtain no return for their money. *If members would only grasp this point, and act accordingly, they would be doing more than they realise towards assisting themselves.* We should have liked to have chosen as a slogan for this year, "A Bigger and Better BULLETIN," but we are only able to bear in mind the latter half.

Having grumbled at you and excused ourselves for a few paragraphs, we have one word of praise to come. It is to the contributors of articles to THE BULLETIN. For the past eighteen months we have never once been short of copy. Often articles are received which cannot possibly appear for two, or even three, months. We attempt to publish all articles received, and in turn, though occasionally special articles are pushed in earlier. We have also asked certain of our more technical members to write articles on subjects of which they are masters, and we believe that in most cases these have been received with every satisfaction. But with a steady flow of articles being received from members, we do not feel justified in asking for special articles too frequently.

We hope we have succeeded in doing what we set out to do, and that was to tell you something of ourselves, our thoughts and our desires; to attempt to justify our action in cases where we believed there was a certain amount of unfavourable comment; and to try and place before you certain facts that would in the long run help us to assist each other.

### Death of Mr. A. A. Campbell Swinton, F.R.S., M.I.E.E.

FOR the second time in a few weeks we deeply regret to have to refer to the passing of one of our Past Presidents. In our last number we referred to the death of the late Admiral Sir Henry Jackson, and in the present number we have to refer to the death of the first President of the Society, Mr. A. A. Campbell Swinton, who died upon Wednesday, February 19.

It was Mr. Campbell Swinton's efforts which largely brought the R.S.G.B. into being. In 1913 he undertook to be its first President, a duty which he continued when the Society was reformed at the close of the War. Mr. Campbell Swinton took keen interest in amateur work, and those of the older members who were present at the famous meeting in 1914, just before the outbreak of the War, will remember the extreme care he took in making the lecture a success, having on that occasion made arrangements for special transmissions from the Eiffel Tower for the purpose of the meeting.

Although Mr. Campbell Swinton has not recently taken much active part in the work of the Society he was always ready to afford us his help when it was required, and remained a life member of the Society.



# Quality in Radio Telephony.

By EDWARD M. UGLOW, A.M.I.E.T.

There are many phases in thermionic triode receivers that introduce distortion, and in this short article the writer proposes to explain briefly the more common faults in a way which he hopes will be quite comprehensible to those readers who have a slight knowledge upon the working of a receiving valve.

All valve manufacturing firms impress upon the purchaser the importance of correct grid bias values. Let V in the Fig. 1 be a low frequency amplifying valve coupled by means of a step-up transformer T.

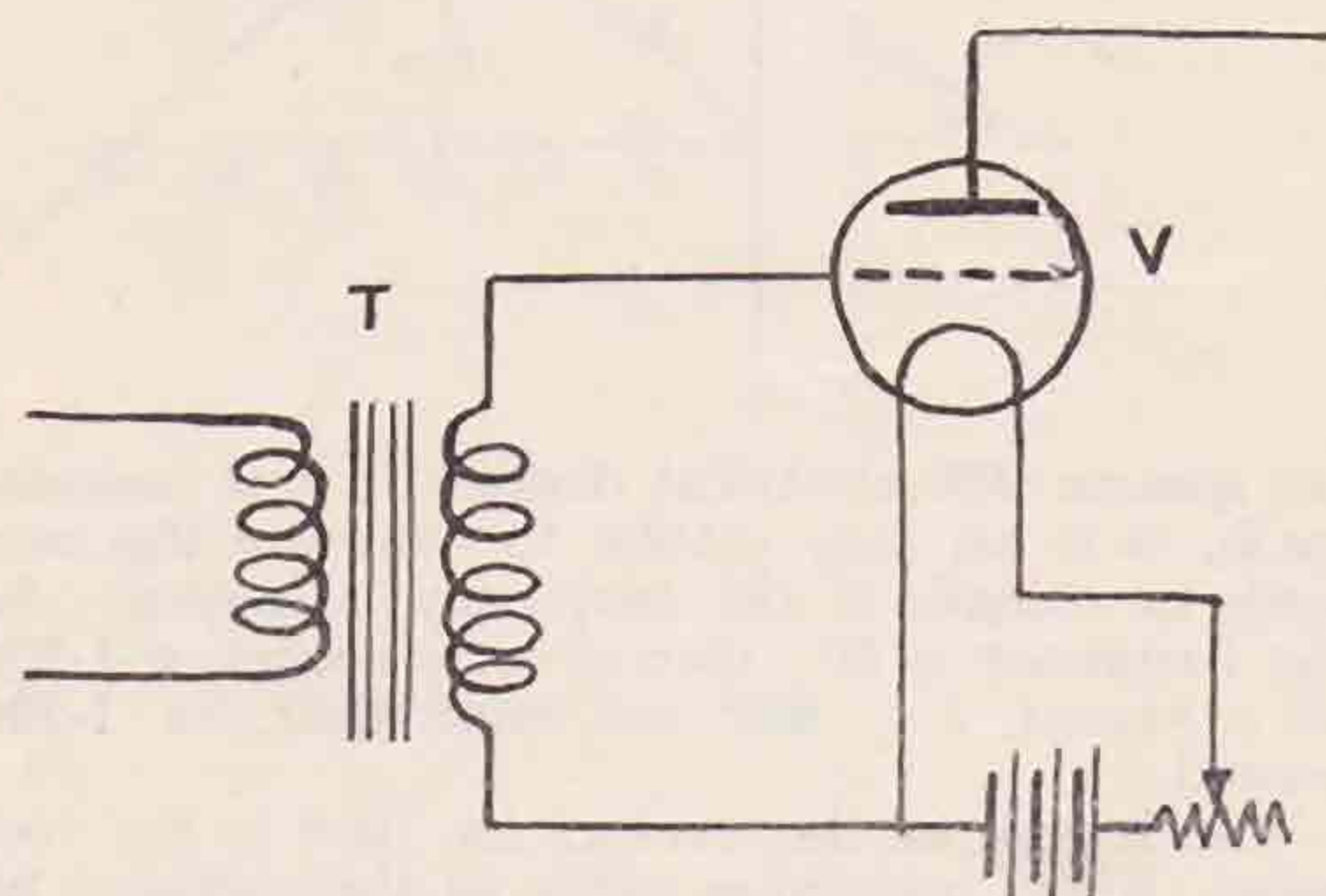
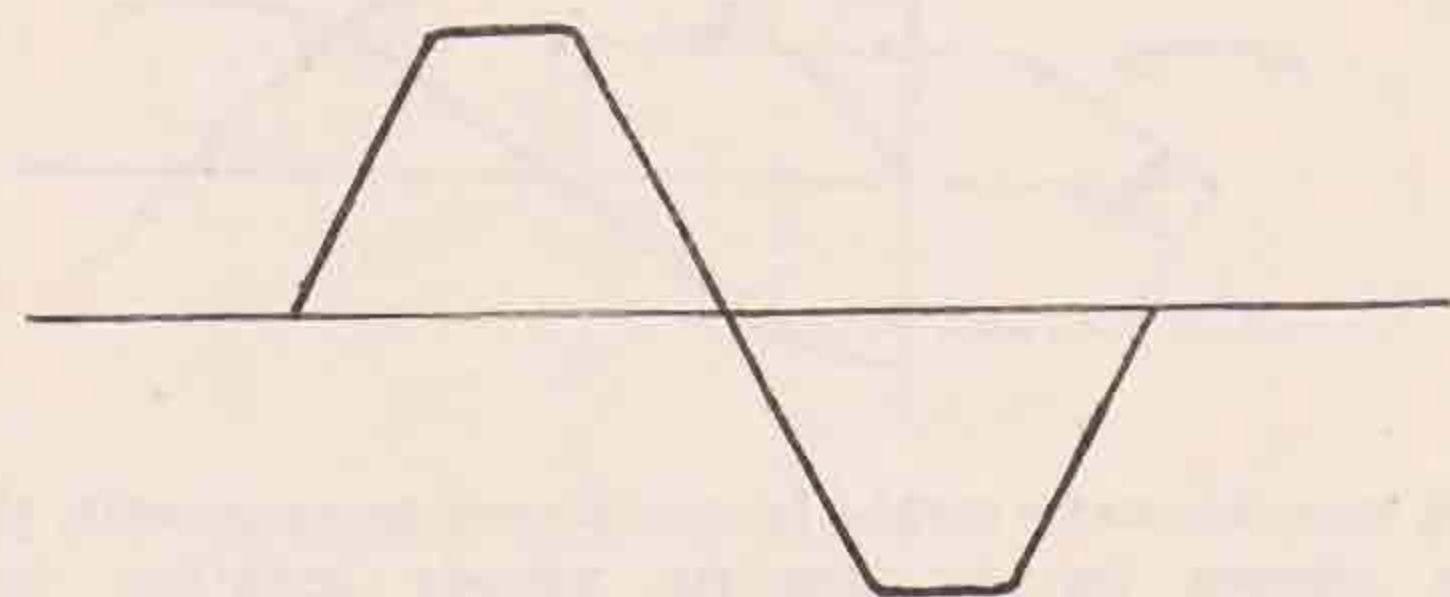


FIG 1.

Now the grid potential of this valve may oscillate through several volts in sympathy with the incoming signals. Before the arrival of the signal the grid potential is presumed to be zero. Now, when the grid is positive, a current flows from the grid in the external circuit. So that during the positive half cycles from the signal received, the secondary of T is short-circuited by this external current.



Thus the magnification of the positive half cycles will be less than that of the negative half cycles. This will obviously lead to distortion.

This state of affairs is rectified by the inclusion of what is called a grid bias battery, which enables the grid to maintain sufficient negative potential to allow no grid current to flow.

In a receiver containing several stages of amplification the oscillations of grid potential in the last valves may be so large that the wave showing the excursions of anode current may extend past the saturation point. The wave will take the form shown in Fig. 2.

This causes great distortion. The wave is not a smoothly peaked sine wave. Thus, what are called power valves are used in the last stages. These are valves which have a high saturation point. In some valves this "heightening" of the saturation point is brought about by increasing the filament current.

In Fig. 3 an anode current-grid volts characteristic is shown for values A, B, C and D of different filament currents.

The saturation point is raised from A to D with this filament current increase.

Thus readers may see the reason why the signals from many receivers become distorted when the filament current is decreased.

The plate voltage, when decreased, requires a larger positive potential on the grid for a satisfactory anode current to flow. Readers who have any knowledge upon this subject know that a decrease in anode voltage means that the whole characteristic is moved to the right. This large positive potential on the grid means, as explained previously, much distortion.

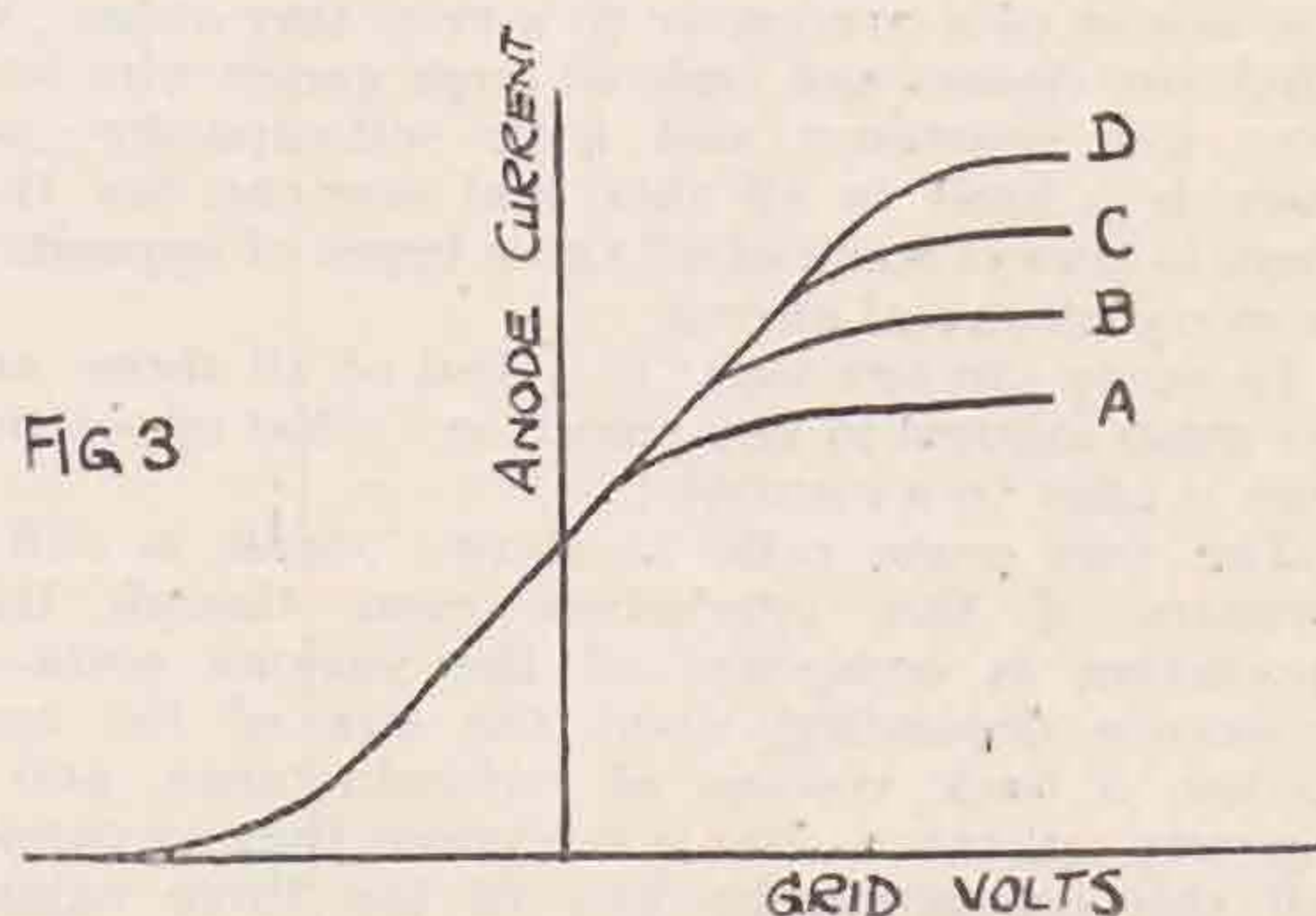


FIG 3

It must be mentioned that when the negative potential from the grid bias battery is applied to the grid, the anode voltage should also be raised, otherwise the oscillations of anode current might not be taking place on the right portion of the characteristic.

The writer certainly does not claim that this article covers all the ground of bad reproduction, but the phases explained are probably the ones encountered in the average receiver.

## Stray.

QSB means "The strength of your signals varies."  
QSS has no longer a meaning.

QRI should be used when referring to the quality of note.

We have a set of official abbreviations, so why on earth don't we use them? It may at first have been hard to learn the new ones, but after a year's work there is no longer any excuse for teaching the newcomers to amateur radio a set of obsolete signs.



# Engineering the A.C. Circuit.

## The Meaning and Calculation of Impedance.

By "INCONNU."

IN the previous articles the terms "resistance," "reactance" and "capacity reactance" have been explained; the method for calculating each in any given case has involved merely the finding of the ratio

Volts drop across opposition

Current flowing through opposition

In the cases mentioned above, the opposition has been entirely of one sort—a condenser, a resistance or an inductance. It was also shown that a condenser current leads the voltage wave by  $90^\circ$ , and the current through a pure inductance lags  $90^\circ$  behind the voltage drop across it. It was also shown that the current through a pure resistance is in step or in phase with the voltage drop.

But circuits are not often found with only one type of opposition. We try to make a non-inductive resistance, and we reduce the inductance to negligible dimensions by winding the wire in two layers in opposite directions; we reduce the losses and resistances of a condenser to a very tiny value; we wind our chokes and coils of large gauge wire with very low resistance and little self-capacity—but there is a limit to all this, and one can say that there is always some of all three types of opposition in every electrical circuit.

In many circuits there is a deal of all three, and our main interest in any circuit is "what opposition does it offer to a current?"

The very same ratio as shown above is still a measure of this opposition, even though that opposition is composed of the various sorts—a resistance depending upon the size of the conductor, a back voltage of self-inductance, and a capacity reactance. But it is obvious that we cannot call this opposition by any of the three names, because it is a mixture of all. Fortunately, we have not run out of words to express an opposition, and the word used for the ratio

Volts drop across any A.C. circuit

Current flowing

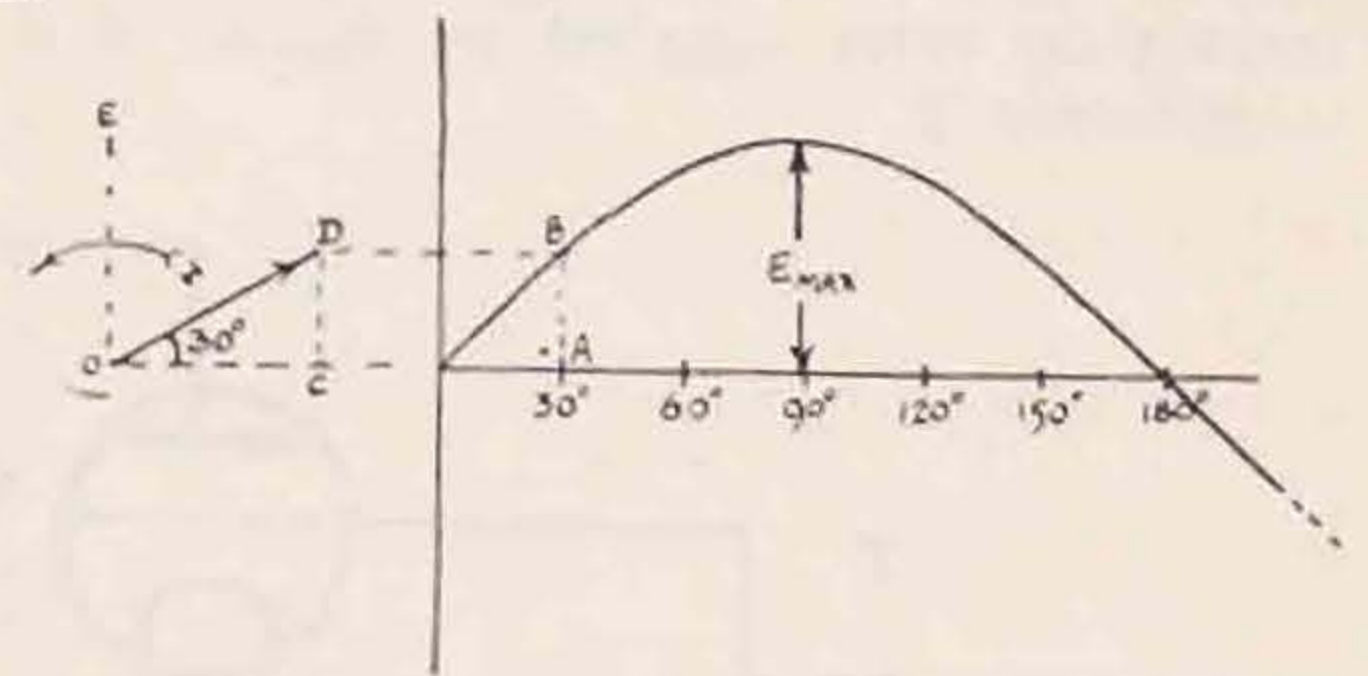
is called the "IMPEDANCE" of the circuit. It is a sort of Ohm's Law for the A.C. circuit, and a voltmeter and ammeter will provide us with the readings necessary to calculate the impedance of any circuit.

These few statements do not, however, show us how the impedance depends upon the values of the component oppositions; happily, that is not a very difficult investigation.

A sine wave such as we assume when dealing with ordinary A.C. work can be drawn by making the ordinates of the curve equal in length to the vertical component of a rotating rod at the instant under consideration. That seems a bit involved, but a little sketch will show that it is perfectly easy; Fig. 1 shows the idea. The voltage, let us say, is the value A-B at an instant corresponding to  $30^\circ$  electrical degrees from the zero value. This is

obtained by projecting the vertical component of the rod C-D across till it cuts the vertical from  $30^\circ$  on our wave scale. It is obvious from the sketch that the maximum value of the voltage will be obtained from the length of the rod itself, it being in the position O-E at the  $90^\circ$  mark. As

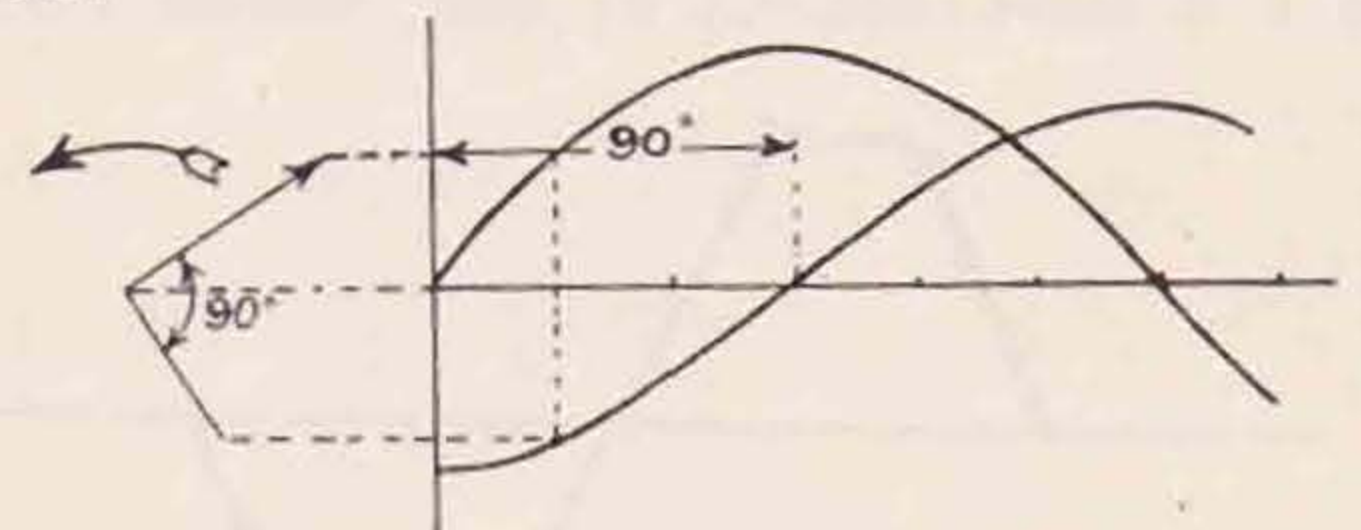
FIG. 1.



we assume 360 electrical degrees in one complete cycle, it is an easy matter to calibrate the wave scale in seconds if the frequency is known. Say the frequency is 50; then a cycle occurs in 1-50th of a second, i.e.,  $360^\circ$  are equivalent to 1-50th second.

The length of the vector, for that is the rod's name, is the maximum value of the voltage; but we rarely want to draw the actual wave, and we are interested in the RMS or effective value of the voltage. The latter can be found by taking .707 of the maximum voltage, i.e., .707 of the length of the vector. We also do not need to bother any more about drawing the wave; if we have the vector we can produce the wave at any time by the geometrical construction shown.

FIG. 2.



A second wave could be produced in step with the one shown by having its vector rotating and coincident with the first, though its length may be different.

A vector rotating at the same speed (same frequency) as the first, but at an angle of  $90^\circ$  to it, would produce a wave  $90^\circ$  out of step with the first (Fig. 2).

As the direction of rotation of the vectors is always counter-clockwise, this second vector represents an angle of phase difference between the voltages of  $90^\circ$ .

Fig. 3 shows a circuit with resistance, capacity and inductance in series. If this circuit is connected up it will be immediately observed that the sum of the readings on the voltmeters  $E_L$ ,  $E_R$  and  $E_C$  is not



equal to the applied voltage  $E$ . The reading of  $E$  divided by the reading of the ammeter  $A$  will disclose the impedance ( $Z$ ) of the circuit.

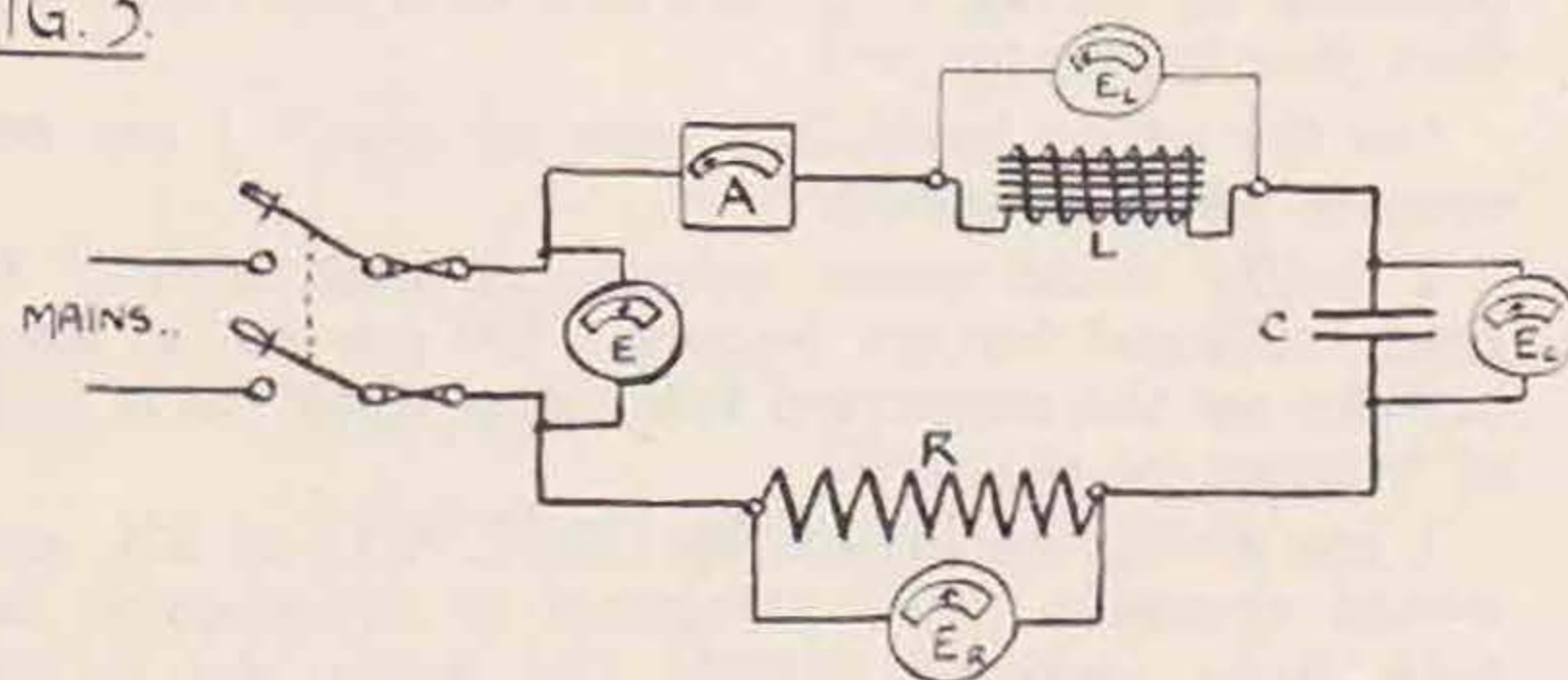
We know that the voltage drop  $E_r$ , being across a pure resistance, will be in step with the current; in the same way we know that  $E_L$  is  $90^\circ$  ahead of the current (current lags it by  $90^\circ$ ), and that  $E_c$  is  $90^\circ$  behind the current.

