T. & R. BULLETIN

The only British Wireless Journal Written and Published by Amateurs

SEPTEMBER-OCTOBER, 1925. No. 3.

Post Office Concessions.

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

DEAR SIR,—For some time past I have endured considerable difficulties with the Post Office owing to the fact that many members are not acting in compliance with the terms of their licences. Some of these members are now receiving gentle reminders from the P.M.G. that they are not adhering to certain clauses. I would like to warn all members that it is up to them to play the game, otherwise all the concessions which we have so hardly won will be lost.

However, I have always said that my ambition was to obtain ideal conditions for the British transmitting amateur, and with this end in view I have recently suggested to the P.M.G. that the new licences which will be issued on October 15, 1925, for trans-oceanic tests, the schedules for which the British Section of the International Amateur Radio Union are arranging, shall be extended.

It was proposed that the following wave bands be allotted for use for ten minutes any hour of the day and after 23.00 G.M.T. for 15 minute periods.

Fixed : 23 metres.
Inclusive : 44-50 metres.

This gives us two hours in the 24 instead of half an hour in 24 hours. Power asked for is up to one kilowatt, to be used any time during these periods. I have good reason to believe these permits will be granted from October 15, 1925, for a period of six months.

This will be a decided step forward in favour of the British amateur transmitter, and I trust that it will be appreciated.

The T. & R. BULLETIN is not overburdened with funds, therefore we ask all members to send in their subscriptions as soon as they become due.

IMPORTANT NOTICE.

All applications for the new Trans-Oceanic permits must reach the Hon. Secretary, T. & R. Section, at 53, Victoria Street, London, S.W.1, not later than October 5, 1925.

No licences of this description will be issued after this date, and all those who wish to participate in T. & R. 1925-26 tests should join the T. & R. Section at once.

Yours faithfully,
GERALD MARCUSE,
Hon. Secretary,
September 17, 1925. T. & R. Section.

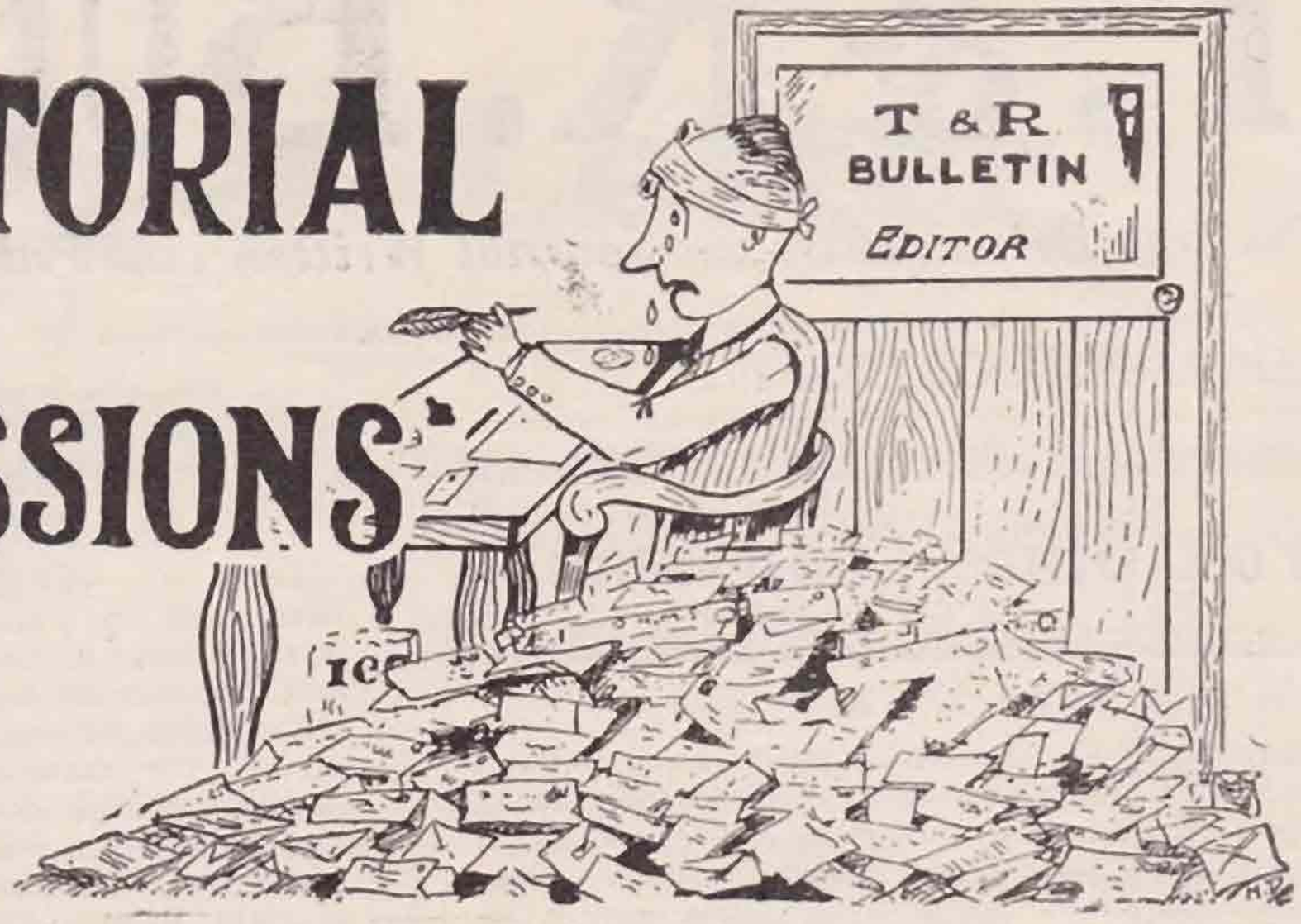
MARITIME DIVISION, ARRL.

