

T. & R. Bulletin

Incorporating

The Journal of the Inc. Radio Society of Great Britain

(BRITISH EMPIRE RADIO UNION)



Vol. 4. No. 4. October, 1928 (Copyright)

Price 1/6

IMPORTANT NOTICE.

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We shall announce each month new and intensely interesting Apparatus—apparatus of only the finest possible quality—apparatus of a quality unobtainable elsewhere, and unconditionally guaranteed.

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Have you all received details of the new **GR-LYONS TYPE 558 WAVEMETER** for the 5, 10, 20, 40 and 80-Metre Wavebands? Accuracy 0.25 per cent. Can be set to 0.1 metre. As used at G.P.O. Radio Research Stations and should satisfy the new P.M.G. requirements. Much better than Piezo-Control, although we supply **fully licensed** Piezo-Oscillators, too, if desired.

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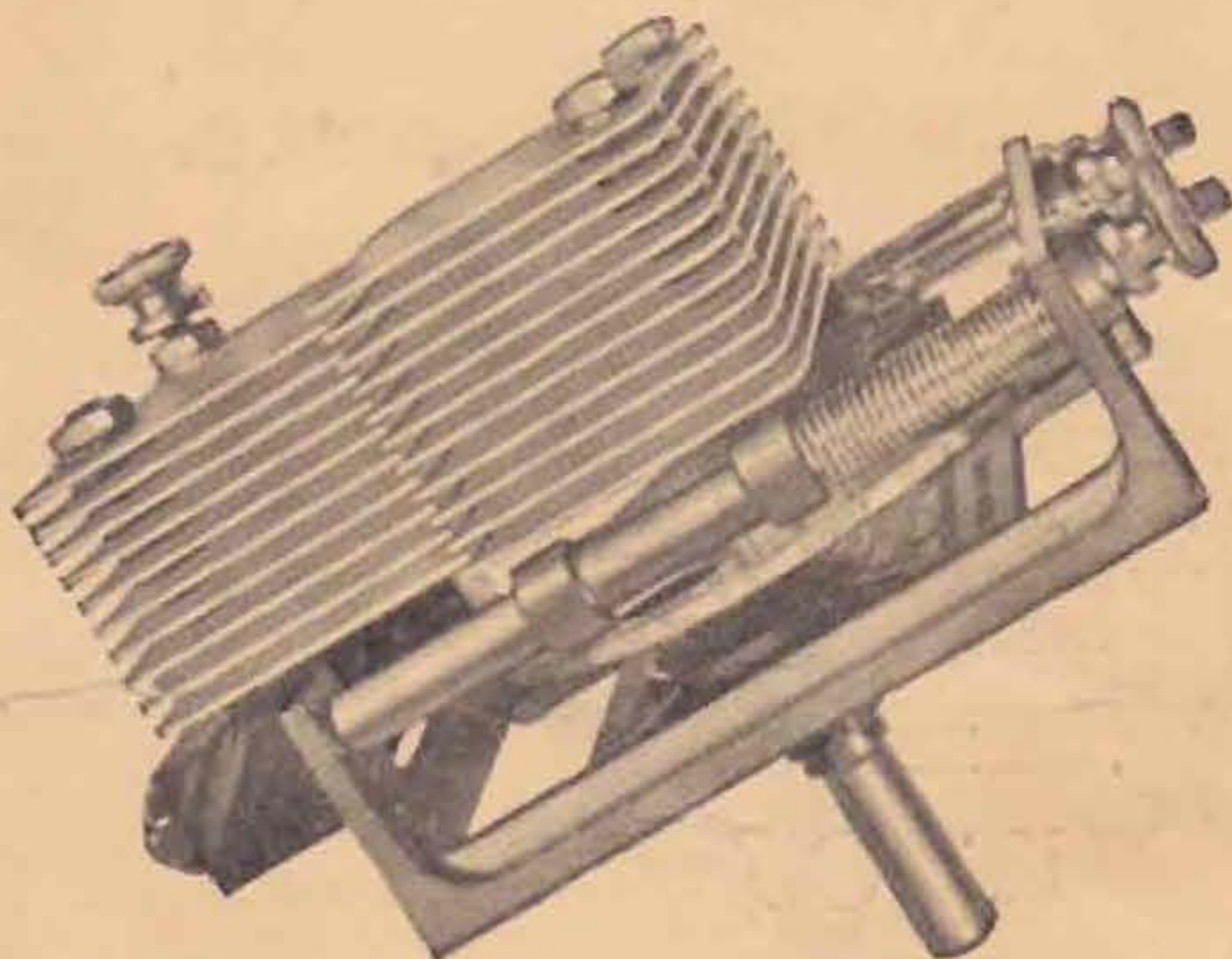


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QUARTZ

The recent Memorandum from the P.M.G.

amounts to this, that if your station is crystal-controlled, you need not worry about the wave-meter, but otherwise you must constantly check your heterodyne wave-meter on every amateur band in use, against a crystal. In every case, the crystal must have been accurately calibrated against some recognised standard. We hope to obtain recognition that our crystals fulfil the latter condition, but at the time of writing this point has not yet been decided.

Our 335-metre crystals,

used as described by Mr. Dedman in last month's "Bulletin" for wave-meter checking, comply with all requirements except possibly the one mentioned above.

Our 168-metre crystals

are all selected for transmitter control on the system described by Mr. Thomas in last month's "Bulletin."

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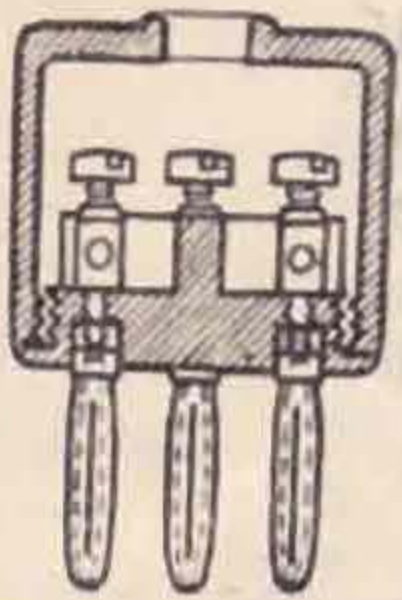
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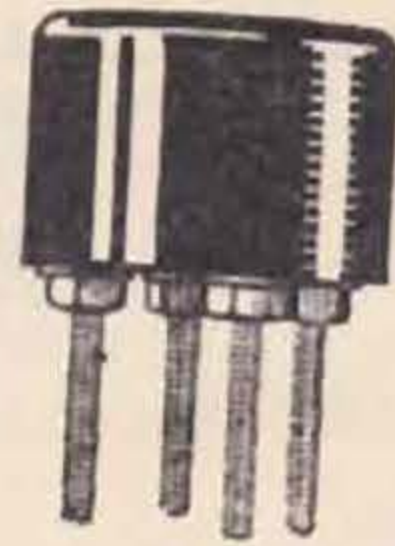


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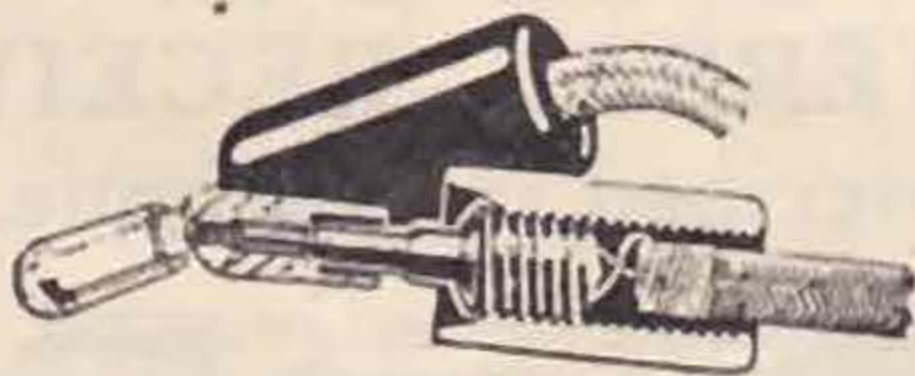
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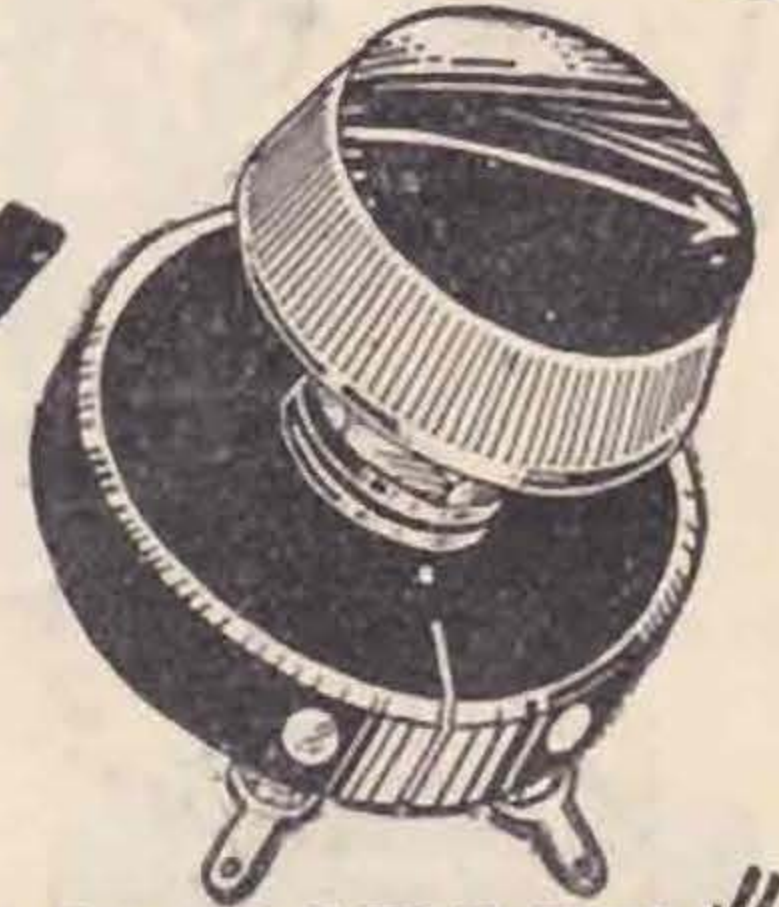
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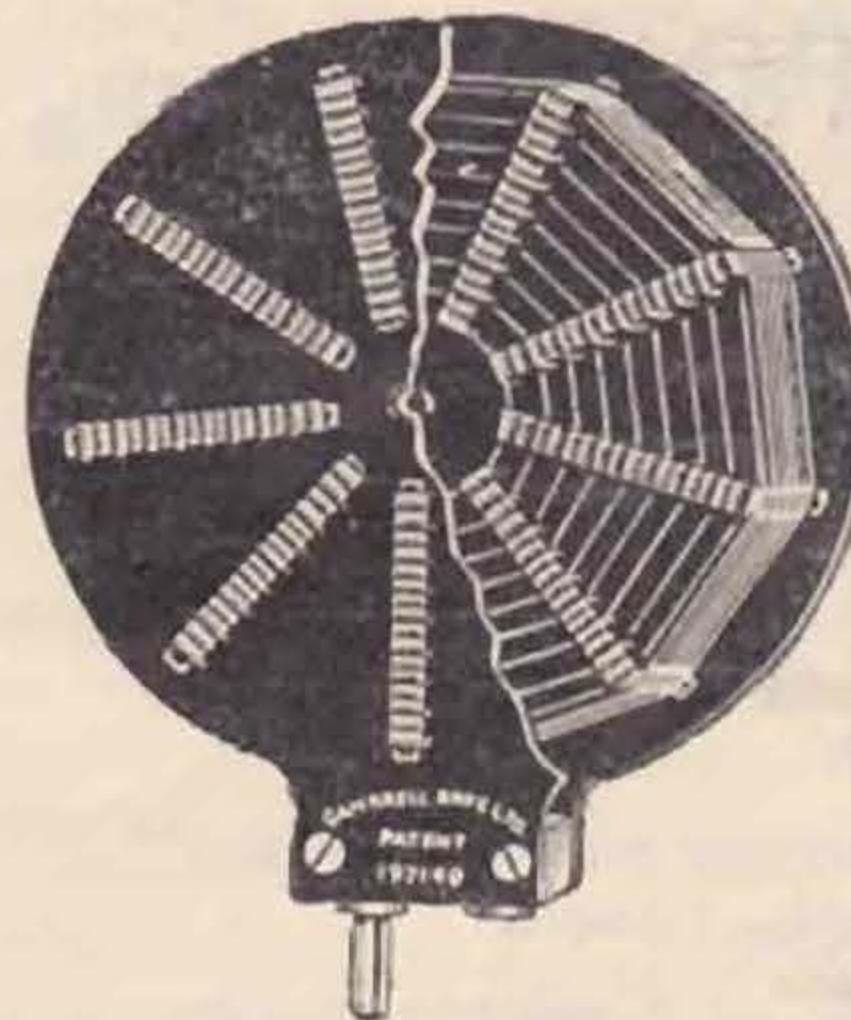
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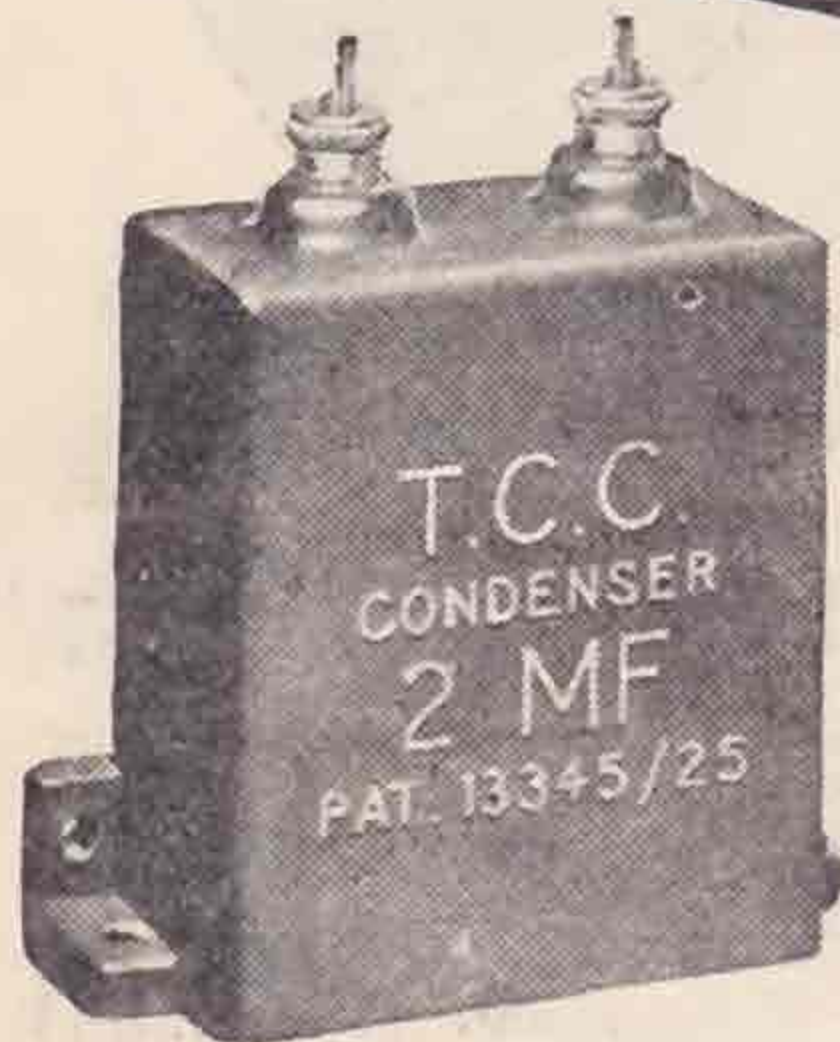
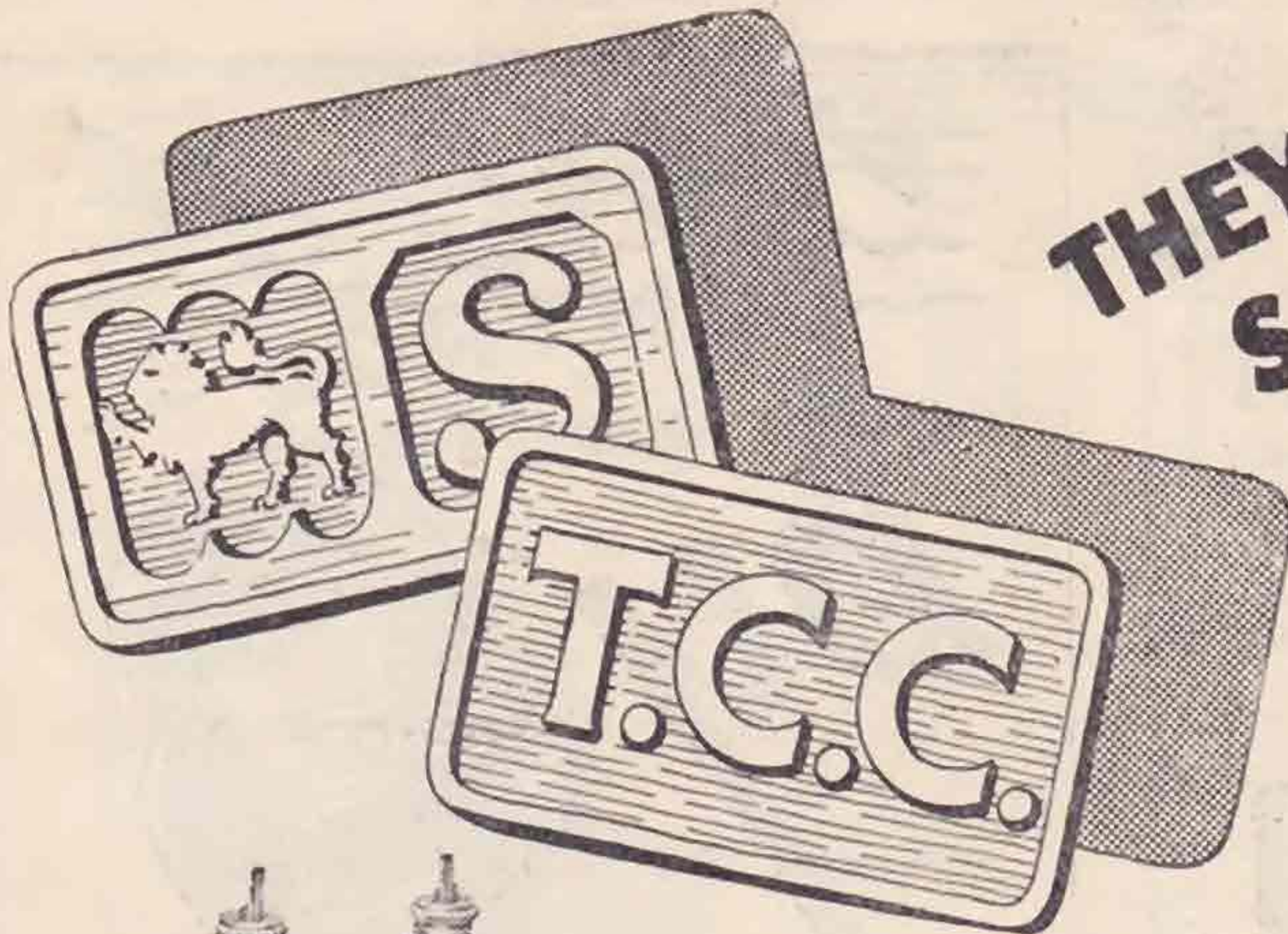
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TRAR

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.
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OCTOBER, 1928.

Vol. 4. No. 4.

SOCIETY NOTES

The 1928 Convention is now past, and we think it can be said without hesitation to have been the most successful one we have had. From the Presidential greetings at the opening of the proceedings on Friday to the last verse of "Auld Lang Syne," sung by a closed circuit of hands at the conclusion of the dinner, the whole proceedings went with a swing. The arrangements throughout were in the hands of our social committee and affords ample proof of the necessity for this section to deal with matters of this kind. All praise is due to Mr. Clarricoats and his assistants for their efforts.

* * *

Naturally the new licensing conditions for transmitters was the foremost topic of conversation and the discussion upon crystal control and frequency stabilisation opened by Mr. Simmonds and Mr. Goyder was aptly appropriate. With such other experts as Messrs. Hinderlich, Megaw, Aughtie and others who joined in the discussion, it was indeed a battle of the giants and provided food for much thought.

* * *

Summoned by our inexorable social committee at the unearthly hour of 9.30 on Saturday morning, we packed ourselves into charabancs and set out to find our way to the G.E.C. research laboratories at Wembley. It had been arranged that the vehicles, consisting of two charabancs and three cars, would keep together, guided by a member who happened to have a somewhat hazy notion of the whereabouts of the rendezvous. At Westminster Bridge, however, a traffic jam separated the group,

and eventually each vehicle had to proceed upon its own account, the writer's car apparently making a circular tour of the West and North-West suburbs of London. The result was that the final arrival was considerably delayed and the inspection curtailed in consequence. However, the party was eventually divided up into parties of twelve and dispatched under a guide to different portions of the building. The banks of valves undergoing life tests were very tempting, while we noticed that all the fine-looking measuring instruments had been carefully screwed to the benches. Anyway, it was a most interesting visit and the secretary is keenly indebted to Messrs. the General Electric Company for their hospitality and the courteous reception they gave us.

* * *

The afternoon proceedings began with a photograph, when it was evident that either the Institute of Electrical Engineers will have to widen their front steps or the Conventionists for next year will have to get thinner. This operation having been concluded, the company assembled in the large theatre to begin the serious work of the Convention. This included a further division of Great Britain into more convenient areas, a suggestion for the alteration of the date of the annual general meeting to agree in future with the Convention, new rules for the election and work of the committee and other matters referred to elsewhere. Mr. Megaw had brought an Irish shillelagh, presented to him for the purpose by the N.I.U. to back up his arguments. It was, however, noticed with satisfaction that this

was considerably smaller and lighter than the official weapon presented to the Society by Mr. Noden (6TW) at the first Convention and which lay on the table before the Vice-President throughout the proceedings. Fortunately no trial of the respective merits of the two was called for. With an interlude for tea, the meeting continued until 6 p.m., when the general desire to disperse for the dinner terminated the proceedings and permitted the Hon. Secretary to stuff innumerable papers and notes into his attaché case and give a sigh of relief.

* * *

The last item was, of course, the dinner. To describe this would require an abler pen than the writer's. He has been to many dinners in his time, but never to one like this, or enjoyed more. At the moment of writing he has a somewhat confused recollection of members packed together like sardines. 6CL rushing backwards and forwards through the jammed-up crowd, trying to find extra seats. Waiters falling over the backs of our chairs in trying to fill our wants. Having to sign about one thousand menu cards (I abate not one single menu card), listening to an excellent musical programme by admirable artists kindly provided by our worthy acting Vice-President, Gerald Marcuse, who presided throughout the convention in the unavoidable absence of Capt. Ian Fraser. Excellent speeches by our own members and visitors from overseas. QRM indescribable. QSS on the piano due to it being apparently having to be packed away in the next building and a final rush for hats and coats somewhere near midnight.

* * *

We were very pleased to have with us at the dinner our Past-President, General Sir Capel Holden, and his speech showed that he had lost none of his interest in the Society. Our Vice-Presidents, Mr. Maurice Child and Mr. J. H. Reeves, also were with us, and we were pleased to note that the latter had made such an excellent recovery from his recent illness.

* * *

Olympia! Another great success for the Society. Almost from opening to the close each day the R.S.G.B. stand was busy. There were usually two distinct crowds present—one of members inside and the other of would-be members outside. To deal with the latter a voluntary band of stand attendants had been arranged for each day and great thanks are due to these gentlemen for the assistance they afforded us and the patience they displayed in answering the innumerable questions. Particularly we would like to mention the help given day by day by Mr. King (5AD), Mr. Matthews (6LL), who also lent the 10-metre transmitter, and Mr. Hinderlich. These gentlemen, together with others, did much to advance the work of the Society in every way.

* * *

By far the finest advertisement for the Society was the crowd of members who congregated upon the stand each evening for the Exhibition. Their merry laughs and cheery dispositions attracted all passers-by and demonstrated more than anything else that the Society was a live one. Applications for new membership were numerous and were no doubt more due to the above fact than anything else. The publicity of the Society was in constant

demand and constant replenishment from headquarters was necessary. Many visitors sought our advice upon matters technical, one estimable clergyman insisting upon providing a free lunch by way of return.