We can now forget about the waves and draw merely the vectors, as shown in Fig. 4. Obviously these three voltages cannot be added arithmetically as we do in a D.C. circuit.  $E_L$  and  $E_c$ , being in direct opposition, can be subtracted arithmetically (this gives the geometrical or vector sum in such a case), but this result must be added vectorially to the voltage  $E_r$ . This is done by finding the diagonal of the rectangle formed by the two voltages as in Fig. 4a.

This is the total voltage drop in the circuit, and is equal in magnitude and phase to  $E$ , the applied volts.

Therefore the current in this circuit lags behind the applied voltage by the angle  $\theta$ .

FIG. 3.



In the previous articles the following relations were proved:—

Voltage drop across a resistance  $= I \times R = E_r$ .

Voltage drop across an inductance  $= I \times 2\pi fL = E_L$ .

Voltage drop across a capacity  $= I \times \frac{1}{2\pi fC} = E_c$ .

Therefore, using these relations the formula for the impedance of a series circuit in terms of the various component parts can be obtained in the following manner—being merely a simple algebraical operation:—

From Fig. 4a and geometry:  $E^2 = E_r^2 + (E_L - E_c)^2$

$$\therefore E = \sqrt{E_r^2 + (E_L - E_c)^2}$$

From relations above:  $IZ = \sqrt{(IR)^2 + \left(2\pi fLI - \frac{I}{2\pi fC}\right)^2}$

$$\therefore Z = \sqrt{R^2 + \left(2\pi fL - \frac{1}{2\pi fC}\right)^2}$$

$$\text{Also } \cos \phi = \frac{R}{Z}$$

Consider a practical problem: Suppose 1 volt at 1,000 kilohertz is impressed across a circuit consisting of an inductance of 100 microhenrys and 20 ohms resistance, and a capacity of 0.00001 mfd.—how much current flows, and what is the angle of lag or lead?

Do not forget to bring all capacities and inductances to Farads and Henrys respectively, e.g.,

0.0001 mfd.  $= \frac{.0001}{10^6}$  Farad ( $10^6$  is a short way of writing 1,000,000).

The inductive reactance

$$(X_L) = 2\pi fL = 2\pi \times 10^6 \times \frac{100}{10^6} = 628 \text{ apparent ohms.}$$

The capacity reactance  $(X_c) = \frac{I}{2\pi fC} = \frac{10^6}{2\pi \times 10^6 \times .0001} = 1,592 \text{ app. ohms.}$

$$X_L - X_c = 628 - 1,592 = -964.$$

$$(X_L - X_c)^2 = 929,296.$$

$$R^2 + (X_L - X_c)^2 = 400 + 929,296 = 929,696.$$

$$Z = \sqrt{R^2 + (X_L - X_c)^2} = \sqrt{929,696} = 964 \text{ app. ohms.}$$

The current  $(I) = \frac{1 \text{ volt}}{964} = .00104 \text{ ampere} = 1.04 \text{ milliampere.}$

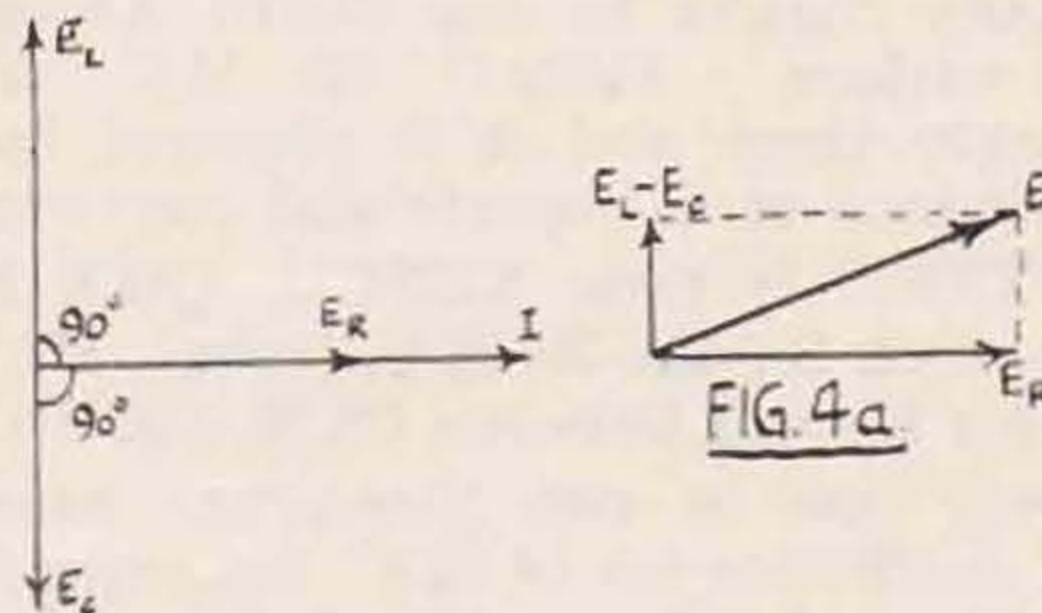
As  $X_c$  is greater than  $X_L$ , the current will lead the voltage by an angle whose cosine is  $\frac{R}{Z}$ .

$$\cos \phi = \frac{R}{Z} = \frac{20}{964} = .0207.$$

$\therefore \phi = 88.1^\circ$  (almost at right angles).

The reason for the current being almost  $90^\circ$  ahead of the voltage is that the resistance is very low compared with the reactance.

FIG. 4.



Thus the impedance of a series circuit is a simple calculation, and needing only a little arithmetical work.

$Z$  can be found experimentally, as previously mentioned, by means of a voltmeter and an ammeter; then, if  $Z$  be so measured, and  $C$  and  $R$  are known, we can calculate the coefficient of inductance  $L$ . To find the coefficient of inductance  $L$  of, say, a choke: apply a voltage and measure the current ( $I$ ); then, as there is no capacity in series,

$$Z = \sqrt{R^2 + (2\pi fL)^2}$$

$R$  can be measured by any of the usual means, and  $f$  is usually known, allowing  $L$  to be calculated. This is an easy way of finding  $L$  for iron-cored chokes; the small R.F. chokes used for short waves present greater difficulties.

The parallel A.C. circuit will be treated in a later article.



## Contact Bureau Notes.

By H. J. POWDITCH (G5VL).

WITH tests drawing near, the 28 M.C. band seems to have given us a taste of what may happen there next month if the fates continue kind. SU is now in touch with us, and I hear of a G station who hopes to pull off the W.B.E. certificate on 28 M.C. contacts. CT2AA sends (via G2OW) a list of stations heard on February 9: G's, 5ML, 2OW, 6LL, 2CX, 6NF, 2KF, 6DH, 5WK, 2LZ, 2OD, and E18B. FM8RIT reports (via G5HJ) for February 2: G6LL, R8, G6CL, R5, G5VB, R7, calling FM8RIT, G6HP, R6. He was QSO OZ7Y, OZ7T, and heard OZ7Q, ZS4M, and ZS4A. On February 9 conditions in FM were bad, but SM6WL and OZ7Y were heard. FM8RIT works every Sunday from 10.00 to 15.00 G.M.T. A later report via G6WT for February 16, says that no G's were heard on this day, but ZS4M (R6), OH2NX and OZ7Y (R7), W2BG (R5) were heard. OH and OZ were worked. FM8GKC and FM8BG have also worked these countries.

The dates above seem interesting. CT2AA has a bag of G's on the 9th. FM8RIT reports no G's on that date. On the 16th, I believe conditions in England were poor, and apparently the QSO's with OH and OZ took place over our heads.

Many thanks to all stations concerned in sending in these reports. I hope other 28 M.C. Hams will let me have their logs now and then for comparison with our own local conditions.

F8GDH wants skeds on 28 M.C., any day 12.00 to 13.00 and after 18.00 G.M.T. W2BON and SU8RS also want skeds.

Many thanks to our South African friends for the various "Bulls." 28 M.C. is going very strongly there and it is pleasant to see the predominance of G reports and contacts shown.

VT2KT is now XU2UU, QRA Shanghai, and will be on for the 28 M.C. tests. He advises listening for his call between 08.30 and 10.30 G.M.T.

Only one or two Europeans have been heard, but conditions on 14 M.C. are expected to improve in May and June and best times then round 16.00 G.M.T.

G2XB (ex 2AUH) raises a point on general working which would be better discussed by the crowd than C.B. He criticises the present "T code" and asks whether a chirpy D.C. note should be "T8, chirpy," or T7. T8 is certainly pure steady D.C., and whether one can give this report and qualify it is not clear. Yet, a chirp does not affect the basic note which is still D.C., although it may "whoop" on keying. My own preference would be as G2XB's, "T7, QSSS." Apparently some other stations don't agree. And, C.C. on a R.A.C. note—is this T9? There is no other available definition in the code.

We hoped to announce the result of the 1929 QRP competition this month but G2VV is laid up, and this has caused some delay. Best wishes for your quick recovery, OM, and don't upset that portable receiver into the gruel!

Down in Cornwall, among the cabbages and cows, and things, I often wonder if these notes are too voluminous. Do they interest you enough to warrant the space they take up in the "Bull?" With the activity of C.B. members growing it is difficult to include all reports without trespassing on space required for other matter: my job is to condense sufficiently. On our present R.S.G.B. membership we cannot for financial reasons enlarge the "Bull," and, if C.B. members like to have fairly full accounts of their own and other groups' work, it seems that they will have to go all out to boost membership of the Society and to see that their own subs. are there when due. Do YOU know of a possible new member or an old one who has fallen out? If so, get them to join up and give C.B. a firmer position by telling H.Q. it's due to a C.B. member that this has happened.

On the other hand, it's easy to say if I am becoming too loquacious.

I badly want some volunteers with ability to read technical foreign papers. No one seems keen to take up the suggested television work; is it lack of interest or shyness?

I am giving an article by G2ZC, G.C. of 2B, and would specially draw attention to his request for help from stations outside the group for fading experiences and theories. As an example of what is wanted I give a summary of a very interesting contribution from Mr. C. J. Mumford (CT1BL), who has had some 20 years' experience of cable engineering. He explains that in cable work the dots and dashes are signalled by reversing the current through cable. When no messages are passing the siphon marker will leave a straight line, known as the zero line, in centre of tape. For working, the recording siphon kicks up above the zero line for a dot and down for a dash due to reversal of current at the sending end. It has been found that at certain times of the day or during electrical storms, not necessarily local but general electrical upheavals of the earth, sun spots, Northern Lights, etc., the recording siphon would sometimes entirely leave the tape and require to be re-centred mechanically. Investigations showed this to be due to earth currents in the cable flowing from the end where earth was at a higher potential. CT1BL has seen on a 2,000 mile cable with far end earthed and no current applied readings of 9 volts between his end and earth proving that large differences of potential can exist between any two spots on earth's surface. These potential differences can change very slowly, but may also be rapid and frequently change their direction. His theory is that fading, etc., can be due to an unbalanced condition of the earth's potential between the two stations, and his conclusions are that if ideal conditions are such that the earth's potential between two stations is balanced, then:—

Gradual fading could be due to a small low change of potential at either end.



Quick fading to a rapid change between the two stations.

Blind-spotting or Skip to a large steady difference preventing communication.

Blanketing to a small steady difference of potential.

\* \* \*

## Fading and Similar Work in Group 2B.

By A. M. HOUSTON FERGUS (G2ZC).

In response to a request from the manager of C.B., suggesting an outline of the past history of the group, and its aims, the following may be of general interest.

Originally Group 2B was formed to investigate Skip and Fade-out, in December, 1928, with the following membership: G6PP, EP1BK, EK4DK, G5AQ, G2ZC, and G.C. G6XC. The group centre framed rules that were strict, yet simple for the running of the group, and all went well until a letter budget got accidentally destroyed, one member took ill, and for some reason that I have never fathomed, the group ceased to exist. After Convention turned down the Anti-Bunk movement to try and clean up bad operating, bad notes, etc., it so happened that three "A.B."-ites were interested in fading, and a suggestion being made that the old group might be reformed, in November, 1929, G2ZC undertook to get the group on running lines again. With a view to efficiency, only stations of known interest in the subjects were approached, and of those in the old group, G6PP, CT1BK and G2ZC agreed to join. With two foreign countries, postal delay was found to interfere with the circulation of the old letter budget, and so D4DK had to be reluctantly passed over, in spite of the fact that his observations had always been interesting. As the budget had in any case to go to Portugal, CT1BL was suggested and accepted membership, and the group was filled up by G6YL and G2IM, thus giving an extended area of Portugal, Jersey, London, and Northumberland for observations to be made.

The main field of research of the group is fading, with blindspot and blanket effects as subsidiary heading.

At the start each member sent in a monthly report of her, or his own individual findings.

While such reports are interesting, at the same time it involves a lot of back reference, with the fact that the same ground can be gone over more than once, and without bringing any one point to a definite conclusion from a group's point of view.

It is thought that the work of the group can be made more useful if the group concentrates on one subject at a time, and with this object in view, a list is in preparation at the moment, which will contain all the known theories on fading, each one of which will be discussed by the group in their letter budget, and a summary will be issued of the findings for publication in the BULLETIN, under C.B. Notes. This may be of general interest and use to the R.S.G.B. members, and if anyone, not in the group, can furnish further particulars, or has suggestions or criticism to make, we shall value such communication.

Unlike most of the other groups, we cannot issue a report which can be taken for granted, and if

this be realised by the readers of C.B. Notes, we are sure that we can count on the co-operation of fellow members of the R.S.G.B. to offer us help in either constructive or destructive criticism.

That briefly sums up what Group 2B has done, what it hopes to do, and the objects it has in mind.

Additions to our list will be welcomed, especially if covered by suggestions or proof.

Such additions can be sent to any member of the group for inclusion in our monthly letter budget, which is sent out not later than the 5th of each month, and we shall always be glad to receive details of anything unusual or outstanding in matters relating to Fading, Blanket, or Blindspotting.

## Group Reports 28 M.C. Work.

*Group 1B.*—G.C. G5SY comments especially on the curious conditions of January 19 when everyone worked OH. He sends a copy of the Air Ministry chart, which I have not time to reduce for reproduction this month, and notes that there was a deep depression over Finland that day. Over the British Isles pressure was very even from East to West, the isobars continuing right across the North Sea and highest pressure was over and parallel with the French and Belgian coasts sloping back evenly to a low pressure system far to N.W., near Iceland. G5ML is using a horizontal 30-foot aerial, end fed, and has worked 5 W's and OH. He has reports from ZS4M, ZS4A, ZT6K. His receiving log gives ZS, 2 W9's, 3 W8's, 7 other W's, PY1, 1A, 3 OH's, and EU9AL. Very excellent work. G6WY has solved his keying troubles and worked OH. BRS250 sends in his usual excellent "bag." G6LL has been working ZS4M consistently, but found January 12 a bad day, only W2JN being heard. G5LU has been logging W's, but has not been QSO yet. He noticed that W1K harmonic started to fade when rain started, but returned to normal strength when it was raining hard. G5SY sends in a big log of stations heard (W, ZS, OH), and also G6WT's 14 M.C. harmonic. On January 19 he heard OH2NM working G5VL, and shortly after was QSO OH2NX, R7, QSA5. All members of 1B have sent in brief station descriptions which G.C. hopes to arrange in concise form. Definite times have been allocated for the test periods.

*Group 1C.*—G.C. G6VP has also arranged for a similar allocation of times. BRS190, whose receiving feats are well known, joins C.B. and this group. G6WN has a log of 32 stations, all different, and works usual locals. The  $\frac{1}{2}$ -wave, C.F. Hertz, was changed for a 68 feet inverted L, but no improvement has been noticed. Trouble is experienced with last FD as this delivers little power. (Have a few words with G5YK,—G5VL.) G6DH reports moderately good conditions, but not outstanding. He logs 3 South Africans, SU8RS and 3 OH's, working two of the latter. SU8RS is said to have heard a V.K. on the band. Aerial is inverted L, 14 ms. horizontal and 6 ms. high taking 18 ws. from DET1SW valve. Inductive coupling to receiver seems to have improved signal strength. Clouds appear to affect reflection or absorption, however. Log shows 21 stations and includes harmonics of CT1BX, CT1AA and NA1XLR. 2BIV is interested in trials of valves and finds great



differences in their work. His Reinartz receiver is believed to cover 50 M.C. BRS190 describes his receiver, a Schnell with potentiometer control of grid and very loose inductive coupling to aerial. ZS4M has been heard every Sunday but is QSS. G5ML is often heard. The total is 14 different stations. G6VP is rebuilding with C.C. for tests. G5YK heard 4 OH stations on the 19th, but does NOT like their notes, with the exception of OH2NM. G6CR and G5YK have been comparing notes and find that, while only one mile apart, they receive nothing in common. A change of aerial to 34 feet vertical and 34 feet horizontal top with 5 feet feeders gave a QSO with W2JN, but some long calls from W2NM were not heard.

*Group 1E.*—G.C. G2OD reports QSO's with W2JN, W2BG, and W9EL on January 26. All these took place during the twilight period, when G2OD's aerial appears to function most favourably. On February 2 W9EL was again QSO with A.C. note at R6, G2OD being R7. G6RG joins this group.

*Group 1F.*—G.C. BRS25 in his report opens again the vexed question of both receiving and transmitting aerials in respect to localised reception. He points out that he has only lately received ZS4M and then with difficulty, while he experiences little difficulty in logging various elusive W and VE stations. Is the aerial directional? It runs N. and S. with lead-in at S. When G5ML was heard the transmitting aerial used was a double-wave in place of the usual  $\frac{1}{2}$ -wave vertical and G5ML considers the former has a stronger ground wave and is not so good for DX. W9BYC (Colorado) informs BRS25 that when his signals were heard here in December a  $\frac{1}{2}$ -wave vertical Zepp was in use. Since the beginning of this year other aerials have been tried and the signals have not been heard by BRS25 since December 29. Will anyone who has heard them since then let BRS25 know, please? Harmonic of KAY (Phillippines) was heard at 11.30 on January 19 and W2AIS at 12.44 same day. The latter is thought to be a record for early reception of U.S.A. G2CX has a C.C. set going but is not satisfied and suspects aerial—a double-wave Hertz. G6HP is also C.C. and has only a ripple to clear off. He logs 3 South Africans. G2DZ has new transmitter and new voltage fed aerial. 66 feet long, tapped direct. Only local QSO's so far. G5WK has had trouble with valves on C.C. and using some old ones, worked W and OH. On February 2 (? time) he heard harmonic of VK3GO and G6QB also heard this. FM8RIT was also heard at 12.00. A new receiver for 'bus QRM elimination is to have batteries and all shielded. ZS has not again been worked although both ends have heard each other. Look out for 28 M.C. fone from this station.

*Group 1H.*—G.C. G600 and G6UJ are arranging for transmissions for tests and BRS264 stands by for these. BRS77 is able to record some success for the group by logging OH stations and a G on the 19th and 2 W's on the 26th.

### Fading, Blanketing and Blindspotting.

*Group 2 B.*—G.C. 2 ZC's notes appear above. CT1BK notes some experiences with an ICW station which varies from zero to bad interference and also harmonic notes of other station heard on 7, 14 and 28 M.C. bands. G2IM, G6PP and G2ZC

contribute to the list of fading theories and G6YL adds a note of a complete blanket on December 16 from 16 to 17 G.M.T. Blindspotting she thinks to be due to trophosphpherical fading owing to ionisation—as a change of frequency shows.

### Crystal Control Work.

*Group 3A.*—G.C. G2NH hopes to have VU2DR as a member of group. G6XB promises a report of his experiences with G6QA's circuit. G2NH describes a new crystal holder and reports success with G6QA's circuit on 14 M.C., using a 4.6 M.C. crystal and selecting the 3rd harmonic. G6QA comments on the necessity for dead flat plates and describes his own crystal holder.

### 56 M.C. Work.

*Group 7A.*—G.C. G2DT is busy with his move. G6TW reports still further new gear planned. G6XN is also on the move and skeds. are cancelled for the time. G2OW at 6 miles has been receiving this station's transmissions regularly during the last two weeks of January and finds no difference between day and dark over the distance mentioned. G6XN plans new transmitters and receivers to suit new QRA, but fears proximity of electric trains will cause trouble in reception. G6TW again appeals for more receivers, especially in Cheshire. He recommends that, presuming transmitter to be 4 feet from ground, a 15 ft. vertical aerial be used, measuring from coil tap. A .0005 heavy series condenser is required before radiation meter. The length of aerial mentioned is stated to give the best results, longer being less efficient, and distance of set from ground must be considered. G6TW considers that, with longer aerial, the aerial does not become fully energised and leakage to earthed objects becomes extensive. It is advised that glass bottles be used to support set. D4AFJ is working on the band, 13.00 to 13.30 M.E.T., wave 5 ms., plus/minus .05.

*Group 7B* is getting under way with G2OL as G.C. Other stations will be: G6WN, G6CO, G2BY, G2OW.

### QRP Work.

*Group 8A.*—G.C. G2ZN reports quiet times. He and the new member, 2AZR, are both interested in 2 M.C. band and again urge a drop there for other stations. G5PJ has some DX on 14 M.C., OH, CT, EAR, and D with 2.5 W. BRS245 is now G5FA and notes the peak on 7 M.C. just after G's fade out. 2AUT has a totally enclosed receiver to cure mains hum, and this works. G5RV scores FM and LA on 3 to 4 ws. with his discussed High-C transmitter.

*Group 8B.*—G2OA rejoices over a report from W. He reports several 28 M.C. signals and suggests the band for QRP. When working G5FS a harmonic of the latter drifted to BRS212 on 28 M.C. band! G5JF has a new aerial and worked 12 countries in a few days on 7 M.C., AU and UN being new ones. A shortening of 3 ft. between tank circuit and lead-in is claimed to have made a lot of difference. Another entrant for 28 M.C. tests, G6SO, is also interested in these. He finds conditions poor, but has heard W's on 28 M.C. G5CM is still pleased with a "hay-wire" ultra audition using waxed basket coils as chokes! YQ best DX. Reception of W and VE is found good in



mornings. He suggests a kind of BER QRP party between our groups and the other "ham" organisations. G2RT seems to be out of sorts with the world and now considers QRP DX "freak"—at any rate not reliable. G.C. thinks that G2RT should consider G5JF's report. G.C. G2VV supports T.P.T.G. against the others' Ultra Audion sets. No DX and no after dark contacts with Ultra-audion. However, he thinks things are improving generally.

*Group 8C.*—G.C. G5PH says things seem better and backs it up with a list of stations worked on 3 to 4 ws. to a DE5. Azores, CT, CN, EU, etc., with R7 to 9 reports—and all seem T9. G6PS had a curious experience with a D who used 470 ws. and was R6. G6PS using 3 ws. got R9 from this station G5QA with 4.5 w. to a LS5 has worked W1, 2, 3, 4. H.T. 200 v. G5AQ has a C.O. stage going on the lines of that in the "Bull" and recommends it strongly as cheap and efficient. It got him 50 QSO's during January and one "T10" report (presumably ultra C.C.). W2 was worked with hand generator and a valve rectifier is being installed. G2AV has had aerial troubles and now uses a V.F. Hertz, 67 ft. 8 ins. long. Colpitt's circuit, DE5, and 300 v. H.T. with A.C. on filament give him T9 report from EAR. G.C. asks if G2AT is still active, if so—let us hear from you, AT.

*Group 8D.*—G.C. 2AUH has been QRT owing to private affairs. G2GA reports that G2SA finds things "dud." He is trying to upset G2YU's theories of moon effects. CT1CB is best DX.

G2GA himself shares that "dud" feeling and scores the same DX. He is busy with harmonic C.C. and has some success. 2BHI is now G6GL and is radiating on 2M.C. and 7 M.C. He has reached F on 7 M.C. and covered 25 miles on 0.28 w. on 2 M.C. A general rebuild is in progress.

## 2 M.C. Work

*Group 10A.*—G.C. G6OT has been more active but has worked no DX. Signals have been reported from North by G5XM, 2AXQ and BRS164 (O.V.O.). Chiefly experiments have been in relaying other stations, using indoor aerial with all A.C. receiver, using the A.C./S.G. valve as H.F. stage. A new microphone amplifier is contemplated, calibrated for mag. and frequency characteristic. G5UM finds fine conditions except during full moon and turns in the usual good log of stations heard. He finds it best to have C.P. running in opposite direction from aerial. Bad luck has attended a sked. with BRS164. Will all stations co-operate with reports on this sked, Sundays 18.15 to 18.30? Reports of QSS, QRN and Wx are specially required. G2AX has had bad luck with a rectifier condenser "of a suicidal turn of mind." He is now short of such condensers, plus H.T. transformers. Hopes to get going again, but finds conditions poor. G6QC is building a new C.C. set, due on the air in February. Wave will be 155 ms. 2AZQ wants to get in touch with some Southern QRP stations. He finds DX conditions very inspiring during these last two months. BRS164 is trying to improve perfection in receivers. Conditions poor, and only G6TX, G5WB and G6OT heard.