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

DEAR SIR,—You might please inform the British hams that the Canadian hams are not allowed to work outside of Canada on 120 metres this year, and therefore are using 43 metres for trans-Atlantic work most of the time. They gather on 120 metres for trans-Canada work on Wednesday nights, but slide down to the 43 metre band again for other work. A few of them are still on the 75-85 metre band. English signals come in best at about 0100 to 0400 GMT on the 45 metre band and 2KF and 2SZ are very good. 2NM has also been heard there on voice. Others I can remember off hand on that band are 2LZ, 2CC, 5DH. I will keep a log of British stations for your information on that band. We would appreciate reports of our signals through your paper.

Yours very truly,
W. PORRETT,
Manager, Maritime Div. ARRL.

EDITORIAL EMISSIONS



MY remarks last month under the title "Eddystatics," were cut short owing to the limited space we could afford. Nevertheless, I could not repress an appeal for more articles, etc., and correspondingly in this number I again ask for more, not because we have insufficient for the present, but because we have an eye to our future requirements. Before one issue is published we are already working on the following issue, and therefore we must have plenty of material in hand.

To All Members.

There are still a number of readers who have not so far expressed their approval or disapproval of the contents and style of THE BULLETIN. We are particularly desirous of satisfying everybody, if this is at all possible, and a postcard from every member is requested. The information which we want should contain information relating to the writer's favourite articles, the unwanted articles, criticism of the style and lay-out of the journal, and suggestions for new features. Please speak up, it will all go on a postcard and won't take many minutes to write out.

To Country Members.

If you look back to the front page of the first issue of THE BULLETIN you will note that one of the considerations which prompted the production of the journal was the fact that our country members had not the same facilities available for learning, lectures, etc., as the London members. THE BULLETIN was intended to fill in the blank, and country members can help themselves by writing up articles on chosen topics for publication. It may even be possible to run a regular section of the journal for articles contributed by you, and you could treat this as a monthly lecture. I suggest that enthusiastic country members should get in touch with one another and collaborate by arranging between themselves to contribute a regular bi-monthly article. Our correspondence columns are open to you for the purpose, and if leading amateurs will kindly signify that they are writing to collect articles for their areas and agree between themselves which are the best for submission, this would, I think, be a good working method. For instance, merely as a suggestion 5QV could manage articles for the Eastern area, 6TD for the West, 2MQ for the South, and someone else, who I cannot suggest for the moment, for the North. These area officers could keep in touch with those amateurs who would promise articles and call for them as they fall due. So far as the London area is concerned, these could be sent direct to our Head Office. Then there remains the Scottish and Irish members. 5NJ, the first Irish amateur station, could, I've no doubt, cope with the Irish material, and perhaps some well-known Scottish amateur would volunteer to look after the interests of Bonnie Scotland. Therefore, if the amateurs I have mentioned would accept my invitation to look after the various areas, and volunteers for the North of England and Scotland would come forward, we should have the nucleus of a good organisation. Please send postcards as soon as possible, and our overseas readers are also invited to make themselves heard.

The Opening of the "Season."

This issue appears with what I am pleased to term the opening of the season. Strictly speaking, there should be no season for experiment and research, but it cannot be denied that a certain portion of the year offers outdoor attractions which cannot be ignored. Hence, with the advent of October we begin to time up our stations for another glorious orgy of "tests." Previous "seasons" have been a success without the assistance of THE BULLETIN, but now that we have a journal of our own, transmission work should be even more interesting, and before the winter is over we should all feel that our enthusiasm and work has not been in vain and that experimenting in wireless matters generally is worth while. We cannot all be DX hams, neither do we want to; many of us are more interested in experiments akin to laboratory research work in spite of the fact that this latter is often more exacting and tiring. Nevertheless, it is hoped that THE BULLETIN will find eager readers in both DX brass pounders and the tamer and generally more sedate

and reserved, mathematically or instrumentally inclined, amateur experimenter. The fact that experiment and research work is our real object should not be lost sight of, and all our energies should really be directed in the line of knowledge and the collection of interesting and useful data. Therefore, all members should keep a notebook in which the results of experiments and tests should be religiously entered, and sooner or later a valuable collection of information will result. This information can then be written up for the benefit of brother " hams " and to our mutual advantage.

Ham or Transmitter ?