* * *

Of course, the principal question asked was what did the Society do for its members? This question always demands a careful reply for the great majority of enquirers miss the point that the R.S.G.B. is an amateur association of members interested in radio work and not a commercial undertaking giving a definite service in return for a subscription. To turn and point to the crowd inside the stand and say "to be one of these," was the best reply, and paved the way to a more detailed description of the Society's activities.

* * *

The Editor wishes to thank all those who responded to his call for articles for the Convention Number. So many were received that it was found impossible to use all. These will be published in coming numbers whenever possible.

* * *

We cannot conclude our description of the eventful week without referring to the arduous work performed by Mr. Wellstead, the Society's Assistant Secretary. All the practical burden fell upon his shoulders, and his labours from early morn to closing time each day were carried out with the utmost efficiency and won the admiration of all.

Tit-bits from Exhibition Stand.

B.C.L. Enquirer: What advantages do I gain by joining the Society?

Tired Volunteer Stand Attendant: Well, you have the privilege of paying a subscription to the oldest Radio Society in the world.

B.C.L.: Yes, I know; but what else do I gain?

T.V.S.A.: Well, you have the opportunity of giving your views on crystal control and frequency stabilisation at our meetings.

B.C.L.: Crystal control! Why I am long past that. I have a three-valve set!

* * *

B.C.L.: (Examining master oscillator of ten-metre transmitter): Does that oscillate?

Tired Volunteer Stand Attendant: Yes, it does.

B.C.L.: Well, what are you doing about it?

T.V.S.A.: What do you mean?

B.C.L.: Well, does the B.B.C. know about it?

T.V.S.A.: I expect so, they have several of their own.

B.C.L.: Well I never! And yet they are always saying, Please don't do it.

Strays.

THINGS WE SHOULD LIKE TO KNOW.

Whether it is true that a ham asked 2QY if the use of an airgap with his crystal would cause a space wave?

* * *

An enthusiastic amateur took a receiving set on a holiday consisting of a H.F. Det. and 2 L.F. valves with transformers, the latter being of a large size. A landlady being somewhat interested viewing the same, referring to L.F. transformers, asked what the small mangles were for!

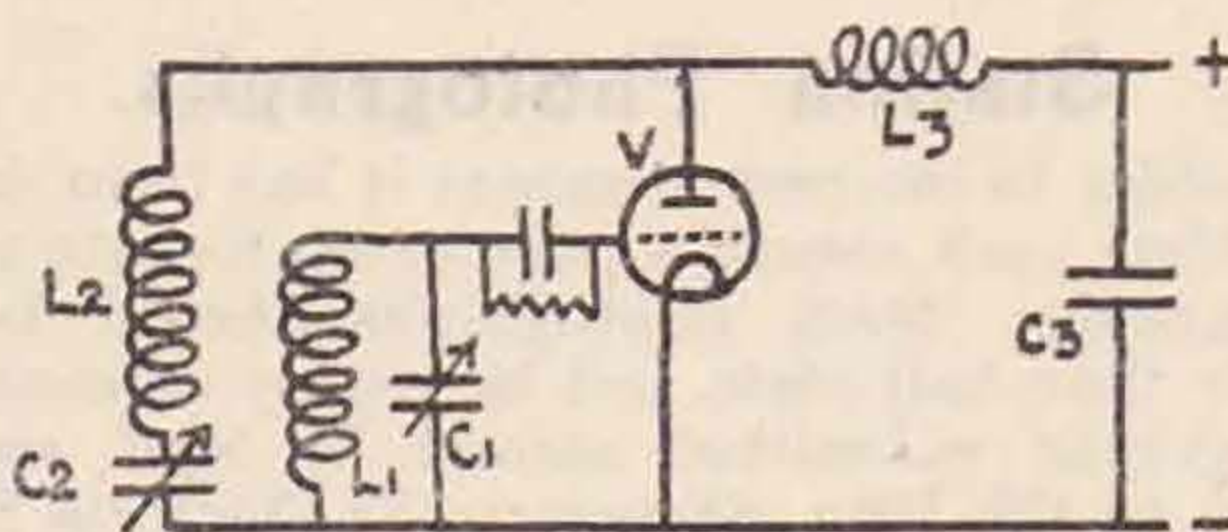
The Universal Receiver for all Waves from 5 to 5,000 metres.

By W. F. FLOYD (Exhibitioner in Mathematics at London University).

The set I am about to describe is by no means a freak receiver, nor is it as inefficient as its wave-length range would at first lead one to think. Certainly, the wave-band covered is wider than that which the ordinary receiver can efficiently cover, but this is not an ordinary receiver in that it dispenses with the conventional radio frequency choke, and yet does not use the other method of obtaining reaction—the old swinging coil system.

Up to the present it has been customary with amateurs and experimenters who have desired really good reception on waves shorter than 100 metres and on the broadcasting bands as well to use two receivers. Both may incorporate the same circuit, but each has its own radio frequency choke especially designed for it. Even so, to receive on waves shorter than fifteen metres it is necessary to build either a further receiver, or to fit a new choke which must be low-loss to such an extent that its construction involves an advanced mathematical consideration. The difficulties which prevent the use of the longer wave chokes and apparatus for shorter wave reception are chiefly caused by stray capacity and inductance effects.

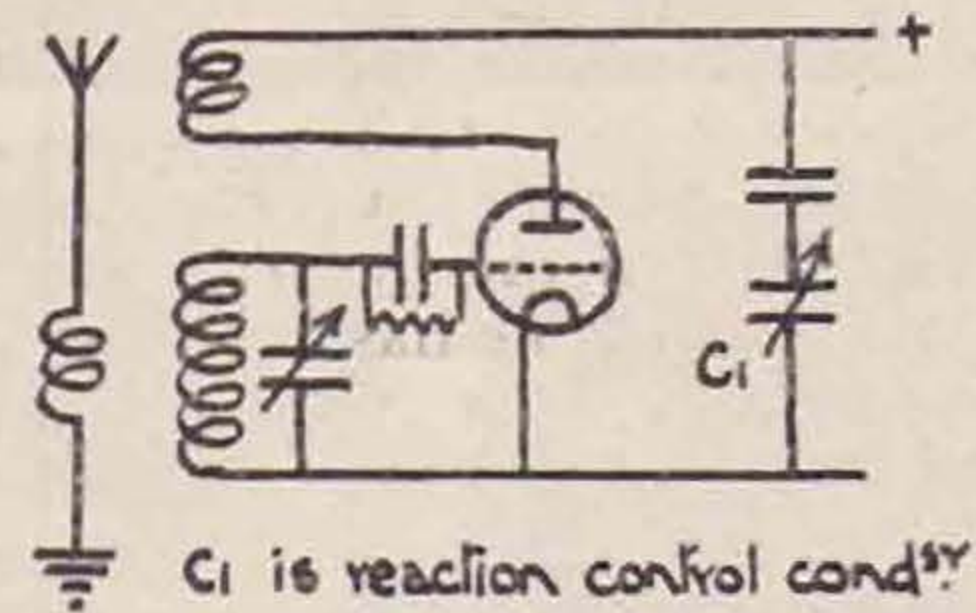
There are two ways of obtaining reaction which are employed in ordinary reception. First there is the old "swinging coil" method, purely a mutual inductive effect, too crude in its control for extensive use. The other way is known as the "capacity reaction." It is not really a capacity reaction. A better name for it is "capacity controlled reaction." It employs a fixed mutual inductance with a condenser control of feed-back. The control is accurate enough, but it unfortunately controls three circuits—see Fig. 1. With the average choke only two of the circuits may be varied, but there still arises the trouble with the choke when the very short wave-lengths are to be received.



If it is possible to use the swinging coil type of reaction with a fixed coupling—preferably loose—and to control reaction smoothly, our difficulties in reception disappear. It is possible, and the system enables one receiver to be used for the reception of all wave-lengths. Certain precautions have to be taken with regard to stray wiring and earth capacities, but these are only matters of design.

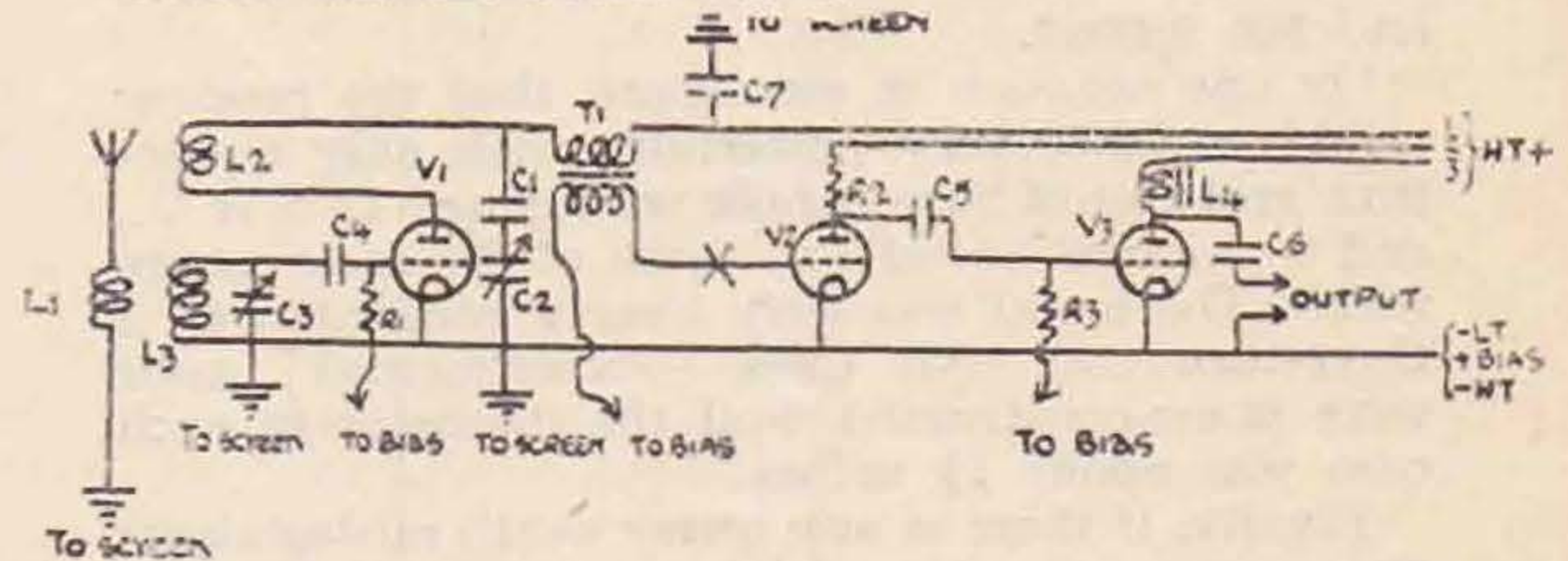
Fig. 2 shows the circuit diagram of the detector alone. Since the reaction coupling is loose, the mutual is not so large as to cause an alteration in the grid circuit tuning when the reaction is increased. There is no radio frequency choke to worry over, and the reaction condenser provides a smooth and

steady control of feed-back for the radio frequency currents.



The aerial may be connected in any of the conventional ways, *i.e.*, to a tapping on the grid coil (provided bare wire coils be used in place of those specified), to a tapping on the anode coil, in which case the anode coil acts in the dual capacity of reaction coil and semi-aperiodic aerial coil, or to a separate aerial coil loose coupled as shown in Fig. 3.

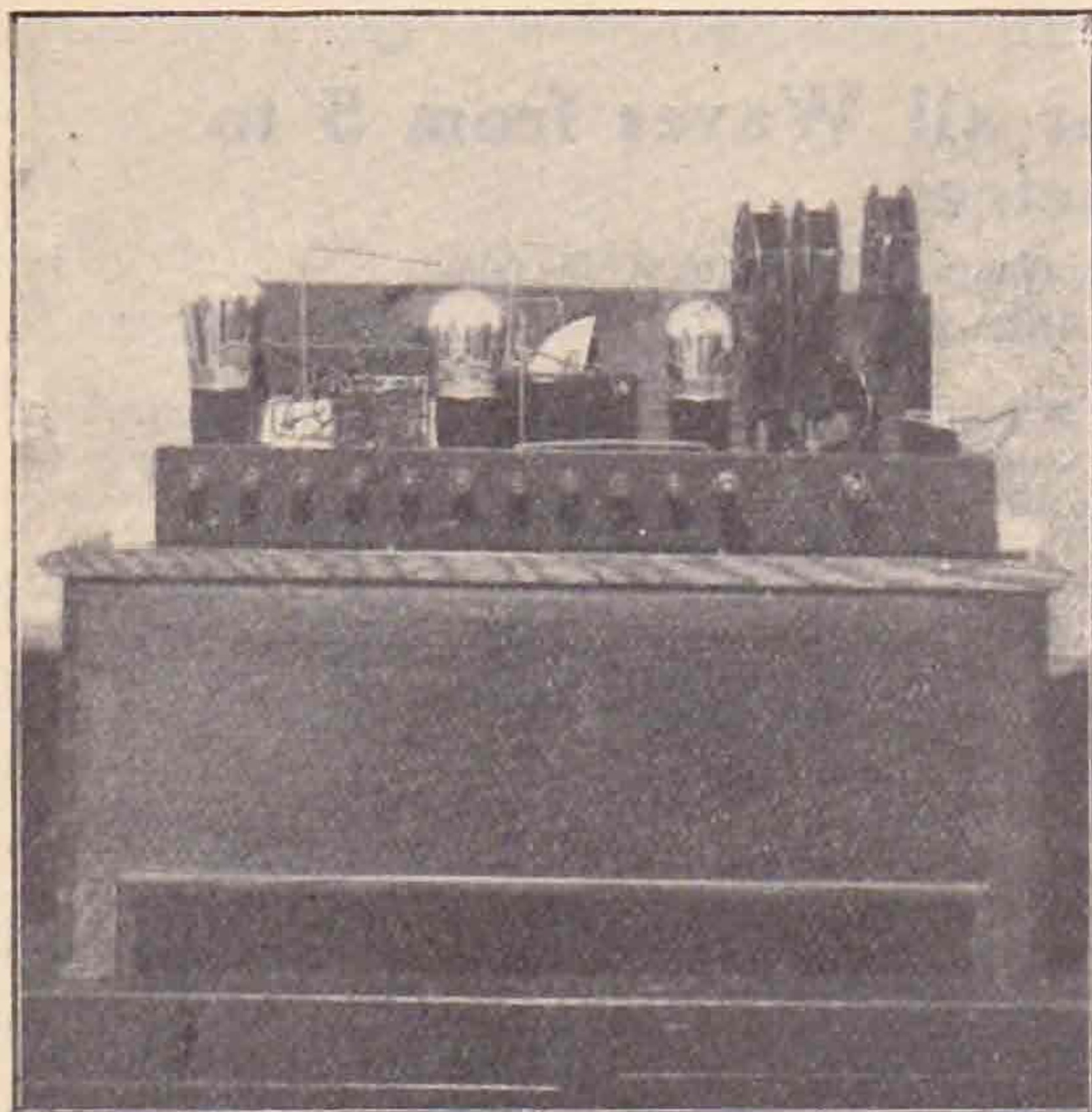
The list of components recommended for use in the set is appended to Fig. 3. The two-volt series of valves was used throughout. It will be seen that the R.C. valve is alternatively put as Cosmos R.C. This was because it was found to give slightly better quality with very careful biasing. So far as signal strength went, the Cossor was the better valve.



Referring to Fig. 3, at X it may be necessary to insert a small resistance to prevent a feed of radio frequency energy through the audio frequency amplifiers. This was found to occur mainly on the waves shorter than about fifteen metres. The whole receiver is mounted on a baseboard 18" x 10 1/2" x 1/2", of which one-half is devoted to the radio frequency components and wiring.

The photographs show clearly the placing of the parts on the board. There are enough terminals on the terminal strip to allow the grid bias battery to be placed outside of the cabinet. Extra wires were provided so that, for portability, the bias was inside. The panel itself measures 16" x 5" x 1/4", and is backed by the sheet of copper foil given in the list of components.

To restrict the field of the radio frequency wiring below the baseboard, a sheet of foil was placed underneath the set at the "live" end of the receiver. The foil was in each case connected to earth, and no earth return wires were used in the case of the variable condensers, since each of these has metal end plates at the potential of the

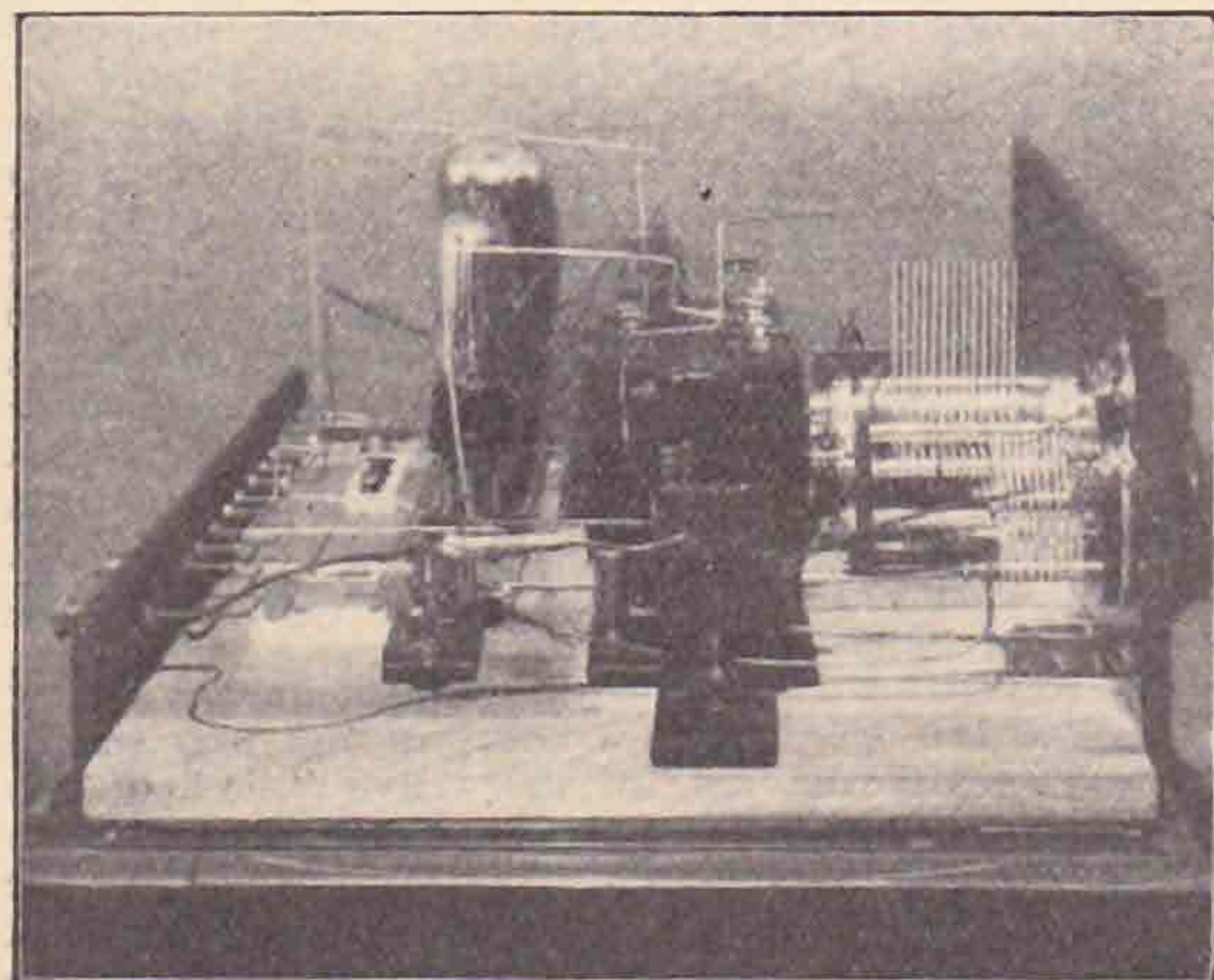


moving vanes. The contact between the end plate and the foil provided the connection in each case.

With regard to the relative sizes of the coils, on the broadcasting band with a loose-coupled aerial a 100-turn grid coil (Gambrell D) requires a 30 or 40-turn coil for reaction (Gambrell A or B1). A 60-turn grid coil (Gambrell B or C) requires a 20-turn coil for reaction (Gambrell a2 or a), and so on down to the very short wave-lengths of five and ten metres.

On one occasion it was found that the receiver would oscillate very powerfully with only a one-turn grid coil of bare copper wire gauge 12 S.W.G., and a reaction coil of two turns of the same gauge wire. The aerial was very loosely coupled with a three-turn coil. All these "experimental" coils were home-constructed, and the diameter in each case was about $1\frac{3}{4}$ inches.

Finally, if there is any query worth raising about the receiver, don't forget to raise it. The writer



is interested in his readers' opinions and comments just as much as, he hopes, you are interested in his articles.

LIST OF COMPONENTS.

L_1 L_2 L_3	Gambrell plug-in type coils.
L_4	Ferranti output choke.
C_1 C_6 C_7	T.C.C. 2. mf. Mansbridge condensers.
C_2	Sterling .0003 or .0005 mf. variable condenser.
C_3	Peto-Scott .0001 mf. "Keystone" variable condenser.
C_4	Holzman .0003 mf. fixed condenser.
C_5	Holzman .03 mf. fixed condenser.
R_1	3 megohm grid leak.
R_2	$\frac{1}{4}$ megohm resistance.
R_3	1 megohm grid leak.
T_1	Marconi "Ideal" 4/1 transformer.
V_1	{ Cossor H.F. 1 H.F., 1 L.F., 2 R.C.
	{ Cossor L.F. 1 Power.
V_2	{ Cossor R.C.
	{ Cosmos R.C.
V_3	{ Cossor Power.
X	50,000 to 200,000 ohm resistance
	Copper foil about .064 in. thick, $12" \times 5"$ for panel.
	Copper foil same thickness and $12" \times 9"$ for base.
	Ebonite panel, $16" \times 5" \times \frac{1}{4}"$.
	Baseboard, $18" \times 10\frac{1}{2}" \times \frac{1}{2}"$.
	Cabinet: Details of this will be published provided there is sufficient demand for them.

Trade Notice.

For some time past we have had one of Messrs. Burndept's variable condensers on our short-wave receiver and are thoroughly pleased with it. Coupled with the Etho-vernier, made by the same firm, it has made reception on the short waves easy.

Mr. C. S. Dunham points out that his advertisement in last month's BULLETIN did not properly describe the rectifiers made by his firm. The full wave De Luxe model gives an output of 180 volts 40 milliamperes with tapplings at 60, 80 and 120 volts, while the half-wave Senier model gives 150 volts 20 milliamperes with tapplings at 40, 60 and 80 volts.

Station Photographs.

In order to interest members it has been decided to publish each month a page of up-to-date station photographs. Such photographs should be not greater than half-plate and be clearly defined. All photographs submitted should be sent securely packed to the Hon. Secretary, 53, Victoria Street, S.W., and unless sufficient stamps are enclosed for their return they will be held in the Society's offices and will form the basis of an Exhibition of Amateur Station Photographs.

Standard Frequency Transmissions.

Calibration signals will be transmitted from G5YK on October 28, as follows:—

14.00 G.M.T.	7,050 K.C.
14.05 "	7,250 K.C.

A similar schedule will be transmitted on November 11 commencing at 10.00 G.M.T. The call is R.S.G.B., DE G5YK, followed by the frequency used and a one minute dash.

My 10-Metre Work.

By J. W. MATTHEWS (6LL).