## 28 M.C. Notes.

This month shows the working of two new countries, SU and FM. G6HP succeeded in working SU 8RS, and G5UB in working FM 8RIT. Splendid work, OM's! This certainly shows that the "Ten metre" fever is spreading, and augurs well for the tests, which, by the time this is read, will be in progress.

Congratulations are also due to OZ7Y and OZ7T for their good work on the band. They both seem to be able to work ZS4M whenever he is on, as well as several W stations.

The best day this month seems to have been February 9, closely followed by February 2, the 16th and 23rd being completely blank as far as W stations were concerned, although ZS4M was heard on both Sundays.

It is very curious the way conditions seemed to change during the last two weeks of the month, and it is to be hoped that the present state of affairs will not last long!

It is interesting to note the increasing interest being shown by W and ZS, notably NKF, and the usual ZS stations, in work on Saturday afternoons. This, we think, should receive as much support as possible from British stations.

A point that shows some interesting features is the reception of harmonics of 14 M.C. stations, commercial or amateur. While the commercial ones are interesting, the amateur ones are still more so, in view of the enormous difference in power at the transmitting end. In this connection, G6QB

and G6HP both report reception of VK3GO, which is thought to be a harmonic. Also several W stations have been logged; BRS25 heard W8AFM and WICMX, both of whom were definitely on 14 M.C.

On February 23, a very "dud" day, YI1LM was heard by almost all the G stations working on the band, at good strength and working ZL1FW. Several VQ stations have been logged, particularly by our old "star" performer, BRS190, but it is not yet certain whether these were harmonics or fundamentals.

From a transmission and contact point of view, this month certainly goes to G5ML, whose imposing list appears below. It is thought that most of these stations were worked on February 2 and 9, and it certainly shows that G5ML can "make hay while the sun shines."

The London stations have been very active lately and have a large number of contacts to their credit. It is to be hoped that they will show the same amount of enthusiasm during the tests, whether the conditions are good or not.

We are indebted to BRS310 for a long and very interesting report. This station is situated at Gloucester, and regularly receives all the London stations, although nearly 100 miles distant, and G5ML and G5YK, who are also received occasionally in London.

In conclusion, we trust that during the tests every G station interested will do his utmost to be on during the early morning and late night periods, regardless of negative results.



## Calls Heard on 28 M.C.

(AN ASTERISK DENOTES QSO).

G5ML:—w1mb \*, w1bjd \*, w1rw \*, w2nm \*, w2jn \*, w2acn \*, w2bg \*, w1bgk \*, w2bon \*, w2bvg \*, w2bwx \*, w9amr \*, w9ef \*, w8axa \*, w8adm, w1cmx, w1cow, w1zs, w1axa, w2aqb, w8nr, w4aij, oh2op \*, oh2nm \*, zs4m \*, nkf \*, zt6c, g6nf, g6ll, g5wk, g6ko, g2od.

G6QB:—w2bg, w1cow, w2jn \*, w2nm, w1bgk, w1cmx, w2bwx, w2acn, w2bvg, nkf \*, zs4m, zs5c, zt6c, vk3go.

G6NF:—w1bjd \*, w2bg \*, w2nm \*, w9ef \*, w1cmx, w1cow, w2jn, w2acn, w8anm, w9amr, nkf \*, zs4a, zs4m \*, zs5c, oh2op, oh2ow, oh2nm, oh7nd, fm8rit, fm8gkc, su8rs, ctlaa, g5ml, g5yk.

G5VB:—nkf, w2bg, w1bjd, w2nm, w2jn, w9ef, fm8rit \*, su8rs, zs4m, oh1nh, oh2nm \*, oh2og, oh2op, oh7nd.

G5YK:—w2jn \*, w2bg, nkf \*, zs4m \*, yillm, kaz, g6ll.

G2CX:—w2jn, w2bg, w2nm, w2acn, w9ef, zs4m \*, zs5c.

G6LL:—w2bg \*, w2jn \*, w9ef \*, w2nm, w2acn, nkf \*, zs4m \*, yillm, vq2bh.

G2OW:—w2bg, w2jn, w2bjx, ctlaa.

G5SY:—zs4m, oz7 ?, w2bg, w2jn, vq2bh.

G2OA:—w2bg, w2jn, w2acn.

2B1C:—oh1nh, oh1dh.

2ABK:—w1cmx, w2acn, w2aon, w2bg, w2bwx, w2nm, w2jn, fm8rit.

2BIV:—w2bg, w2nm, w2acn, w2jn, w1cmx, w9ef, w2aqb, ve4bq, fm8rit, fm8bg.

BRS190:—w1cmx, w1cow, w2acn, w2bwx, w2bg, w2jn, w2nm, w9ef, w1bjd, w1rw, w1abl, w2bvg, w2bwx, w2bon, w2bpd, w8adm, w9amr, nkf, oh2op, oh2nm, oh2og, zs4m, zt6c, fm8rit, zs5c, vq2ba, vq2bh, vq2nc, yillm.

BRS25:—w9ef, w2jn, w2nm, w2acn, w2bg, w8afm, w2bvg, w2bwx, w2bon, w2aqb, w1cmx, zs4m, yillm.

BRS77:—w2jn, w2bg, w2bwx, zs4m, oz7y, oh2nm, fm8rit.

BRS76:—oh2nm, fm8rit.

BRS310:—w1rw, w1ajx, w1cow, w1bgk, w1zs, w1aca, w1cmx, w2bg, w2acn, w2nm, w2jn, w2bai, w2bon, w2bwx, w2aqb, w2bug, w2zg, w2bcg, w3bqs, w3bhp, w8dfr, w8afm, w9ef, zs4m, zt6c, ve4bq, yillm, su8rs, fm8rit, oh6dka, oz7y, oz7t, g6ll, g2od, g5ml, g5yk, g6np, g6nf.

BRS250:—w2nm, w2jn, w2aqb, w2bg, w1cmx, w9ef, nkf, zs4m.

BRS36:—w2jn, w2bg, w2acn, w2nm, w9ef, zs4m.

ZS2N:—g6ll, g5ml, g6nf, w2jn.

ZS5U:—g6qb, g5ml, g6ll, w2jn, w2nm, w2bg.

ZS4M:—nkf, g6ll \*, g5ml \*, oz7y \*, w2bg, w2nm, w2agb, w2jn \*, g6nf \*, g2cx \*.

OZ7Y:—w9ef \*, w1bgk \*, w2bg \*, fm8rit \*, fm8bg \*, zs4m \*.

OZ7T:—fm8rit \*, zs4m \*, zs4a \*, w9ef \*, w2bg \*, w2jn \*, w2nm, w2aqb, w2aqb, fm8bg, zs5c.

OK2LO:—w2bg, nkf, zs4m, vq2 ?

## The Science of Television.

(Continued from page 227.)

"condenser" type. Photo-electric cells are, however, used almost entirely in modern television in preference to selenium cells, owing to their greater reliability and sensitivity.

In case there are any who wish to begin television experiments with simple reception of images, I will give a summary of the essentials of a television receiver. Assuming that the experimenter has already in his possession a good four-valve receiver the most essential thing will be the extra amplifier required. This will certainly be a very expensive item as it is necessary that it should be first-class in every way. The amplification as well as being very high should be silent and distortionless. The next item to be considered is the neon tube; fairly good results are received with the Phillips type, the crater form of tube being rather difficult to obtain in this country. The scanning disc is the next consideration, but this does not offer much difficulty. The next point of importance is that it is necessary for the scanning disc at the receiving station to be running at the same speed as that of the transmitting station, that is, they must be in synchronisation. In simple television receivers approximate synchronisation is brought about by varying the speed of the disc motor by means of a regulator. Once the image is received in the neon tube any system of lens magnification that is used is a mere question of optics and should offer no difficulty. Success is then merely a question of patience and experiment.

A diagram is given of the transmitter and receiver in a modern spotlight system, and also that of a small line-television transmitter and receiver capable of dealing with shadows.

It is interesting to note the dates at which great changes occurred in the development of the Baird system. Shadows were first transmitted and received successfully in 1923. A second great change occurred when a living image was transmitted and received successfully before the Royal Institution in January, 1926.

## Things We Should Like to Know

Are our bands exclusive to us ?

If so, when does "DHE" get the sack ?

\* \* \*

Has G2FJ got a frequency meter ?

Or has he lost the calibration chart ?

\* \* \*

Does G5JO ever call test for less than ten minutes ?

Or is this his *minimum* ?

\* \* \*

Has WIK smashed his crystal ?

Or has his smoothing choke "gone west" ?

\* \* \*

Has G5TZ got over his recent fire ?

If so, don't wire up power lines with "bell wire" again, OM !

MILLIAMP."



# The Science of Television.

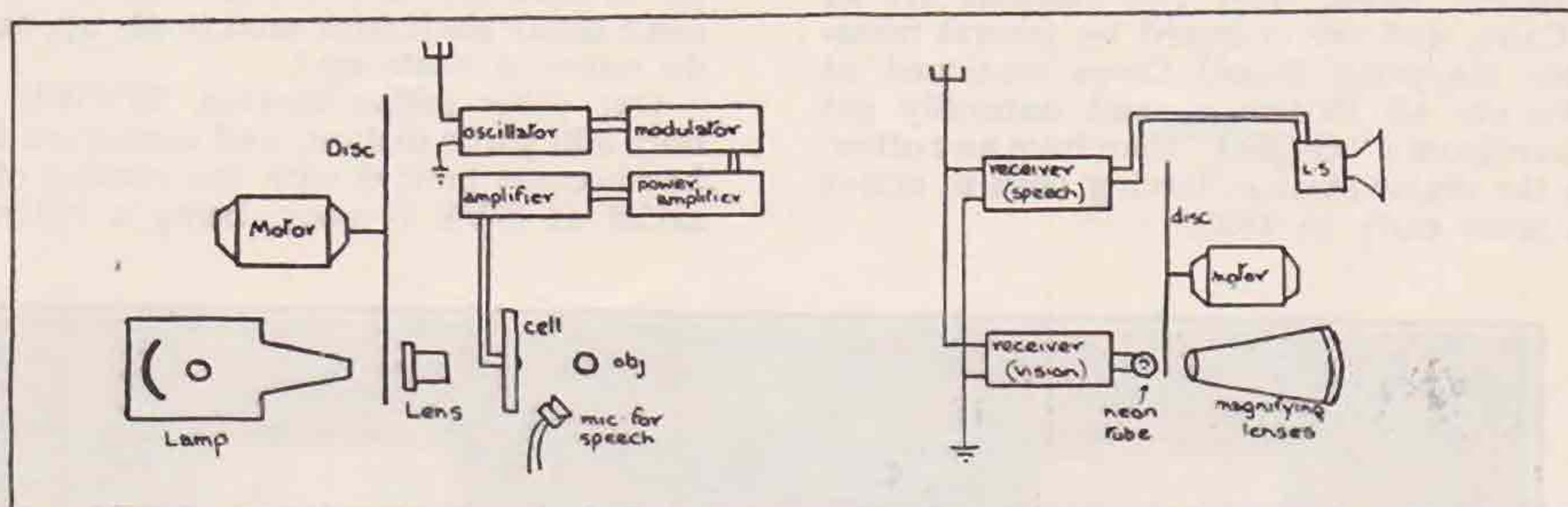
BY MAURICE GIBSON, F.T.S., M.A.F.deT.

## PART 3.

IN this part of my series I am dealing in some detail with the only really successful true-television system, namely, the Baird system. The meaning of true-television as before only applying to the transmission and reception of living images. The heart of the whole system is undoubtedly the selenium or photo-electric cell, by means of which the light impulses are converted into electrical impulses. This has very much the same function in the system that the retina has

consideration indeed, and in up-to-date circuits modern spotlight systems are used. Since the noctovision developments (as mentioned in part 1) the illumination required has been much decreased, and to-day even daylight television is being rapidly developed. If a complete spotlight apparatus is not used a system of lenses is necessary to concentrate a pencil of light through one of the holes in the scanning disc on to the selenium cell.

The degree of amplification required is very high indeed, about four valves being necessary.



TRANSMITTER AND RECEIVER OF MODERN SPOT-LIGHT SYSTEM.

in the eye. The retina transmits a tiny image via the optic nerves to be amplified by the brain. The selenium or other cell transmits a tiny image via wires to be amplified by the thermionic valves. The reproducing agent in the case of the eye is, of course, the mind. In the case of the selenium cell it is a neon tube, the image actually being formed in the glowing gas. To enable a tiny but perfectly formed and bright image to be thrown on the sur-

The amplification is, of course, low frequency, transformer coupling being used in preference to resistance capacity coupling, as in the latter the number of valves required becomes unwieldy. The neon tube is connected in the output of the last stage, and as the high tension in this stage is used to light the neon tube it is necessary that this should be about 200 volts. This makes it necessary that a small transmission valve should be used in

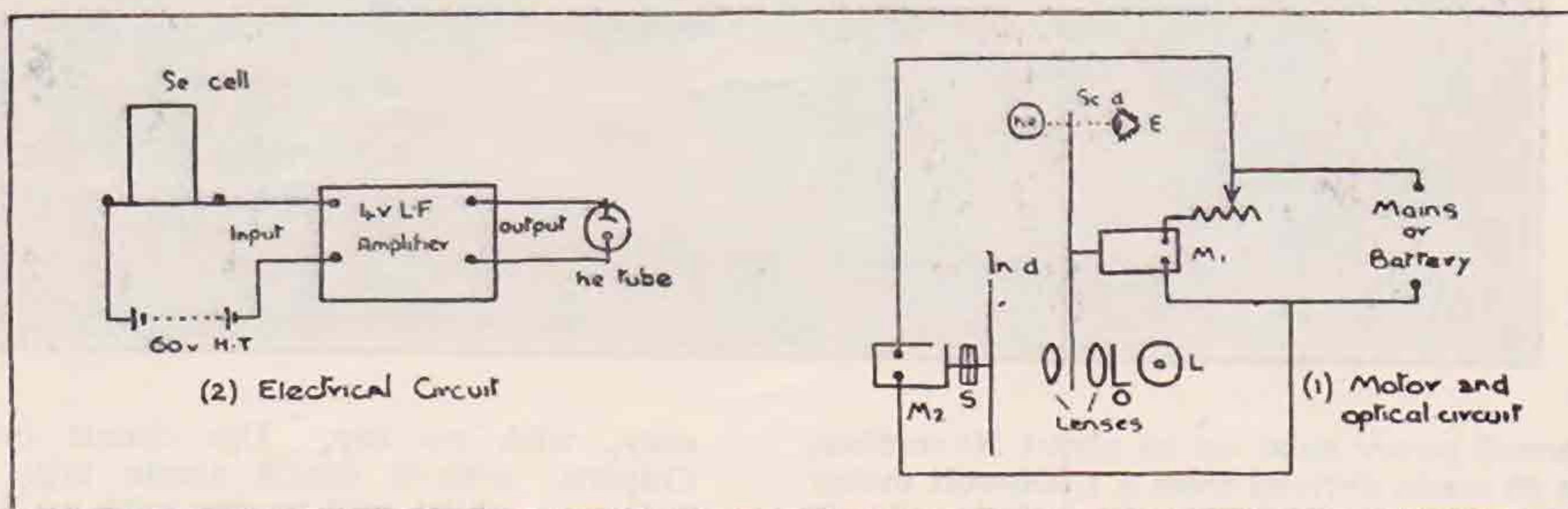


DIAGRAM OF EXPERIMENTAL LINE TELEVISION TRANSMITTER AND RECEIVER.

M1, M2	Motors	...	...	L	Lamp.	In. d.	Interrupter Disc	...	S	Selenium Cell.
Sc.d.	Scanning disc	...	...	O	Object.	Ne.	Neon Tube	...	E	Eye.

N.B.—Images actually viewed through the holes in the scanning disc.

face of a selenium cell a scanning disc is necessary to "explore" the object. By this is meant some means by which a pencil of light travels rapidly over every part of the object in turn. The scanning disc consists of an aluminium disc having two or three series of non-concentric holes cut round the edge. A second disc is also necessary, this being a light interrupter disc.

The illumination of the object is a very important

the last stage. I have found that although neon tubes can be found with a striking voltage as low as 120, the extra high tension is necessary to give sufficient glow to receive a clear image. The crater type of neon tube has rapidly outclassed the Osglim and Phillips types. Here a word or two about the two principal forms of selenium cell may be of interest; these are the "grid" type and the

(Continued in column 2 previous page.)



## Our Empire Stations.

### No. 1. EGYPT.—SU8RS and SU8WY.

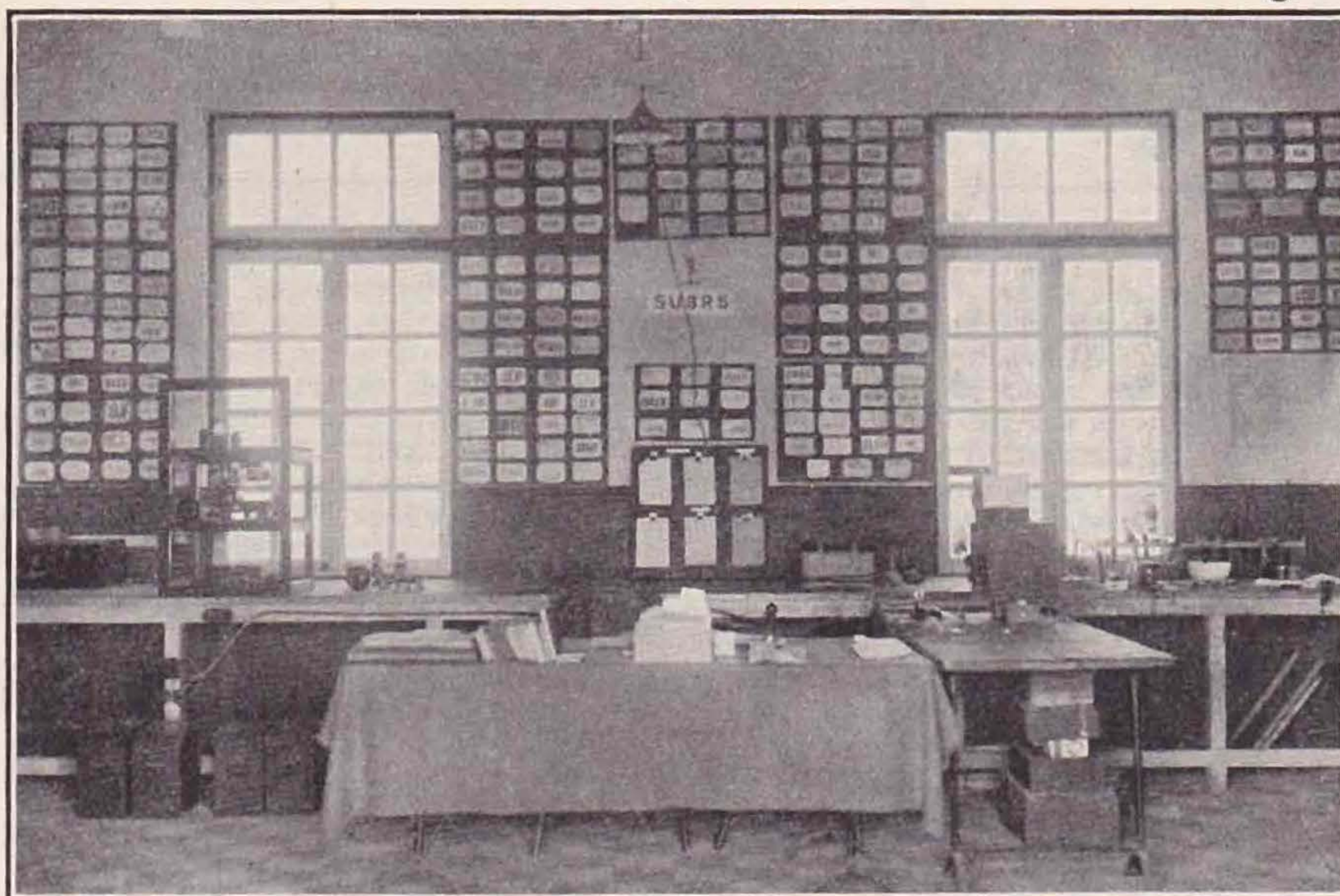
Operators: C. E. RONECKLES and W. WADE.

[We have much pleasure in presenting the first of a series of British Empire station descriptions. The operators at both SU8RS and SU8WY are well known in Great Britain and throughout the Empire. We shall be glad to receive further contributions to this series.—ED.]

Nearly 3,000 miles from the capital of Empire, and midst Levantine conditions, has grown up a small body of fellows who have the honour to uphold amateur radio. Our two stations are at Polygon, Cairo, and are operated by several members of the Egyptian Signal Corps stationed at Cairo. We are all Britishers, and naturally get more pleasure from a "G-QSO" than from any other. SU8RS is the senior station, having been in active operation since early in 1928.

signals are at least 40 per cent. stronger. Since November, 1929, most of the amateur activities at SRS have ceased, due to the fact that we are operating as an official Government station; the call is SAÄ. Our power is at present 65-70 watts. With this we maintain regular communication with Aldershot and China. Shortly we anticipate increasing our power to 1,500 watts crystal controlled, using valve rectifiers. A remote control arrangement has been installed, which makes operating considerably easier. For battery charging we use a 1½-kw. Douglas set, and if we don't go to Heaven that Douglas is to blame! If it can't choke itself with sand it oils up, and if it can't do either it heats up!

Our other active station, SU8WY, is situated only 300 yards distant, and consequently operation has become limited with the coming of SAÄ. The aerial at 8WY is poor, being a half-wave feeder

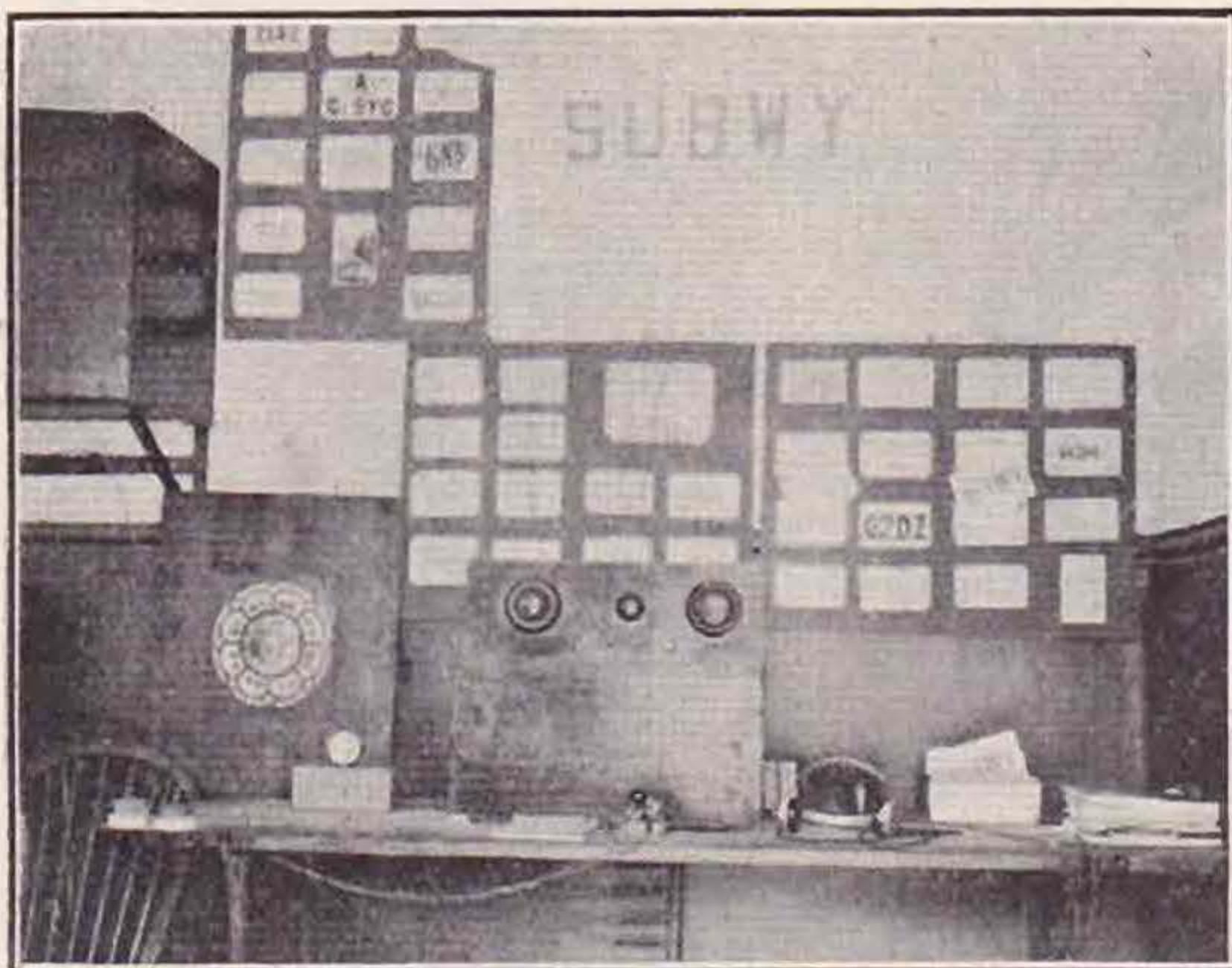


The normal power used up to about November, 1929, was 46 watts derived from a 1,000-volt motor generator, battery driven. The transmitting circuit used was a modified Hartley with a T100 Mullard as oscillator. Most of the DX work has been done on the 14 M.C. band, but conditions between May and November last were so bad that great difficulty was experienced in making systematic contacts. A 28 M.C. outfit has been installed, but an Egyptian QSO is still a dead letter. Recently, however, a report has reached us from Australia to the effect that SU8RS was heard calling YIILM and YIILM was heard calling us, both on schedule; but we did not connect. The receiver has been 0-V-2 since the start, and all British. Continental and American components do not approach our own. A screened-grid H.F. unit has just been added, and

only, with no tap. The circuit is a modified Colpitts, with a direct anode tap. An AT120 is in use, whilst grid keying with an L.F. choke in the grid circuit was found to be the most satisfactory. Key clicks have been banished with this arrangement, whereas the more normal methods, such as key shunts and condensers, failed. Power is derived from the mains. In the early days of operation a 1,200-volt transformer, with another 400-volt transformer either side, gave a total of 3,200 volts after rectification by six 20-watt valves. This continued to be satisfactory until the 2,000-volt condenser blew out, consequently we have been reduced to our 1,200-volt supply only, using 7 mfd. as filters. These condensers are filled with transformer oil instead of wax, which seems to be more satisfactory.