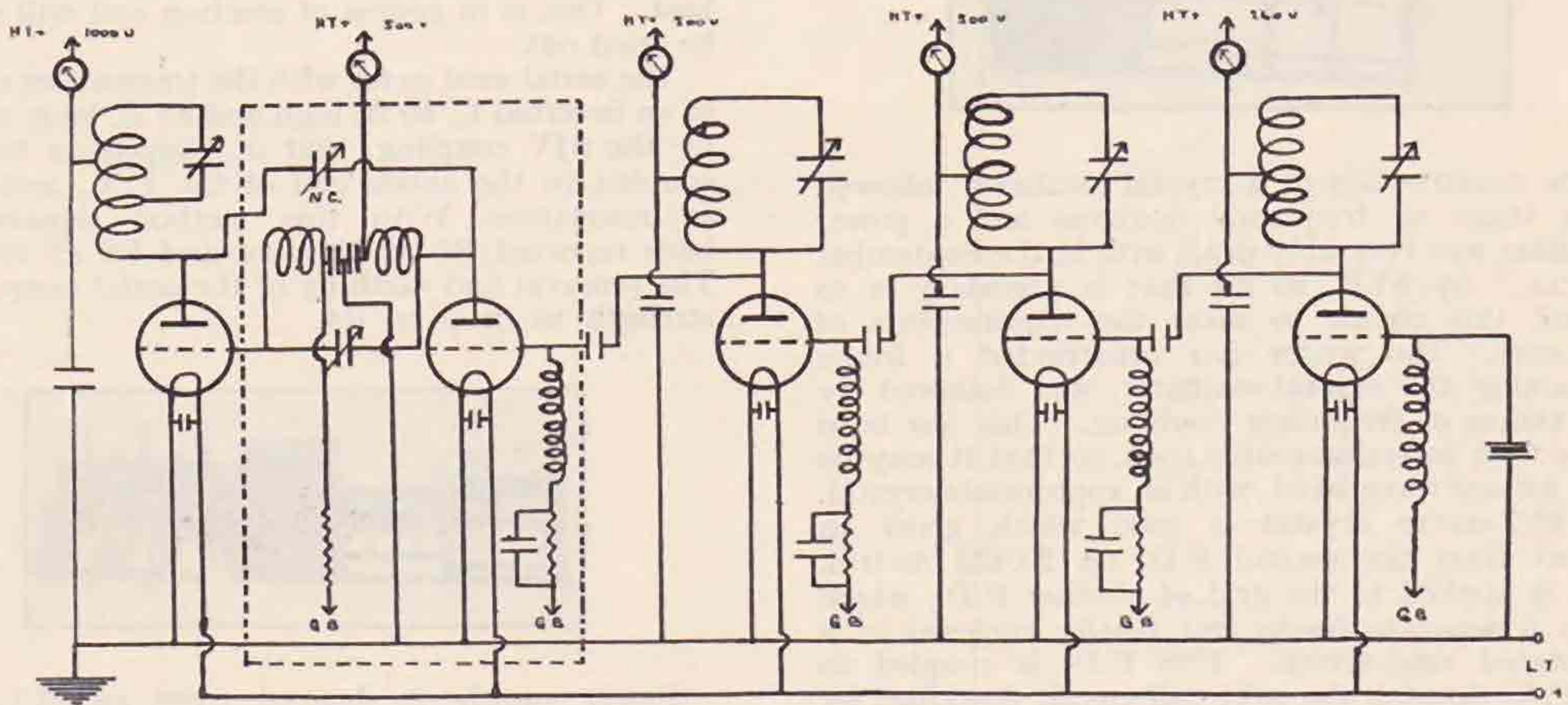
In view of the steadily increasing interest being taken in transmission on the band of wave-lengths around 10 metres, it is thought that, perhaps, a few words on the subject may be of interest, both to those who have already had some experience in transmission on that band and also to those who have not.

First, with regard to the behaviour of these waves. Much has already been written in QST regarding the angles of propagation with various aerials, and relative matter, so no reference to that need be made here. One outstanding fact is that over distances up to about 20 miles, signals are usually absolutely constant, night or day, with little or no QSS. Also, that up to this distance the addition of an aerial to the transmitter makes very little difference to signal strength, about 2 points as a rule. In America many amateurs are in nightly communication with the opposite coast, and several have been heard in England.

field for experiment on this wave-band, and a few notes on the construction of a transmitter for this band may be of interest.

First, we will take a self-oscillator, such as is commonly used with great success on 23 and 45 metres. The favourite circuit seems to be a T.P.T.G. Assuming this, let us consider using the same transmitter on 10 metres. A slight modification of the normal circuit is advantageous so as to obviate the necessity for H.F. chokes. This type of TX will work very well when properly adjusted, and it will be found that a high L/C ratio is preferable, as the normal no-load milliamps are usually higher on 10 metres than on 20 or 40 metres. The chief disadvantage here is that usually the feedback through the self-capacity of the valve is so great as to cause the TX to howl. This could be obviated by back-coupling the grid coil to the anode-coil slightly, or by decreasing the grid leak.

Another circuit that has found favour as a self-



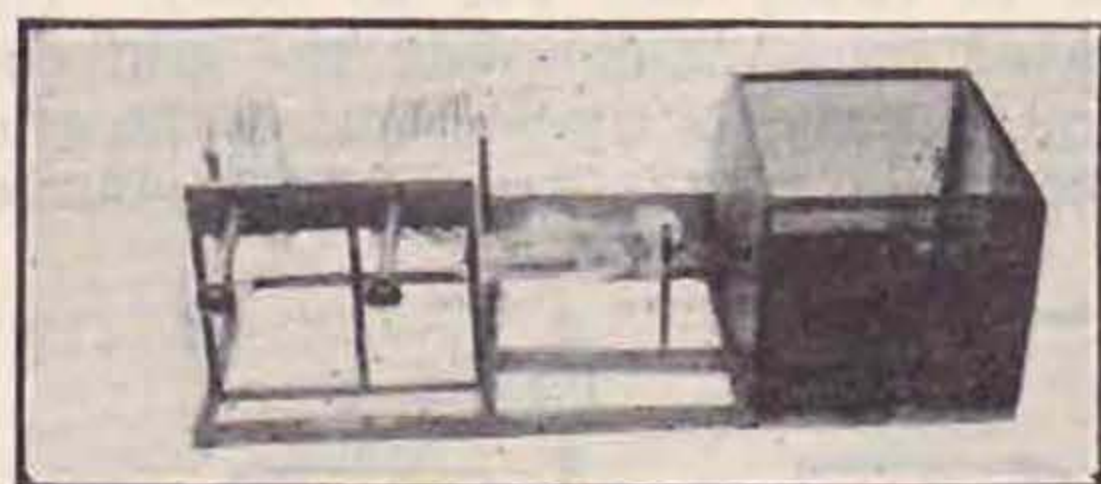
One, NU2JN, has succeeded in establishing two-way communication with EF8CT, but so far this is the only occasion that a European station has been heard in America on this band. There are very few European amateurs, apart from English, who are doing anything on this wave, but EU15RA has been heard here. With regard to conditions, it seems that, judging from the NU stations received over here, if 20-metre conditions are good, then 10-metre conditions are good also. One other fact should be pointed out, and that is that no NU station has been heard over here after dark, which would seem to point to the fact that for DX it is essentially a daylight wave. It could, of course, be used for local "rag-chews" during B.C., since it is possible to work without an aerial, as mentioned above, thereby reducing the chances of interference by B.C.L.'s to a minimum. It will be seen from the above remarks that there is a vast

oscillator on 10 metres is the Colpitts, but in the writer's opinion it is not so good as a properly adjusted T.P.T.G. The split Hartley also deserves mention, but again does not come up to the T.P.T.G.

The lay-out of the TX is rather important. It must be borne in mind that the magnetic fields round coils and condensers are very much greater than on 20 or 40 metres. For this reason it is recommended that the diameter of all coils should not exceed 2 ins., be wound with at least 10-gauge wire, and be entirely self-supporting, the leads to the condensers being usually sufficient support. The anode coil might be mounted on a pair of glass rods, and the aerial coil slid along them. A very loose aerial coupling is usually required.

The valve is the next consideration. It must be borne in mind that if too much power is put on a valve of the L.S.5 class at these frequencies, the

R.F. strain between the plate and filament leads through the pinch, tends to cause a breakdown in the seals. For this reason it is advisable to run a valve well below the manufacturers' rating. The D.E.T.1 type of valve is not very suitable on these frequencies, and if used should not be run at more than about 10-15 watts. Even then it is probable that the filament will slowly lose its emission. The only valve of this class that seems suitable is the Osram S.W.D.E.T.1. The internal construction of this valve is such that the strain on the seals is reduced to a minimum, besides having a slightly lower grid-anode capacity. The filament is supported to the top of the grid, another advantageous point. Now, with regard to the disadvantage of self-oscillators at these frequencies, the chief is the difficulty to obtain a rock-steady note, and the tendency to howl, which, of course, ruins the note. The usual note from a self-oscillator is very wobbly, as the slightest mechanical vibration will upset the note considerably. For this reason it is better to use C.C., for besides keeping the frequency constant it is as well to use C.C. wherever possible under the new licence conditions.



The construction of a crystal oscillator followed by a stage of frequency doubling and a power amplifier was very ably dealt with in the September "BULL." by 5YK, so all that is necessary is to extend this circuit to meet the requirements of the case. The writer has constructed a frame containing the crystal-oscillator, and followed by two stages of frequency doubling. This has been made with interchangeable coils, so that it may be used for any wave-band, with an appropriate crystal. An 81.7-metre crystal is used which gives an output from the second F.D. on 20.425 metres. This is applied to the grid of another F.D., which is on a separate frame and totally enclosed in a perforated zinc screen. This F.D. is coupled to the P.A. through the split coil circuit described by 5YK. It may be mentioned here that this method of coupling can be used between stages of F.D. with an increase of efficiency. The P.A. is neutralised by a J.B. neutralising condenser connected between the anode of the P.A. and the anode of the preceding F.D. The more usual connection of the N.C. between the grid and the end of the anode coil will not function, as it renders the P.A. unstable and allows the R.F. applied to the grid

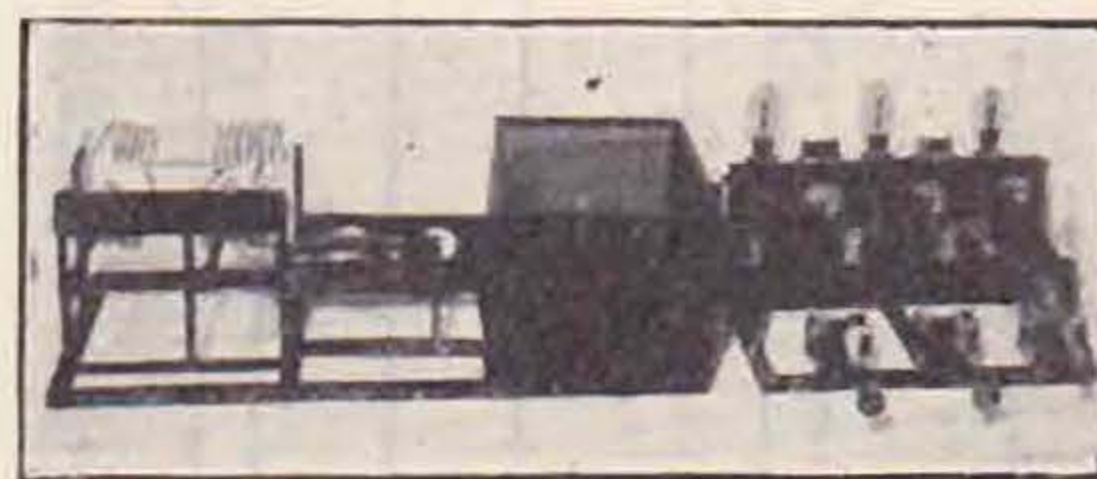
to pass straight on to the anode coil of the P.A. The valves used are a D.E.5.B. as C.O., followed by three L.S.5.B.'s in the stages of F.D., and an S.W.D.E.T.1 as P.A. The valve in the last F.D. should be a little larger, as the drive to the grid of the P.A. must be fairly large to counteract the losses in the grid circuit, but so far it has not been actually tried.

All fixed condensers used in this circuit are Dubilier, and all the variables are Ormond. Those on the P.A. and last F.D. have only three moving vanes. Weston meters are used on account of their well-known accuracy and dependability. A meter is not essential in every H.T. lead, but is a decided advantage and an assistance to tuning. The grid leaks consist of Climax 20,000 ohms potential dividers, cut in two, and must be shunted by a condenser.

In operation, the transmitter proves to be quite stable and easy to adjust, each stage being tuned separately, and when tuned need not be touched again. Neutralising proved to be quite simple, and the addition of the screen round the last F.D. is a great advantage and materially assists the neutralising.

No mention is made here regarding aerials. There is a large field for experiment here, but in the writer's opinion a vertical Hertz, either half or full wave, and Zeppelin fed will prove to be the best. One is in course of erection and will shortly be tried out.

The aerial used so far with the transmitter consists of an inverted L, 50 ft. high and 65 ft. long, coupled by the 6JV coupling, that is, clipped on to a coil coupled to the anode coil of the P.A., and tuned to resonance. With this method signals have been reported R6 at 20 miles and R6 at 10 miles. The removal and earthing of the aerial cause signal strength to drop to R4.



Power supply is derived from an M.L. type "F" rotary converter, which has always proved to be extremely satisfactory, and has shown on full load an efficiency of 80 per cent.

It is hoped that these few words on a subject that seems to be interesting a great many people will stimulate argument and counter-articles in this paper, and also bring to the notice of the "DX key-punchers" that there is something left to experiment with.

Convention Photographs.

Copies of the Convention photographs can be obtained by applying direct to Mr. G. Smith, "Silverlea," Queen's Walk, Wealdstone, N.W., price three shillings, post free. These photographs are full-plate and mounted.

The QSL Section of the I.R.T.S. is now at GW17C, and cards for members should be sent to the following address: The QSL Section, Irish Radio Transmitters' Society, 9, Upper Garville Avenue, Dublin, S.3, Irish Free State. Cards for all GW stations may be sent *via* I.R.T.S.

Wavemeter Calibration by Piezo-Electric Crystal.

A. HENDERLICH (2QY).

The P.M.G. has recently intimated that stations whose emission is crystal-controlled, or whose wavemeter is checked periodically by a crystal whose frequency and harmonics fall within the bands specified in the station licence, will be regarded as satisfactorily equipped, provided the calibration of the crystal has been accurately determined against some recognised standard.

A very good account of the theory of wavemeter checking was contained in an article by Mr. Dedman in the September "BULL."

The requisites for an accurate set of wave-length measuring apparatus are:—

- (1) A crystal as above.
- (2) A wavemeter, having a fairly accurately determined calibration curve, which curve should be practically a straight line over the amateur bands.
- (3) If the wavemeter is not equipped with telephones, then a receiver is required, the calibration curve of which is also required (good squared paper, also log-square paper, can be obtained through the R.S.G.B. sales department, price 4d. per sheet or 7s. per quire).

To check, say, the 42-metre band, the crystal oscillator is switched on, and search is made in the receiver for the crystal harmonic nearest to 42 metres. Having adjusted the beat-note to be so low as to be inaudible if a wipe-out occurs over, say, 100 cycles, no need for amateurs to worry, though wipe-out over several condenser divisions must be avoided by looser coupling of the generator). The heterodyne wavemeter is now similarly adjusted to inaudibly low beat-note.

We now know that both receiver and wavemeter are oscillating upon the same frequency as the crystal harmonic. The condenser readings are noted, and compared with those on the calibration curve.

There are four ways of dealing with the error discovered. For most amateur purposes, that is to say, when the wave-lengths that are eventually to be measured lie quite close to the crystal harmonic (say, not more than 1 per cent. different), any one of the four may be used. For real accuracy, only the third and fourth methods are admissible.

(1) The condenser dial reading may be considered as being so much too high or too low; *i.e.*, the old calibration curve is used, but the actual

readings of the condenser dial are corrected before looking up the wave-length from the calibration curve. Each wave-band will have different error.

(2) The actual readings of the condenser dial are used, but the original calibration curve is marked in pencil, "Curve reads so much of a metre too high (or too low)," and the necessary correction is made after reading off the wave-length. This method is the best for quick results of moderate accuracy, as the appropriate correction can be marked above each curve, where it draws immediate attention.

(3) The wavemeter is re-calibrated right through its range. This method is necessary whenever the error disclosed is serious.

(4) In cases where the original calibration curve is almost a straight line, and the departure from the crystal harmonic is small, the slope of the curve is determined in metres per degree (or of course, kilocycles per degree), and the difference between the condenser reading for the crystal harmonic, and for the wave-length to be measured, is multiplied by the slope, and applied as a correction to the value of the crystal harmonic.

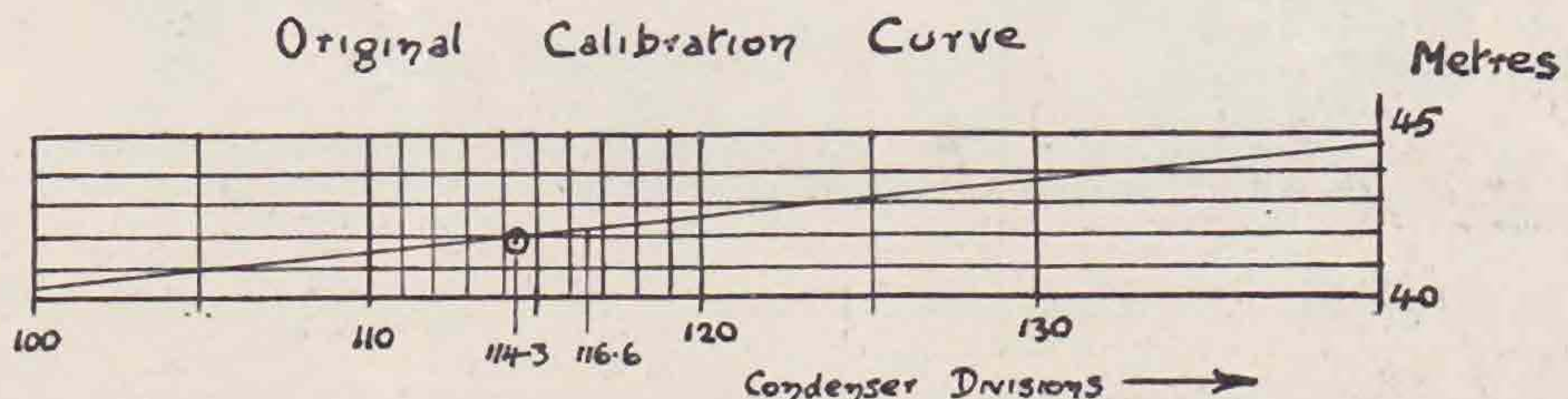
Three of these methods are shown below by an example:—

(1) Crystal check-point, 114.3 degrees equivalent to 41.787 metres. Error, dial reads 1.5 degrees too high. Therefore, wave-length corresponding to 116.6 degrees is read off from 116.6—1.5, or 115.1 degrees as 42.0 metres.

(2) Crystal check-point as above. Error, curve reads 0.25 metre too high. Wave-lengths corresponding to 116.6 degrees is 42.3—0.25=42.05 metres.

(4) Crystal check-point as above. Slope of curve, 0.107 metres per degree. To find wave-length corresponding to 116.6 degrees, 116.6—114.3 = 2.3 degrees multiplied by 0.107, is equivalent to 0.246 metre. 41.787 plus 0.246 equals 42.03 metre. Likely error is about 0.01 metre, made up of error due to inability to read scale any closer, about one-tenth of 0.107, plus 2.3 times the error in obtaining the figure 0.107.

(3) Re-calibration of wavemeter. There are very few curves that can be read closer than 0.05 metre, but the slope can usually be determined with much greater accuracy, so that re-calibration is only necessary when the error disclosed is so great that the slope of the curve is suspected of having altered to a material extent.



Third Annual Convention.

Those of us who were privileged to spend the days of September 28 and 29 in Convention must indeed consider themselves fortunate, for never previously has there been gathered together in this country so many active amateur radio men. Throughout Convention the ham-spirit was predominant. To those who came to London doubting the strength of the Radio Society of Great Britain there must have come a revelation, for never before has the Society shown in words and deeds that it *alone* truly represents the real amateur.

Opening Convention with over 100 members present, our acting vice-president, Gerald Marcuse, welcomed all those who had journeyed long distances, and expressed his sincere wish that this Convention would be the means whereby new friendships would be formed and old ones re-cemented.

From our President, Captain Ian Fraser, M.P., came words of greeting and expressions of regret that business had drawn him from England. From Germany came friendly wishes, and from many of our provincial and Colonial members were received regrets at absence and wishes for success.

Opening the discussion on "Frequency Stabilisation," Mr. E. J. Simmonds (20D) mentioned methods of crystal control, whilst Mr. C. Goyder (2SZ), outlined the case for M.O.P.A. An interesting open

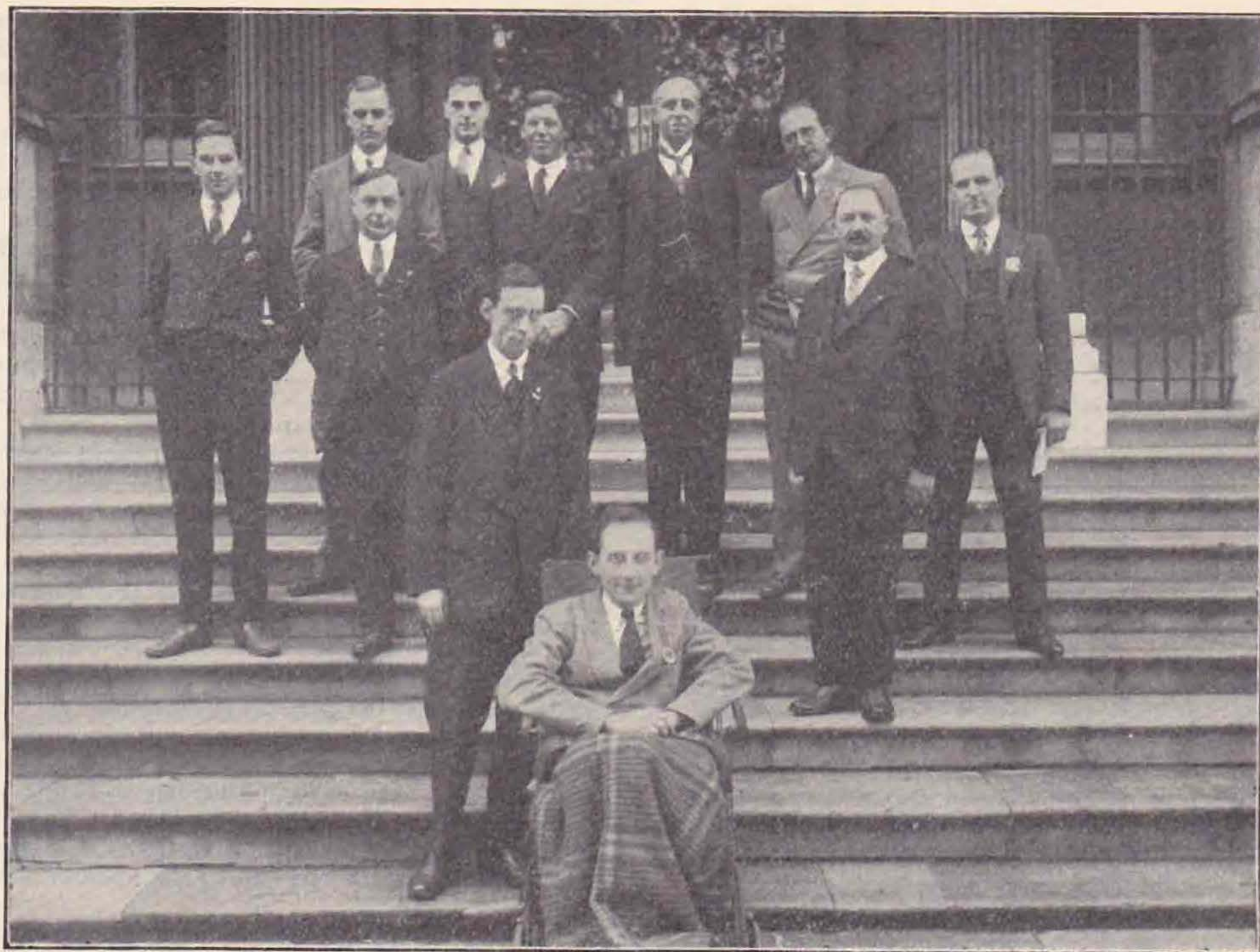
discussion followed in which Mr. Hinderlich (2QY), Mr. G. W. Thomas (5YK), Mr. Eric Megaw (6MU), Mr. Aughtie (6AT), Capt. Hartridge (5CB), Mr. Floyd (5WF), and Mr. Hogg (2SH) contributed interesting and useful information on many aspects of the subject.

Following the discussion many of the provincials were escorted to various rendezvous by London members, and the beginning of many new "ham-ships" were formed.

Gathering early on Saturday morning, some 60 provincial members made the journey to the General Electric Company's Research Laboratories, at Wembley. Much of interest was shown and all were sorry that the visit could not have been prolonged, but in order to begin the serious business of Convention this was impossible, and so at 2 p.m. we found all set for the afternoon session. Well over 150 members were present when Mr. Marcuse rose to open the business meeting.

Explaining the proposed scheme for the re-arrangement of Areas, Mr. Clarricoats (6CL) pointed out that with the rapid growth of the Society membership it had become necessary, in order to keep everyone interested in the work of the Society, to break up some of the larger areas, thus allowing area representatives to more readily keep in close touch with the members in their areas. The scheme





Some Council and Committee Members, 1928.

Top: E. Megaw (G6MU), G. W. Thomas (G5YK), J. W. Matthews (G6LL), G. Marcuse (G2NM), J. E. Nickless (G2KT), J. Clarricoats (G6CL). *Centre:* H. Bevan Swift (G2TI), E. D. Ostermeyer (G5AR), F. E. King (G5AD). *Bottom:* R. Denny (G6NK), M. W. Pilpel (G6PP).

was adopted unanimously, and will be brought into effect from January 1, 1929. It was decided to publish the new area scheme in the BULLETIN at once in order to allow members to form opinions as to the person most suitable for carrying on the duty of Area Representative in each district.

Mr. Bevan Swift (2TI) moved a proposition, which had been voiced by our President, that in future the annual general meeting of the Society should be held during Convention. The proposal was unanimously adopted.

Mr. G. W. Thomas discussed the future of organised tests. It was decided that for the present no further tests would be organised, but that at any time if there is sufficient interest, these would be arranged by the Society.

The new Washington Convention "Q" signals and other abbreviations were explained by Mr. Clarricoats, and on a proposal from Mr. Maurice Child, Convention unanimously adopted the motion "that all members abide strictly to the meanings of the new abbreviations laid down by the Washington Convention and that no other abbreviations be used which would conflict with any other signal."

Following this discussion Mr. Clarricoats, on behalf of the Committee, presented for consideration a revised set of rules governing the working of that body. The main points mentioned were:—

1. The appointment of representative members to fulfil specified offices. These to be,
 - (a) Calibration Service, Care of Society Instruments.
 - (b) Licence Questions.
 - (c) Social Arrangements.
 - (d) QRA Service.
 - (e) QSL Service.
 - (f) Contact Bureau Organisation.
 - (g) Society's Journal (known as the T. & R. BULLETIN).

2. The appointment of Foreign Correspondents. After considerable discussion the Rules as presented, with certain minor amendments, were unanimously adopted. Convention agreed that Committee should arrange for the publication of these rules in a manner to be decided upon by them, but expressed a wish that these should, if possible, be in book form.

Mr. Eric Megaw on behalf of Mr. Allen (6YW), honorary organiser of the Contact Bureau, explained the work of the Bureau since its inception, and applied for official recognition as a separate section. On a proposal made by Mr. Clarricoats Convention unanimously voted for the official recognition of the Contact Bureau. Mr. Allen was unanimously adopted as representative member.

No time was lost following the conclusion of the business meeting. Pinoli's Restaurant was the

venue. The Convention dinner was to come—and what a success!

Over 120 members sat down under the chairmanship of Gerald Marcuse, and lost no time in becoming thoroughly at home. Londoners and provincials, Colonials and foreigners, all and sundry came together.

Amongst the company we had present our past-President, General Sir Capel Holden; Mr. Maurice Child, Vice-President; Mr. E. J. Simmonds, Honorary Treasurer; Mr. Earle (AM1AB, lately SS2SE), of Singapore; Mr. Ball (FK2MS), of Kenya; Mr. Allard from France, and Mr. Graham (OA3OM) from Australia.

Proposing the toast of "The Society at Home," Sir Capel Holden congratulated the Society on the progress made, and expressed the hope that the future of the Society would be as successful as the past.

Replying, Mr. Clarricoats, London Area Manager, welcomed on behalf of all London members those who had come down to Convention, pointing out that in no other society would it be possible to gather under one roof so many persons who had first formed friendships with one another without the agency of personal contact. He paid eloquent tribute to the Chairman who had provided the musical programme and likened the gathering to a second birthday party, pointing out how since last year, the Society had progressed to such an extent that its membership had been nearly doubled. This he attributed to the extension of the ham-spirit, which had been expressed as "the spirit which abounds when persons with kindred amateur radio interests become associated."

Musical honours having been accorded, Mr. Megaw proposed the toast of "The Society Overseas." Mr. Marcuse welcomed those oversea members

present and congratulated them on their work in the outposts of Empire. Mr. Ball (FK2MS) responded and thanked, on behalf of his colleagues, all those who had given them welcome.

Mr. Bevan Swift ably proposed the toast of "The Chairman" and mentioned briefly how much the Society is indebted to his work, particularly in connection with licensing problems. He paid tribute to his work as the Pioneer of Empire Broadcasting, and it was as "Gerry, Pioneer of Empire Broadcasting," that he was toasted. In a brief reply Mr. Marcuse recalled the pleasure he had derived from his work, particularly mentioning the first British-Singapore, between himself and Mr. Earle, who was in the company.

Mr. Earle, Mr. Allard and Mr. Graham were called upon amidst acclamation and all conveyed the greetings of their overseas colleagues to those in Great Britain.

Mr. Hinderlich in a few well-chosen words mentioned those who had organised the Convention, paying tribute to Mr. Wellstead, Mr. Bevan Swift and Mr. Clarricoats.

Replying to his personal toast, Mr. Clarricoats mentioned that to Mr. Swift and Mr. Wellstead, much of the success was due, as it was upon their shoulders that the business side of the Society's work rested. He stated that as a result of the collection made that day a cheque for five guineas had been handed to Mr. Wellstead as a mark of appreciation for his services to the Society membership.

The musical programme was under the direction of Mr. Bradley (2AX), and to Mr. Hoskins and his friends much of the success of the evening was due.

The Third Convention has ended, but the good work accomplished will do much to further the cause of the Society.

Forthcoming Events.

OCTOBER 26, at City Electric Restaurant, commence at 6.30 p.m., refreshments obtainable. Discussion on Wave-meters opened by Mr. L. H. Thomas, G6QB.

NOVEMBER 2, at Institute of Electrical Engineers, commence at 6.15 p.m., tea at 5.30 p.m. Discussion on Moving Coil Loud Speakers opened by Mr. Basil Davis and Mr. H. A. Clark, with demonstration.

NOVEMBER 13. London Area Hamfest at Pinoli's, 17, Wardour Street, 6.30 p.m. for 7 p.m. Price 5s.

NOVEMBER 23, at City Electric Restaurant, commence at 6.30 p.m., refreshments obtainable. Discussion on 10-Metre Receivers opened by Mr. E. Dedman, G2NH.

Strays.

By EG2XV.

Excellent transmitter grid leaks for power up to 100 watts are to be bought for 5s.; they have a resistance of 20,000 ohms and are tapped at each 2,000; they are known as "Climax potential dividers," and are actually made for use in mains eliminators for H.T. supply.

By-pass and grid condensers for high voltage work being expensive, it has been found possible to construct excellent ones from old quarter-plate photographic negatives (from which the emulsion has been removed) and copper foil interleaved, bound with tape and boiled gently in paraffin wax. The maximum working voltage of these is unknown to the writer, but they stand O.K. on 1,500 volts at 2XV even as by-pass condensers on 23 metres.

The wire removed from old electric bell magnets makes good stuff for H.F. chokes if wound on to glass test tubes or an old "lead-in" tube.

An old "Ford" spark coil (if windings are intact), with the condenser removed, makes an excellent microphone transformer for use with the G.P.O. solid back type of microphone, also the old "ex-Army" type.

These coils will also function perfectly as speech chokes in low power (10 watts) choke control outfits. The primary winding should be ripped out, and the resultant hole filled with soft iron wires.

The New Area Scheme.

Those who were present during the Convention are already in possession of the details of the new area scheme, but for the information of the many members who were not able to be present the following details are given.

Commencing January 1, 1929, the counties of England will be divided into districts. Each district will be under the control of a District Representative, who will have power to appoint County Assistants.

The new division of areas has been arranged to give more proportionate representation.

The following is a complete list of new British Areas. It will be noticed that Wales is now a separate area.

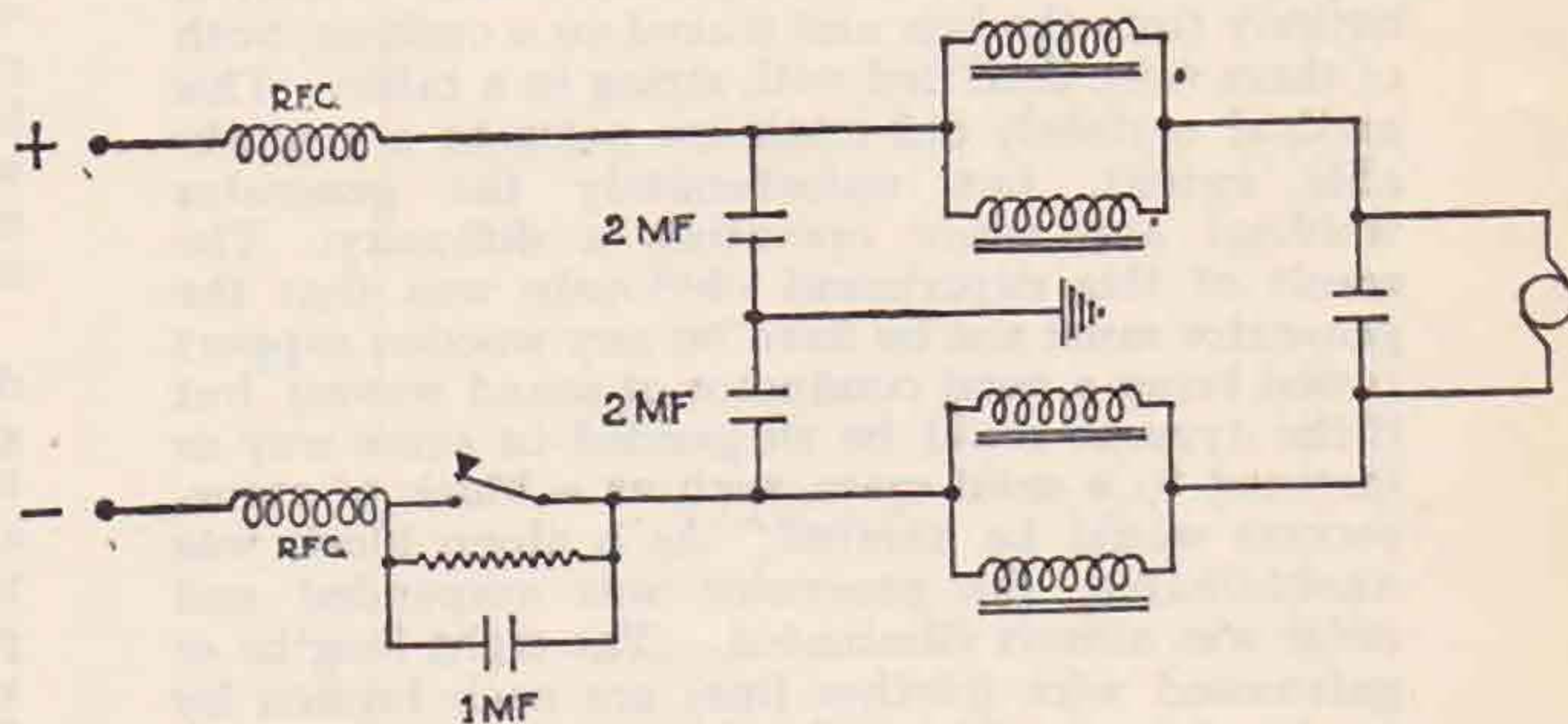
COUNTIES.	COUNTIES.
<i>District 1.</i> Cumberland Westmorland Lancashire	<i>District 7.</i> Sussex Kent Surrey
<i>District 2.</i> Durham Northumberland Yorkshire	<i>District 8.</i> Dorset Wilts Berks Hants
<i>District 3.</i> Hereford Shropshire Monmouth Worcester Chester	<i>District 9.</i> Cornwall Devon Somerset Gloucester
<i>District 4.</i> Rutland Derby Leicester Lincoln Notts	<i>District 10.</i> London (North)
<i>District 5.</i> Oxford Northants Warwick Staffs	<i>District 11.</i> London (South)
<i>District 6.</i> Norfolk Bedford Huntingdon Cambridgeshire Suffolk Bucks Herts Essex	<i>District 12.</i> London (East)
	<i>District 13.</i> London (West)
	<i>District 14.</i> Scotland
	<i>District 15.</i> Wales
	<i>District 16.</i> N. Ireland

In accordance with the regulations governing the election of Area Representatives, a nomination form is enclosed with this issue. Members are requested to fill in their form and return to Headquarters not later than November 1, 1928.

The Hand-Generator.

By J. O. J. HUDSON (5GU).

There are at present numerous transmitters who continue to use dry cells as a source of power or input to the transmitter, not because they prefer this expensive method of anode supply, for few have other alternatives when a "main" supply is absent. Perhaps some information and experience from the writer, in regard to the use of a hand generator, may be of advantage to those who possess one, or any that may contemplate purchasing the same in the near future. Now the hand generator has a useful power output, as a maximum ten watts may be taken from it, and without serious exertion on the part of the operator. Such a generator was



acquired a few years ago; this was an ex-Government model, and rated at an output of 600 volts, 30 milliamps, with 2,500 R.P.M., or approximately eighty turns of the handle per minute. At first rotation of the generator handle with the left hand and keying with the right appeared extremely awkward, but this was the only way to operate, without the assistance of others. However, after a few days the handle could be rotated automatically, without interruption of keying operations. With a current of over 30 milliamps to the anode of an L.S.5 valve, QSB was reported as raw A.C., and even as spark, including a bad ripple. The output was then decreased to 27 milliamps, where the milliammeter needle remained fairly steady, the latter was accomplished largely by lowering the filament consumption of the valve; improvement of tone resulted. A filter choke circuit was next constructed as (Fig. 1), and consisted of four "Ford"

spark coils; two of each were in parallel, and these shunted by 2 M.F. condensers in series, the centre tapping and iron cores of the chokes were all earthed. As expected, ripple was reduced and the QSB improved considerably. Next, several different transmitting circuits were tried out, and of these the Armstrong series feed, tuned plate and grid was definitely the best of all (this is similar to the circuit given by 6MU in the August "Bull"). The key was placed in series with the minus lead, and was shunted by a water resistance and condenser; the resistance was adjusted so as to pass two milliamps; this developed a weak spacing wave, and helped to reduce chirp when keying. Keying could no doubt be improved, with the assistance of 6MU's excellent article on the same. The QSB now began to approach the ideal note, and with correct adjustment of the transmitter, not to mention the antenna system (6JV's), the note was pure D.C., and several stations even queried QSB as crystal controlled.

A well-known disadvantage of the hand generator is that considerable noise is caused by the revolving train of gear wheels; cog rattle may be obviated by applying thick vaseline or heavy motor oil to the pinions; no oil should be placed on the commutator rings and brushes. Various other methods were tried to reduce noise; for instance, the box containing the generator was packed tightly with felt, leaving just sufficient space for the armature and wheels to revolve, but this made a negligible improvement. So the dynamo was removed entirely from the box and placed on a cushion, both of them were then tied with string to a table. This method certainly did minimise noise to a remarkable extent, but unfortunately the generator wobbled and made operating a difficulty. The result of this experiment obviously was that the generator must not be fixed on any wooden support (wood being a good conductor of sound waves), but if the dynamo could be suspended in some way or fastened to a solid mass, such as a block of stone, success would be assured. As a stone block was unobtainable, the generator was suspended and noise was almost eliminated. The eight lengths of galvanised wire (clothes line) are each broken by an insulator. These insulators are inserted to break up any vibrations which may travel along the wires from the dynamo to the stay supports. All the wires terminate with eyelet screws, the top four being screwed to a suitable object, and the rest to the floor; wire strainers may also be included so as to keep the generator always in a rigid position. Also, but not least, the hand generator certainly keeps one fit, although a "muscle bound" arm may conclude a successful DX month.

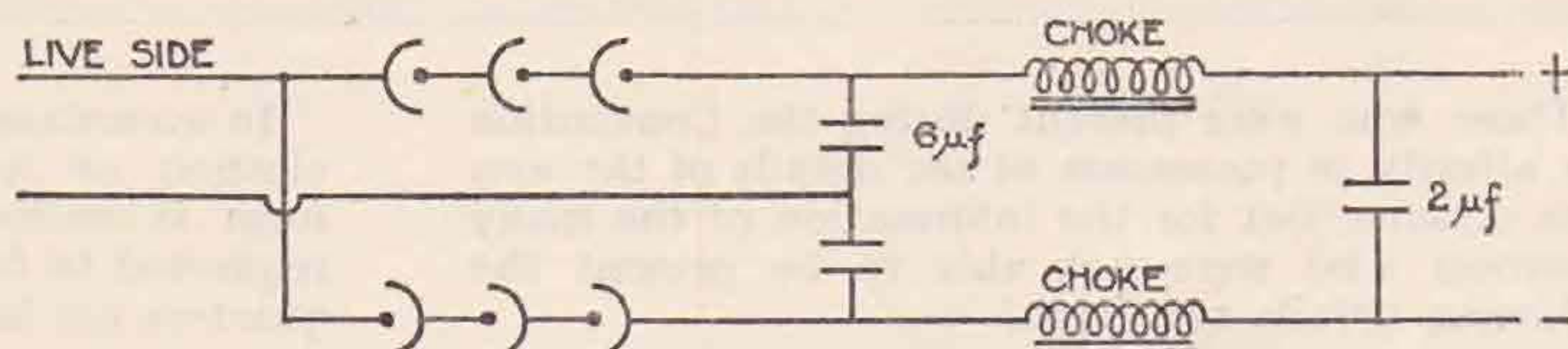
Chemical Rectifiers.

By R. J. DENNY (G6NK).

One hears a good many RAC and some AC notes from G stations on the air these days, and under the new regulations these are taboo. In view of the prohibition of a chemical

rectifier and voltage doubler in use at this station for the past 18 months may be of some interest to members.

It consists of 6 cells in the live leg of the A.C. supply (240v., 50 cycles), followed by voltage doubling by means of condensers, as per Fig. :—



The cells consist of 1-lb. honey pots filled with a solution (not saturated) of ammonium phosphate, with a little bi-carbonate of soda to keep it alkaline.

The electrodes consist of 5 mm. pure aluminium wire, and lead foil about 1 mm. thick, cut into strips $\frac{1}{2}$ in. wide, the length depending on the depth of the jars. They should not touch the bottom of the jars as the cells precipitate during use.

Ordinary corks are used in the top of the cells with a hole in the centre to take the aluminium rod and a slot cut in the side for the lead strip. Oil should be poured into the cells on top of the solution to prevent creeping; the writer used medicinal paraffin.

When the cells are made up they should be formed in the following manner. Two cells at a time are wired in parallel and then put in series with a carbon filament lamp across the supply mains, and left until the lamp glows only very slightly. This will take about three hours or more, but should on no account be hurried or the final result will not be satisfactory.

On the voltage doubling side, the series condensers are 6 mfd, 500 volt Hydra, which have given great satisfaction. The chokes are an old high-tension transformer with one-half of its secondary and the primary wired in series, and a step-down transformer wired up in the same way. They are probably very inefficient, but serve their purpose very well. The final condenser also being a Hydra of 2yf, 1,000 volts. The output seems very satisfactory as I can draw a load of 27 milliamps (at 350 volts) and when using telephony on a station situated only 200 yards away, there is not the slightest trace of hum or ripple.

In conclusion, I would like to advise anyone making this rectifier to use pure aluminium and pure chemicals, as this is the whole secret to success. In reply to people who say chemical rectifiers are messy and unreliable, I would say that during the 18 months I have used this rectifier I have had neither mess nor trouble.

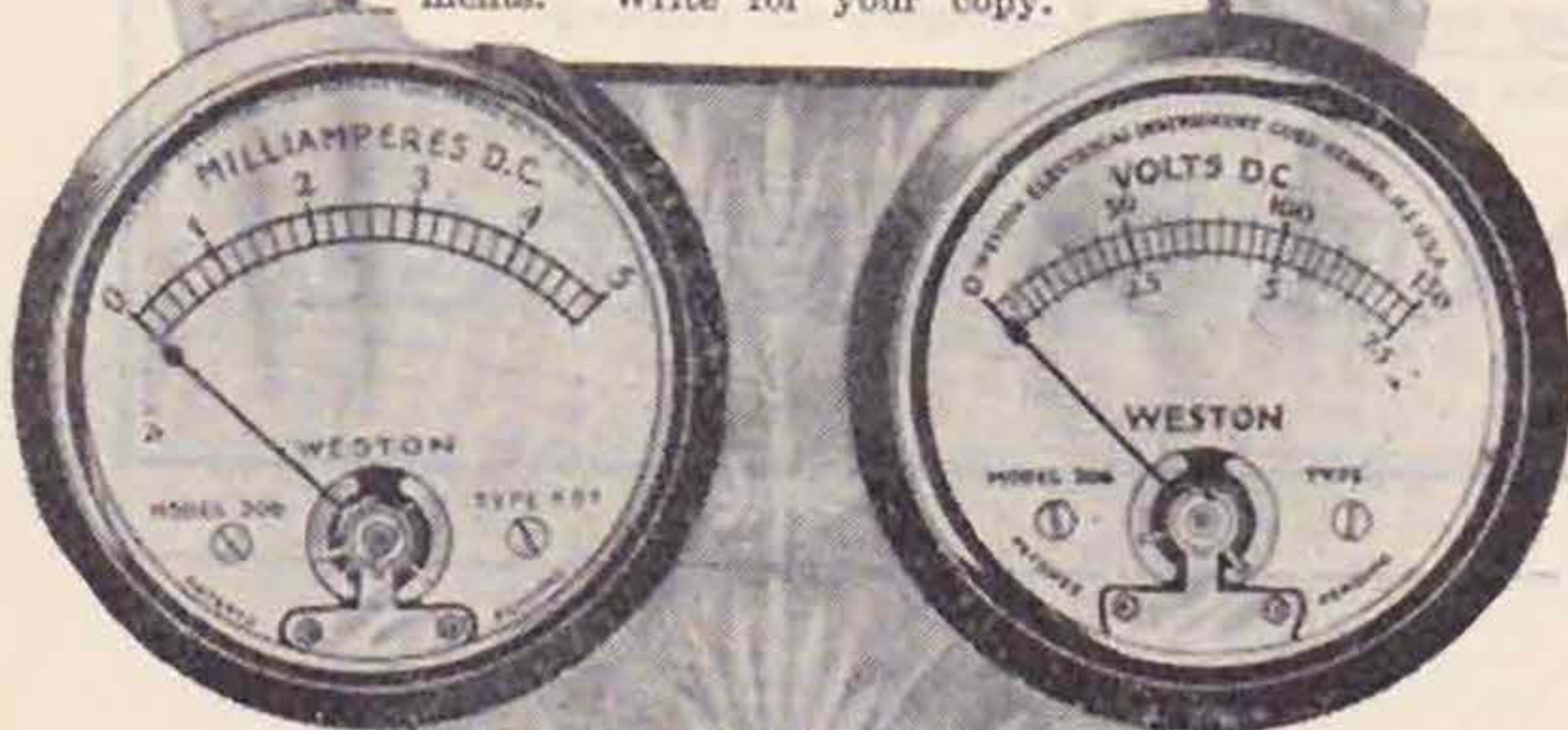
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Area Representative Elections, 1929

FORM I.

I wish to nominate Mr.....
for the position of Area Manager for the
..... District.

Signed.....

Call Sign (if any).....

These forms shall be returned to the Honorary Secretary of the Society not later than November 1st, 1928.

1929 Operating Procedure

By A. HENDERLECH (2 QY)

At Washington last year the representatives of 79 nations signed a Radiotelegraph Convention, which will apply to us and to all other countries when ratified. The full text and translation into English can be obtained from the R.S.G.B. Sales Department, price 2s. 6d., plus postage. It will repay our most careful study, for though the P.M.G. may make additional rules for us, every word of the text applies more or less to amateurs. In particular, we must all be familiar with the revised Q Code by January 1 next. We here give a short summary of the more important articles, together with a few comments by the writer.

Article 3 of the Rules says, *inter alia*: "Administrations must take the necessary steps to ensure that the frequency meters (wavemeters) used to adjust transmitting apparatus are calibrated in the most precise manner possible, by comparison with their national standard instruments."

Article 4 lays special emphasis on pure wave form and keeping to the assigned frequency. The afore-mentioned Editorial leaves no doubt that these Rules are going to apply to us. If in doubt about your wave, read pages 8 and 12 of the R.S.G.B. log-book.

Article 5 contains the wave-length distributions which were published last February. Note that we have no monopoly of the 1715-2000 and 3500-4000 Kc/S bands, and that if we transgress any of the Rules, we stand a good chance of being reported to the G.P.O. by the commercials who will be keeping constant watch upon those bands.

Article 5 also makes it quite clear that the Convention and Rules apply to amateur stations. In particular, their frequency must be as constant and free from harmonics as possible, and call-signs must be sent at frequent intervals.