The receiver used is a modified Schnell, using two L.F. stages, the first transformer and the second resistance coupled. A P.M.H.F. is used as the detector, whilst a P.M.2DX and P.M.256 follow in the amplifying stages. No earth is used on the receivers at either station.



We could write a good deal about conditions, but as it is intended in this brief article to describe our stations we will leave this subject, but before closing down we all unite in thanking our British and Colonial friends for many interesting QSO's, and look forward in the near future to meeting some of you in England.

Our motto is also: "Make Empire Friendships—by Amateur Radio."

### CALIBRATION SERVICE.

The R.S.G.B. Calibration Service (Standard Frequency Transmission) will be transmitted from station G5BR on the first and third Sundays in each month and by station G5YK on the second and fourth Sundays according to the following schedule:

9.55 a.m. Series of X's, followed by a telephonic announcement that the calibration service is about to be transmitted.

10 a.m. Transmission on 7,050 K.C. (nominal).

10.5 a.m. Transmission on 7,250 K.C. (nominal).

The actual transmission will consist of the call (in Morse) "RSGB DE G—" (repeated), followed by a two-minute dash and the frequency used. The frequency of the preliminary announcement will be the same as that used for the first transmission: at the close of the second transmission a further short telephonic announcement will be made. Times are G.M.T. or B.S.T. as in force at the time.

## The Budget

By H. C. PAGE (G6PA).

It has been my lot, as an Area Representative, to try and keep in touch with all the members in my Area. Perhaps this does not sound very difficult, but anyone who has tried it will, no doubt, sympathise with me. The average member is not at all keen to write to me at all, and beyond preparing the monthly notes of THE BULLETIN I find I have been of very little use to my Area. The notes in THE BULLETIN are quite interesting, but they must of necessity be curtailed, and I feel that much that is of interest is lost. With the exception of the London Area we are all very far apart, and letter writing is our chief means of communication. Now, a letter between two people only helps them, but a Budget letter, *i.e.*, one which is seen by a number of people, very often helps several people.

Having for some time past felt that I was not doing enough for my Area members, I decided to try the following scheme. It is simple and does not entail a great deal of work for anyone. Everyone in the Area who is willing is asked to write a letter, giving particulars of his work for the past month. These letters are then collected in a bunch and bound together. The letters have to reach Area H.Q. by the 15th of each month. No member is allowed to hold the BUDGET for more than two days. A list of the people who are to receive the BUDGET is put in the back of the cover, so that anyone who keeps the BUDGET for longer than the two days shows the fact in the columns provided for the "received" and "forwarded" dates.

Now, as this BUDGET is written entirely by the members I decided that no passengers could be allowed. In other words, the man who was too lazy to write a letter did not get the BUDGET for the month in which he sent no letter. Perhaps the next month he thought better of it and sent a letter, then he got the BUDGET again. By this means everyone is encouraged to write a letter regularly.

Possibly a few words as to the contents of these letters would be in place. In the first place no special branch of radio is insisted on. Unlike the C.B. Budgets, the BUDGET is not a specialised work. All branches of radio are interesting, and there are sure to be several people interested in the same sort of work. In addition, these letters can be written as the writer pleases; at any rate, he does not need to make his letter sound like a leader in *The Times*.

The BUDGET has been running for three months in Area No. 7, and everyone seems quite pleased with it. It certainly does help us to know what is going on in the Area.

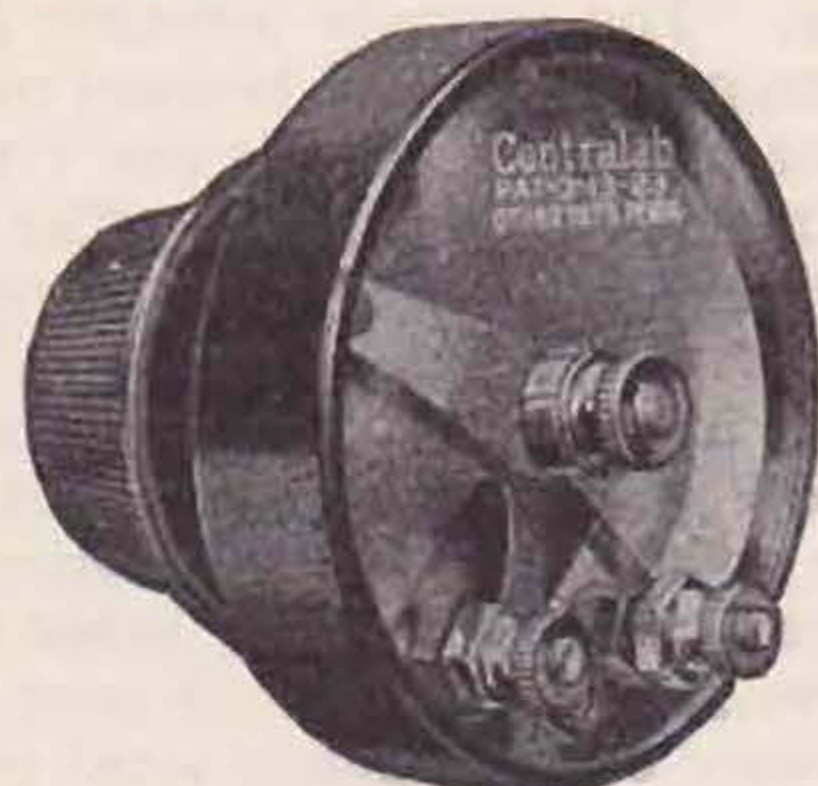
For a long time it has seemed to me that the country member is very much in the cold. Often he is miles away from the next station, and hears very little of what is going on. The BUDGET ought to help him a good deal. It should help him both in his experimental work, and it should help him to get to know his fellow members better. Soon after I started the BUDGET in this Area one member wrote and told me that he had not heard of half the writers! He was in no way to blame, but it shows a poor state of affairs, and very little co-operation between the members in any one Area.



**ANNUAL SALE!**  
**ANNUAL SALE!**

**GENUINE**  
**BARGAINS!**

**ANNUAL SALE!**  
**ANNUAL SALE!**



### "CENTRALAB" MODULATORS

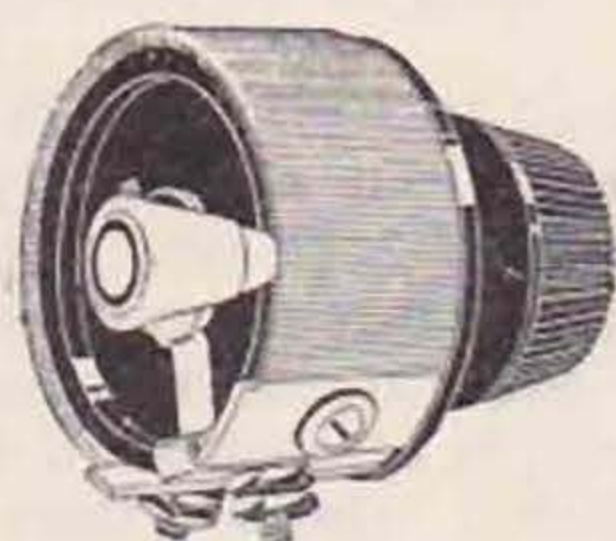
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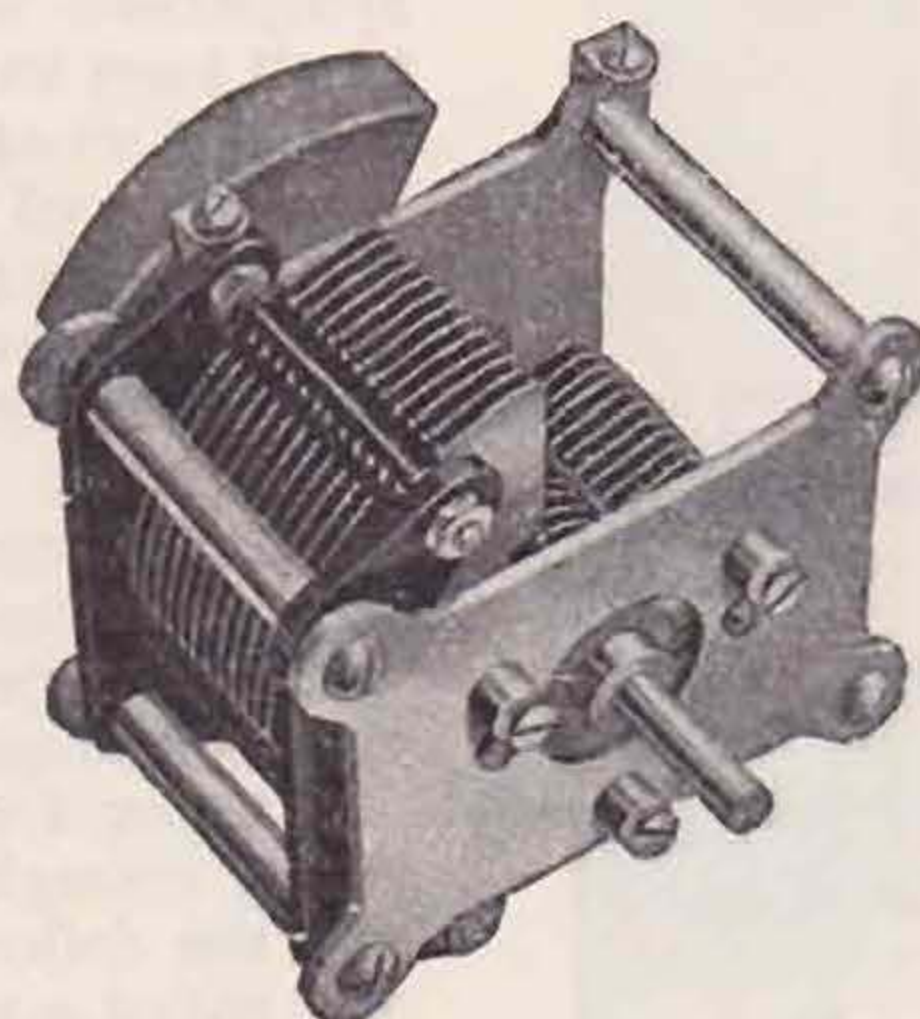


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247-H.	.0005 mF.	22/6	15/-
247-N.	.00035 mF.	17/6	10/6
247-K.	.00025 mF.	16/6	9/6
334-H.	.0005 mF.	23/6	16/-
248-F.	Tandem	32/6	17/6
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Also a small quantity of Tandems and Triples by the Radio Corporation at "give-away" figures; state your requirements. All in perfect condition, but cartons shop-soiled.



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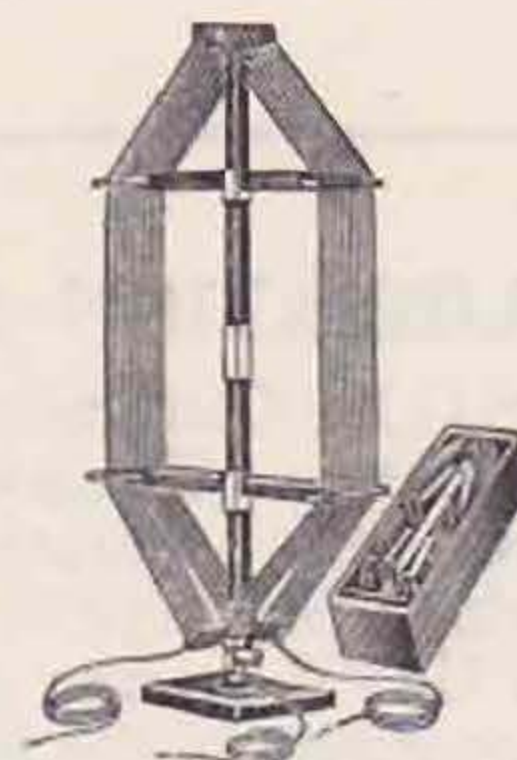
17 only "Raytheon" Rectifier Tubes; Latest Model BH-125; requires Rectifier Transformer wound 250+250 to 300+300 V.; exceptional life; absolutely silent. We have recommended these Tubes for 5 years.

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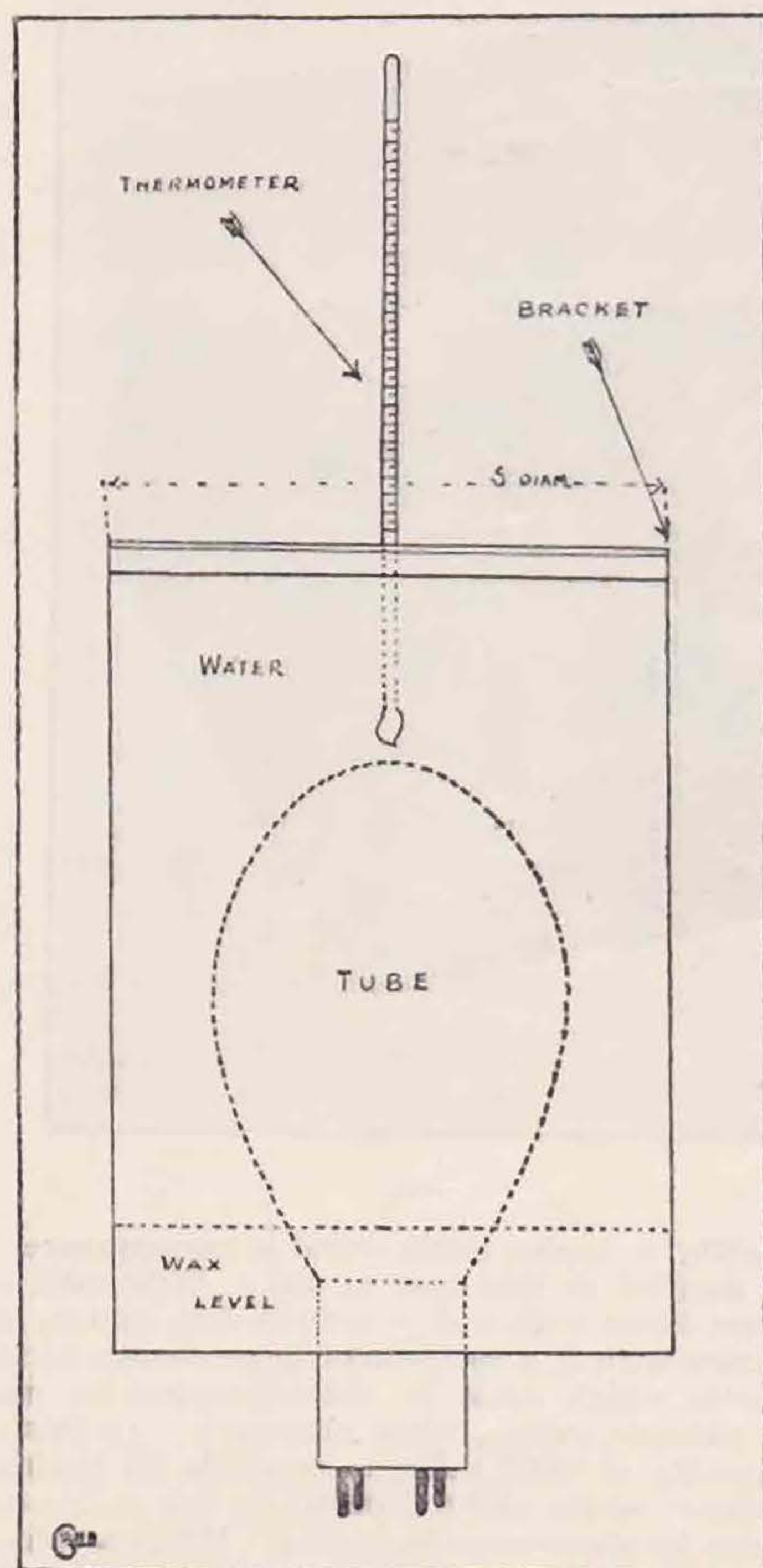
## Reduction of Signal Fluctuations in the 56 M.C. Receiver.

By C. H. WEST (W2AIU and W2CSM).

Through the efforts of Mr. E. T. Somerset some very good ultra short wave apparatus is being built in the British Isles. It is a great satisfaction to note that the tuning scale has been lowered to 7 cm. or about, which ought to solve the problem of ordinary transmission and reception.

However, there is another phase that has not been dealt with to any great extent, and this seems to be reduction of signal fluctuations or commonly called "wobulation."

The writer has recently conducted some very interesting tests, which have appeared in February issue of a leading radio periodical in the U.S.A. For the benefit of my many friends across the sea it is desired to hand out this information in order to save time.



During long distance reception at 5 metres, and with the aforementioned 7 cm. tuning scale, it was noticed that the signal fluctuated considerably. The slightest change in tube char-

acteristics seemed to be the main cause, but to rectify this trouble was another thing.

After a few weeks of research the transmitting tube was encased in a large tin can with adapter extending through the bottom. The can was filled with hot sealing wax to a point well up in the glass body and the remainder filled with water and a thermometer mounted on a bracket and extending into the water to a depth of 1 inch.

The tube was allowed to run "wild" for an hour and temperature noted. This reached the figure of 40 degrees centigrade. Output was much lower than when operated in air. Plate power was increased considerably and temperature rose to 52 degrees centigrade. It remained at this figure. Transmitter was then tuned to the desired wave scale, and after a few hours of manipulating of the receiver inductances the signal was picked up at 250 miles.

Oscillator tube was the UX 210 type\*, with 800 volts on plate (above normal). One can safely operate this tube at that voltage when encased in water. The water should not be circulating, and neither should any attempt be made to tune the transmitter until the *maximum* temperature degree is obtained.

Power will then remain constant, and very little fluctuations of signal noted.

In the coming tests with Mr. E. T. Somerset, of G2DT, this method will be used by the writer in efforts to keep the signal from fluctuating out of the 7 cm. scale.

### 56 M.C. Contact.

G2OW and G2OL were successful in establishing contact on 56 M.C. at 21.00 G.M.T. on February 21. G2OW used 4-5 watts and was reported R7, QSA4, R.A.C. The transmitter used was the usual T.P.T.G. set with grid coil removed and sockets shorted; a small plate coil was used. The valve was a DE5A, and the radiating system was a  $1\frac{1}{2}$ -wave aerial and  $\frac{3}{4}$ -wave counterpoise used with a coupling coil.

G2OL used an Ultraudion set with a 2-turn coil tuned with a 4-plate condenser; the valve was a DE5B and consumed about 4 watts.

A full wave aerial was clipped direct to the plate end of the coil. He was reported R6, R.A.C. Ordinary two-valve receivers were used in both cases.

Although the stations are only  $\frac{1}{2}$  mile apart, there is a hill between them which might have been expected to ruin the test.

### Stray.

G6GL (ex-2BHI) will appreciate reports on his transmissions on the 2 and 7 M.C. bands, paying particular attention to the tone of the signals.

[\* A  $7\frac{1}{2}$  watt (output) valve on American rating—nearest British equivalent LS5.—Ed.]

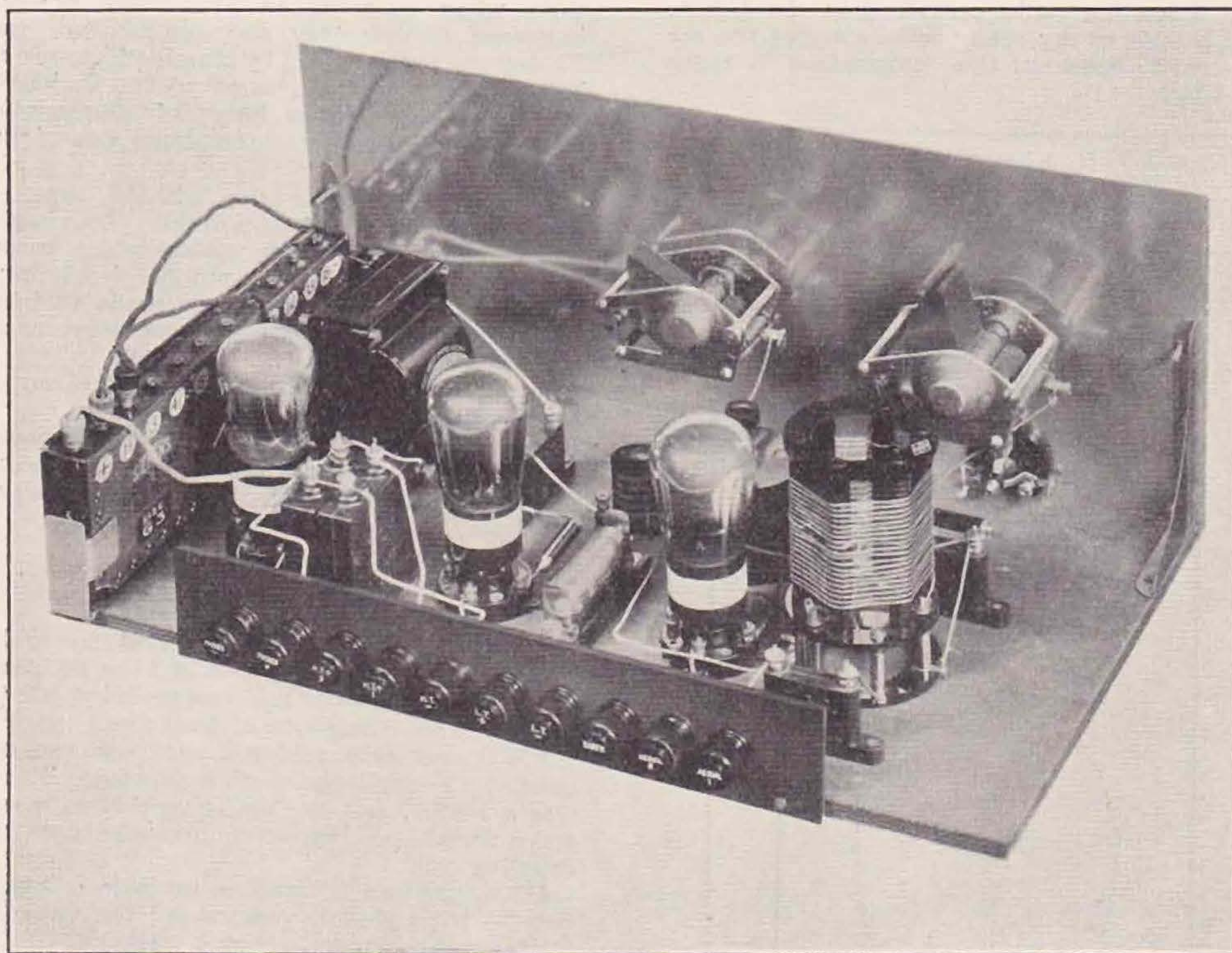


## The R.S.G.B. Universal 3.

THE receiver described in this article has been designed with a view to reception on all waves from approximately 10 metres upwards. It is essentially a short wave receiver but provision is made for reception on the longer waves as well. The valves chosen, together with the intervalve coupling provide a large signal magnification, all that can ever be required when headphones are used on short waves, and sufficient to work a small loud-speaker on some of the stronger short-wave

stations, although it is intended for use as a broadcast receiver as well.

One of the chief difficulties in making a set for both short-wave and broadcast reception is the size of the variable tuning condenser. The practice at the present time on broadcast receivers is to use a condenser of about  $\cdot 00035$  or  $\cdot 0005$  mfd. capacity; such a condenser is, however, of little use on a short-wave receiver owing to the very large kilocycle band covered by a condenser of this capacity and the



stations when conditions are favourable. On the broadcast band the use of a small power valve in the last stage should be sufficient to work a loud-speaker of moderate size in an ordinary room. The use, however, of a super-power valve (with, of course, the necessary adjustments of H.T. and grid bias in the last stage) is quite permissible when greater power is required. It is, however, advisable to use fairly high magnification valves in the set when it is used for short-wave reception, as, without a considerable degree of H.F. amplification, the voltage impressed on the grid of the detector valve from distant stations is small. The valves have been chosen, therefore, with due regard to the fact that it is primarily a short-wave set being con-

structed, although it is intended for use as a broadcast receiver as well. It was decided in this case to use a  $\cdot 0005$  mfd. condenser, fitted with a slow motion dial, and to place in series with it a semi-variable condenser of small capacity which could be short-circuited by means of a suitable switch, when necessary. In this way a capacity of  $\cdot 0005$  mfd. is available for tuning on broadcast waves and a capacity as low as one could require for short-wave reception. When a value for the semi-variable condenser has been found so that the tuning on short waves is fairly easy and the coils will cover a sufficiently large waveband, the setting of that condenser need not be readjusted, and it will be found that the calibration of the set remains fairly constant. For any particular



capacity of the semi-variable condenser, the capacity available for tuning will be rather less than this value. This available capacity can be found as follows:—

$$\frac{1}{C} = \frac{1}{C_1} + \frac{1}{C_2}$$

where  $C$  is the resultant capacity,  $C_1$  the capacity of the semi-variable condenser, and  $C_2$  the maximum capacity of the tuning condenser.