Article 6 defines the type of message that may be exchanged between private experimental stations, and insists that they may only be worked by qualified persons. The full text has already appeared in print.

Article 9 consists of four pages of Rules for procedure in the mobile service. They are sheer common sense, and will have to be carefully studied, as they are almost sure to apply to us. We might as well start accustoming ourselves to one rule—the form of call laid down is VE2BE VE2BE VE2BE DE G5HS G5HS G5HS, or with less repetition if desired.

Article 10 prohibits CQ calls in regions where traffic is intense, except in cases of urgency.

Article 11 prohibits unnecessary interference, and repeats the need for frequent repetition of call-signs when testing. It also prohibits the use of any signal which might be confused with those laid down in the Rules. (Hereunder EGNU is a Spanish call-sign, so Articles 9 and 11 between them prohibit the ARRL "intermediates.")

Article 14 contains the allotment of call-signs.

For example, CNA to CNZ are Moroccan fixed or land stations, CNA to CNZZ are Moroccan coast stations, CNA to CNZZZ are Moroccan "aeronefs" or things that fly, and CN1AA to CN9ZZZ are Moroccan amateurs. The first one or two letters of any call will give the nationality, amateurs will have a figure as the third character in their call, followed by two or three letters. In other words, amateur calls will be one of the four types, G2NM, G2ABC, VE1BE or VE3ABC.

Article 19 is concerned with signals of distress (. . . - - - . . . or MAYDAY), urgency (XXX or PAN) and security (TTT). Anybody repeating or relaying one of these signals or messages must add his own call-sign at the end.

Appendix 1 revises the Q code in drastic fashion. A lot of obsolete ones like "increase your spark frequency" are abolished. Some of the useful ones are changed to another group, such as "Will you retransmit to . . . free of charge" which appears under QSP, while next year QSR will mean "Did you get that distress call from —?" We shall be badly let down if the commercials report us for sending misleading messages about SOS calls. In my opinion our best chance of avoiding trouble next year will be to start forgetting most of the old Q code right away now. This will, of course, mean spelling out a few common useful phrases for the rest of the year, but unless we do this we are bound to make mistakes next year, with every chance of being reported to the authorities for so doing. The only abbreviations which survive practically unaltered, and which it will be safe to continue using this year are:—

QRA, QRB, QRH, QRM, QRN, QRO, QRP, QRQ, QRS, QRT, QRU, QRX, QRY, QSO, QSY, QSZ, QTB, QTC.

For the same reason, the use of the following abbreviations, as given on page 84 of the RSGB log-book should immediately be discontinued:— C, BN, CL, SA, TR.

Appendix 4 authorises the use of our R scale of signal strength (without the R) up to strength 5.

The writer would point out that these abbreviations and the Q Code will be available to people all over the world in an accurate and authoritative translation into their own mother tongue, so that messages consisting very largely of the official abbreviations will be perfectly clear even to foreigners who know no English or American.

Have you introduced your new member? Thank you!

Station Description.

By H. C. PAGE (G6PA).

This station in its present form is the outcome of nearly four years' experiment with short wave receiving, and latterly transmitting apparatus. My chief aim in the design of the station is to have all the apparatus easily accessible from the operating table, and, secondly, to have everything as reliable as circumstances will permit. I have an intense dislike of the "Haywire" type of station, although I realise that the uncertainty of its behaviour must be a never failing source of interest and amusement to some people.

My desire is to have a station which can be used equally well for DX, "rag chewing," or experimental work, but, above all things, it must be reliable.

The power being never greater than five watts, the design of the apparatus employed has not been a very difficult matter. As a matter of fact, with the exception of the transmitter coils, all the apparatus was originally intended for use in receivers.

The transmitter and receiver are mounted on separate tables and each has its own aerial system. Thus, "Break in" can be used at any time and on any wavelength. The key is the only part of the transmitting apparatus mounted on the receiver table. The leads to this are brought round the side of the room in lead sheathed cable. This is earthed and there is therefore no hum in the receiver due to induction effects.

I will endeavour to describe the transmitter first, as this is probably of greater interest to most people.

The circuit used is the well-known T.P.T.G. series fed. While this is not so easy to tune as some circuits—the Hartley, for instance—it has undoubtedly a greater efficiency, especially when working on the 20-metre band. It is also easier to keep a steady wave with this arrangement, and this was the chief reason for its choice.

The whole transmitter is mounted in a wooden framework 2ft. long, 1ft. deep and 1ft. 6in. high. The wood used is $\frac{1}{2}$ -in. mahogany quartering. Mahogany was chosen as it is easy to work and looks quite well even if not polished.

The condensers tuning the plate grid and aerial circuits are ordinary receiving condensers of no special make. Each condenser is mounted on a separate fibre panel fixed to the front of the framework. Directly above the condenser panels are mounted the plate milliammeter and the aerial ammeter. The milliammeter reads 0—50 and the ammeter 0—.5 of an amp.

The plate coil is mounted on two glass towel rods placed at the top of the framework. Just below these rods two terminals are fixed 3in. apart. The ends of the plate coil being brought down to these. This enables a very quick change of wave to be made. Change from one band to another takes less than one minute. The aerial coil slides along the glass rods. Both the aerial and plate coils are of the same diameter, and are made of No. 10 gauge bare copper wire threaded on ebonite strips.

The grid coils are plug-in receiving coils. They are, as a matter of fact, the coils I used to use in the receiver before I installed valve base coils. The plugs on these coils are valve legs mounted 2in. apart. The corresponding sockets are placed on a small platform just behind the grid tuning condenser.

It will be seen from the diagram that the grid condenser and leak are inserted in the low potential end of the grid coil. I find this gives a better efficiency and also has the advantage of giving the H.F. choke in the grid leak less work to do. The grid condenser is an ordinary .00025 mfd. dielectric receiving condenser. The .002 by-pass condenser is also a receiving condenser. The grid leak is an anode resistance of 20,000 ohms. The valve-holder is an ordinary low loss one and is mounted behind the plate-tuning condenser. The valve is a DE5, and has proved entirely satisfactory for the power used.

Considerable time was spent experimenting on H.F. choke design, and the chokes finally adopted consist of 100 turns of 36 D.C.C. wire on an inch diameter Paxolin former. These chokes are perfectly satisfactory on both 23 and 45 metres. When working on 90 metres I have not found chokes necessary. The efficiency without them being quite satisfactory.

Telephony is carried out by means of a L.F. transformer with a ratio of 1.5. Connected as shown in the diagram, and with a microphone battery of 12 volts, sufficient modulation is obtained for the power used. This arrangement gives very clear speech.

The smoothing chokes consist of two old L.F. transformers with their windings removed and the bobbins wound with 2,000 turns of No. 36 D.C.C. wire. With six microfarads of condensers across the H.T. supply and one choke in each lead, perfect smoothing of the 240-volt D.C. supply is obtained.

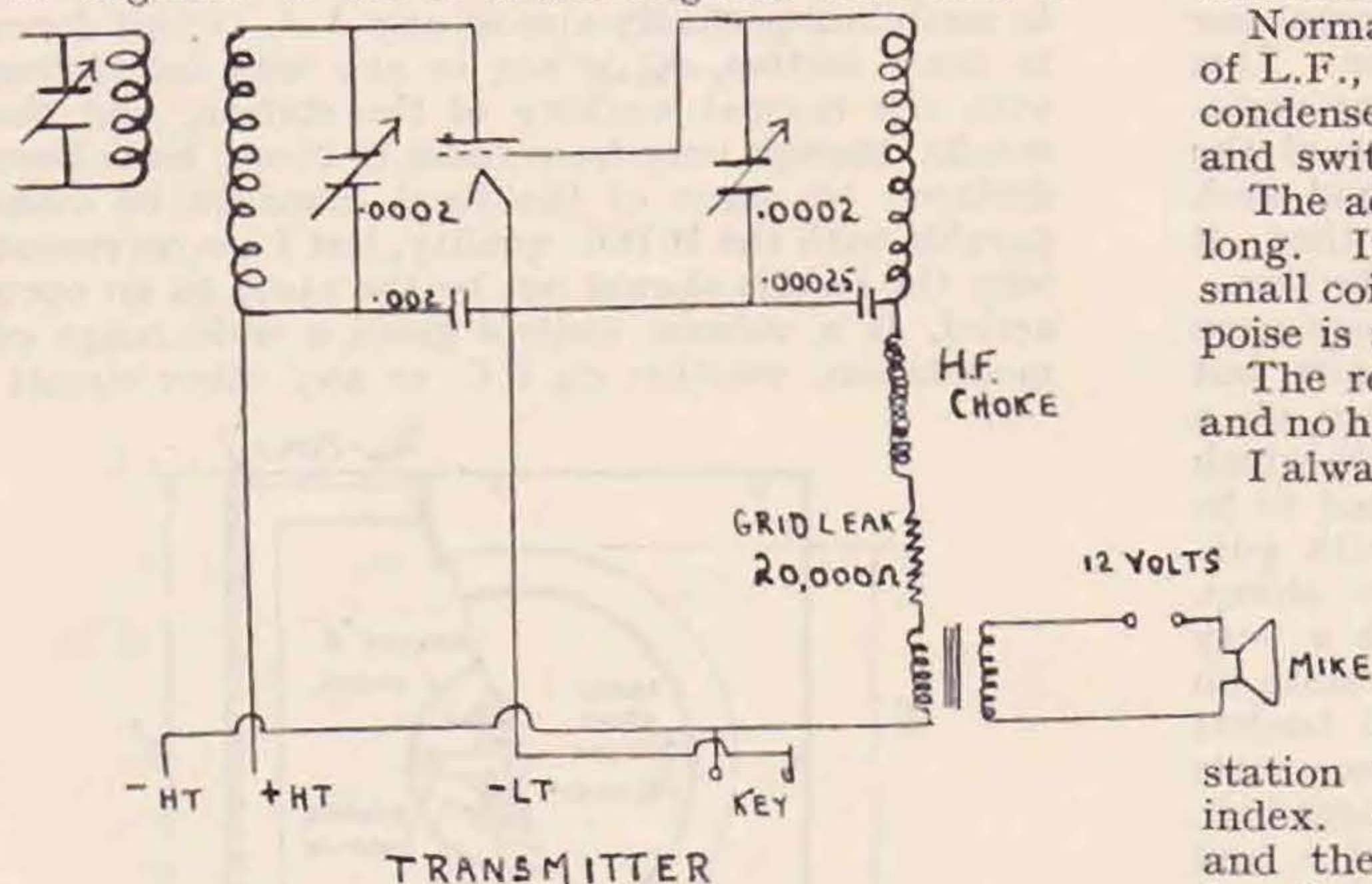
The wiring of the whole set is carried out with No. 14 bare copper wire. Everything is rigidly mounted and this, together with the fact that the set is very loosely coupled to the aerial and that the valve is never overrun, accounts for the very steady wave, which has been mistaken more than once for M.O., P.A., N., C.C.

The aerial is a half-wave Zeppelin-fed Hertz 72ft. long and 32ft. high. The feeders are 18ft. long and give current at the bottom on both 23 and 45 metres.

The receiver has just been re-designed and incorporates several unusual features. My chief aim is to have everything easily accessible and reliable. Ability to change from one waveband to another is, to my mind, of paramount importance. In this respect the valve base coils cannot be surpassed. No attempt is made at keeping the set compact, the whole being mounted in a frame similar to that of the transmitter, but of smaller size. This framework is 18in. long, 9in. deep and 12in. high. The front of the set consists of two panels. The upper

of ebonite and the lower of mahogany. On the ebonite panel are mounted the two tuning dials a double-pole double-throw switch and two six-stud switches. The D.P.D.T. switch makes it possible to use either one or two stages of L.F. as desired, while the stud switches are used in connection with the L.F. tuning devices, which will be referred to later.

The lower panel supports the potentiometer, the filament resistances and a six-stud switch. The wiring of the set is done under the baseboard as far as possible. The baseboard is mounted 6in. from the table, thus enabling a good deal of the L.F. part of the apparatus to be mounted below it. The tuning condensers, coils, detector, valve-holder, etc., are placed 5in. behind the panel, and the condensers are coupled to their respective dials on the panel by means of ebonite rod. The condensers used are Formo Log Line ones of .00025 capacity. To enable the bands to be well spread over the dial a series of small air-spaced condensers on plugs are placed in series with the tuning condenser. Thus the 10-metre band covers the whole of the dial, while the 45-metre band covers about 40 degrees. I use a seven-megohm leak and a



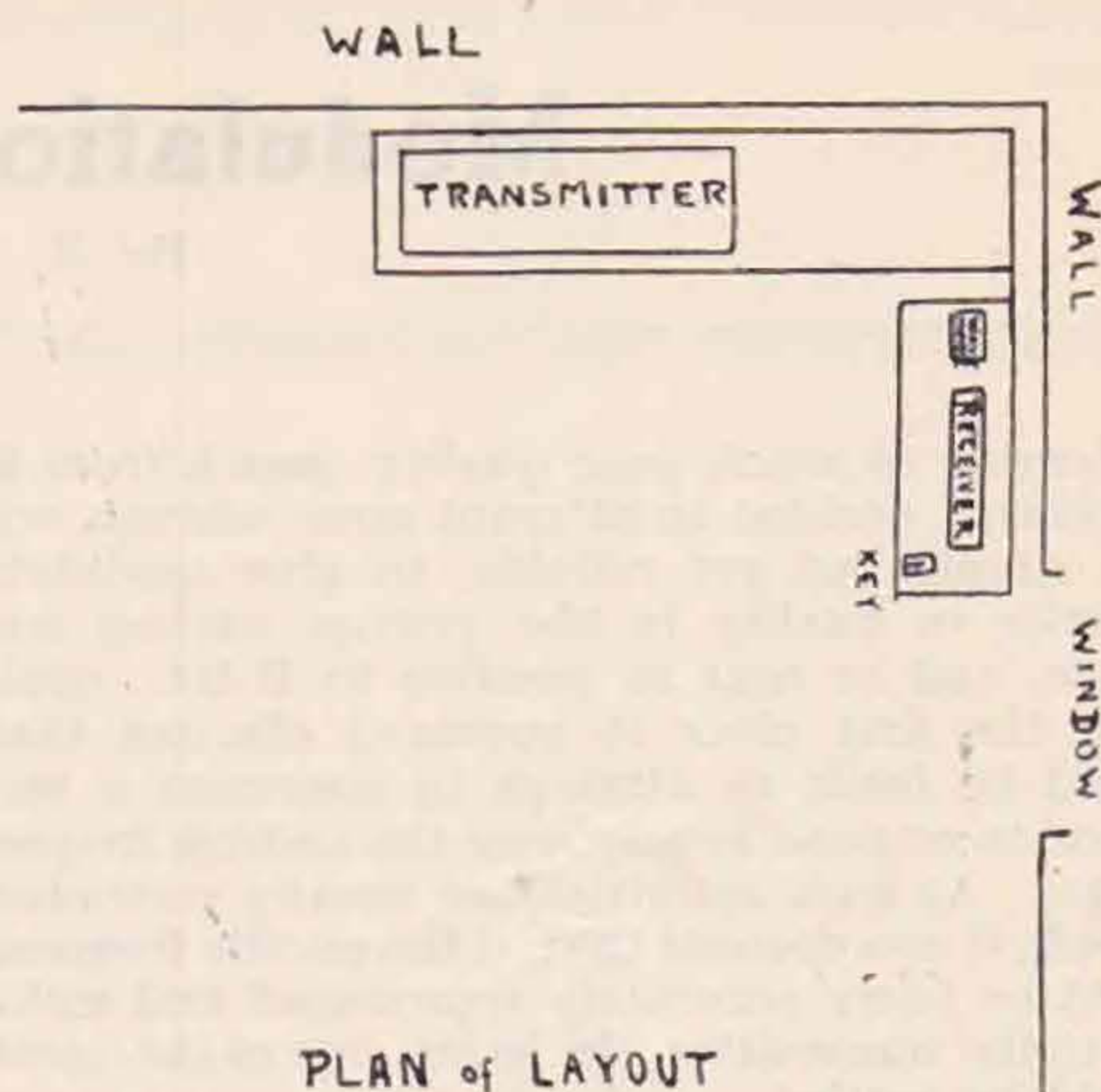
.0001 grid condenser. The H.F. choke is that described in my article in the May BULLETIN. I have, however, arranged a sleeve of copper foil, about 1in. wide, to slide up or down the choke. This effectively overcomes any dead spots should they occur.

That is all that need be said about the H.F. side of the receiver.

The L.F. side consists of two stages of amplification. The first stage is transformer coupled by means of a Marconi 4.1 "Ideal" transformer. The second stage is coupled by means of a Formo choke capacity coupling unit. These two work very well together, there being no L.F. oscillation whatever.

A very useful L.F. tuning effect is obtained by means of a 5,000-turn L.F. choke tapped every 1,000 turns and brought out to one of the six-turn switches; also by means of five fixed condensers ranging from .0001 to .01. These are placed in series and brought out to the other set of studs on the upper panel. With these across the secondary and the choke across the primary of the transformer QRM can be greatly reduced and QRN practically overcome.

Instead of using a grid leak for the last valve,



I use another tapped L.F. choke of 10,000 turns, tapped each 2,000 turns. By means of this it is possible to alter the cut-off of the amplifier very considerably.

Normally, I only use the detector and one stage of L.F., but if QRN is very bad I place plenty of condenser across the secondary of the transformer and switch in the second stage.

The aerial for the receiver is 22ft. high and 70ft. long. It is loose coupled to the set by means of a small coil swinging across the grid coil. A counterpoise is always used on all wavelengths.

The receiver is about 8ft. from the transmitter, and no hum is present in the headphones at any time.

I always use a heterodyne wavemeter, and this is frequently checked. Details of the wavemeter have appeared in a previous issue of the BULLETIN, so no more need be said about it here.

Perhaps a rather unusual feature of the station is the card index. Every station worked is given a separate card in the index. On this card is the QRA of the station and the dates of previous QSO's. Used in conjunction with the log, it has been found of great use and interest.

In conclusion, I do not lay claims to any great amount of DX, although I have found it fairly easy to work the States on 20 metres when conditions are good. Personally, I prefer a chat or carrying out tests with anyone who cares to do so rather than DX, and if I get a good QSO using "Break in," I am more than satisfied.

The Society has received from Messrs. Marsh & Wright, of Weymouth, a sample of a new insulating material called "Cylanite." This is made in sheets 30/1,000 inch thick, and can be bent. In appearance it resembles Erinoid, and is claimed to have high insulating qualities.

Modulation Experiments.

By N. W. WRIGHT (2BFA).

Hearing so much poor quality speech from ham stations, I decided to attempt some scheme, which was simple but yet reliable, to give modulation, superior in quality to the average carbon microphone, and as near as possible to B.B.C. quality.

In the first place it appeared obvious that it would be futile to attempt to construct a microphone to respond evenly over the audible frequency range. As ham activities are usually restricted to speech, it was decided that, if the middle frequencies could be fairly accurately reproduced and suitably fed to the transmitter, the hams' side of the question would be settled.

It was noticed during the early parts of the test that, with a carbon microphone, one must speak within very narrow limits of audibility and range, owing to the comparative insensibility. Various types of loud speakers were tried as microphone in conjunction with a two-valve amplifier. This was a decided improvement, as regards the variation of output to the distance or nearness of the source of speech, but each loud speaker had such pronounced individual characteristics that it seriously interfered with the natural reproduction.

Many attempts on various lines of theory were made to adapt commercial loud-speaker units, but with little success, until a Brown earpiece on a small cone was tried, as shown in the sketch, which was a decided improvement but yet inclined to be muffled at times, so the box was lined with $\frac{1}{2}$ -in. felt obtained from a house furnisher's stores. This, and slightly damping the reed with a very small piece of rubber, gave first-class results on speech, so much so that one of the local traders borrowed it to enable him to make announcements at a radio gramophone demonstration in a large hall.

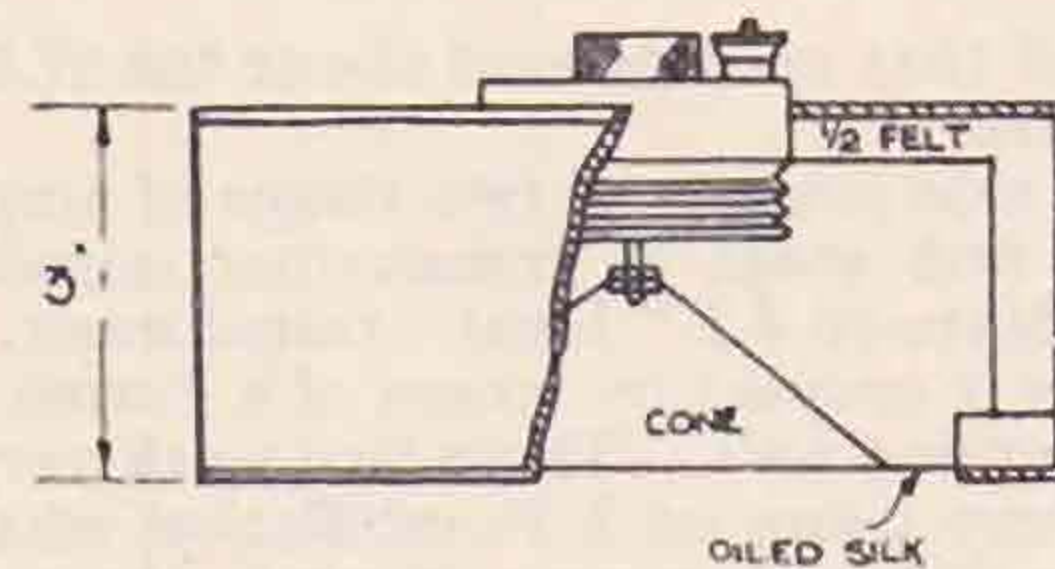
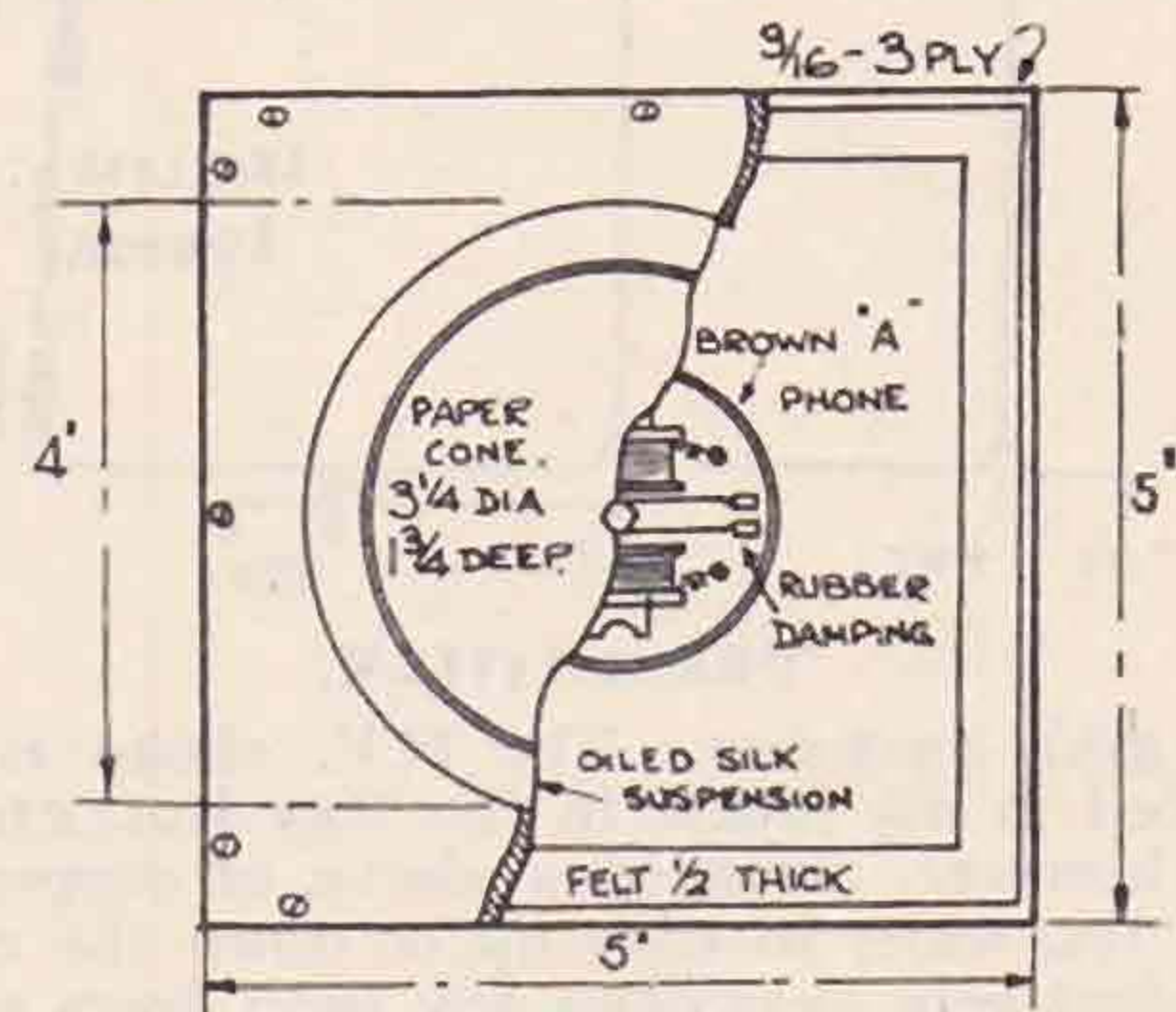
I would point out that it is very sensitive, and one should not speak nearer than 36in., but one could be at the other end of the room with very little difference in the output. One thing should be noted: that unless this microphone is put in a suitable position, or the room suitably damped, echo will result. The writer found that a heavy

curtain at the back of the speaker, with the microphone almost on the facing wall, cured all trace of echo.

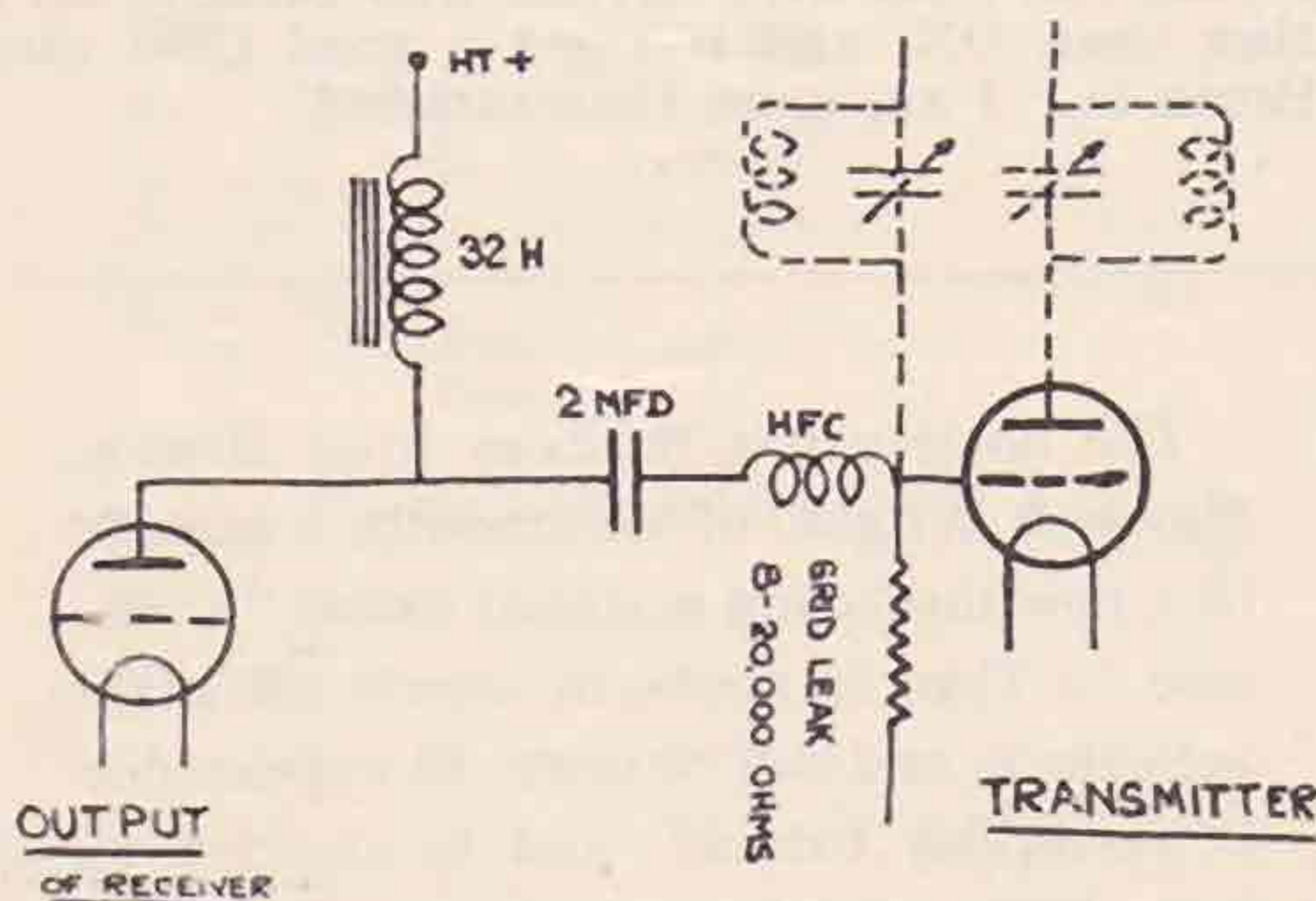
It being necessary to use a fairly high degree of amplification, a 2-valve amplifier was needed, and so the amplifier attached to my ordinary S.W. receiver was used by inserting the microphone in series with the first L.F. valve, G.B. lead, with just a shorting switch which was closed when receiving. Thus no special amplifier was needed, nor the normal working of the receiver in any way upset.

Many ways of feeding the oscillator were tried, and the best was by having choke filter output, on the amplifier, fed from the condenser to the grid of the valve through a suitable H.F. choke, as shown in diagram.

With the apparatus described, it has been possible to modulate perfectly almost any A.A. circuit down to three metres, while not in any way interfering with the normal working of the station, and the results, though only from room to room, have been declared by some of the local hams to be comparable with the B.B.C. quality, but I see no reason why the results should not be the same on an open aerial, as a volume control gives a wide range of modulation, whether on C.C. or any other circuit.



On further tests it has been found that although the instrument was not designed to pick up music it has been proved with the aid of a coil drive loud speaker that the whole range of the piano can be orally, evenly reproduced, with the exception of one point of resonance on the higher frequencies, almost equal to the original music. No doubt this resonance could be easily overcome by damping the reed, but time has not yet permitted this, so far.



METHOD OF COUPLING TRANSMITTER.

Random Notes on Crystal Oscillation and 30,000 K.C.

By F. RODMAN (2FN).

G2NH, in his article on crystal oscillators in the September BULLETIN, has not covered what is, perhaps, the most useful property of these pieces of apparatus.

If a pair of telephones be inserted in the H.T. + lead of the oscillator, the oscillator set going and the transmitter adjusted, it will be found that a beat note is heard when the transmitter is tuned to the frequency of a harmonic of the crystal \pm the frequency of the beat note. If the transmitter is further adjusted to the silent point of the beat note, its frequency should be the same as that of the crystal harmonic.

This method is certainly less trouble and probably more exact than the one described by 2NH, as there are fewer operations to carry out in which a human error may occur. If a crystal with a suitable and accurately calibrated fundamental frequency is used, a transmitter can be adjusted with accuracy within the frequency bands granted to amateurs. The transmission can also be effectively watched during tests, etc. It is quite obvious that a transmitter given to wave-climbs and frequency-jump cannot use this application of crystal oscillators, as the beat note would rarely be heard, and it therefore follows that the general quality of amateur transmission should rise as no transmitter should operate his station unless he can hear the beat note in the oscillator telephones whilst keying, in other words, the method described assists in the production of steady signals.

My oscillator is similar to the one described by G2NH, except that no grid leak is used, a variable condenser is employed, and the crystal has a fundamental of 3,570 K.C. The method has been tested on 7,140 K.C., 14,280 K.C. and 28,560 K.C.; no difficulty is anticipated on 57,120 K.C.

Faults in transmission are more evident when using this method than by listening to a harmonic on a receiver. G6LL told me my 8 mt signals chirped. I knew they did a little, but when I listened to the chirp via a crystal oscillator, I nearly died: the noise was rather like a flock of London sparrows in the early morning.

In common with many other transmitters, I believed that the feed current to a self-excited valve working at a frequency around 30,000 K.C. was very high, and that the ordinary valve will only safely stand a small percentage of its rated power. Experience has shown that, using an LS5D valve in a TPTG circuit, a 14-watt input, at 30,000 K.C., can be used with safety. The secret appears to be a high L/C ratio in the plate circuit and a high C/L ratio in the grid circuit. The grid coil should also have a small external field.

The feed back through the valve capacity on 30,000 K.C. in my transmitter is such that the grid coil and its tuning condenser can be omitted altogether and a reasonable feed back obtained over a wide variation in frequency around 30,000 K.C. Tuning the grid coil raises the efficiency.

There is a lot in G5MU's idea in only polishing one side of a crystal; it certainly avoids the

possibility of taking a "high spot" off the wrong side of a crystal, as I did owing to both sides being unpolished!

It may be of interest to transmitters to know that my contact with G6LL, and many subsequent QSO's with him on the 8-10 metre band, was made with an 8-10 watt input to an LS5D valve in a TPTG circuit.

Daylight appears to have but little effect on 30,000 K.C. signals up to a distance of 20 miles, signals being a shade weaker than at night. Sufficient tests have not been made to come to any conclusion.

Look out for the approved dealers' signs.

This is a scheme started two years ago by the Society in conjunction with the Wireless League. The branch is managed by a joint committee of both societies, and has already inspected and approved upwards of 220 dealers. The principle is akin to that established in the motor trade, and was badly needed to protect the radio-buying public from the unscrupulous and inexperienced dealer.

Social Notes.

The events of the month have been the Olympia Radio Exhibition and the Convention. At both there has been present every evidence of the social work of the Society.

* * *

I wish to take this opportunity of thanking all those who so kindly forwarded photographs of their station for exhibition on the R.S.G.B. stand. The feature provided must interest the hundreds who visited our stand.

* * *

To G6TW an apology is due. His photographs were sent to me during my holiday, and were held by the local post office until my return with the result that they were omitted from the collection. Sorry O.M. The Convention social arrangements are mentioned in another page.

* * *

I wish to take this opportunity of thanking all those who have written to me in connection with the Convention, and to ask if they will accept my apologies for not replying to everyone personally.

* * *

Arrangements are in hand for the Seventh London Area Hamfest, which will be held during November.

* * *

London members are particularly anxious to give a cordial welcome to all provincial, Colonial and foreign amateurs visiting London, and ask therefore that good notice be given of arrivals so that arrangements can be made to give a truly representative greeting.

J. CLARRICATS (G6CL),
Chairman, Social Committee.

Contact Bureau Notes.

By 8YW.

These notes are being written before the Convention and by the time they are in print the result of the discussion on C.B. will be probably fairly well known to the members.

Whatever the outcome of the discussion I must write these notes just as if no changes might take place.

Nearly every letter arriving at C.B. recently has had to do with 10 metres and interest in this band appears to be general, but I want to point out that Centres are required for groups interested in the following subjects: "Skip" distance, cloud effect, H.F. amplification of S.W. at signal frequency, Hertz aeriels, feeders, etc.

Several requests for information have had to be ignored because no stamped envelope was enclosed; this is necessary because of the already large postage expenses at C.B., and it is a small request to make when the C.B. service is quite free.

Recently, a member kindly offered a small subscription to the work at C.B., but this was refused with thanks as all the work is looked upon as a free service. However, if anyone wishes to help in a practical way the most appreciated thing would be stamps; but no subscription is asked for and none is expected with requests.

5MQ informs me that OA5WH wants schedules with British stations for 10 metre work at any hour on Sundays.

5WH is on 20 metres each Sunday at 06.00 G.M.T.

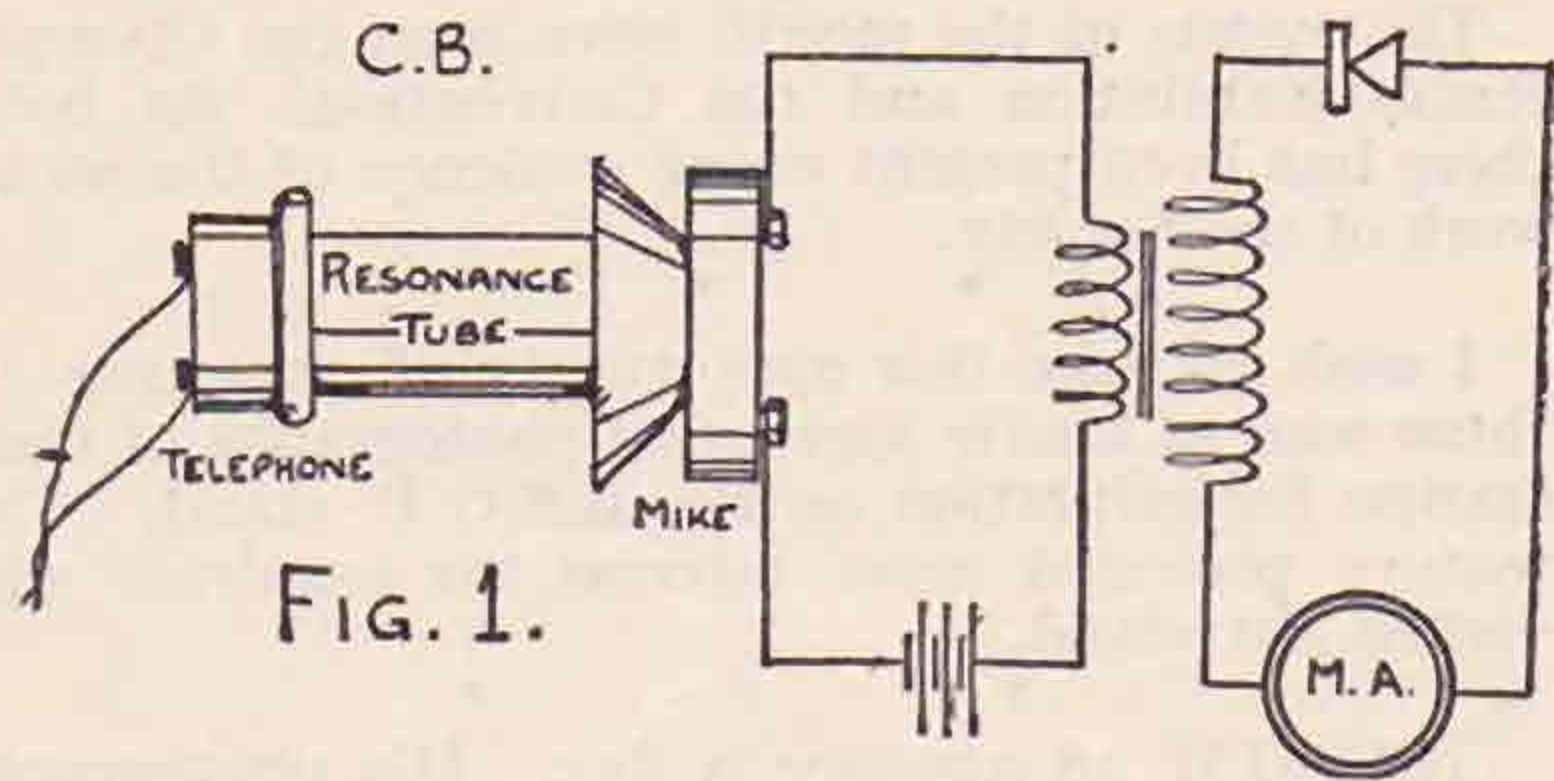
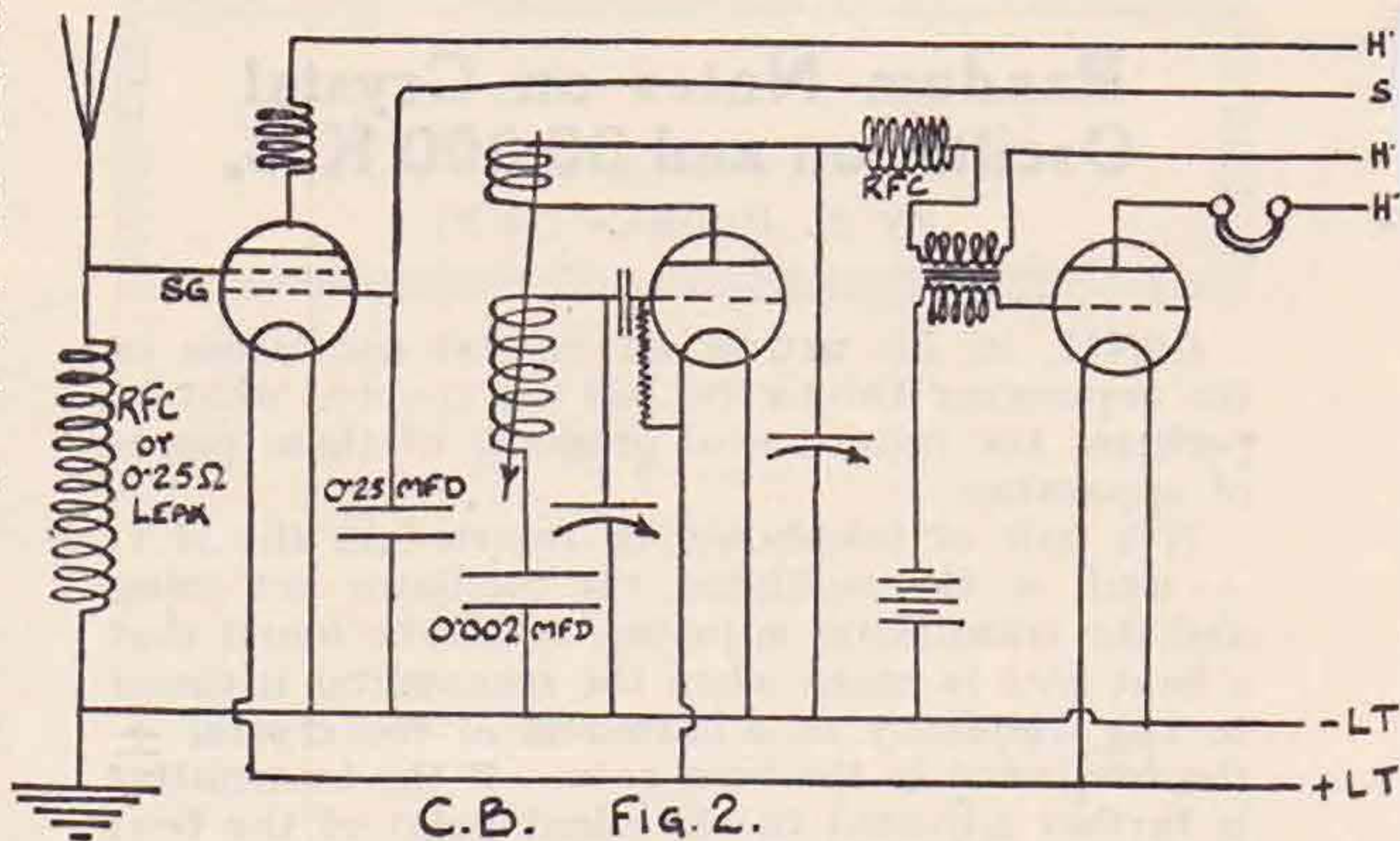


Fig. 1 shows a small piece of apparatus recently rigged up by GI6MU to observe the fading on certain signals. One ear-piece was kept on the headbands so that the signal might be kept at a constant pitch. The transformer used was an old T.V.T. unit and the rectifier a carborundum detector of the B.C.L. type (without battery). This apparatus, when used on a steady signal, e.g., 2XAF, showed that more QSS was present than the ear really appreciated. Group 2A and others interested in fading should make a note of this interesting "tell-tale."

GC6IZ, who, by the way, is working the South of England on 45 metres with 0.15-0.23 watt from 30 volts D.B.s, says he has experienced "threshold howl" but has never been troubled by it! He cures it by taking grid-leak to filament through a potentiometer. 6IZ has also been trying H.F. amplification with an S.G. valve and thinks it very successful; I am keeping his circuit until next month as I have already one diagram of such a receiver this month.



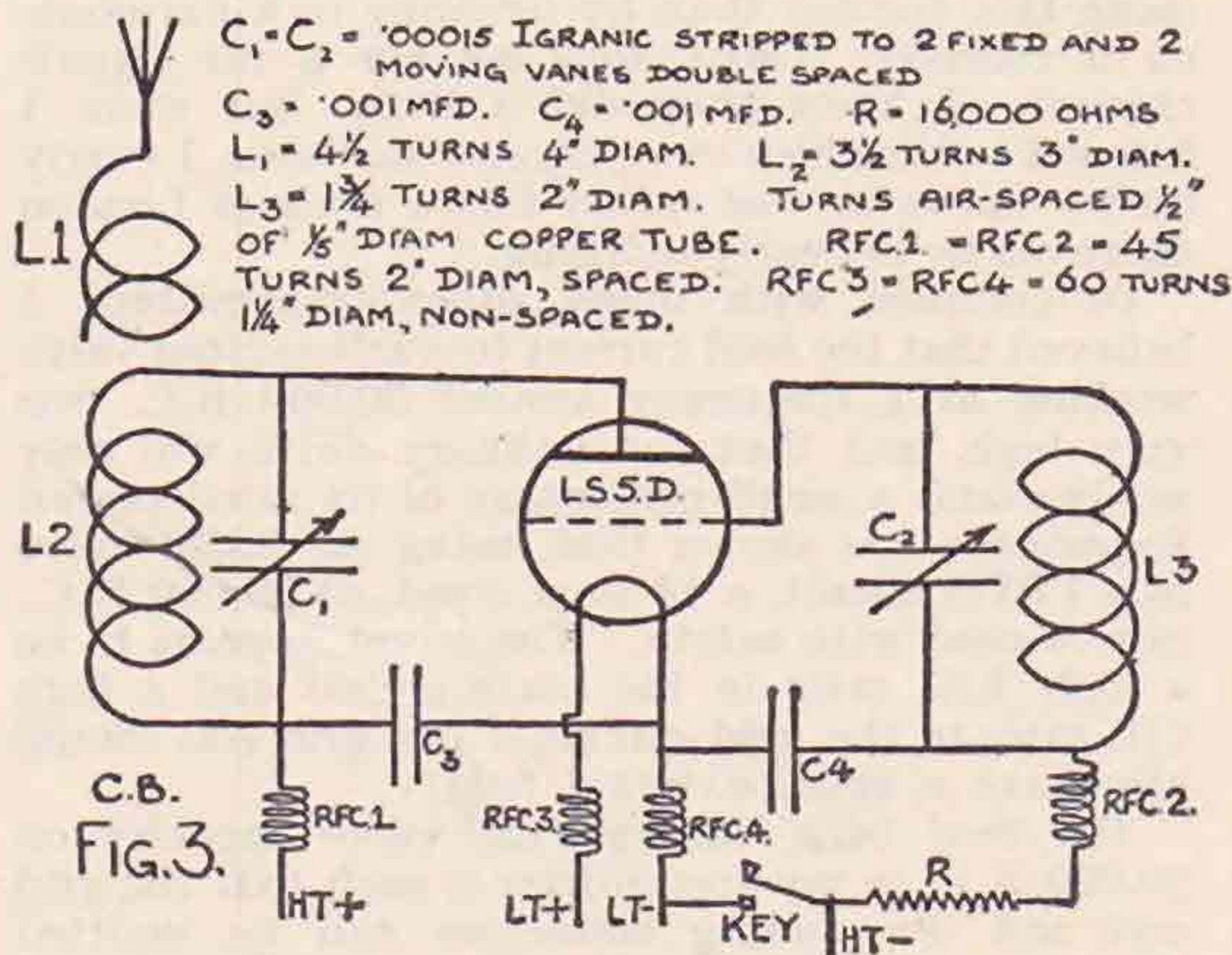
5PL (London) wants co-operation from three distant stations and three G stations to study "cloud effects."

The letter budget of 2A ("Skip") was full of argument, and they are busy on organised tests at the moment.

1A's budget was, as usual, full of information. They had no success with the A.R.R.L. tests, but some results of local work are reported. 2NH heard G2FN (ex AI2KT) at R5, D.C., rock steady, no QSS. The distance is 16 miles across several quite high hills, and the input 10 watts. This reception has been repeated several times, and 2FN is transmitting on most evenings at 22.00 G.M.T.

Fig. 2 gives 2NH's S.G.-S.W. receiver. The amplification is quite considerable down to 18 metres (at least) but lower band not investigated as yet. The valve is a Cossor S.G., and the main points about this circuit are (a) ease of control as only two tuning dials, (b) minimum screening is required. The "aperiodic" H.F. stage is thought to be more practicable for 30 megacycle work.