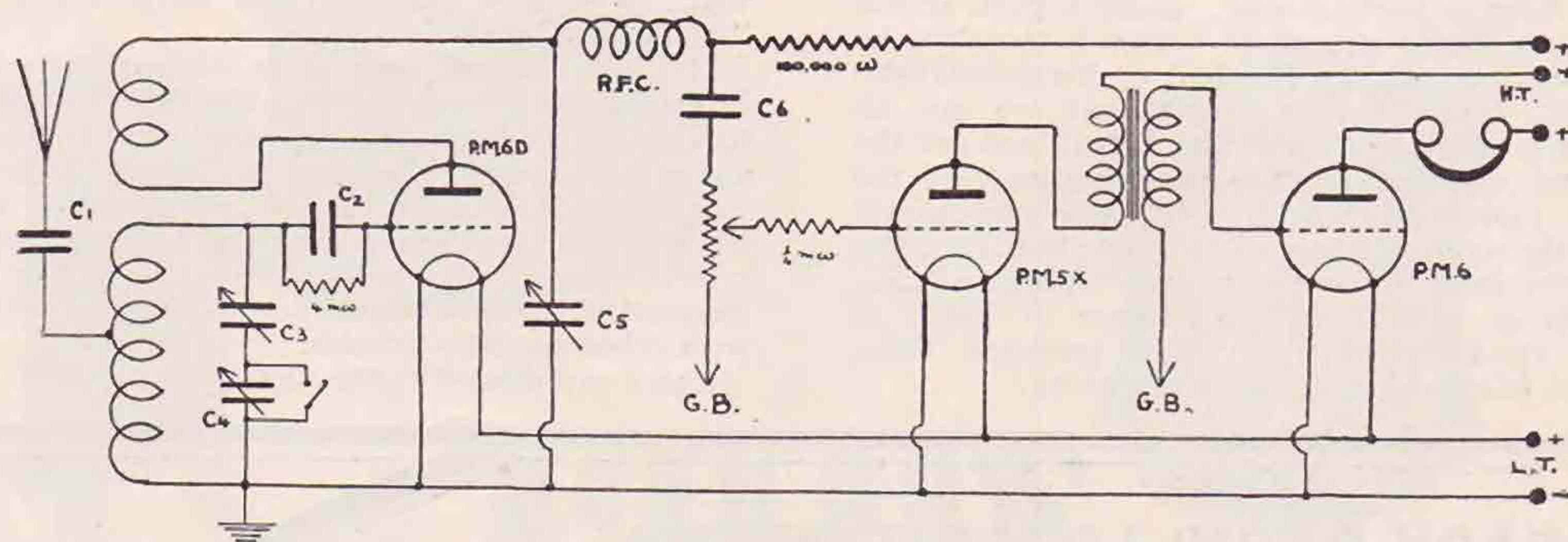
The coils used in this receiver have been constructed to specification by Messrs. B. & J. Wireless Ltd. These coils are very well made on low-loss skeleton formers of the best ebonite: the only metal used in the construction being the wire and the contact pins. The dimensions of these coils are as follows:—

Diameter of former  $2\frac{1}{2}$ ", wire 20 gauge tinned copper.

40 metre band.—Grid coil 13 turns wound 11 turns to the inch. Aerial tapped to centre turn. Reaction coil 9 turns.

The wiring of the detector circuit needs particular care in a short wave set and all wires must be taken by the shortest possible route, although they should be in no way bunched together.

Two aerial terminals are provided. One is connected direct to the tuning coil whilst the other is connected via a small fixed condenser to the same point. This enables the listener who is close to a powerful broadcasting station to obtain a higher degree of selectivity on the larger waves, whilst it has the advantage on short waves of making oscillation easier if trouble is experienced from aerial damping. In this connection it may be well to mention that the length of the aerial affects to a great extent the presence of "blind spots" when oscillation is irregular, and if trouble from this cause is present it would be advisable to include a small variable condenser, of the type used for neutralising, instead of the fixed condenser mentioned above. Alternatively, of course, the aerial length can be altered so that the "blind spots" are moved to some part of the band where they do not matter.



$C_1$  .0001 mfd. (T.C.C.)  
 $C_2$  .0005 (Polar Ideal).  
 $C_3$  Formodensor type J.  
 $C_4$  .0002 mfd. (T.C.C.)  
 $C_5$  .00035 (Polar Ideal).  
 $C_6$  .01 Mica (T.C.C.)

Condensers across H.T. 2 1 mfd. (T.C.C.)  
 Anode resistance 100000 ohms (Ferranti).  
 Transformer (A.F.5 Ferranti).

3 valve holders (Lotus).  
 Volume control  $\frac{1}{2}$  meg. (Claude Lyons).  
 Panel  $18" \times 7"$  (Ready Radio) (Mullard Master 3 drillings).

H.T. 160 v. (Pertrix).  
 Terminals (Belling-Lee).  
 Wander Plug Spade ends, etc. (Clix).  
 Valves—PM6D, PM5X, PM6 (or other voltage equivalents)

20 metre band.—Grid coil 6 turns wound 6 turns to the inch. Aerial tapped two turns away from earth end of coil. Reaction coil 4 turns.

To cover other wavebands the formodensor should be adjusted accordingly. It will be found that the 30 metre waveband will be best covered by using the 20 metre coil and increasing the capacity of the semi-variable condenser.

The shorting switch shown in the photograph (behind the detector valve) plays an important part in the design of the set and it is essential that it should provide a good hard contact without crackle and at the same time it must be of such a design that large capacity is not introduced into the tuning circuit. The switch illustrated was supplied by Messrs. B. & J. Wireless, and has proved itself satisfactory in use. Both the switch and the semi-variable condenser should be incorporated in the wiring of the set in such a way that the wire used for connecting them is of the shortest possible length. In the photograph the semi-variable condenser lies behind the coil and is parallel with switch to which it is connected.

The set may be housed in a wooden or metal box as desired, but it will be found that a metal panel will prevent hard capacity effects. Messrs. Ready Radio have advised us that they are prepared to supply a metal cabinet to specification.

With regard to H.T. supply, it can only be said that whilst some eliminators are quite satisfactory and entirely free from hum, there are others which, although they may be perfectly silent on broadcast waves, will nevertheless introduce quite an unpleasant "motorboating" on short waves. Cases of this sort may nearly always be cured by the addition of some extra smoothing, in the form of either chokes or condensers. A Ferranti "anti-motorboating unit" will be found useful in bad cases. A good earth connection will go a long way to ensuring a silent background on a mains-supplied set.

Now for a word about the performance of the set. On broadcast bands a coil designed by Messrs. B. and J. Wireless was used and found to give good results on the local and some foreign stations.

(Continued at foot of col. 2, page 236.)



## That Article.

By "KINK."

It is not too much to say that every member of this Society could contribute at least one good article to the BULLETIN.

You, who are reading this and think that you are the exception to the above statement, could do it! You might not feel competent to write a highly technical article—but then, if you will consider for a moment, the majority of our members are not highly technical men and would rather see perhaps an article on a more practical point than your ideal article.

You must have had some experiences which would be of interest to the other members, either humorous or serious. You may have some little gadget amongst your gear that you are rather proud of fathering. You may have visited hams in a foreign country and have a story to tell of their gear and their conditions.

I am sure that if you will think over it there will be something capable of being turned into a fine little article.

But there is another side; many a good article never gets to paper because a man is too shy—he may be afraid of his "style," or his journalistic abilities. He seems to forget that we are all amateurs, even the Editor, and he will not get the cold and marble-eyed "rejection notice" of the outside journalistic world. The same man would join in the conversation at a hamfest; but is not this BULLETIN really the same thing? Of course it is!

A tip or two about the manner in which to polish up a little article may persuade those hesitant fellows to send something along.

When you have decided on a subject, think it over in this way; is it too big a subject for the space?—is there anything novel about it?—will it amuse?—(alternatively—has it been done recently?)—is it of local interest only?

If it is not of local interest, but you know that it would interest or has interested your own friends of the ether, you may be sure that it stands a good chance of interesting the membership.

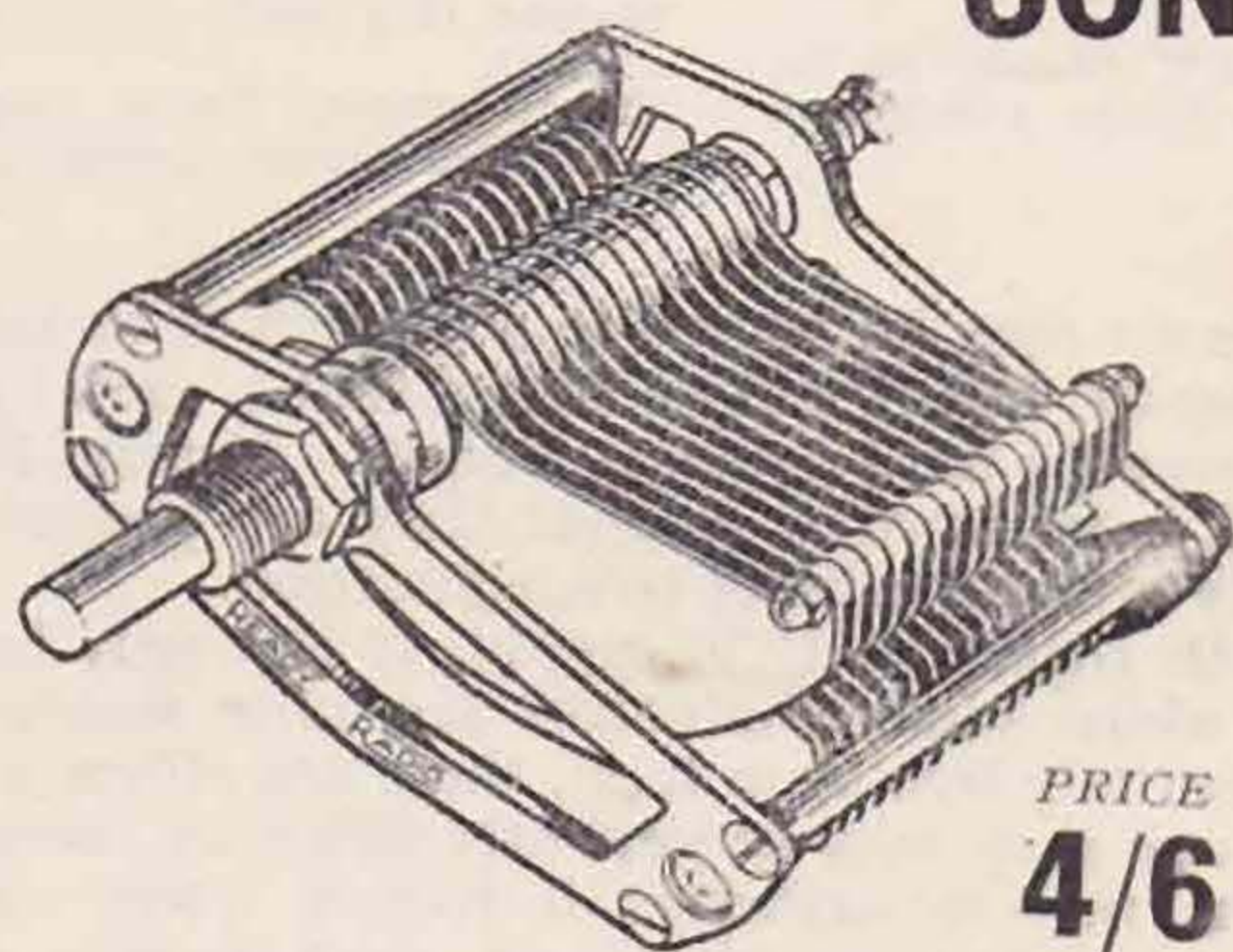
Now get a title! A few words only, but they should convey the direction of the article and at the same time arouse the readers' curiosity. If you can think out a snappy title—perhaps with alliteration—but without making the bowery blush—so much the better.

Style is not very important in articles of our sort, as long as the article does not bore. Short sentences are as important as short calls! Try to give a fact in every sentence, and avoid introductory remarks except where they cannot be avoided. Get right into the subject-matter at once, and when you have said what you have to say—stop. There is nothing so obvious as the writer who has exhausted his subject and still "hangs on."

If your article comes home without appearing in print, just remember that the Editor is trying to give his readers what *they* want, and though he appreciates your kindness perhaps the ground was covered by someone else too recently, or he has arranged for the same type of article before he receives yours. Do not get "peevish" with him. Remember that you expect him to use *his* discretion with other people's articles.

Can I say more? (No.—Ed.)

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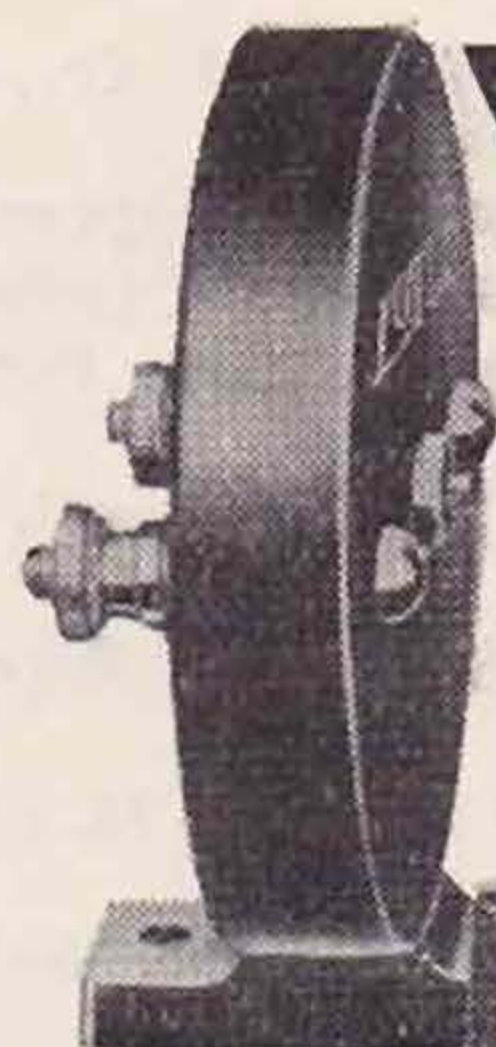


# SET BUILDERS!

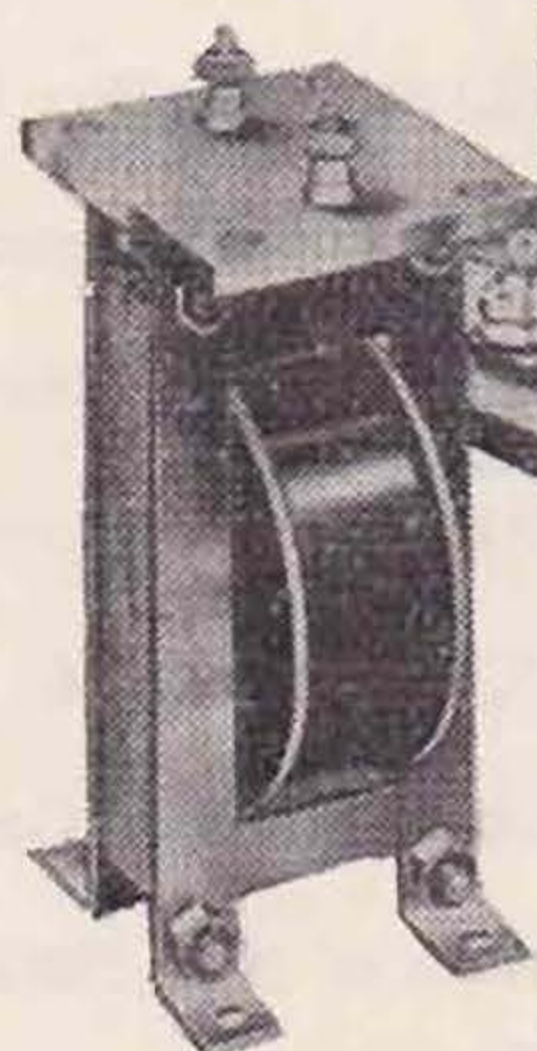
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Lotus H.F. Choke, 5/6

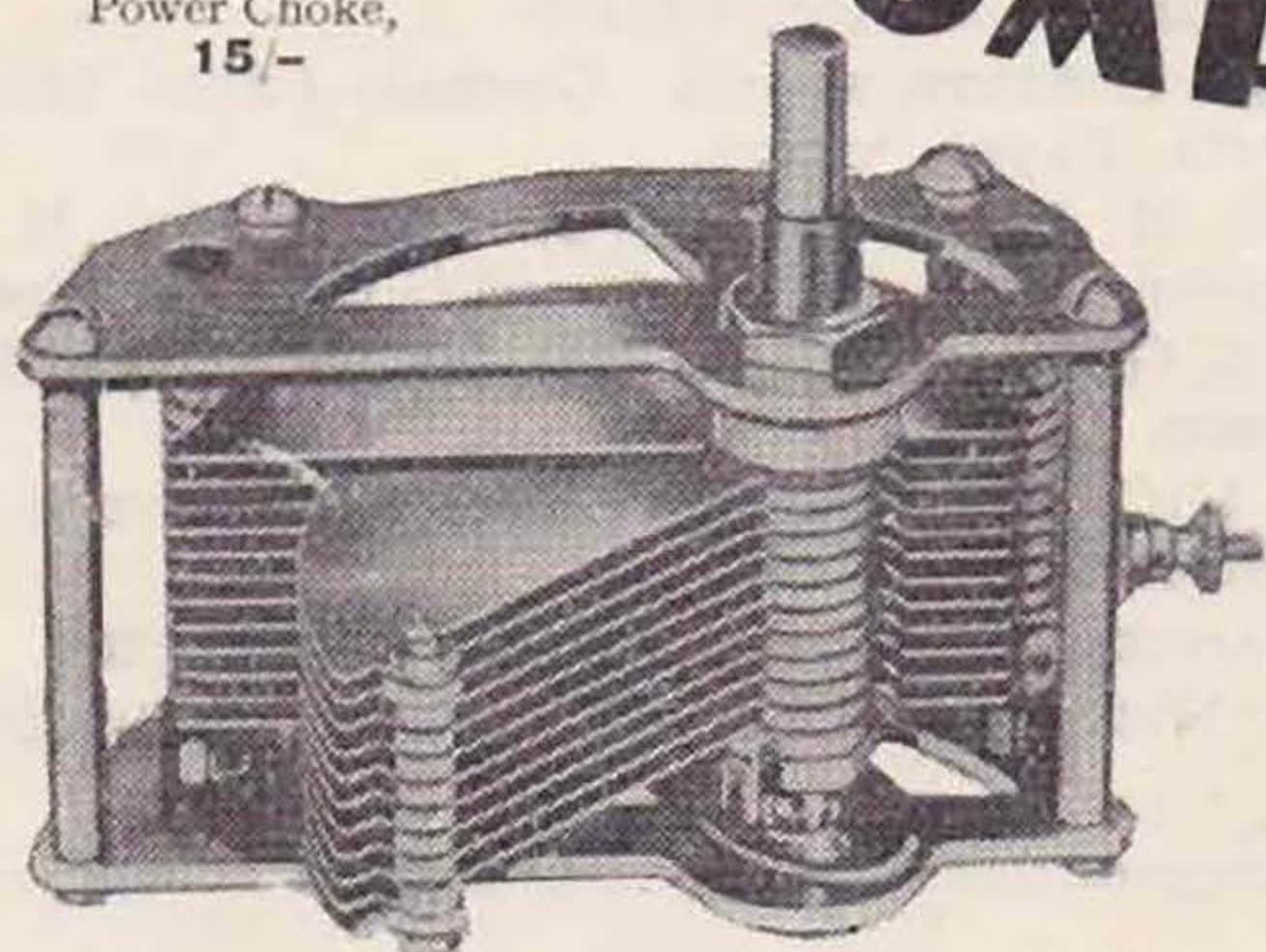


Lotus L.F. Power Choke, 15/-

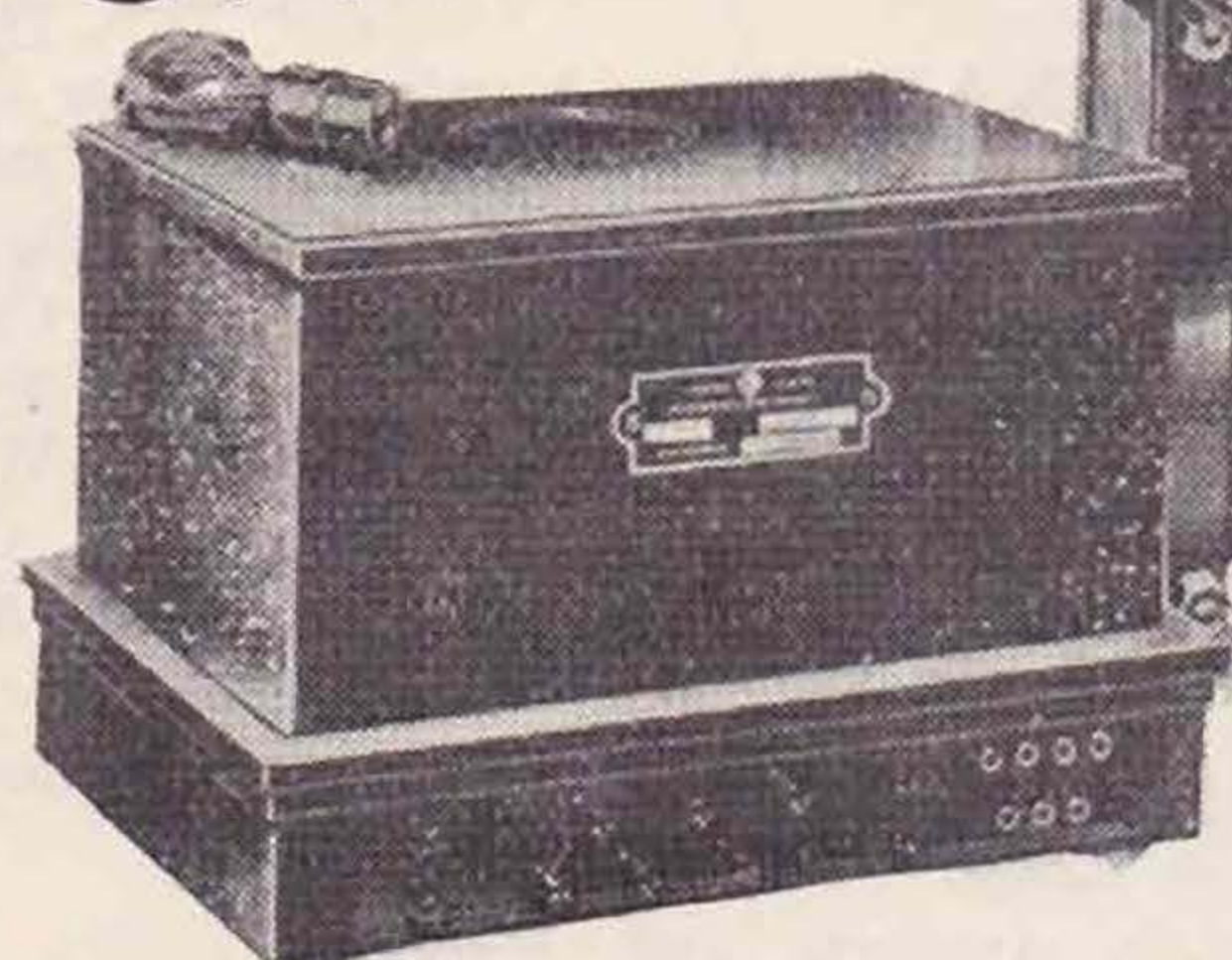
Lotus L.F. Intervalve Transformer, 12/6

## LOTUS COMPONENTS

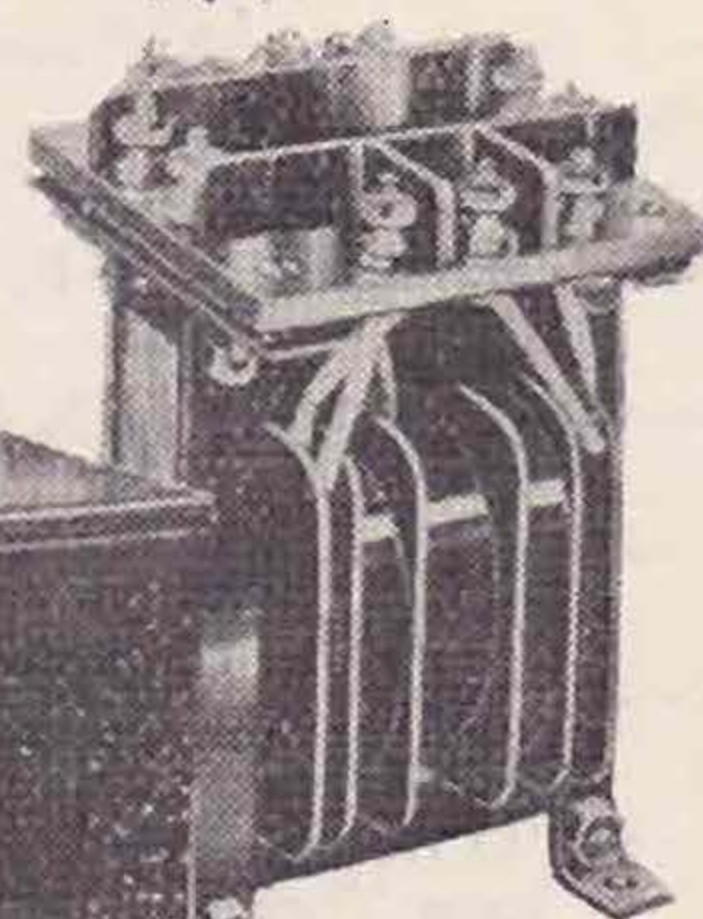
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# HIC et UBIQUE.