2FN finds short vertical aeriels best for 10 metre receiver and best value about 4 1/2 metres in length. Outdoor ones not appreciably better than indoor ones—cpse no advantage—earth a disadvantage.



For transmitting he prefers 1/2-wave with Zepp feeders. The series-fed Hartley and T.P.T.G. both gave good results. He suggests running valves at half rated power to prevent creeping signals.

The L.S.5D. gave trouble at first; a high feed current with no aerial coupled was obtained but by making the field of grid coil small and a large C/L ratio, and the plate coil just the reverse, the feed current fell to a reasonable figure.

On August 30 2FN heard what sounded like an amateur station adjusting TX on about 10.1 metres; QRK R2-3, note T8, time 22.10 G.M.T., signals ceased at 22.15 G.M.T. Who was it?

6DH says that OA4RB is transmitting and receiving on 10 metres every Sunday at 06.00 G.M.T. and other OA stations will be there now.

The second budget from Group 1B also arrived and 6LL has some local work to report. He says that his best results have been between 14.00 and 16.00 G.M.T., and local work does not seem to be affected by light or dark. His signals are reported bad R.A.C. at three to four miles and good D.C. at 14 miles!! He suggests that all letter-budgets be written on T. & R. paper—FB idea!

6OH suggests that QST's "1929" transmitter will have large circulating currents in condenser plates. He thinks that 10 metre aerial systems deserve a lot of attention.

5VL's new 10 metre transmitter is a standard Hartley using five turns of $\frac{1}{4}$ " strip spaced 1".

The diagram given by 6LL of the 10 metre C.C. transmitter to be on show at the Exhibition is very FB.

GW17C, who takes a new 10 metre group, is the first Irish station to transmit on the lower wavelengths—as far as is known at C.B. His receiver is a Reinartz using two P.M.2 valves and H.T. from home-made eliminator. A condenser of 0.0003 mfd. across primary of transformer makes oscillation quite easy down to 7 metres, but no oscillation below 14 metres without it. Grid coil is one turn of $2\frac{1}{2}$ " diam. and reaction two turns same diam. L.C. aerial and H.F. choke is 100 turns on a 1" test tube.

17C has received a couple of NU stations in the afternoon about 15.00 G.M.T. He has worked 13D at half mile with R8 fone and C.W., while 18B at one mile has reported R5. 17C's transmitter is an Ultra-Audion with L.S.5 or D.E.5 and 300 volts H.T. with 25 m/a. Aerial is full-wave Zepp, about ten feet high, but since results given the aerial has been raised to 18 feet. The feeders are $\frac{3}{4}$ wave and current in aerial about 0.2 amps.

To get steady wave TX is mounted on rubber and each condenser is very rigid. Filament chokes not very important but are there all the same.

I am glad to be able to announce that 5YK's group has been formed; 2OD and 17C are forming the next two groups—all on 10 metre work.

The following are new members of C.B.:—G5US, G2XY, NU-3LW, RBS171, 2AAM (total, 121).

Membership.

NEW MEMBERS.

- A. E. CONNELLY, 49, Delhi Street, Ormeau Street, Belfast.
 H. HEATH, "Beechwood," Stow-on-the-Wold, Glos.
 R. L. WADHAM, "Ellesmere," Bulwer Road, New Barnet.
 W. E. RUSSELL (5WP), 5, Walton Road, Woking.
 G. T. HOYES (Associate), 71A, Elsham Road, W.14.

R. W. B. HENDERSON (Associate), 59, Canning Road, N.5.

W. LEE (Associate), Minoco Wharf, Silvertown, E.16.

E. HYLLESTED (ED7XF), 97, Strandvej Hellerup, Copenhagen.

C. J. BAYES (2BJC), 7, Tower Street, Kings Lynn, Norfolk.

V. P. P. BLAKE, Hawthorne Cottage, Aslockton, Notts.

J. C. DEAVES, Radio House, Bures, Suffolk.

E. J. LAKER (2BGS), 4, Alford Road, Cranleigh.

J. S. KNIGHT (2PP), Clarks Hill Nursery, Prestwich, Manchester.

W. A. BOUSFIELD, York Street, Bellerive, Tasmania.

G. RUSSELL LEE, 25, Boundary Road, West Kirby, Cheshire.

R. ANGOLD, 3, Orleans Road, Hornsey Road, N.19.

H. C. S. COLBORNE, 25, Devonshire Terrace, Hastings.

W. H. ANDREWS (2YG), Tramore, Totnes Road, Paignton.

BASIL HALL, 25, Coombe Gardens, New Malden.

J. ARMSTRONG, 109, Rupert Street, Bolton.

F. R. RAWLINGS (Associate), 48, Canford Road, Clapham, S.W.11.

C. S. HUNT (G6NT), 58, London Road, Bromley, Kent.

R. A. MINTER (5RM), 60, High Street, Bromley, Kent.

F. PEMBERTON, 115, Cambridge Road, Wimbledon, S.W.20.

H. R. LODGE, Hepani, Guernsey Gardens, Wickford, Essex.

H. F. PIDGEON, 103, Princes Street, Swindon.

G. C. OMBLER, 391, Anlaby Road, Hull.

A. A. EVANS, 100, William Street, Swindon.

D. F. WATTON (Associate), 115, The Grove, Ealing, W.5.

W. GIBB (5GK), 301, High Street, Kirkcaldy, Fife.

RESIGNATIONS.

F. G. BETTLES (6YZ), Brownsea Island, Poole, Dorset.

H. R. PARKER (2BPH), Glendaragh, Daisy Lea Lane, Huddersfield.

P. B. BLACKWOOD, 12, Shakespeare Terrace, Canterbury.

CAPT. A. DONISTHORPE, 23, Gledhow Gardens, S.W.5.

A. H. ROBINSON, Derwent House, West Ayton, Yorks.

R. E. SHAWCROSS, The Elms, Westgate Road, Beckenham.

L. P. A. DE GROOT, Dykstraat 44B, Rotterdam, Holland.

A. V. SIMPSON, 26, Westgate, Burnley, Lancs.

A. G. SEAMAN, 87, Warwick Road, S.W.5.

J. H. KEY, 28, St. Andrews Road, Enfield, Middx.

H. W. HARRIS, 63, Tyrwhitt Road, St. John's, S.E.4.

A. H. MACDONALD, Briars, Oxted, Surrey.

B.R.S. NUMBERS ISSUED.

180.—A. E. CONNELLY, 49, Delhi Street, Ormeau Road, Belfast.

181.—G. BRAMMER, Daneshaven, Linkfield Lane, Redhill.

182.—H. HEATH, Beechwood, Stow-on-the-Wold, Glos.

183.—R. L. WADHAM, "Ellesmere," Bulwer Road, New Barnet.

184.—V. P. P. BLAKE, Hawthorne Cottage, Astockton, Notts.

- 185.—J. C. DEAVES, Radio House, Bures, Suffolk.
 186.—G. RUSSELL LEE, 25, Boundary Road, West Kirby, Ches.
 187.—H. C. S. COLBORNE, 25, Devonshire Terrace, Hastings.
 188.—BASIL HALL, 25, Coombe Gardens, New Malden.
 189.—J. ARMSTRONG, 109, Rupert Street, Bolton.
 190.—F. PEMBERTON, 115, Cambridge Road, S.W.20
 191.—H. R. LODGE, Hepani, Guernsey Gardens, Wickford, Essex.
 192.—H. F. PIDGEON, 103, Princes Street, Swindon.
 193.—G. C. OMBLER, 391, Anlaby Road, Hull.
 194.—A. A. EVANS, 100, William Street, Swindon.
 195.—H. N. WALLS, Redcliffe, Forefield Lane, Great Crosby, Liverpool.

B.R.S. NUMBERS RELINQUISHED.

- 41.—J. B. SCOTT (now GW17C), 9, Upper Garville Avenue, Dublin, S.3.
 163.—D. C. GATTIKER (now 6DG), Boreham Wood, Elstree.

Notes and News from the British Isles.

Northern Area.

REPRESENTATIVE: S. R. WRIGHT (2DR).

Everyone seems to be on holiday, so the reports are more scanty than usual. I must add a further apology to hams in this area for my absence from the Convention. An urgent public engagement was thrust upon me at the last minute, calling for my return home on the Thursday. As business comes before pleasure, I had no option but to miss my first Convention.

Will Sub-Area Managers please note that reports must be in my hands by the 14th of each month, at the very latest. The 12th is the correct date, and late arrivals next month will have to be held over. H.Q. waits for no man, and I have to send these notes in without fail on the 18th. Don't forget, OM's!

Yorkshire.

By 2DR.

600 has nothing of note to report this month, except that crystal control is still being used on 45 metres with good results, but no DX has been done.

6DR considers August the worst radio month of this year, so far. He managed five NU's, NC, SB and a few E's, however. Crystal control is now going strong on both 45 and 23 metres, the latter being added this month.

BRS162 is going to apply for an AA licence. An overhaul, in readiness for the winter is in progress at this station.

BRS164 reports logging NZ, VE (2nd district) and ET1 for the first time. He says there is nothing doing on the 10-metre band, but plenty of NU's on the 20-metre band.

5LT is busy on QRP. EF and EN have been worked on 'phone and CW with 1.5 watts, with good results. Several G's reported CW R2 to R4, when the input was 0.42 watts. These tests were made in daylight on 45 metres, TPTG and a DE5. BRS stations are thanked for help. QRP tests are carried out from 07.00 to 08.00.

2DR put in a couple of nights furbishing up the fading gear, ready for the winter work, which promises to be thick. Trials are being made to adapt a screened-grid circuit for this work, but the loop aerial is apt to cause an otherwise stable set to turn into a real nightingale!

Cheshire.

By 6TW.

2SO has been on the sick list most of the month. Hope you are soon on the air again, OM.

BRS152 has found this month good for 40-metre work, but nothing doing on 20 metres. On the former wave, AF, AG, AS, FM, FQ, NC (3), NE, NQ, NS, NU1, 2, 3, 4, 5, 6, 8 and 9th districts, NZ, SA, SB, SC, SU, OZ have all been logged on a 0-V-1. Good man! Schedule with 2NU.

BRS90 has not done a great deal of SW work except on 45 metres, but is experimenting with a portable receiver.

BRS126.—Some early morning work has been done here, but although NU, NZ and SB have been logged O stations are yet among the missing.

BRS127 is also trying things out in the early morning and is busy collecting dope on transmitters.

6TW is getting ready for the new wave-lengths. Trouble at this station from A.C. hum interfering with ultra-short wave work. He says he is going to get over it somehow, and I wish him luck, for the job is a very tedious one!

Northumberland, Durham, Cumberland and Westmorland.

By 2AIZ.

6GC finds conditions not too good. Only a few QSO's have taken place on 45 metres. He is busy reconstructing.

6QT also finds conditions poor. EIIDY reports his 'phone on 23 metres R5 and very clear. Crystal control problems are absorbing much time here.

6YV has started up again after six months' silence caused by exam QRM. (He does not tell me he is now B.Sc., but I have my "secret service." Congrats, OM!) Power here is 50 watts, wave 20 metres. He is experimenting on earthing nodes of Levy aerial. DX worked: NU1, 2, 3, 4, 8, 9, NC, SB, SC, FO, FM, AM, OA, EF. Sigs. were reported R8 in NU1. Conditions variable, very bad towards the end of August.

BRS171 has nothing to report except very bad conditions.

A concerted visit to 6QT was made on August 27 by 6YV, 6GC, 6FG, BRS171 and 2AIZ, and a very interesting evening was spent. It is hoped to hold a similar meeting monthly. That's the spirit, OM's! Send any grouses to me for H.Q. or suggestions for co-operation.

Notts, Derby and Lincs.

By 6MN.

BRS103 has been closed down for holidays.

6LN followed BRS103's excellent example!

5QT has had a few QSO's on low power and has tried his hand at crystal grinding, but does not state which suffered most, his fingers or the crystal.

6MN is experiencing QRM from business. However, he has managed to get himself fixed up in a shack and can boast of 720 volts of D.C. He underlines D.C. I wonder why?

6UO having to spend most of his time in Sheffield, finds little left for DX. Have an illness, OM, and put in a few days in the shack!

Northern Ireland Area.

By E. MEGAW (6MU).

Apologies are due to 2CN, 5MO and 6WG for the omission of their reports from last month's notes for the reason mentioned in those notes.

The brothers GW17C were the only visitors at the R.T.U. meeting held on August 17. The A.M. hopes they enjoyed their visit. As he was in England at the time he was unable to be at the meeting.

Radio conditions are steadily improving at present and the 15 megacycle band is recovering from its usual lapse at the end of the summer. Fading has been rather pronounced on most short-wave signals lately.

2CN is rebuilding and hopes to be on the air by the end of the present month. He is going to the Convention.

2IT is off the air owing to change of address and pressure of business. He has put up a 90-ft. mast and hopes to return to normal activity later.

5GH has closed down and is dismantling his station, as he is unable to find time to carry on radio as well as other work. We are very sorry to lose him and hope that he will rejoin us some day. Meanwhile, we wish him every success.

5HN is now using 6 watts to an LS5A with very satisfactory results and has worked Belgium and Holland. He is about to try a hand generator.

5HV has been doing some tests on a modified Hartley circuit, and is about to rebuild for higher power. The A.M. was very pleased to receive a visit from him recently.

5MV is moving to Belfast and hopes to be on the air again soon with C.C.

5NJ has worked Tasmania a few times in the morning on 32 metres. He has rebuilt his station for C.C. in all the new bands and intends to start in them as soon as the permit arrives.

6HI spent his holidays in Holland and Belgium, where he visited 4KB, 4CO, 4CB and 4OB. He greatly appreciated the hospitality of the EB's he visited.

6MG is commencing an ambitious rebuilding programme and is off the air at present.

6TB is, as usual, very busy, but he has built a broadcast receiver which gives very fine quality.

6YW is very busy with C.B., but he has worked Russia and Roumania on 45 metres.

6MU had the pleasure of meeting 6ZR and 6RB during his holiday, and wishes to thank them both for their kindness. He paid a visit to GKU with 6ZR. He has recently been testing a very simple M.O.P.A. transmitter which is usually reported "C.C."! He is going to London in a week from the date of writing.

This is the last time these notes will be prepared by the present writer, who is extremely sorry to have to relinquish his pleasant duties as Area Manager.

He thanks all those who have assisted and encouraged him during the past year and hopes that "GI" may continue to prosper in the future as it has done in the past.

South-Western Area.

Area Representative: G. COURTENAY PRICE (2OP).

The A.M., having completed his military training, is now by the sea with the three junior ops.

No correspondence is being dealt with, and he hopes that the very few who sent in reports will not mind their being held over until next month, by which time it is hoped that 2OP will be functioning again under the new conditions.

London Area.

Representative (*pro tem.*): J. CLARRICOATS (G6CL).

As these notes are written we are in the midst of the Radio Exhibition and preparing for Convention. With so much of interest on hand it is not to be expected reports would be lengthy, but those who have been at Olympia must have been particularly impressed with the ham spirit present in and around the show, with the society's stand as a centre of attraction for all amateurs.

I am awaiting with interest the result of my invitation to London members to visit my station on October 11.

Reports are as follows:—

Northern Division.

By G6CL.

6PP says conditions are improving. He is using C.C. Best DX was EU and EJ.

2RK offers his first report verbally; he is doing well with an M.O.P.A. EU and EJ being worked.

5HJ is using 8½ watts. Best contacts were with XEA-AA, Sonnbliek Observatory, 10,000 ft. above the sea, and EU8RW at Leningrad. Some good phone results have been obtained.

5GU reports usual European QSO's—EC at midday was best result. The keying method suggested by 6MU was tested, but the tone was reported ripply instead of the usual T8.

5QF is testing crystals, but has no DX to report.

6UN has completed his dossier of information on Hertz aerials and is preparing same for a BULLETIN article.

2AX has been testing on 150 for the first time and will be glad to have reports on his phone work.

6PA has left our area and is now living at Sittingbourne.

6CL has been too busy recently for any serious testing, but hopes to be working on C.C. very soon with a new aerial.

Eastern Division.

By G6LB.

6LB has been QRT for some time, but hopes to be on the air again by October, as he has a new 40-ft. stick. He has visited 5QU and the new Clacton ham, 6DH, whose hospitality he much enjoyed. While at the latter station he saw evidence of genuine 10-metre research in readiness for the coming changes. There is useful dope for a good "BULL" article at 6DH. What about it, OM?

6UT has also been QRT owing to holidays, but when last heard of was busy QSO OA. He is fixing AG schedules in order to get his WAC. Latest DX here is FK4MS.

6LL is still busy investigating the ultra-short waves. East London looks to 6LL to lift for them the honour of being the first British station to QSO the U.S.A. on the 10-metre band if, and when, we obtain permission to use it.

6FY sends in his first report. Thanks, OM. We should like one every month. He was busy on 90 metres until the end of July, but will be QRT till November. He hopes to get a 90-metre QSS party going for CB.

2NU also sends his first report. Thanks, very, OM. That's two reports from the whole area.

East London is coming on.

2NU says that QRM from small sun at 04.00 enables him to get on the air nice and early. He reports poor conditions lately on 45 and 23. The use of valves of different filament voltages in different transmitters explains the loss of a "Bottle." He is getting out well on 150 metres, using A.C. and grid modulation 'phone.

6LB wishes to apologise for the lateness of these notes, but owing to his being away on "vac.," he just missed the "press" for the last "BULL."

Western Division.

5WF reports that he is busy on ten metre work and general wave theory in reference to the heavyside layer. He would like to hear from someone interested in frame aerials. (Write 6YW-Contact Bureau 6CL).

No other reports from this division.

Please send any interesting notes to 6CL by October 20.

Southern Division.

By 6PG.

Reports this month are again very scarce. Please, OM's, let us have a few lines regularly, just to let us know that you are still in the game.

2CX has a daily sked on 23 metres with OA5HG and works a few NU's at night. The C.C. transmitter is growing rapidly, and he hopes to have it on the air by next month.

2NH has been keeping a sked-with OA5HG on 23 metres each morning and also a number of times in the evening. The 10-metre transmitter is all ready to go when the licence comes through.

6WY has been mostly on 23 metres, although conditions have generally been poor. During a spell of 10 days of luck, OA (R6), NU6 (R6) and FK4MS were worked. All NU districts have now been worked. Experiments have been made with plate tank circuits with somewhat sudden and painful results.

6HP has completely rebuilt both TX and RX, with FB results. He has worked FK4MS every Sunday on sked, getting usual R5, FK1LM (R4), FOA3Z (R3), OA5WH (R5), OA7CH (R4), NC5EF (R4), SB1AT (R6), FE1ES (R8) and numerous "local" NU's.

Visits have been received from ED7IM, ED7GB and NU4AEF. 6HP is always pleased to receive visits from fellow hams and is always QRV for them.

BRS125 sends a very interesting report from Durban, S.A. He says that NU's and QRO G's come in well, though QSS is generally bad and much QRM experienced from the new Congella Power Station, capable of delivering 72,000 kilowatts and operating from pulverised fuel. The A.C. hum is ghastly. BCL licences cost 35s. per annum, and 45-volt "B" batteries 35s. each. He is using an 0-V-2 he took out with him. He is returning on September 28 on R.M.S. "Windsor Castle"—call GFMS on 600 and 1,200 metres.

6PG is still off the air, but rebuilding, etc., is progressing quite well and he will probably be on the air again from new QRA by the end of October.

Mid-Britain (West).

Area Representative: D. P. BAKER (2OQ).

I am afraid most of us have been too busy with the new licences to spend much time working with other people. My own opinion with reference to the new wave bands is that they are all too small, but there is one advantage that I feel many of us have overlooked, viz., we shall not have certain countries working on the 32 metre band and not listening for those who are only licensed for 23 or 45.

I, personally, had some difficulty in getting my first QSO with NZ until 5UW asked them to listen for me on 45 metres. The new conditions I feel will only go to prove how keen we are and will weed out those few of us who are only out to make a noise and have not the capability to do things properly. The only thing I am worried about is, will the unlicensed Continental people be brought to book?

Staffordshire (reports to 5UW).

6OH reports working four Continents in as many hours during one week-end recently on 23 metres. 6OH is leaving this district to take up another QRA in London, which change is this county's loss and London's gain. Very sorry to lose you, 6OH, OM, and wish you best of luck in Town.

6SO reports activities in preparation for the revised conditions and wavelengths.

6UZ has put up a really fine aerial arrangement which consists of practically a Levy Aerial for each waveband, also a third harmonic aerial for comparative purposes. Reports improving on week-end fone tests.

5UW has suffered rather severely from Biz QRM, but a Yank or two have been worked at odd times on 23 metres, also two very interesting QSO's with an Italian ship in the South Atlantic. Is designing a really hot stuff wavemeter that ought to be useful during the next few months. Complete station rebuilding is contemplated in the very near future, which will probably prevent actual ether activity for some weeks.

Two meetings of the Wolverhampton and District Transmitters' Society have been held during the past month, attended by 2OQ, 6HT, 5NH, 6UZ, 6PB, 5PR, 2NV, 6CC, 5UW, 2ZW, the first at 6HT's QRA and the second at that of 6CC. The chief subject discussed was, of course, the new licences and revised conditions. Arrangements are being made to ensure that all members of 2CP will at least keep well within the bands, and crystal control seems the topic of the hour to such an extent that moving coil speakers have had to take a back seat. 2ZW has joined this society and 6OH has left to take up a new job in London. Best of luck, OM. Station visits 5UW and 6OH to 6UZ; 2CP to 6HT and 6CC.

Warwickshire (reports to 6CC).

2AK has not been working, but has received "pirate" reports. 2YX has had his aerial down and cleaned everything. He has also put it up again.

2BNB is doing test work with crystal control and frequency doubling.

6CC has done nothing this month, having been away again.

6CI.—20 metre DX only worked with NU and NC; a screened M.O.P.A. transmitter is in construction. A long-wave receiver has been constructed and much interesting time has been spent among the commercials.

6XJ has been busy with trade matters, so has done nothing but prepare an article for our editor.

6YD has been doing good work. An FR and 9th American. NU9 was worked on two watts. Reported R5 and 6, also T9.

2ZW has worked EPICT at Abrantis, Portugal, and in Finland. Station visits to 5NH.

Mid-Britain (East).

Representative: H. J. B. HAMPEON (6JV).

Cambridgeshire.

By 2XV.

5YX reports QSO with OA on 20 metres at 21.15 G.M.T. on two occasions, and also with OA, OZ, etc., daily. He has also worked FK, FO and NU's 1, 2, 8, 9 with strengths varying around R2-3 at the Antipodes. He is ready for the new bands at any moment with crystal control.

6CR has now got an excellent crystal outfit going and is getting excellent reports from almost all stations worked. NU contacts are being fairly regularly effected, even in spite of the adverse conditions prevailing.

BRS161 has re-built his receiver and also his wavemeter, and has been testing the possibilities of frame aerials for use on 45 metres.

2XV has had numerous QSO's with local districts of U.S.A., also OA and OZ. Higher power tests are now being commenced on 20-metre band, using an Osram T250 valve. Meanwhile, a crystal-controlled outfit is being slowly and carefully assembled ready for the new regulations.

5YK.—Although not officially reported, it is believed that this station is conducting some excellent QSO's.

Norfolk.

By 2BWB.

2AAK has been much troubled by X's during the past month and is considering alterations to his receiver for the new wavebands.

5UF has been on 23 metres most of the time, but found conditions "dud." Has been QSO NU on 7 watts and has also been QSO with most of Europe on 45 metres with 6-7 watts. Experiments with aerials are continuing, and also a daily schedule with 5WQ, using "BK," which he reports FB.

6JV is rebuilding with a view to the new conditions, and has nothing of interest to report.

2BWB has re-built his transmitter and got a generator running. A new receiver, which should be just the thing for the new wavebands, is being built and shows promise.

Southern Area

By 2ABK.

Notes are very scarce this month, in fact only five have been received.

5UY has been experimenting with absorption keying and grid modulation as per 6PA, but it does not come up to absorption modulation, he says, and conditions have been bad. (Absorption modulation on a self-oscillator causes unnecessary interference and should never be used.—ED.)

2AGC has finished his TPTG transmitter and has carried out a few interesting tests, is busy swotting code, calibrating wave-meter and burning out bulbs in same!

2BUW sends his first report to this area. Sri it just missed last month's budget, OM! Has been busy with portables. Has had several listening skeds on 45 metres.

Please send any Surrey notes to 2BUW, OM's, at Minydon, Ridgway Road, Farnham. Wake them up, 2BUW.

2HJ has had visit from 6JL and worked around, also planned 1929. 2HJ a new half-wave Zepp is up, but not on 23 metres yet! Always QRV for QRQ chats, and also don't forget to send him I.A.R.U. reports on DX.