## QRA Section.

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- G2IP.—C. J. REED, 184, Henleaze Road, Bristol.
- G2LW.—F. H. LAWRENCE, 36, Earlsthorpe Road, London, S.E.26.
- G2XB.—J. BROWNE, "Kenilworth," Beaufort Road, Ashton-under-Lyne.
- G5JK.—L. R. HARPER, The Knoll, Bieldside, Aberdeen.
- G5NR.—E. G. NURSE, 1, Cambridge Road, London, W.6.
- G5RJ.—W. G. ROSE, 46, Trevince Road, London, S.W.20.
- G6FO.—A. FORSYTH, "St. Aubyn's," Gold Tops, Newport, Mon.
- G6GL.—G. RUSSELL LEE, 25, Boundary Road, West Kirby, Cheshire.
- G6IZ.—E. G. INGRAM, "Tullos House," Nigg by Aberdeen.
- G6MB.—A. J. BUTTRESS, 25, Staines Road, Sunbury-on-Thames.
- G6SK.—E. D. SYKES, Junr., 12, St. Robert's Road, Knaresborough, Yorks.
- 2ARU.—E. J. THOMAS, High Street, Cwmgwrach, near Neath.
- 2BIK.—H. M. ARNOLD, "Dorney Cottage," Wittering Lane, Heswall, Cheshire.
- 2BIL.—E. W. HERON, 60, Alexandra Park Road, London, N.10.
- 2BIX.—A. C. JONES, 167, Plymouth Street, Merthyr Tydfil, Glam.
- 2BUF.—J. G. PRICE, 53, Powell Street, Abertillery, Mon.
- AC1AX.—Now VS6AH.
- AC1BD.—A. AYLING, R.A.F. Base, Kowloon City, Hong Kong.
- AC3FR.—F. THEOBALD, R.A.F. Base, Kowloon City, Hong Kong.
- AC6FC.—VS6FC.—A. COLLINS, Army Signals Corps, Wellington Barracks, Hong Kong.
- VS6AB.—J. W. BROWN, 3, Dorset Crescent, Kowloon Tong, Hong Kong.
- VS6AE.—P. O'BRIEN, 255, Dorset Crescent, Kowloon Tong, Hong Kong.
- VS6AF.—A. COTTON, No. 1, Carnarvon Road, Kowloon, Hong Kong.
- VS6AG.—J. J. ALVARES, 6, Cameron Road, Kowloon, Hong Kong.
- VS6AH.—G. MERRIMAN, Imports and Exports Office, Hong Kong.

M. W. P.

The following are cancelled :—G6CY, 2AJR, 2AUH, 2AWV, 2BHI.

### NEW MEMBERS.

- J. B. GRIFFITHS (BRS321), 55, Limesdale Gardens, Edgware, N.W.
- LOUIS C. ERA (ON4BC), 46, Avenue Van Put, Antwerp, Belgium.

- CLEMENT HEWINS (G2QH), 86, Earl Street, Gt. Grimsby, Lincs.,
- C. E. RUNECKLES (SU8RS), No. 1 Co., Egypt Signals, Polygon, Cairo, Egypt.
- S. MEHROTRA, Govt. Telegraphs, Cawnpore, India.
- E. T. CARTER, 23, Cavendish Road, Cambridge.
- G. W. SALT (VS2AF), Glenmarie Estate, Batu Tiga, Selangor, F.M.S.
- R. A. HODGES (BRS323), 14, Warkworth Street, Cambridge.
- H. MASON, London Tin Syndicate, Ropp, BO. Barakin Ladi, N. Nigeria.
- F. W. TARLING, c/o Bank of England, 18, Finsbury Circus, E.C.
- N. SPOTTISWOODE (BRS324), Blucher, Wellington College, Berkshire.
- T. THOMPSON, "Laurmal," Byron Road, Aylesbury, Bucks.
- DAVID WADE (VE2AM), 5502, Verdun Avenue, Verdun, P.Q.
- A. L. BLAIS (VE2AC and VE2AS), P.O. Box 221, Thetford Mines, P.Q.
- T. H. LETTS (VE2BG), 194, 13th Avenue, Longueuil, P.Q.
- J. J. LAMB (WICE1), 31, South Highland Street, West Hartford, Conn., U.S.A.
- M. S. WOODHAMS (G6WO), 90, Railway Terrace, Rugby.
- A. CRUMP (VE3AR), Box 175, Parry Sound, Ontario.
- J. BATCHELOR, 51, Arcadian Gardens, Wood Green, N.22.
- H. R. CARTER (VK2HC), Yarraman Nth. Station, Via Quirindi, N.S.W., Aust.
- PIERRE BLANCHON (EF8WC), "La Rochette," par Fourneaux, Creuse, France.
- ADOLF CORSEPIUS, c/o German Cable Station, Horta, Fayal, Azores.
- W. D. H. LOCKERBY, W/T. Telegraphist, H.M.S. *Dahlia*, Red Sea Patrol, c/o G.P.O., London.
- WM. S. G. CROUCH (BRS325), 66, St. Mary's Road, Cowes, I.W.
- I. E. HILL (G6HL), High Street, Upton-on-Severn, Worcester.
- H. GLOVER, 72, Thornton Street, Darlington.
- R. A. WILBY (BRS326), 35, Carr Street, Ipswich.

(Continued from page 233.)

Although the local station is strongly received (Brookman Park, 15 miles), there is still a good degree of selectivity, and several foreign stations were received at good loud-speaker strength without interference.

On short waves the set brought in W2XAD and W2XAF at moderate loud-speaker strength as well as a host of amateur telephony stations from all over Europe. Hand capacity effects were conspicuous by their absence and the receiver was found stable and easy to handle on all frequencies.



## QSL Section.

There is little to report this month, except that all seems to be running smoothly.

Many Continental societies, as you have probably noticed, print standard QSL cards for their members, and it is thought that possibly members of R.S.G.B. would like to have a similar service instituted in this country.

Personally, I am of opinion that most amateurs would prefer to design their own cards and take a pleasure in making them as individual as possible, but if, however, there is a demand for a standard card we could doubtless arrange something.

A card to H.Q. giving your opinion will be appreciated.  
J. D. C.

## London Hamfest.

Say, OM, have you ever been to a London District Hamfest? If not, you have missed something really good. There is time, however, for you to remedy the omission, as one of these informal evenings has been fixed for Tuesday, April 1. The show will start at 7 p.m., and the QRA is Pinoli's Restaurant, 17, Wardour Street, W. We want all who can to get together that evening for a few hours' real enjoyment; no set programme is being arranged, consequently it is for each and all to do his bit to help the evening along. We particularly want to see some of our new BRS members who have had no previous opportunity of making the acquaintance of fellow amateurs. We want you fellows to obtain full licence facilities quickly, and any information that we can give you at the Dinner will be a step in the right direction.

High power or low power man, we want you there as well. There are sure to be healthy arguments between the two parties, so come and join in.

The chair will be taken by Mr. Gerald Marcuse, and we hope to persuade him to tell us something of his future plans.

The price is 5s., and the dress, well, your usual "ham" dress.

Drop a line to H.Q. if you are coming. We are limited to 70, so send that postcard now.

## CALLS HEARD.

By J. Pungbeck (G5DF), on board the s.s. "Neleus"; January 30 to February 3, on 7 M.C.: (Gibraltar to Malta), ei8f, G-2nz, 2lv, 2gz, 2ux, 5bd, 5ph, 5uy, 5vb, 6bx, 6qo; (Malta to Port Said), G-2cj, 2dz, 2hd, 2oa, 2qc, 5fc, 5hk, 5pl, 5td, 5qz, 5vm, 6ak, 6bx, 6dh, 6fa, 6hl, 6py, 6vj, 6wn, 6yl, 6zr.

\* \* \*

By RADIO CT2AA, c/o Western Union Cable Station, Horta, Fayal, Azores.

7 M.C.—G—2ao, 2gf, 2gm, 2gy, 2nu, 2nz, 2ol, 2ux, 2vp, 2vq, 2zp, 5cx, 5fa, 5nc, 5kl, 5ph, 5pl, 5td, 5vb, 6bd, 6bx, 6hk, 6nz, 6qx, 6vk, 6xc, 6za. GI—5nj, 6mk, 6wg, 6ym. EI—2b, 8b, 8c.

14 M.C.—G—2bm, 2dv, 2dz, 2ma, 2oa, 2op, 2ow, 2un, 2zp, 5aq, 5bd, 5bz, 5cx, 5ml, 5qy, 5ru, 5uf, 6cr, 6hp, 6dr, 6dw, 6dg, 6nf, 6no, 6nt, 6nx, 6qb, 6vp, 6wo, 6wt, 6xc, 6xn, 6yv, 6vj.

By G6PP at Nice, S. France, between January 25 and February 9:—

7 M.C.—G—2av, 2aw, 2dq, 2gm, 2gz, 2hd, 2lo,

2lv, 2nh, 2ow, 2rm, 2zc, 5aq, 5aw, 5bd, 5dr, 5fc, 5gk, 5ib, 5jf, 5jo, 5nc, 5ph, 5vb, 5vn, 5zn, 6bx, 6fa, 6iy, 6ms, 6rb, 6so, 6uj, 6yl, 6bvj.

14 M.C.—G—2cj, 2dh, 2dv, 2dw, 2dz, 2gm, 2ma, 2ol, 2op, 2pp, 2ug, 2ux, 2yq, 5bj, 5cm, 5is, 5lw, 5pj, 5qf, 5ub, 6cl, 6cr, 6cs, 6dw, 6ff, 6fy, 6gd, 6gs, 6lk, 6nf, 6no, 6ou, 6qb, 6rb, 6wo, 6xb.

\* \* \*

By EAR117, Luis de la Tapia, Tabern 26 (S.G.), Barcelona, Spain:—7 M.C.: G—2be, 2nz, 2ux, 5ak, 5br, 5jf, 5hz, 5vu, 5zn, 6bj, 6ig, 6wf, 6xb, eilw, ei2b, ei5b, ei8f, zllas, zllas, zs4f.

## Can the R.S.G.B. Assist the Boy Scouts?

Since the autumn of 1929 considerable thought has been given to the matter of providing assistance to the Boy Scouts and Rovers of Great Britain and the Empire. It is now felt that the time is opportune for presenting to our members a scheme whereby we may achieve that object. Briefly our aim is to establish throughout the British Isles, extending later to the Colonies, a number of pivotal stations, owned and operated by our members. From these central points a network of stations would be gradually built up. The member in charge of such a station would arrange for certain selected members of local troops to gather at his station to receive practical training in the operation of short wave receivers and transmitters. Morse classes would be arranged in co-operation with the local Scout Master and, where possible, low power transmissions made to a receiving station situated in the local Scout headquarters. It is felt that in order to create enthusiasm the boys should have an early opportunity of watching the station in operation. Gradually it would be found that one or two lads would have shown an outstanding interest in the subject and these could be chosen to construct a simple short wave receiver for use at their club house. After possibly a year's tuition, a short wave transmitter would follow, thus forming one of a chain of recognised Scout stations.

In putting this plan forward, we fully realise that its successful operation depends entirely upon the membership, but we feel confident that many British amateurs would be willing to give their services to this cause, realising that the future of amateur radio lies in the creation of interest in the minds of the present-day scientifically-minded youth. Accordingly we request that all who are interested in our proposal should communicate immediately with the Honorary Secretary. Suggestions will be welcomed from everyone, whether the member be an active transmitter or a BRS.

Finally, we would recommend that members who are at present in touch with local Scout groups should consult the officials in charge with a view to obtaining permission for a talk on amateur radio to be given to the group. Arrangements will be made in London for the scheme to be introduced to a large gathering of Rovers, whilst it is suggested similar modes of approach could be carried out in the provinces providing a sufficient number of members will offer their services.



## Book Review.

PRINCIPLES OF RADIO. By Keith Henney, M.A.  
Chapman & Hall. 1929. 464 pages. Price  
17s. 6d. net.

The amateur radio engineer who must study the subject without a teacher has hitherto not received much attention from authors, but here is a book written for him. If he has no knowledge of even the most elementary electrical calculations, but has a knowledge of simple arithmetic and an average supply of common sense, he can read this book from cover to cover and enjoy every page. He will find practical problems in abundance, each worked out in detail with every step in the solution shown clearly. He will find that every page deals with a living branch of the science, treated in a most practical manner, and he will bear the exclusion of "spark," "arc" and "H.F. alternator" work with a smiling fortitude.

It is rather characteristic of the book that even the end-papers are used to augment the wealth of information given in the pages; one end-paper giving the characteristics of many American valves, the other giving two tables (a) of frequency, wavelength and product LC, and (b) of skip distance and range with waves between 1,500 and 30,000 kilocycles.

The fundamentals of electrical circuits, A.C. and D.C., are treated in an engaging manner, and certain "shorthand" devices used in calculation, as well as graphs, are explained.

The calibration of a wavemeter is fully treated in the section dealing with resonance and tuned circuits.

Dynamic characteristics are rightly given more prominence than they usually receive, and output, harmonic distortion and overloading are exhaustively investigated.

There is a most valuable chapter on the design of audio-frequency amplifiers; this deals both qualitatively and quantitatively with every consideration from the manner of coupling the load to the screened-grid audio-amplifier.

The radio-frequency amplifier, with the bridge methods of stabilisation due to Hazeltine, Rice, Roberts, etc., should be carefully studied, as much of this work is directly applicable to transmitting technique; even in receivers it would seem that the neutralisation of screened-grid valves is still necessary if maximum amplification and stability are to be achieved.

The author mentions an interesting point in connection with the use of SG amplification on S.W. receivers. He states that a resistance used in place of a tuned grid circuit will be more prone to pick up local interference and that the tuned grid is preferable. He shows a method of using the latter with stability; a variable condenser couples the SG plate to the detector grid circuit, thus allowing the coupling to be loosened, giving greater stability, though reducing the amplification. The greater impedance of the input circuit obtained by tuning and the low output impedance obtained by loose coupling for stability may give greater stage amplification than vice versa.

A few other points of outstanding interest in

this book are: Automatic volume controls, band-pass filters, transmission lines, H.F. measurements, rectifiers and regulation, etc.

The amateur who has "Principles of Radio" on his bookshelf will be sure of many hours profitable and enjoyable reading, and many will welcome this volume as the book for which they have so long been seeking.

T. P. A.

## Trade Notice.

The Mullard Wireless Service Co., Ltd., are now marketing a new range of paper dielectric fixed condensers. Three sizes are made, viz., 1mfd., selling at 2s. 6d.; 2 mfd. at 3s. 6d.; and 4 mfd. at 5s. 3d. They are designed for a *working pressure* of 250 volts D.C., and are tested at 500 volts D.C. between the plates and flash tested at 1,000 volts A.C. between the plates and case. They are hermetically sealed in metal containers, the base of which extends to form two fixing lugs with holes. Substantial solid terminals and soldering tags are provided for connecting purposes.

## Stray.

5AR informs me that he has cured an unpleasant hum from his moving coil loud-speaker by putting a T.C.C. electrolyte condenser across the pot winding of the speaker. His condenser is made to stand 100 volts pressure and has a leakage value of only a few milliamperes.

## A.R.R.L. Subscriptions.

Members are reminded that, through arrangements made with the A.R.R.L., we accept at this office renewals of subscriptions due to the A.R.R.L. for transmission to them. At the same time reciprocal arrangements are in force in U.S.A.

(Continued from next page.)

Districts represented at Headquarters during Convention last September.

G2CX (Mr. Chisholm), addressing the meeting on the progress of the B.E.R.U. and secondly on the working of QSL section, pointed out the great necessity for advertising the R.S.G.B. on each and every available opportunity in QSO's with foreign Colonial stations. A very interesting discussion followed, many matters of importance being speedily cleared up regarding the meaning of B.E.R.U.

Mr. Chisholm asked for support to be given to the forthcoming 28 megacycle tests. The Chairman suggested that as the time was passing members should split into groups for half-an-hour and discuss subjects of immediate interest to themselves. After nearly an hour the meeting was resumed, to be formally closed by the Chairman as many present had a long journey to make; thus terminated a very happy and enjoyable Hamfest for all concerned.



## Second District Conventionette.

Held at the Mansion House, Roundhay Park, Leeds, February 22, at 3 p.m.

CHAIRMAN.—T. Woodcock (G6OO).

Present: G2VQ, G2CX, G6WD, G5JA, G6DR, G5DR, G6NG, G6UJ, G5CX, G5TQ, G6BX, G6NP, G2DV, G6YR, G6PS, G6XC, G5LW, G6LU, G6SK, 2BIV, BRS253, BRS267, BRS270, BRS276, BRS 298.

In opening the meeting, the Chairman welcomed the attending members and read a telegram of good wishes from headquarters. Thanks were given to G6WD, the late district representative, for his work during his year of office, whilst Mr. Old (G2VQ), the provincial representative, and Mr. Chisholm (G2CX), representing Council, were heartily welcomed. Much appreciation was shown in consideration of what headquarters had done in sending Mr. Chisholm to Leeds, and the success of the meeting had been ensured by the way in which they, and all present had shown enthusiasm.

Business was then proceeded with and Mr. Porter (G5JA) proposed that Area Notes and News for District No. 2 be whole-heartedly supported. He also pointed out that Mr. Woods took over the appointment (with the co-operation of Mr. Hartley (G6YR)) only on the understanding that Area Notes and News would be abandoned in District No. 2. However, it has now been fully realised how necessary they were and as the present District Representative could fully cope with them it was only fair that they should be given every support. A proposal by G2VQ, seconded by G6WD, was unanimously carried.

Mr. Old (G2VQ) described a District Budget Scheme which had been proposed by G6PA, of District No. 7, and it was proposed by Mr. Porter (G5JA) that a similar scheme be developed by G6OO for District No. 2. This was seconded by G5DR. The chairman, replying, said he would arrange for a budget to be given a trial in his District.

G2VQ explained his work as Provincial Representative. G5JA moved a vote of confidence in G2VQ's work, which G6YR seconded and to which G2VQ replied.

The Chairman (G6OO) asked for discussion on any further matters.

G5CX asked for a ruling regarding QRM to B.C.L. with the result that Mr. Old was asked by the Chairman to bring the matter forward at the next Council meeting at Headquarters, and further, that a letter be sent from London asking the P.M.G. for a clear definition of what were broadcast hours in view of the fact that new experimental B.B.C. stations were being put into operation covering practically the whole of Sunday. He asked that other forms of QRM to B.C.L., which were sometimes wrongfully attributed to amateur transmissions, should be investigated.

The meeting was adjourned at 5.15 p.m. for tea, and resumed at 6.15 p.m., when a reply was drafted to Headquarters acknowledging their telegram.

Thanks were offered to the Chairman for accepting the position of Area Manager and so readily filling what would otherwise have been a gap in the

(Continued at foot of column 2, previous page.)

## Misuse of Call-Sign.

Mr. L. Hough states that he ceased transmitting some time ago and relinquished his call-sign G5AW. In spite of this he continues to receive reports, and recently had trouble with the Post Office in the matter, though he was able to satisfy them that he was not guilty. As the P.O. state that the call has not been reissued, it is assumed that some pirate has appropriated it, and we therefore take this opportunity of calling upon him to cease this practice.

Another complaint comes from G2ZP, who has been off the air from January 15 and will not be on again until the middle of April. In the meantime he asks stations to refrain from working any station using his call, and further would like any details of supposed contacts with him in the period mentioned.

## Special 56 M.C. Note.

W2AIU will be transmitting on Saturday, March 22, from 19.00 to 21.30 G.M.T., continuous sending. This concludes his schedule for March, details of which were received just before going to press. His listening period will be from 00.00 to 01.30 G.M.T. on the Sunday.

## Errata.

Page 208, February BULLETIN, address of BRS320 for 126, St. Asaph Road, read 127.

## Stray.

F8RVL will test on 10.50 metres each day at 12.30 G.M.T. Please report to R.E.F.

VK2JZ is on 14227 K.C. most days from 08.00 to 11.00 G.M.T., and looks for G stations.

## Forthcoming Events.

March 28.—At the I.E.E. Lecture by Messrs. Ferranti, Ltd., on "Iron Cored Structures in Radio Receivers: Their Design and Use." Commence 6.15 p.m. Tea at 5.30 p.m.

April 1.—Hamfest at Pinoli's Restaurant at 7 p.m. For further announcements see elsewhere.

April 25.—At the I.E.E. Lecture by the Telegraph Condenser Company.

May 16.—Lecture by Mr. Charman and Mr. Clark on "28 M.C. Transmitters and Receivers."

May 23.—At the I.E.E. Lecture by the Mullard Wireless Service Company, Ltd.

June 27.—At the I.E.E. Lecture by the Igranic Co., Ltd., on "Neutrosonic Short Wave Receivers." Commence 6.15 p.m. Tea at 5.30 p.m.



## Correspondence.

### Impudent Piracy

*To the Editor of T. & R. BULLETIN.*

SIR,—I regret to have to report the following particularly mean cases of piracy by some unlicensed British stations.

Recently certainly two, and probably three, unlicensed stations in England have been making use of EI call signs, viz., E15Z, E17G (believed to be the same station), E14X and E18F, cards for all of which have been arriving at the QSL Bureau of the W.S.I. One of these stations, E15Z, whose QRA is in Surrey, had what I can only term the colossal impudence to write to the QSL Bureau of W.S.I., requesting that any cards for him be forwarded to a G station which he named, where his address was known! This G station, on the matter coming to his knowledge, very properly said that he had no intention of being made a QSL agent for unlicensed British stations, and he has been asked to inform E15Z and E17G that no cards will be forwarded and that any further cards received will be sent direct to the P.M.G. for any action he may be able to take in the matter. The same course will be followed with the other stations. E14X is also believed to be a Surrey station.

I wonder what G stations would think of an unlicensed EI station using a G call sign, and I would ask all G's to use their best endeavours to put a stop to this sort of piracy and to refuse absolutely to have any communication with the stations referred to.

Yours faithfully,

MEADE J. C. DENNIS

(E12B),

President, W.S.I.

February 22, 1930.

[The above letter speaks for itself: we have nothing to add and sincerely hope the practice will cease forthwith.—ED.]

### Mercury Rectifiers.

*To the Editor of T. & R. BULLETIN.*

DEAR SIR,—Having regard to the inefficiency of the popular chemical rectifiers, I venture to bring to the notice of your readers a most interesting device which I have lately had the pleasure of using. I refer to the gas-filled mercury rectifiers made by the Philips Lamps, Ltd. These are made in a variety of sizes and the one which appears very suitable for the average transmitter is type 1061, which will pass 100 m.a. of full wave rectified current at 1,000 volts. The filament takes 2.8 amps at 2.1 volts, and as it runs at a dull red heat, should have a long life. The wave form is good, and is easily smoothed by a "brute force" filter using small capacities.

Anyone interested should obtain the rectifying valve list from the makers, which is forwarded free on request. I may add that I have no interest in the firm other than that of a very satisfied user.—Yours faithfully, W. A. ANDREWS (G5FS).

### "CQ DX."

*To the Editor of T. & R. BULLETIN.*

SIR,—I have read with interest the article of Mr. M. W. Pilpel about the use of the general call "CQ DX" or "Test DX," and though I know him to be one of the best British amateurs, I am sorry to say that I cannot agree with him in this matter.

Suppose he has a YL for whom he has to buy a birthday present. Now the girl has told him in a tender moment that she would be very glad with some piece of jewellery; for instance, a ring. He is going to a shop to buy the present, and asks the dealer to show him some rings. Now, I would like to see his face when the dealer shows him a collection of perfumes instead of rings. I think he would be puzzled, wouldn't he?

What I want to point out is that a fellow who is asking for DX, who is telling the whole world that he wants *only* DX contacts at the moment, should not be called if your station is at a distance less than 1,000 kilometres from his, unless you have some urgent message for him. Apparently the use Mr. Pilpel is making of the call "Test DX" is wrong; when he is also ready to work nearby stations he should not use that "DX" addition.

Of course, I quite agree with him that it would be silly to reserve any band just for one purpose, i.e., DX work, if the number of channels available on each band were sufficient, but he must not forget that he is living in England, on the edge of Europe. In Central Europe one hears nearly every European station on the air, while British listeners are hearing only part of them. Interference is more severe on the Continent, and sometimes the situation is pretty desperate, I can assure him; several amateur organisations are pleading for an international agreement about a division of our bands for the several purposes as already exists in the U.S.A., Canada, France, Germany, Holland and some other countries. It seems, however, that especially the phone-men are afraid to shift to lower frequencies, as they are for the greater part newcomers who have never worked in our good old 3,500 K.C. and 1,750 K.C. bands, and do not believe that good contacts can be made there. Of course, such a regulation ought to be flexible and allow contravention for earnest testing purposes, but every real amateur who is listening to our overcrowded bands will agree with me that something ought to be done to stop this unnecessary spoiling of each other's signals. I think that is why that German ham asked "Why not use our less-crowded bands for European contacts, and spare the 14,000 K.C. band for real DX work." It is a pity that we have to make restrictions for ourselves, but really, OM, it is more than necessary, perhaps not for British hams, but surely for Central European amateurs, and I am sure that the British hams, once convinced of the sad necessity of restrictions, will be unselfish enough to help their brothers on the Continent in this purpose.—Yours faithfully,

W. KEEMAN (PAOZK).

The Hague.

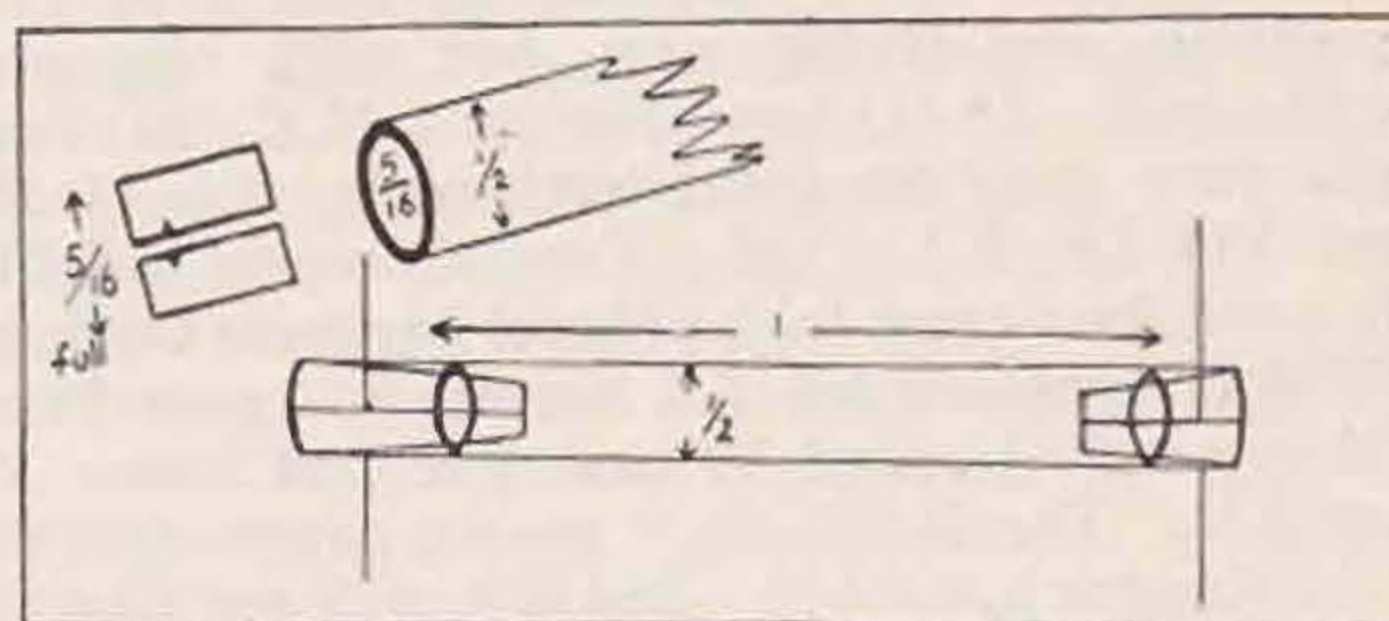
February 18, 1930.