5LU reports a few local QSO's on 10 watts input, and otherwise nothing doing.

5XW writes to say he is very QRW, although not on air. Is busy on RX work and is thinking of television.

BRS142 is busy on 10-metre work and morse practice. Hopes to apply soon for TX licence.

2LZ has been QRT except for a few local QSO's on 180 metres C.C.

5QK (op 2ABK) had another field day in August and on 150-200 metres was heard in three counties (fone) from a mobile car station, using DB's. Still wants a sked before 08.00 any day on 150-200.

BRS 181-Ex ED7GB reports that his new receiver is giving excellent results and offers to stand by for stations at most times of the day.

Scottish Area.

By 5YG.

Reports for August are so meagre owing to holidays, that on this occasion I propose to slump them to avoid taking up valuable space.

No. 1 District Stations, with the exception of spasmodic operating by 2MA, 6WL and 6NX, were practically silent, and none of the stations referred to has anything of outstanding interest to report.

No. 2 District is still worse off, and can only show one station partially active—6IZ, who has been doing some rather good QRP work on about a sixth of a watt. He has now got his new 40-foot "stick" up, with improved results generally. 2BQK has been granted his radiating permit, and now awaits his morse test.

No. 3 District comes along with five reports: 2SR has, I understand, been seriously ill, and I trust will have an early return to health. 5GK is putting out excellent fone on 45 metres, and is receiving glowing reports. 5NW is also on 45 metres with crystal-controlled fone. 6KO finds a new "Zepp" doing well on 45, but poorly on 23. Reports show that he has removed the "mincer" effect from his note. BRS158 has added another valve to his RX and is busy building a new wave-meter.

No. 4 District furnishes three reports. 5JB is busy building a QRP Mesny transmitter for ultra-short waves, and has done little or no brass-pounding. 6QF has also not done much actual transmitting, but has been striving to obtain an 80 per cent. efficient oscillator on the Hartley principle, without much success so far. 6UU, who has been doing a lot of 'phone work on the 45 band, is also building a Mesny transmitter for the ultra-short waves.

Channel Islands.

By 2ZC.

With a daily shade temperature of 70 or over for the past twelve weeks, little or no work has been done in this district. Some of us have discussed the Post Office Memorandum, and the conclusion is that we shall all be the happier and better off, under the new conditions. OM's, 6WN visited us lately, but as they did not announce their presence till on the point of departure, we could not do as much for them as we should have liked, so will other hams visiting Jersey please give us notice of their intention to pay us a visit. The only work done since the last report has been schedule keeping with G stations by 2ZC, who, having rebuilt his receiver into a metal cabinet, with flat strip R.F. connections, air-spaced grid condenser, etc., finds that all stations have gone up in strength at least 25 per cent., so presumes it is an improvement. C.C. is the next step, and 2ZC will shortly be QRT till this has been accomplished. 6PU is disposing of two generators and some other gear as he wishes to instal H.T. accumulators. 5WZ, 6HZ and 6OX are inoperative, and 5GW is still away.

Notes and News from British Dominions.

Irish Free State.

By GW-11B.

Area Representative: COL. DENNIS.

Many of the GW stations have been practically inactive during the past month. With the advent of the DX season no doubt there will be much more to report. The 23-metre band is generally reported as very poor.

I have again to thank 17C for his assistance in the collection of these notes.

14B, with an input of 0.5 watts on 45 metres, has worked Madeira (R7), as well as EF, ED and EG.

18B has been experimenting with aerials for 23 and 45 metres. On 23 metres, with an input of 220 volts D.C. mains to an LS5 valve, he has worked OA 5OM and NU's 2OW and ICPB.

14C reports no time for radio.

15C has just put up a half-wave Zeppelin aerial for 45 metres, and is building a transmitter for 8 metres to work a schedule with 17C.

16C, whilst away on holidays, paid visits to 6WY and 6HP in London, both of whom gave him a splendid time. He is now using a CC TP-TG transmitter on 45 metres and is trying his hand on crystal grinding.

17C has been carrying out improvements to his transmitter and has increased his output on both 23 and 45 metres to a maximum of 9.3 watts. He is preparing crystals for the new waveband. His best DX were EU (Crimea), NU2CUQ and FK4MS with an input of 5.5 watts.

18C, using a Hartley and half-wave V.F. Hertz, reports having worked AS, AG and EU, and many other E's, including 'phone with EK, EP, ED, EN and many G's. He seems to be our most active station just now.

13D has been on holidays. He is arranging for 8-metre work with 17C, and also hopes soon to be on CC on 45 metres.

11B has been experimenting with CC two-stage frequency multiplication in anticipation of the new wavebands, and is not satisfied with results, especially as regards efficiency. The difficulty is that he only has H.T. juice for two valves. He is contemplating drastic changes in his aerial system, but so far has had no time to carry them out. He has been little at the key and best DX is Moscow and Leningrad.

Notes and News from Europe.

Baltic States.

By ET3CX.

We are pleased to publish the first report on the activities of stations situated in the Baltic States.

We appreciate the difficulties besetting them and await their emancipation with interest.

Estonia.

ET3LW is working skip tests on 40 metres and asks for reports. (Join R.S.G.B. and C.B., OM.)

3CX, 3XY, 3OW, and 3AZ are all active and seek EG reports. Conditions during the summer have been poor for DX, but we look for an improvement shortly. Our QSL manager requires the QRA of ET2KX, as there is no known station in Latvia using this call.

Latvia.

It is impossible to report properly on the activities of our Latvia stations owing to severe QRM from our postal authorities. The official QSL manager is now the secretary of the Latvian Radio Society—Mr. Karklins, 34, Tvaikaiela, Riga, Latvia. Cards for amateurs in that country must be sent to him under cover.

Lithuania.

For several years Lithuania has been solely represented by Mr. Hinentalis. He has acted as QSL manager ever since others became interested, and it is with regret we learn that he has recently had to give up this work. The new manager is:

Mr. B. ELJASCHWITSCH,
 Presidento Gatve 11,
 Kaunas, Lithuania,

and all cards must be sent under cover.

ETIF has recently done fine DX with 10 watts. NU, SC, OA and AS have all been worked.

ETIC requires schedules with London stations. He uses 15 watts and is always QRV.

ETIE uses 10 watts and also requires schedules with British stations.

During the summer QRN has been very bad here, but during early mornings in August SB was received perfectly, whilst NU was particularly weak. EG stations are very weak, never exceeding R5, whilst EF and EI, which were a few months ago QRZ, are very QSA—R7 to R8 in daylight.

Denmark.

By ED7SP.

E.D.R. (Experimenting Danish Radioamateurs) held their first annual general meeting on September 20. Many members from Copenhagen and not too far towns attended and discussed with interest the various matters which were put forward.

E.D.R. hopes the next report will give all information regarding our Government's regulations for 1929. However, it may be said now that E.D.R. will take up the work of helping Danish hams under the new conditions by transmitting calibration waves in the permitted bands and giving constructional advice to any member who might want it regarding obtaining an irreproachable note and prevention of unnecessary interference of any kind.

During September most Danish amateurs have been improving their sets in order to be ready for the coming season. Most of them

have visited the Radio Exhibition in Tivoli, September 15-23, and got new ideas as to improvements and better components for their sets.

7LY's transmitter was exhibited and received due recognition for suitable and effective construction, and he and others were able to interest a good deal of visitors in S.W. work. 7LY succeeded during the first half of September to keep daily QSO's with the Danish steamer "Christiansborg" (XEDOIB) during its voyage down the east coast of South America. QRH was about 35 metres, input at 7LY about 85 watts and usual QRK on both sides R3. QRN was very bad at times.

7ZG has, owing to difficulties with his high-power supply, only been working QRP 8-12 watts. Nevertheless, he obtained numerous QSO's with U.S.A. district 1, 2, 3, 8, 9; best QRK R6. 7ZG has now reached his NUQSO No. 100.

7WH has been working phone with good results.

7IM obtained QSO with Moscow, using 1½ watts D.C. input, and was reported R4 on O.V.O.

Germany.

By E. REIFFEN.

The most important event during September was our meeting coincident with the great German Radio Exhibition in Berlin. There were about 40 hams present, among whom we had the great pleasure of seeing EG6FY, of London, ET2UA, of Riga, and Op. Johnske (DCZ), of Count Luckner's yacht the "Vaterland."

Compared with last month, there has been little change in DX conditions, so that there is hardly anything to report in this line.

EG6PP and EG6FY have both become members of the D.A.S.D. and have been allotted the numbers DE0831 and 0852 respectively. We extend a hearty welcome to them and hope that others will follow their example.

It seems highly probable that from January 1, 1929, we will use the new intermediates, as agreed upon at Washington. We are very sorry to have to relinquish the old ones which were so helpful in determining the country and continent of origin.

Unfortunately, it is still impossible for private persons to get a transmitting licence over here, but we hope to have a definite ruling on this matter towards the end of the year.

QRA Section.

Manager: M. W. PILPEL (G6PP), 54, Purley Avenue, London, N.W.2.

All the rush and bustle of the Convention now being over, we can settle down once more. I hope that all those who were present had a thoroughly good time, which I can assure you I did. Owing to the extra amount of work entailed during the last week or so, it has unfortunately been impossible to publish QRA Supplement No. 2 this month, but it will appear for certain with the November "Bull." It is quite a formidable affair, containing over 400 QRA's, so it will be something to look forward to. Here are two more QSL agencies:—

East Africa: "The Times of East Africa," Box 194, Nairobi, Kenya.

Poland: L.K.K., Bielowskiego 6, Lwow.

I understand that cards for Polish amateurs should not be sent via P.K.R.N., as that bureau appears to be somewhat tardy in forwarding them to the respective stations.

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Correspondence

To the Editor of T. & R. BULLETIN.

DEAR SIR,—I received the following message by radio from OA2NO this morning:—

"To R.S.G.B.—Airplane 'Spirit of Australia,' call sign VZGX, wavelength 34 metres, flown by Capt. Frank Hurley, leaving here to attempt record flight to London and back on approximately October 15. Request co-operation from world-wide amateur stations. (Signed), Knock OA2NO, Technical Editor 'Radio,' Sydney."

2NO further asked that you would notify countries along the route of the plane as far as possible. The plane will fly by Singapore. He asked that Indian stations in particular should be notified, and I would suggest that A12KX or A12KT might be able to arrange this.

I am, yours faithfully,

H. MARSHALL SWANN.

9, Seafield Road, Lytham, Lancashire, England.
September 27, 1928.

THE DEFENCE FOR THE B.R.S.!

To the Editor of T. & R. BULLETIN.

DEAR SIR,—Some time ago a letter appeared in the BULLETIN in which we were informed of the work entailed by the QSL Section, and how a pile of cards an inch thick, all addressed to Yanks, was received from a B.R.S. member. "Most of these Americans are in communication with Europe every night," continues the correspondent, "and these cards, which are merely reports, are useless." He goes on to urge B.R.S. members, if they must send cards, to get a call book and send them direct.

I must disagree with both the above statements. Although I am comparatively a newcomer to the great game, roughly half of the cards I have received from America (I must admit that there are not many) have borne remarks to the effect that my reports were the first intimation the operators had had that their signals were getting anywhere. They had never worked outside the U.S. before. To quote a few of those on "our side" I might mention 2APN, 2BGN, 3HL and 5AYO, and certainly these do not appear to have QSO'd Europe every night.

I should like also to point out that reports, if they are clear and accurate, are not half so useless as the mere exchange of cards performed by transmitters after a QSO. To quote again only the comparatively near "hams," 1LG, 1AQD, 2API, 2AZU, 2FP 2NF, 3NR all express great appreciation of my reports.

In closing, I should like to mention that I myself, whenever possible, send all cards direct, as I am of the opinion that, even though an accurate log is kept at the transmitting station, the quicker a report reaches its destination the better.

By the way, EK4AO has asked me to spread the news to British hams that he is on the air with a new 75 watt two-valve transmitter, and wants G QSO's on fone only. I can't give his address here, but I shall be very pleased to send it right away to anyone interested.

Wishing the BULLETIN every success, I remain,

Yours sincerely,

F. DONALD CAWLEY (BRS152).

85, Hale Road, Hale, Cheshire.
September 23, 1928.

To the Editor of T. & R. BULLETIN.

DEAR SIR,—I shall be leaving the country on Saturday next, and for the next three years my address will be:—

c/o Trinidad Leaseholds, Ltd.,
La Carrière Shipping and Refining Place,
Pointe-à-Pierre,
Trinidad, B.W.I.

I would like you to convey my best wishes to all experimenters (via the BULLETIN), and I shall undoubtedly let you know how things go.

Yours faithfully,

P. H. B. TRASLER.

Calls Heard.

By W. A. BOUSFIELD, York Street, Bellerive, Tasmania (20, 32 and 40 A bands).—EC—2yd, 2un; ED—7fr, ohk; EG—2kf, 5nj, 2it, 5xy, 2sz, 5kh, 2od, 5dh, 6td, 2rg, 2nh, 5hs, 6mu, 5uw, 2nm, 5qv, 5ku, 5yk, 5qk, 6yv, 6vp, 6hp, 2cx, 6yq, 5ma, 5hs, 5by, 5yx, 5jw, 6wi, 2xv, 6rb, 5br, 2sr, 5lf, 2bm, 6wy, 5ml, 2oq, 6pi, 6qb, 6rw, 6mq, 6ci, 5mq, 6ut, 2zc, 5vl, 5ms, 5sw; EK—4uah, 4ya, 4oa, 4abg, 4yo, 4dbs, 4dba, 4aci, 4uu, 4uai, 4yae, 4uf, 4vr, 4uj, 4aap, 4ka, 4zzz, 4yt, 4sar, 4aen, 4ef; EL—laix, laif, lefb, laig; EO—17c; EP—1ae, lag, lbx, 3am, 3co.

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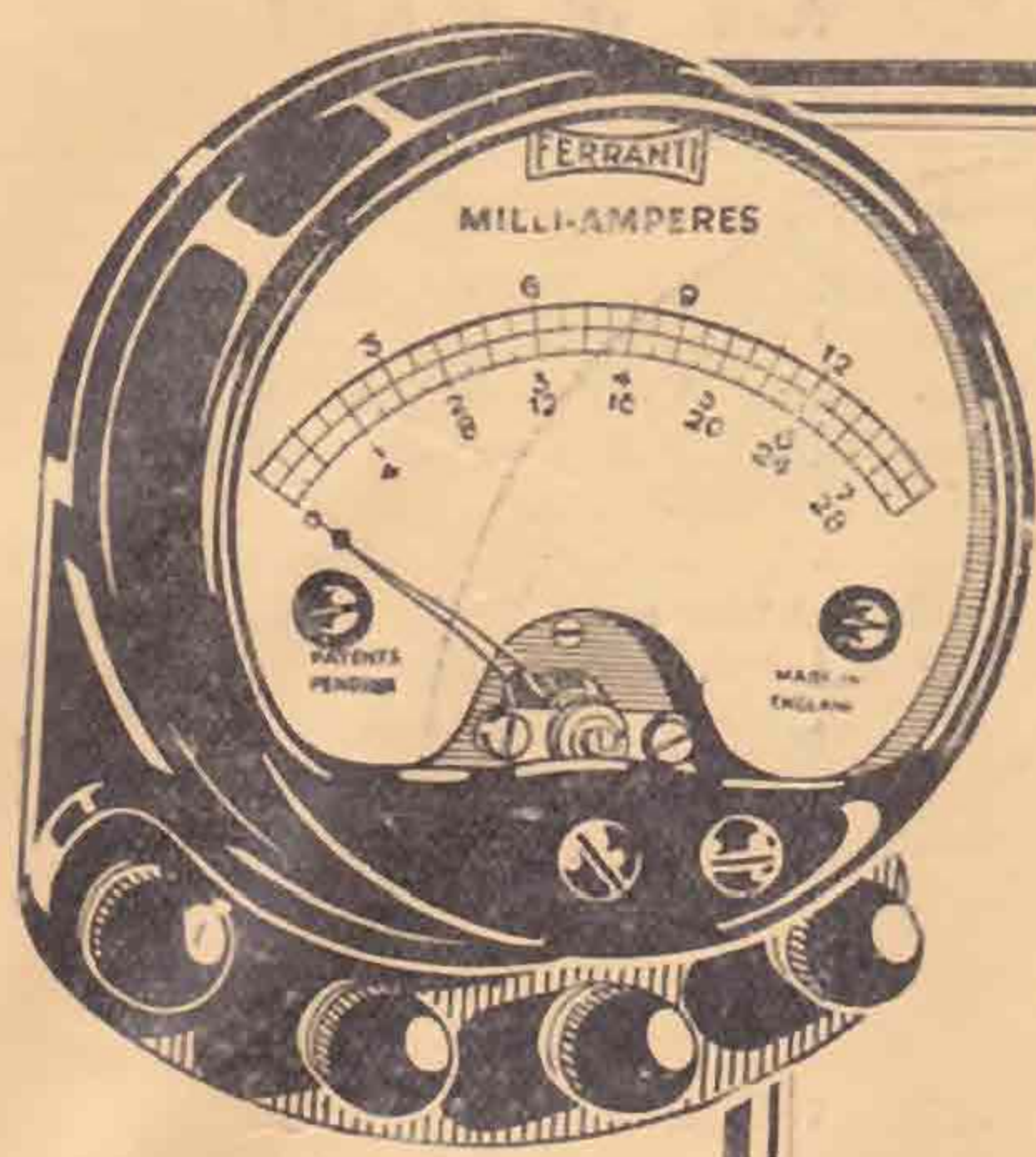
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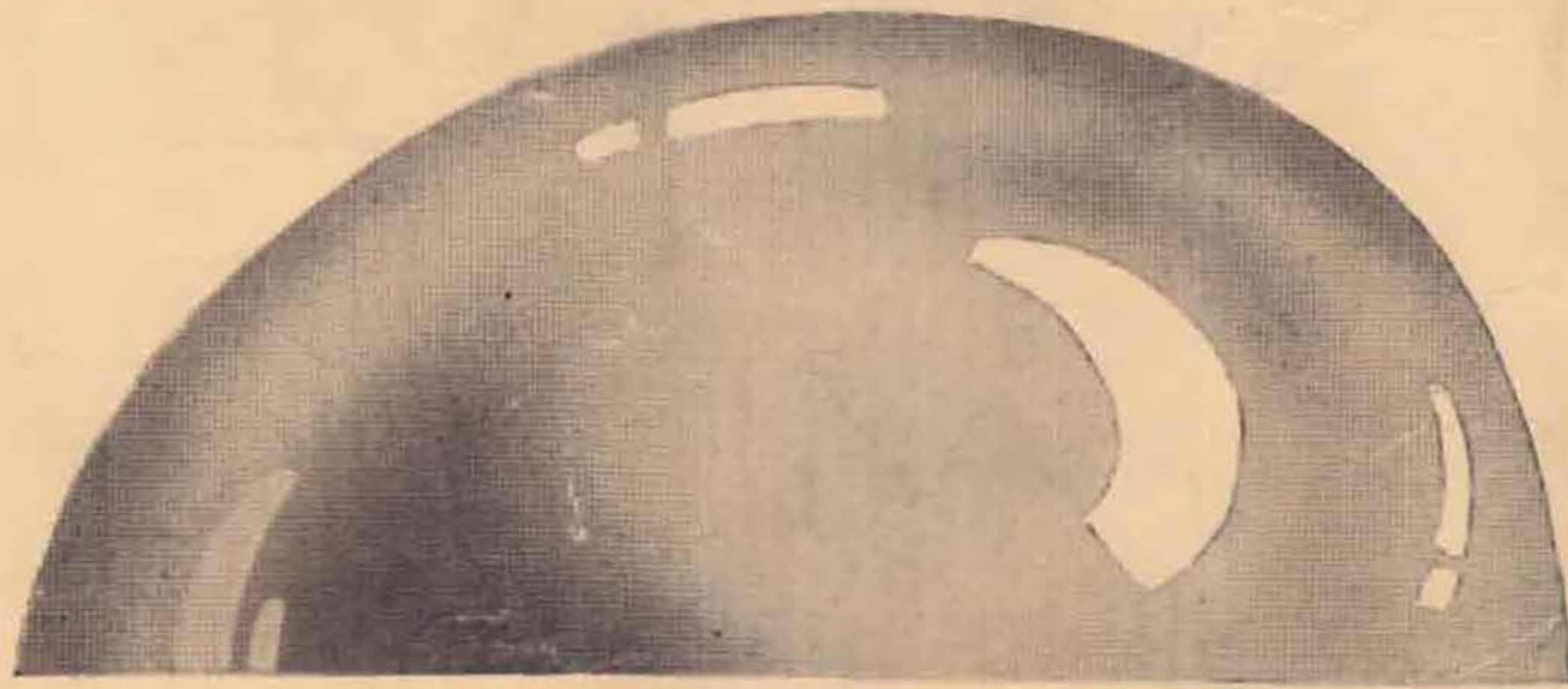
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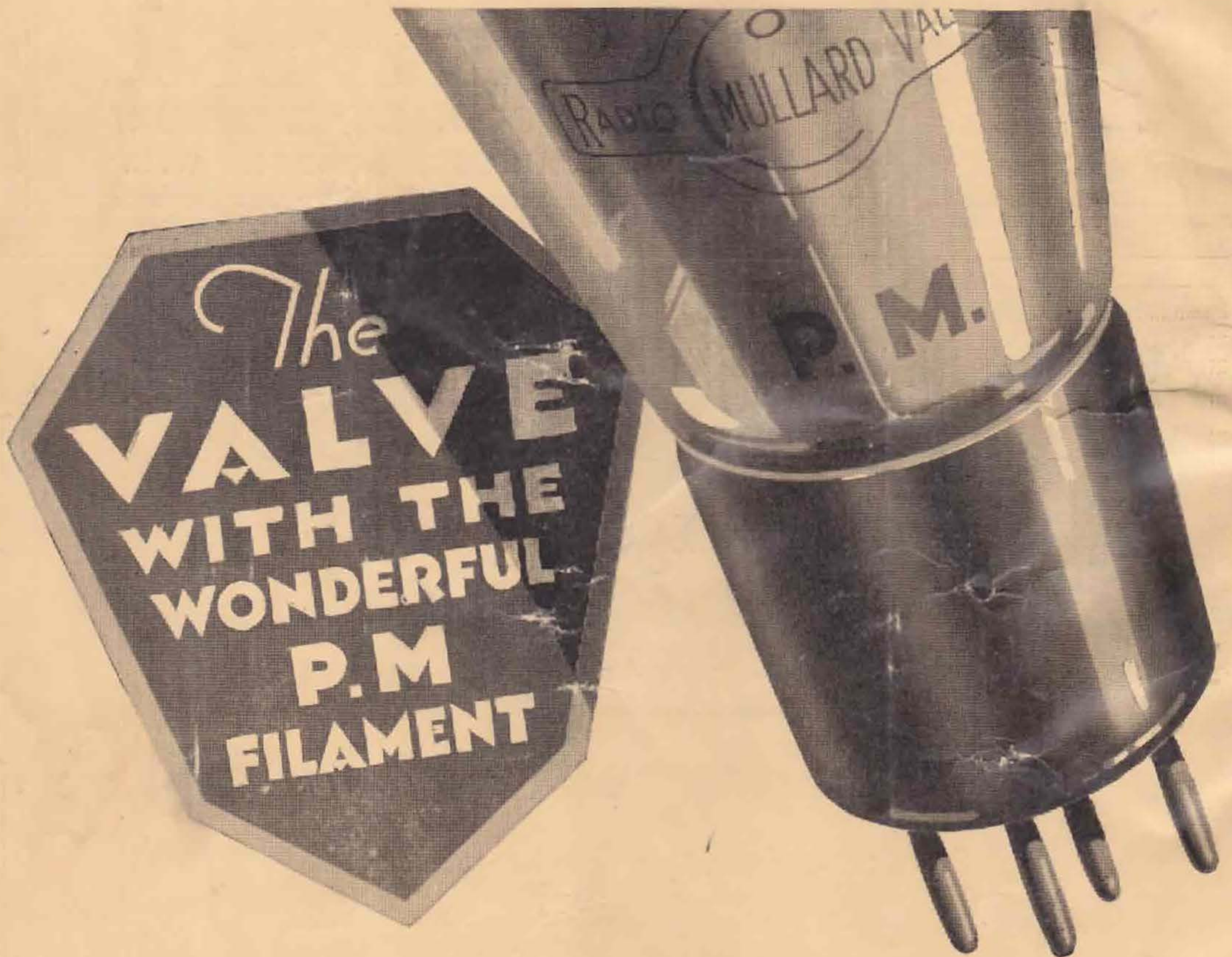
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