### Spacers on Twin Feeders.

BRS191 sends us the following suggestion for fixing spacers on to twin feeder wires, such as are used on Zeppelin aeriels; the system has been used with much success by G2DQ.

Some battery separators,  $\frac{1}{2}$  in. outside diam., with a  $\frac{5}{16}$  in. hole are required, and some  $\frac{5}{16}$  in. full small hard wood curtain rods. The latter must be cut into  $1\frac{1}{2}$  in. lengths and then split with a knife from end to end. A fine nick is then cut on the flat surface near one end, and having put the wire in the nick the wood is pushed into the glass tube. The diagram will make the idea clear.



## NOTES & NEWS FROM THE BRITISH ISLES.

### DISTRICT No. 1.

Representative: D. J. BEATTIE (G6BJ), 14, Rosehill Mount, Manchester Road, Burnley. (Tel. 3659).

**G**2DH will soon be on the air in Manchester, the only snag now being to erect a suitable aerial in suitable space. G2GA has been heard on 7 M.C., but he is too modest to say so. G2XB (formerly 2AUH) has just received his licence, and has worked five countries so far on 2 watts. G5CI is building a transmitter and receiver for 28 M.C. and is using fone on 7 M.C. every Sunday morning. G5DC and G6KK have not been heard on fone lately, but it is rumoured that G5DC is televising. G5JF takes the star position this month, and has worked W2BEQ at 08.30 G.M.T. and YI2GQ on 7 M.C., and W1, 2, 3, and 8 on 14 M.C., all with 5 watts input to an LS5. G5WQ has returned to the air after a long absence as operator on board the s.s. "Ixion." G5ZN is receiving countless reports from Russia, and works YI2GQ with ease. He uses fone on 7 M.C. at times. G6LY has changed his QRA from No. 5 to No. 2, Hazel Grove, Blackpool, and is using fone on 7 M.C. with power from a hand generator. 2ABQ has been listening on 7, 14, and 28 M.C., and has had no luck whatever on 14 M.C., though 28 M.C. was a little more encouraging. He sends a good list of countries heard on 7 M.C. BRS274 is active, though he sends no details. BRS303 is a new member from Ashton-under-Lyne, who will be glad to stand by for anyone by arrangement. Mr. R. Holmes, of Liverpool, is another new member, who is interested in A.C. mains working for all gear, including 28 and 56 M.C. He has applied for his full licence. G6BJ has now received almost all the gear for the new receiver, and so will have rebuilt by the time that this is in print. G5JF saved the situation this month at the last moment, and becomes star station. The D.R. will in future endeavour to allot the position of star station each month on the best work reported. G2DH will probably get it soon for consistent reporting. Keep it up!

### DISTRICT No. 2.

Representative: T. WOODCOCK (G600), "Santos," George Street, Bridlington, Yorks.

G5SZ comes "on the air again" after nearly eighteen months' absence; has more room for aeriels, and will use 30 watts. Practically all Europe has been worked. VK was QSO'd on 14 M.C. The receiver in use here is SG Det. and 1 L.F., as described in January issue "Wireless World," and

is the best short-waver handled at this station. Aerial used  $\lambda$  Zepp., 50 ft. high. G2KM is now in London for six weeks, and hopes to visit many stations whilst there. Before leaving his QRA eu2AC paid him a station visit. Eu2AC is now ship op., and QSO'd whilst in dock at Hull: he sends his best 73's to the Society, and has done good work for R.S.G.B. in Russia. G5LT has TX going on 7 M.C. using QRP found specially ground xtal of no use. Visited by G5HN, who is surprised at results here using 1.5 watts; three calls brought three QSO's with G stations, using 2 volts power valve. G5LT spent considerable time coaxing RX below 56 M.C. band, and is now ready for 28 M.C. tests. G6WD is entirely rebuilding for 7 M.C., 14 M.C., and 28 M.C. work, and will be very much in evidence during next month. G6XC set out this month to get DX record, and worked VK five times on 14 M.C., but has since been QRT during broadcast hours. Built four-valve xtal controlled TX capable of being used on 28 M.C. or utilising an oscillating PA on 7 and 14 M.C. Will be on 28 M.C. during the tests. G5DF sends in lengthy report all the way from Port Said, he is now ship op. on s.s. "Neleus," and as he puts it, wishes to ease his conscience, and although work in present capacity makes G5DF practically dormant, the call is being retained with hopes for better days! Met G5WQ in Hong Kong; also visited VK3ML (Melbourne). Leaving again from Port Said to the Far East, he sends list of calls heard, which appear elsewhere in this issue. G5DR called away again on Air Ministry work, is QRT. G2DV covered Europe on 7 M.C., using under 10 watts CW, found choke control excellent on this band. On 14 M.C. worked all Europe, FM, W2 and VK, the latter on 7 watts (fb. OM!) Tried various aeriels and settled down to  $\frac{1}{2} \lambda$  C F Hertz best on both bands. The R.S.G.B. short-wave 4 has been constructed and is a great asset to this station; excellent results are obtained. 2AUT and BRS279 send joint report of QRP work, max. power 2 watts TP TG using DE5, with valve rectifier on A.C. mains. New RX built in metal cabinet being tested, has already cured bad hum from mains (on 7 and 14 M.C. bands). Wants sked with stations, on 2 M.C. band, please. 2BIV is busy getting 28 M.C. gear going successfully. G5QY has had four QSO's with FM on powers up to 8 watts, getting one R7 report. Good results with series-fed Hartley TX and a DE5 both RX and TX now running on mains. G6DR worked YI and OH on 7 M.C., whilst CT2, FM and



OH raised on 14 M.C., using 4 watts throughout. Fone being tried using grid modulation. Still scrapping aeriels and trying new, but each one worse than the last. 2AZQ has been on 7 M.C., says conditions very good for local work only. On 14 M.C. logged VO ZS, K2, VQ2. Conditions on 1.5 M.C. fairly good, but great lack of local hams on the band. BRS253 is applying for TX licence and now brushing Morse up. Logged W and VE, but never VK, ZL, or LU. The R.S.G.B. 4 nearly completed (this will do the trick, OM!) ZS4M heard regularly on 14 M.C. BRS290 says conditions very freakish on 14 M.C., but all continents logged. On 7 M.C., only local and Europeans heard (with the exception of ZL and HI once!) 14 M.C. been similar, whilst 28 M.C. has been blank, all Sunday spent on the band brought no reward. Visited G2AW. G6UJ is all ready for the 28 M.C. tests every day. RX working fb on this frequency, likewise his TX. Little DX has been done through bad conditions. G6OO has had little time for TX owing to area business in connection with the "Hamfest" held at Leeds on February 22, 1930. It is a great pleasure to be District Representative in such a lively and enthusiastic district. Many thanks to the 26 hams who supported a most successful Hamfest. Send in your reports by the 20th of the month, latest, OM's.

#### DISTRICT No. 3.

Representative: JOSEPH NODEN (G6TW), Coppice Road, Willaston, Nantwich.

Now, OM, your reports are very thin again, just when I thought they were reviving somewhat. Judging by the activities of some of your stations I did expect a report, but here are the few that did. G5FC reports the COPA is going well, and is working sked each Thursday with OZIA. G6GL (ex 2BHI) is already on the air, working 7 M.C., and 1.75 M.C. bands, with 4.5 watts input to a TPTG. The circuit is C.C. when using C.W. on 1.75 M.C. When using modulation, it is by grid control. He will be pleased to receive reports on his xmissions. G2CG has been very QRW, he is changing from TPTG to COPA, and is suffering QRM from the BCL. Yes, he wants a suitable thump filter circuit. G2OA has rebuilt his Ultraudion xmitter, and says it has been worth it, but that it works better on 14 and 28 M.C. than 7 or 1.75 M.C.; he will be carrying out tests with "hummer-modulation." Reports are welcomed. G6TW is still on the 56 M.C. skeds. I should like some of the Cheshire members to try and get their receivers to operate on this frequency; without doubt a great amount of information is being lost through not having receivers round about 30 miles distance. Am also working on the 28, 14, and 7 M.C. band.

#### DISTRICT No. 4.

Representative: A. C. SIMONS (G5BD), Lynwood, Mablethorpe, Lincs.

Another month passed by with only slight improvements in conditions, although February 8 to 12 was quite like old times. The A.R.R.L. contest has apparently struck a bad patch, as during the first three days a bare half-dozen W's or VE's have been heard, which is very disappointing for the lower-powered G stations. When the fine weather arrives, I shall try to arrange a "Babe" Convention here on a Sunday. Let me have your views on this, OM's. G2AT has little time for radio, owing to business QRM. G5BD worked five continents, VK,

VE5, and VT. Has new SG3 receiver and finds it miles superior to OV2, except that up to the moment 28 M.C. won't oscillate as usual—can't hit exact feeder length. G5CY worked the usual Europeans on 7 M.C. when he had time, and also endorses the above *re* his new SG3. It is the goods! G5FA (ex BRS245) has made a useful start by working most of Europe and Morocco. Has separate transmitters for 7 and 14 M.C., and is experimenting C.C. and phone on the former. 2BIC heard Lu and PY on 14 M.C., and has also heard several stations on 28 M.C. All continents heard in all. Plenty of ZL's, but not a single VK (Try 15.00 G.M.T., OM.) G5DM has phone transmitter on 7 M.C. after three years' absence, and would be glad to have reports or co-operation. G6LI, testing on 7 M.C. Aerial experiments being carried out to ascertain the best type for 14 M.C. Also working out curious phenomena in connection with use of D.C. mains on filaments of transmitting valves, and hopes to have an article on the use of D.C. mains ready for the "BULL." shortly. G6HK continuing experimental work on harmonic crystal control on 7 M.C. Tried the 14 M.C. band, but the "CQ. DX" atmosphere too chilly. Also co-operating with G6LI in his work on aeriels and mains problems. G6MN is now going OK with VF Hertz on 28 M.C. Reports desired.

#### DISTRICT No. 6.

Representative: R. C. HORSNELL (2ABK), "He-pani," Wickford, Essex.

G5RV has now shifted to new QRA at Wave Cottage, Grove Road, Chelmsford, and complete rebuild of station in progress. On 7 M.C. worked LA2C on 3 watts. BRS reports still are very welcome. G2SA reports improved conditions on 7 M.C. W2, 4 and 8 being worked on 6 watts. Moon phases and radio conditions are being studied. G6QX has had 75 QSO's on 7 M.C., and is going on to 14 M.C. He is considering 28 and 56 M.C. BRS77 has heard quite a lot on 28 M.C., also reports good reception on 14 M.C. G5JO has been busy on 1.7 M.C. and 7 M.C., and contemplates being on 28 M.C. for tests. G6DG is thinking of giving up his TX. G5YN is doing some QRP. BRS76 is having trouble with noises on 28 M.C. Hopes to go strong into the tests. G5YK and G6CR have both been fairly busy on 28 M.C. G2XV is on 14 M.C. and 7 M.C. 2ABK has rebuilt 28 M.C. RX using "series" tuning, and the beneficial results led to the writing of a short article for the BULLETIN. All 28 M.C. sigs anyone else hears can be heard here except OH and OZ—Why? I should like more reports next month, OM's, please. Don't forget yours!

#### DISTRICT No. 7.

Representative: H. C. PAGE (G6PA), Newgardens Farm, Teynham, Kent.

There are very few reports this month, as the Surrey notes have not arrived in time. We are now running a very successful Budget in this Area, and anyone in the Area who would care for further information about it should apply to me at the above address. G5AQ has now got his valve rectifier going, and prefers it to the "mangle." He reports conditions on 14 M.C. very poor, but has worked several new countries on 7 M.C., the best being Turkestan. G2AX has recovered from his trouble with the blown condenser. He has been doing modulation tests with an A.A. aerial. (I wish some of the phone merchants I hear would try it first,



G6PA.) He finds that grid modulation is no good for music transmission. He is now using choke control, with a DET 1 as modulator and an LS5 as oscillator! He has not been on the air much, but has worked Bristol and one or two locals, all on 1.7 M.C. G5UY is still rebuilding. The transmitter is to be a TPTG, and a crystal oscillator has been built in beside it. He has been doing a lot of crystal grinding. G2DT is still trying to get things straight after his move. He reports that things are progressing as well as can be expected. Before he left his old QRA he worked quite a number of S. Africans. BRS287 is busy experimenting with a new S.W. SG set. He is experiencing some difficulty in making it work below 7 M.C., but hopes to get over that soon. He is hoping to get going on 28 M.C. soon. G6PA has got his new aerial up and finds a great improvement. It is well over 30 ft. high now. He is using a CO/TPTG and finds it very fine. There are five transmitters here now, two being for Morse work on the 1.7 M.C. band. A separate transmitter is used for telephony. He has been working on 28 M.C. The second call brought back W2JN. Since then everything has been beautifully quiet on 28 M.C.

#### DISTRICT No. 9.

Representative: G. COURTENAY PRICE (G2OP),  
2, St. Annes Villas, Hewlett Road, Cheltenham.

The improvement in conditions mentioned at the end of last month on 14 M.C. lasted until February 12, but at the same time were patchy and jumpy. After that date, a more or less complete DX fade-out took place in the evenings. At the time of writing some DX can be heard, but stations are very difficult to work. G2CJ is on week-ends only on 14 and 28 M.C. On former band on 9th best DX was six W stns, ZL2GH, VE1AR, and PY1CR. G2IP ex 2AWV, during his first month has worked 4 continents and 16 countries. Is using TPTG with valve rectified A.C. and half wave aerial on 7 M.C. Is also QRP same band, using C.C. G2LV has worked FM and VO on 7 M.C., and is making preliminary experiments on 28 M.C. with BRS310. G2OP is C.C. on 14 M.C. and worked five W stns on February 11. G5RQ has found conditions bad, but managed to work three continents. G5QA has worked 9 W stns, including W3ADJ, who was worked each night during the last week of January. Is getting good reports of fone on 7 M.C. input 8 watts. G6RB complains of bad conditions and 'flu. Is building a new C.C. outfit. G6XB has had little time available, but did a little early rising and worked VK, ZL, W, and VE. (A very worthy effort this cold weather.—D.R.) FK4MS has gone to Paris for a fortnight, after which he returns to Cheltenham. BRS310 has again been very active, chiefly on 28 M.C. A separate list of his calls heard on this band are given. (See 28 M.C. Notes.) On this band all G stns are about R3 and all have a wavery note. Notices conditions good on 28 M.C. when good on 14 M.C. Has logged 35 stns on 28 M.C. between January 26 and February 23, the most consistent being ZS4M.

#### DISTRICT No. 10.

Representative: J. CLARRICOATS (G6CL), "Ciel,"  
Hartland Road, London, N.11. Telephone:  
Finchley 3512.

G6PP has now returned from Nice. He found conditions there 30 per cent. worse than in London,

but sends an interesting list of G stations heard on 7 and 14 M.C. He noticed G was "dead" in the mornings. ZL2GN and ZS4M were best stations logged. G6CL has little to report; local contacts on 28 M.C. with CN and TUN on 14 M.C. being the only new countries. G5QF has built a very fine "S.G. Detector Pentode" receiver, but is doing little transmitting. He has prepared for the 28 M.C. tests. G5UM continues work on 1770 K.C. and reports good conditions. A long indoor C.P. is being used and results are improved at a distance; the chief feature is that it extends in the opposite direction to the aerial, and not under it. Both indoor and outdoor C.P.'s give similar radiation according to the H.W. ammeter. G6UN is busy on publicity work, but has had some interesting contacts with U.S.A. on 14 M.C. G5HJ reports poor conditions on 14 M.C., but good on 7 M.C. SU8RS is again the only DX worked. He is preparing for 28 M.C. What is the matter with No. 10 District? Four reports from an area containing 76 fully-licensed stations, plus 20 B.R.S. stations, and a dozen A.A. men. Don't forget London Hamfest at Pinoli's on April 1 at 7 o'clock. Price five shillings.

#### DISTRICT No. 11.

Representative: L. H. THOMAS (G6QB), "Conway,"  
66, Ingram Road, Thornton Heath, Surrey.

BRS25 reports not much doing except the construction of a new 28 M.C. receiver, which is now going well. Best DX heard on 28 was W9EF two Sundays running. BRS190 reports two Northern Rhodesians on 28 M.C., 17 different W's, and 6 OH's. He has also received fone from several W's, on 14 M.C., best being W8DLD. He notices that three South Africans he has heard are using respectively 700 watts, 20 watts, and 5 watts (referring to 28 M.C.), and are all received at the same strength, although ZS4M (the 700-watt man) is certainly the most consistent. BRS250 reports 28 M.C. still going strong, and also mentions the very unusual reception of OA4T (Peru) at 1,000 on 14 M.C. BRS300 hopes to be going strong with 28 M.C. work now, and reports conditions good on 14 M.C. G2AI is going again with an "all-mains." He hopes to be on 14 and 28 M.C. later. G2GM reports for the first time, and has started off with a QSO with Franz Josef Land on 7 M.C., and obtained his W.A.C. on 14 M.C. He is very enthusiastic about his Mullard S.W.1, to which he attributes the results. G2UX is very worried because he gets R8 all over Europe on 14 M.C., and can't get out for real DX. (Probably that's the trouble, OM, especially as you are so strong in OH and SM. The skip distance seems all wrong, and if you adjust for weak reports from 1,000 miles or so, you will probably find DX O.K.—D.R.) G6HP has only been on 28 M.C., and has bagged the first British QSO with Egypt, getting R8 from SU8RS. He has also worked W2BG and ZS4M. He wants reports (even local) on 28 M.C. sigs, as he is using a full-wave aerial now. G6QB has also been mostly on 28 M.C., and has had reports from ZS4M and ZS5U, and worked W2JN and NKF. He will in future be mostly on 28 M.C. and 1.5 M.C. Any offers of help with some special tests on the latter wave will be appreciated. G6QC is working a CO-PA on 1.5 M.C., and reports several DX G's on that frequency. He wants dope on modulating a C.C. outfit.



**DISTRICT No. 12.**

Representative: T. A. ST. JOHNSTON (G6UT),  
28, Douglas Road, Chingford, E.4. Telephone:  
Chingford 118.

G2ZN reports conditions bad on 7 M.C. after dusk; he has erected a half-wave V.F. Hertz aerial and with power increased to 2 watts is going to concentrate for a while on 14 M.C. G6FY, after many moons, has received his first report on 28 M.C. (from BRS25). 2AZR has joined C.B. Group 8A, and is busy building an xtal control 7 M.C. TX: has been receiving on 28 M.C., but so far only logged London stations. G6LB, with a V.F. Hertz, has on 14 M.C. worked India also W stations at midday. G6LL continuing with the building of his new transmitter, and doing 28 M.C. work on Sundays, also trying out A.C. valves on 28 M.C. RX. G2NU on 14 M.C. going very strong in Europe, but finds DX elusive; he received a T9R9 report from YI2GQ. G6UT has on 14 M.C. worked Persia for first time, also a Danish ship, OY1D.

**DISTRICT No. 13.**

Representative: H. V. WILKINS (G6WN), 81,  
Studland Road, W.7.

The star stations this month are G2OL and G2OW, who have had two-way working on the 56 M.C. band. Details of the QSO and their apparatus appear on another page. This month will see most of the active stations on 28 M.C., and I wish you all "Good Luck," and to those entering the April tests, I wish the same. Now for the reports: G2OL has been QSO the U.S.A. and YI on 7 M.C. He agrees with G6CL as regards any old length of wire working as an aerial, but does not think any old length will radiate. It may feed, but that does not necessarily mean it will radiate. Also he thinks that the best point to feed aerial is where there is both current and voltage, *i.e.*, not a half, full, or three-quarter wave, but between any two. He uses aerial and short (6-8 feet) counterpoise. G2OW has spent most of his time between 28 and 56 M.C. On the former was heard in Azores (R7-4), and W9 (R5). Has only just received permit for 56 M.C., and on the strength worked G2OL. Is still receiving G6XN on this wave, and finds signals loudest in daylight. G2BY built new transmitter with copper tube coils for 14 M.C., but could not raise even U.S.A., but worked three on 7 M.C. and got R7 from YI using 14 M.C. Zepp. G6CO worked Europeans on 7 M.C., and a few G's on 28 M.C. Heard three W's, including W9EF on latter wave. Is getting ready for 56 M.C. and says receiver will get there, as now it takes six turns on tube base for 28 M.C. G6WN has been on 7 M.C. and 28 M.C. On latter worked only locals, but heard fair amount of DX. Testing self-excited set on 28 M.C. and finds it better. Built wavemeter for 56 M.C. and testing new receiver with series tuning for this band. G5VB has the first and only 28 M.C. working with FM to his credit, and again worked OH2NM. Still trying to cure chirp on 28 M.C. 2BXM seems to have spent the month on 28 M.C., and heard fourteen W's, three Z's, four South Americans, and IXN (China). On 1.75 M.C. heard two PA's (R2 and R3). G2IY (late Mr. Wilberforce, ex EARW) has received his licence, and is getting the station in order. G6VP has been busy over the

28 M.C. tests, but has WAC several times on 14 M.C. Has been busy with FD's for 28 M.C. Is now locking a T.P.T.G. on to the last FD for this wave. G6XN is finding some difficulty with aerials. Is using  $1\frac{1}{8}$  wave 20 metre aerial.

**DISTRICT No. 14.**

Representative: JOHN WYLLIE (G5YG), 31, Lubnaig Road, Newlands, Glasgow.

At the moment of inditing these notes—the evening of February 19—the bottom seems to have dropped out of short-wave radio, and on both the 7 and 14 M.C. bands not a signal is to be heard. This era of poor conditions has been extant continuously for six days, and coming on the top of what we had come to regard as a poor period, is rather disconcerting, especially to those who intended to take part in the A.R.R.L. test message contest. The writer has heard many "Test U.S.A." calls in the past few days, and has only heard one station (G5ML) establish contact. This onset of superlatively bad conditions rather upsets some of our preconceived theories. The writer, at least, has come to regard a falling barometer as an index of steadily improving conditions, whereas in this instance, as the glass fell very gradually from 31 to 29, so did conditions deteriorate, and more strangely still, did not show the least sign of improvement during the subsequent rise. G6WL has just returned from his trip to U.S.A. and Canada, and has asked me to express through the medium of this journal his great appreciation of the kindness shown him, and the hearty welcome received from our radio friends in Canada. While it is invidious to particularise, he feels that he would like to specially indicate the Montreal amateurs, who gave him a royal welcome. Jack Argyle (VE2CG), who acted as his sponsor, was kindness personified, and to him G6WL would extend his cordial thanks. As indicated in the February BULLETIN, Mr. Kyle carried on listening schedules with a number of the Scottish "A" District men, and in order to put an "edge" on these schedules, a prize was offered by the writer to the station appearing most often on G6WL'S log; taking into consideration, of course, the relative power factors of the various stations. On analysis of the log, G2MA was found to lead with 66 per cent., and accordingly takes the prize. As Mr. Kyle's summary of conditions pertaining to the 7 M.C. band is likely to be of interest to all members, I quote it verbatim: "The 7 M.C. band (23.00 G.M.T. period) was not useful. When near Glasgow, skip-distance effect operated, and W stations were heard, but no home stations. On proceeding westward, W's became stronger, and during the latter part of the voyage this band resembled Bedlam let loose, being a seething mass of R8 R.A.C. signals of the usual W type. The only G station heard was G5KL. I am of the opinion that it is next to impossible to work W at night on this band." Last month I commented on G5NW being laid aside with something "catching." I am glad to say he is now well. He was quickly followed by G5XQ, however, with quite a different brand of "catch." His segregation also brought forth results, and there is now in use at 5XQ a RX with S.G. RF stage, which does its "phones on the table" stuff in the most approved manner. (This is not sarcasm, but genuine fact.—G5YG.) I was pleased to receive recently



a long letter from G5JK, of Aberdeen, whom some of the older hands will remember in his T.V.T. days. After a silence of several years, he has at last got his gear adjacent to a power supply, and will be heard shortly on 14 M.C. I need not comment on the activities of our phone stations G5NW, G5GK, G6RG and G6UU, all of whom may be heard putting out first-class telephony any Sunday morning. G5GK threatens to compile an English-French phrase book for use on phone, but I think he is much too busy disturbing the carbon granules for any such relaxation. G6MS, G5XQ, and G6NX are busy rebuilding their TX. "NX," I am sorry to say, has been far from well since the advent of 1930, but I am glad to note is now keeping better. G5CL, who works with an indoor aerial, has at last succeeded in doing a little DX, and has worked FM on the 7 M.C. band; this with an input of about 7 watts. 2WL has just completed a new TX and moves into "digs" shortly, where there are facilities for using it. G5DK has ascended to the 14 M.C. band, but has nothing of note to report. G2MA, working with a new full wave aerial, has worked almost all the countries there are to work with an input of 10 watts to the CT25X valve. G5YG has also been poking about among the distant corners of the globe on 14 M.C., but has nothing of real interest to "blether" (Scotch) about.

## B.E.R.U. NEWS.

### IRISH FREE STATE.

By COL. DENNIS, EI2B, Fortgranite, Baltinglass.

Conditions on 7 M.C. have improved considerably recently, although, at the writer's station at all events, Western stations still come in very poorly as a rule, and contacts are very few, whilst Eastern contacts are comparatively easy. On 14 M.C. conditions are, on the whole, still bad, with only occasional short-lived improvements. GI6YW, who came from Belfast to Dublin for the international football match, paid welcome visits to EI's, 7C, 8B and 4D during his stay, and we all hope to renew his acquaintance later. Incidentally, I hear that he was unable to gain admittance to the ground, and had to be content with the running commentary broadcast from 2RN! The Transmitters' Section of the W.S.I. is booming under the auspices of the hon. secretary of the section, EI4D. He has done wonders in reorganisation since he assumed office, and we are lucky in securing the services of a man with so much energy and push. The change of mains from D.C. to the A.C. of the Shannon supply scheme has temporarily somewhat upset the Dublin transmitters. The new transmitter at EI3B, the W.S.I. is M.O.P.A., and is getting out well. Reports on signal strength and quality of note would be very welcome at this station. EI8B has worked W2JN and NKF on 28 M.C., also ZS several times on 14 M.C. EI7C is temporarily off the air pending the receipt of a rectifier for A.C. mains. EI5D is a new station who, judging by the number of QSL cards coming in through the QSL bureau of W.S.I., seems to be getting out well. I have not at the moment got his correct QRA, but it will be sent direct to the QRA section when available. Old GW12C is now back on the air under the new call of EI6D. EI2B has not been much at the key, having been away from home

### DISTRICT No. 16.

Representative: C. MORTON (GI5MO), "Simla," Glastonbury Avenue, Belfast.

This month's reports are very few, and there has been little activity, and nothing of interest done. I have to welcome two new members—Major Wild, Military Hospital, Londonderry, who hopes soon to have a BRS number, and Capt. G. C. Wilmot, Elrington Barracks, Londonderry (ex G6WT and FN2C, Nigeria), now BRS322, who is applying for a transmitting licence. GI6HI is still working on 28,000 K.C., and has heard OH, FM, W1 and Z districts, and ZS, but no further contacts yet. He is on every Sunday from 14.00 to 16.00 G.M.T., and will be very glad of reports. GI5WD has rebuilt his transmitter, a TPTG circuit, and is pleased with the results, getting TG reports on 7,000 K.C. GI2CN now has definite news that the expected A.C. supply will be on by the end of March, and is busy preparing for it. GI5MO has put up a Zepp, and made a new chemical rectifier. The usual number of European contacts are made at week-ends, but no DX to report. GI6YW, GI6MG, GI5OT, GI5HN all report they are inactive. GI6YM reports that their call has been used by pirates during December and January, when they were not transmitting; the new TPTG set is getting out well.

and has nothing better to record that AU and YI twice. I am sending a separate communication to the "BULL." regarding the use by unlicensed British stations of EI call signs, which I hope may meet with the serious attention of those concerned.

### AUSTRALIA.

By H. R. CARTER (VK2HC).

Conditions for DX have been rather good for the last five months, although, unfortunately, the European signals on 14 M.C. have gone off since the beginning of November. VK2LM is still going strong, and doing good work on 7 M.C., incidentally he uses a Ford engine to drive his genr. Several of the gang who live on sheep and cattle stations, namely, VK2LM, VK2JJ, VK2HC, VK3HL, and VK3OR are on the air regularly. VK2HC has been successful in WAC on fone. At the present time the Maclurcan Cup Competition is in progress, and all the fone men seem to be working on 7 M.C. VK5GR reports hearing G5TZ on the 7 M.C. band on January 2 at 21.30 G.M.T., fb. Recently an amalgamation was secured between the ARTL and the WIA, and all the fellows are well satisfied with results. We hope to have a lot of VK amateurs in the BERU shortly; unfortunately not many know about this section of the R.S.G.B.

[Mr. Carter's statement that many Colonial amateurs know nothing of BERU is only too true. We are doing our best to make up lost time, but ask all workers DX to mention our existence when writing Colonial friends.—ED.]

### SOUTH AFRICA.

B.E.R.U. Representative: W. HEATHCOTE (ZT6U).

During December conditions on 7 and 14 M.C. were fairly consistent although QRN was bad at times. Many contacts with Australasia were reported, the first for some while. Britishers were



weak generally, but an improvement was noted at the time of writing (January 22). ZU6Y mentioned that he had worked several G stations in early January, but QRK was low in all cases. ZU6X has worked India and Australia with telephony. This is a fairly new station, but is one of the best operated in the Union. Telephony is being used on 7 M.C. by many of our fellows, but modulation is generally rather poor. ZS6M is now running a 1930 M.O.P.A. and his QRI is the acme of perfection.

During my recent visit to Natal I met several enthusiastic amateurs, including ZT5R and 5E, both of whom should supply us with details of their very neat and efficient stations for the benefit of our B.E.R.U. members. (Well, you obtain this for us, OM, please, we want' such articles for our B.E.R.U. Station Description feature.—Ed.)

We should like at this rather late date to offer our hearty congrats. to Eddie Somerset (G2DT) in receiving the Wortley Talbot trophy. Mr. Somerset assisted many of us in the past, and now that his signals have been worked in S.A. we look forward to many future QSO's.

[Mr. Heathcote has also sent us copies of the Weekly Broadsheet issued by Mr. H. R. Ames to all amateurs in S.A. working on 28 M.C. These have been passed to Mr. J. W. Mathews to enable him to incorporate certain information in his 28 M.C. notes.—Ed.]

#### RHODESIA.

By G. G. LIVESEY (FO3SRB).

Very little activity has taken place during the past few months. Our greatest difficulty lies in the geographical location of the various stations. The nearest amateur is situated at Plumtree, about 250 miles away. In this town 6SR and 9SR have their home. At Selukee, 22 miles away, Rhodesia's pioneer transmitter, 2SR, is located. Unfortunately, the operator, Mr. Musgrave, is the engineer in charge of the world's largest chrome mine, and has very little time for active transmission. 3SR has continued to do good work on 14 M.C. with an input of 24 watts. At my own station, a new T.P.T.G. set has been built for high power work, but the input at the moment is only about 10 watts. Successful QSO's with S. Africa have been obtained, but no DX contacts made. Static has been bad recently. It is down to a minimum in the early hours of the morning. 3SRB will be on the air every Saturday night between 18.30 and 20.00 G.M.T. on 21 metres. I had the pleasure of a QSO on that band recently with Mr. E. Cook (late G6UO). He is now ZS1J, and is living at Capetown. Australians, particularly VK5IT, have been received well around 14.00 G.M.T. America has been consistently poor, with the best period at about 19.00 G.M.T.

#### EGYPT.

By C. E. RUNECKLES (SU8RS).

It is with regret that I have to preface this month's notes with the announcement of the death of SU8AN, old FE-EGEZ, who passed away after a short illness on January 31. He will be missed by all Cairo amateurs, to whom he was well known.

A Radio Exhibition was held in Cairo on January 9 and 10. This has served to awaken interest in radio matters over here.

I am pleased to be able to report five new members to the B.E.R.U., one of whom, Corporal

Andrews, will be back in Blighty by the time these notes appear. His QRA will be: World's End Farm, World's End, Hambledon, Hants.

Conditions during January were generally good. The vitality of amateur radio is apparent by listening to the hosts of new stations on the 7 and 14 M.C. bands. If only there were no raw A.C. notes things would be much better for everyone.

Several of the higher-powered G stations were heard during the month at wonderful strength, notably G5IS, 6NF, 6VP, 5YK and 6QB, all of whom were easily R9-T9-FB. G6CH, with his low power, managed to push signals across on several occasions, but QRM prevents lots of lower-powered stations being worked. Very few U.S.A. stations were heard, and only one or two South Americans.

Very little has been done on 28 M.C. No contacts to report from SU8RS.

[Since the above was written, SU8RS has worked G6HP and OZ7Y, and has heard G6LL and ZS4M. We congratulate Mr. Runeckles on his successes and hope to hear that his station has been active during our 28 M.C. tests.—Ed.]

## NOTES AND NEWS FROM EUROPE.

#### PORTUGAL

By C. J. MUMFORD (CT1BL).

Due to the farsightedness and progressive spirit of the Minister of Commerce and Communications, Dr. Antunes Guimarães, the science of radio is now making great strides in Portugal, and an extensive programme has been mapped out by this energetic man.

He shows great sympathy for the amateur cause and recognises that our organisation is excellent, and due to the splendid discipline and good work of the R.E.P. will waive the necessity of their having to undergo extensive tests before granting transmitting licences to those members already active.

The headquarters of the R.E.P. received the supreme honour of a visit by General Carmona, the President of the Portuguese Republic, a short while ago, when His Excellency transmitted a message of greetings to the R.E.P. delegates in Madeira, thus showing his appreciation of our work.

At the present moment our membership totals 107, but we are growing rapidly, and the legalisation of our transmitting section will substantially increase our roll. Up to the present the lack of official recognition has rather damped the ardour of the genuine experimenter, but we are confident that better times are coming and that Portugal will come into step with the best of them. The material is here.

#### SPAIN

By A. C. WILBERFORCE (ex EARW).

At the closing of the International Exhibition at Barcelona, the Committee of Awards conferred a Grand Prix upon the E.A.R. for their stand at the Exhibition.

The Spanish Young Ladies are beginning to come into their own, YLEO95 having logged the airplane



FAJHU, in which Lebriz was attempting a long-distance flight to Indo-China, every night until the crash at over 4,000 kms. from Madrid.

Spanish amateurs have been requested by the Director-General of Communications to reduce the transmission of gramophone music.

LATER.

The EAR'S have been busy with tests in conjunction with the French Weather Bureau, and they have been able to supply some interesting data.

Senor Moya, President of the E.A.R., informs me that the EAR stations hope to co-operate with the G's during the forthcoming 28 M.C. tests.

#### BELGIUM.

By PAUL DE NECK.

An International Congress of Amateur Transmitters is to be held in Antwerp and Liège next July 12-14, on the occasion of the International Exhibition for the Centenary of Belgian Independence. Fellow amateurs are cordially invited to take this splendid opportunity to visit Belgium and special arrangements have been taken to give them a very cordial and friendly welcome.

Please write for particulars to Réseau Belge, Secretary, 53, Boulevard Anspach, Brussels, or to the Antwerp Section, 15, Plaine de Malines, Antwerp.

General conditions on both 7 and 14 K.C. bands were very bad for DX work, and nothing special was registered during February.

ON4HC has been in contact with CE7AA, Punta Arenas, and ON 4XAN worked XTF90 on 40 mtrs, a ship near Spitzberg.

#### CZECHOSLOVAKIA.

By L. VYDRA (OK2YD).

No steps have yet been taken by our Post Ministry regarding our official licences, which were promised for February 1. Sixty-five of us have made application and we are now awaiting our examination.

On 28 M.C. little has been done on the transmitting side, but some reception work has been carried out. Several commercial stations have been heard, but only one amateur FM8RIT.

Many of our stations are preparing for the R.S.G.B. tests in March, and are hoping to obtain good results.

#### GERMANY.

By W. RACH.

The interest displayed by German amateurs in the 3½ M.C. band has shown a great increase lately, and many stations are working on these. The chief reason is that QRM on 7 M.C. has been so bad recently that regular work is no longer possible. The main sources of interference are the numberless 'phone stations that are to be heard on the band. We hope that some of these stations will desert 7 M.C. in favour of 3½ M.C. A good deal of DX comes through on 7 M.C., particularly Americans, but only a few of our stations could connect with them. On 14 M.C. various stations were in touch with South Africa.

D4AFJ, of Quedlinburg, Harz, is licensed for 56 M.C. and carries out regular experiments on that frequency. We hope to give full details of his work in the near future.

The amateurs in Saare are now using the prefix TS instead of D. All QSL cards should be sent via DASD, as hitherto.

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## NORWAY.

By G. H. PETERSON (LAID).

Conditions during January were bad, most stations reporting weak signals. Some U.S.A. stations have been worked. LA2X, QRA Bergen, is a very active newcomer to our ranks, the operator—17 years old—is on the look-out for DX QSO's. At present he is working in the 7 M.C. band. A very interesting report reaches us from one of our ship operator members, LCFB. He worked amateurs almost every night during November between Hamburg and the Black Sea. On November 25 he was QSO U.S. West Coast from 15.00 G.M.T., the East Coast coming in two hours later. He was then off Algiers and in the 7 M.C. band.

Our new regulations have not yet come into force, as negotiations are going on. All licensed Norwegian stations have calls in the form LA1A or LA2A, up to this date no LA3 calls have been issued. Cards for unlicensed stations will not be forwarded via NRRL. There are many unlicensed transmitters working, but we request other stations not to work them.

February saw a general improvement in conditions, and also a very marked increase in the activity of Norwegian transmitters. Although we have no pioneer work to report, in the comparatively unexplored 28 or 3.5 M.C. bands, our amateurs are doing some interesting work, especially with QRP in the 14 and 7 M.C. bands.

LA1G says conditions are again fine on 14 M.C. He now works entirely from time-table, and is able to make contacts with South Africa, Australia and New Zealand very regularly. LA2K complains that his new Philips T.B. 1/50 will not "go West" (luckily for him!).

LA1J has had a QSO with a running train, XSM5UX, near Stockholm, the Swede using an "indoor" aerial and only 7 watts. He is an expert in QRP, having worked G with 50 volts, and SM with 0.4 watts, a record which can hardly be beaten.

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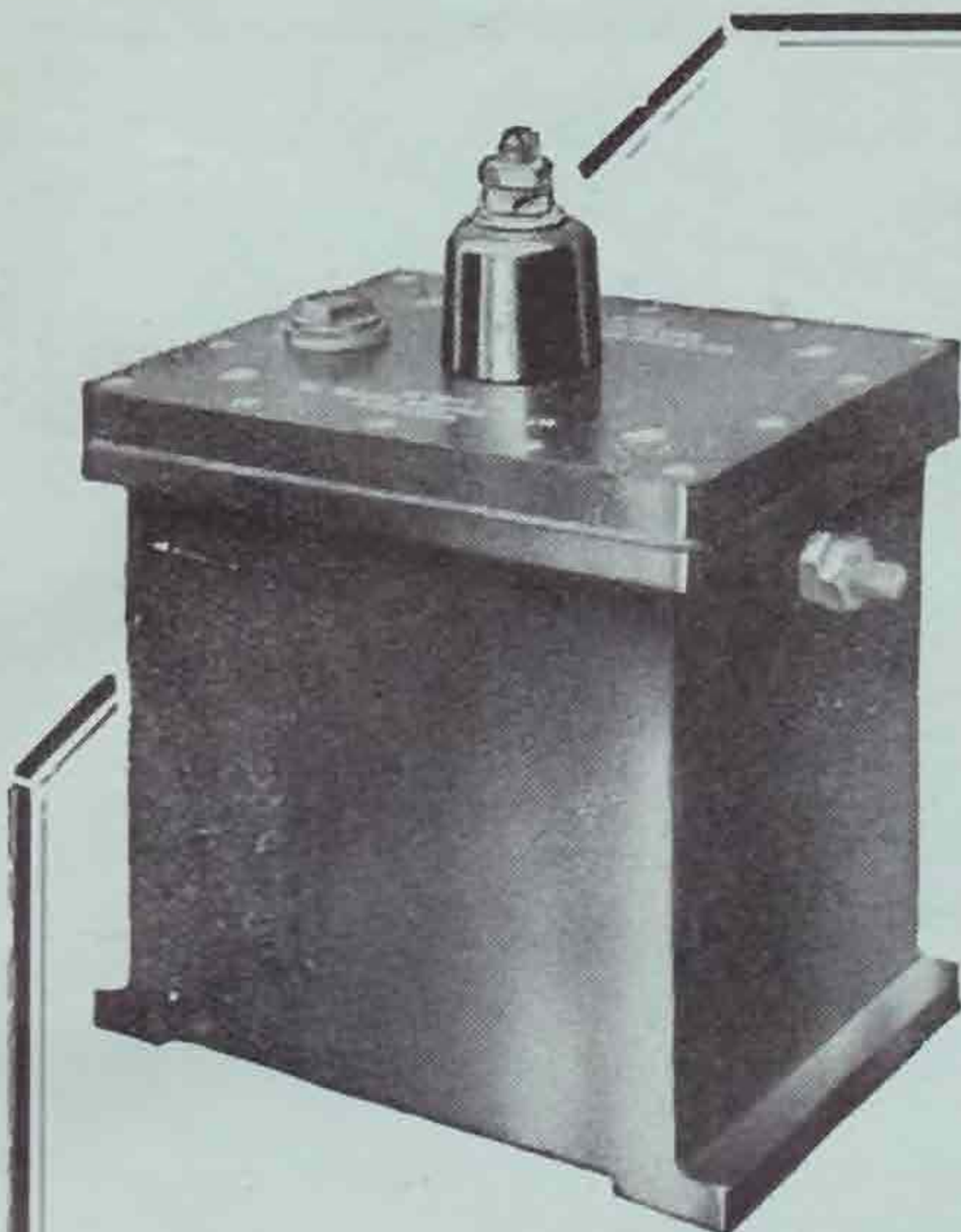
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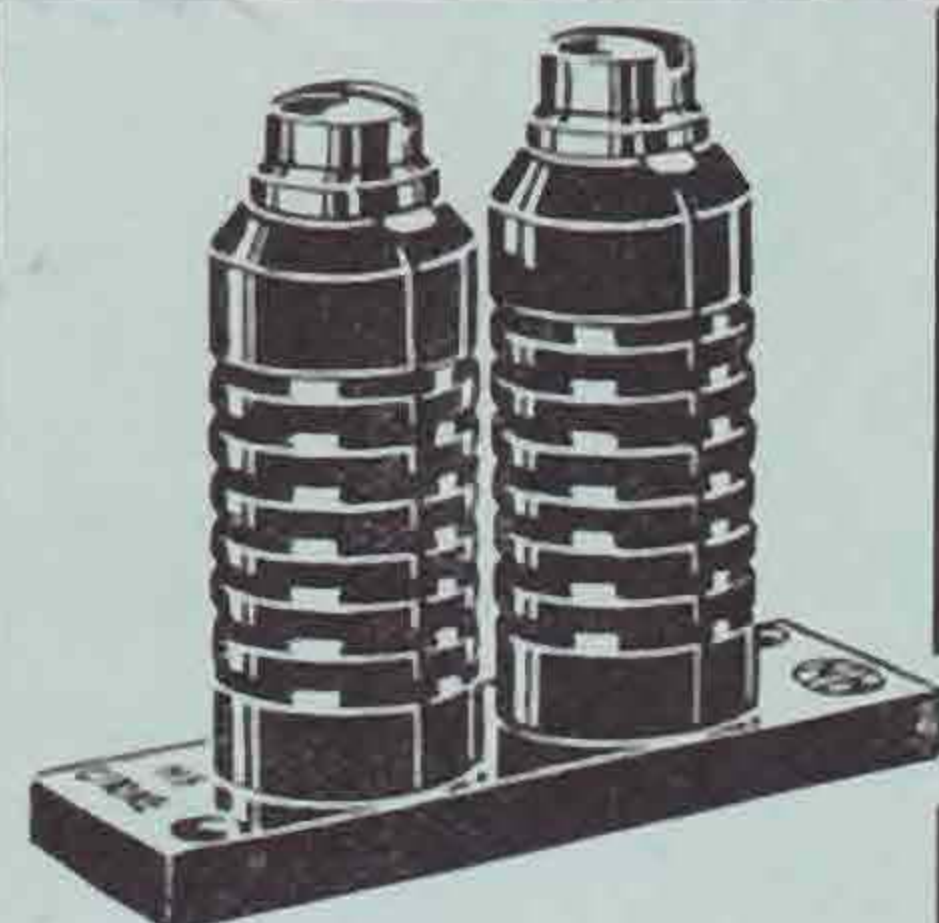
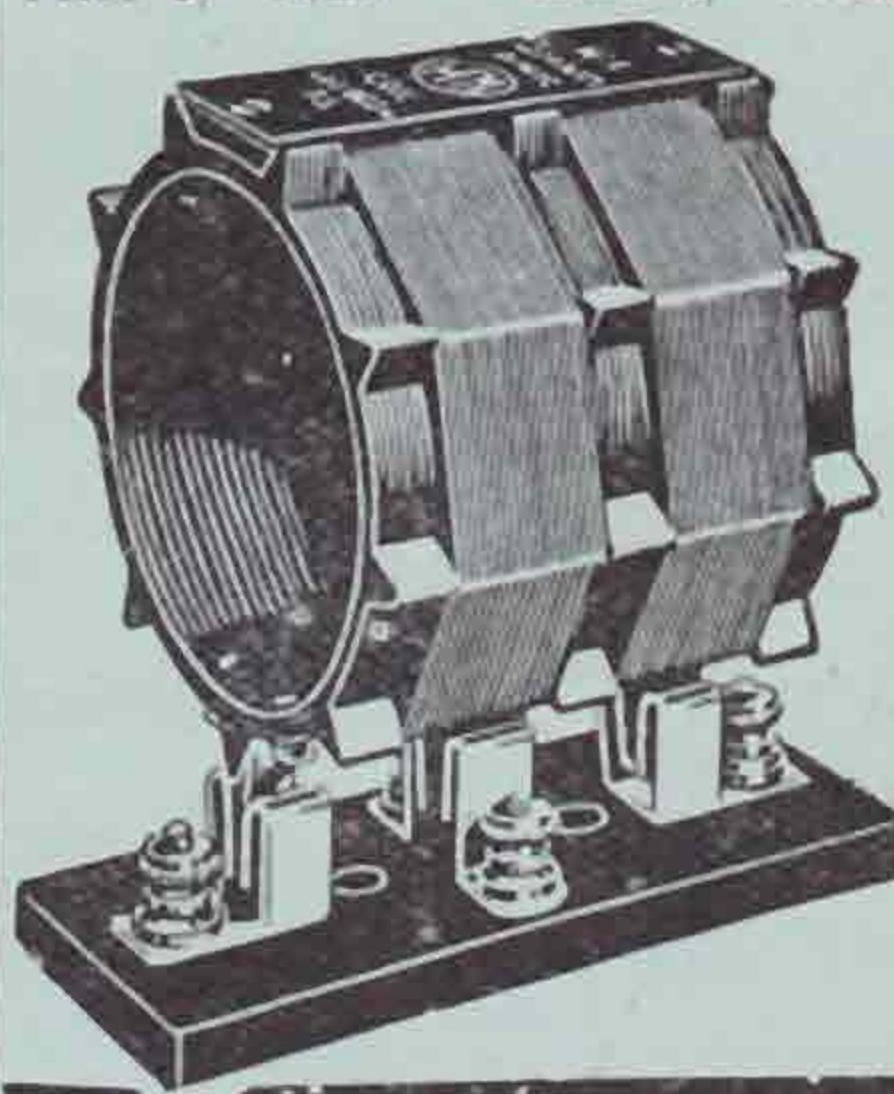
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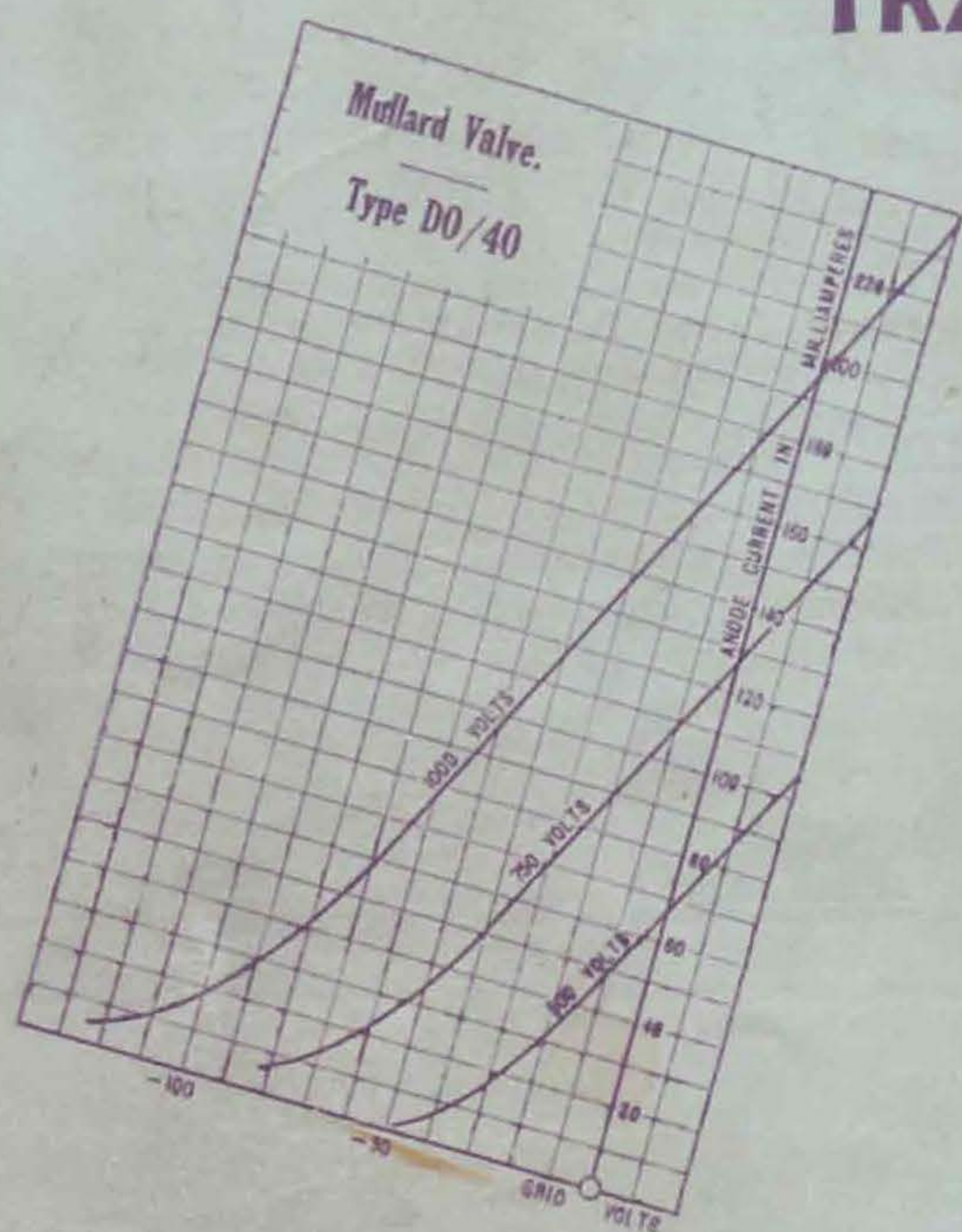
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