You will notice that I have used the word ham rather freely in the Editorial. Through so doing I shall be soundly rated by my academic readers, and the wrath of the multitude will, I suppose, fall upon my devoted head. I feel, however, that I am justified in using this word which lends itself so admirably to quick and expressive writing. Transmitter is an ungainly word and one calling for much time and ink. Operator is perhaps a better word, but somehow seems to lack meaning in the Radio sense. Ham has long been used by our leading long distance transmitters, and conveys a meaning to them which cannot be conveyed by our longer and cumbersome words. Therefore, although ham may be distasteful to many, I use it not only to please myself and many readers, but out of courtesy to our American cousins, whose welcome assistance in our tests and friendly co-operation we all appreciate. If we disassociate this ham from the breakfast or supper table variety all will be well; besides, ham is understood all the world over as being a Radio Transmitter; therefore, I say let us all be hams. It is no discredit, and a universal term for the enthusiastic experimenter is needed. I know of no better substitute for the long words I am otherwise forced to use.

Onward.

And now I think that I have said enough. We must push on with this publication of ours, and before the end of this " season " make it the success hoped for. In order to do this we must be constantly on the look out for new members, and everybody is asked to put a hand to the wheel or an amp to the volt and press onward.

THE EDITOR.

Our Free Patent Service.

It has been realised that many " T. & R." members are embryo inventors, and that sooner or later they will be in need of advice as to the best manner of exploiting any device or devices which they may design.

We have therefore secured the service of a patent expert who has kindly consented to give free advice to " T. & R." members who care to submit their problems to us. Members can place entire reliance upon any advice given to them, coming as it does from a very reliable source. It is always as well to take advice on patent matters from a disinterested person and thus save money and often disappointment—therefore avail yourself of this service. Address all your letters to Patent, T. & R. BULLETIN, 53, Victoria Street, S.W.1.

Keying.

By G6TM.

ALTHOUGH few realise it, keying is one of the most important subjects to be considered by the DX man. Do you remember a station near the North Pole during July and August ? (No, *not* WNP). Well, how much easier he would have been to read if his keying system had been better.

The perfectly keyed station is one from which the received signal produces an absolutely constant beat frequency in the 'phones from start to finish of a dot or dash.

I am considering in this article the keying of a medium power self-oscillating C.W. transmitter, thus excluding master oscillators and sets using T.V.T.'s or dry cells for H.T. We may then assume that we have at least a microfarad across the H.T. supply.

Now, if we key in such a way that the valve stops oscillating when the key is up, we allow the condensers to be charged above the normal value, so that on pressing the key we simply load the valve momentarily with an excessive H.T. voltage ; it then commences to oscillate on a slightly different wavelength from that on which it persists, thus a " chirp " is produced.

If this " chirp " is not very serious this system of keying can be effected in various ways. One can key in the case of the rectified A.C. supply in the primary of the transformers if one has not more than two M.F. per 100 watts across the line. This system, when dealing with only a few volts across the key, results in little sparking across the contacts. One can also key in the —H.T. lead to the valve. Here the note is usually better, but few keys will stand the strain.

Another method of keying which removes the load from the valve while the key is up, but where the valve does not stop oscillating, is as follows :— Two grid leaks are used, the normal one being connected by the front contact, and a higher value leak by the back contact. This system gives good results if the valve does not howl during the spacing period. Here very slight " chirp " is produced, and the two notes marking and spacing are almost identical wavelengths.

One may also key by connecting a negative grid bias to the grid by the back contact of the key and keying by eliminating this and shorting it with the front contact. This system is fairly good, but one often requires several hundred volts to stop the valve oscillating Don't key directly in the grid leak for the sake of your neighbours.

Keying in the grid leak is O.K., but unless a relay is used it is subject to hand capacity effects, but the note is almost as " chirpy " as with the H.T. keying systems.

Probably the best way to key is to change the wavelength of the oscillator very slightly, either by cutting in a small extra capacty by the key across a few turns of the inductance near the nodal point, or by un-shorting half a turn near this point on the coil.

Whatever system is used, remember that if the load varies appreciably during the keying there is bound to be some " chirp " in the note. It is better to try to avoid this even if it means using somewhat less power than normally.

Constructional Details of a 150 Watt C.W. Transmitter for 45 Meters.

By MAURICE CHILD.

THE following is a brief description of a C.W. transmitter assembled by the writer for a field-day test arranged by the Golder's Green and Hendon Radio Society recently.

The writer is indebted to Messrs. Bremner and Basil Davis of the above society, Mr. Reeves of the Kensington Radio Society and R.S.G.B., and Mr. Woodhams of the T. & R. Section for various apparatus employed, and the rectifying and transmitting valves were kindly loaned to the society for the tests by the Marconi Osram Valve Co., Ltd. The power for filament lighting was obtained from two 12-volt accumulator batteries of 80 ampere-hour capacity. The H.T. supply was obtained by a somewhat novel method.

The generator, a "Telefunken" 534-cycle alternator, complete with a D.C. shunt-wound exciter designed to run at 4,000 r.p.m. (at which speed it was capable of 350 watts output at 100 volts), was used as a prime mover. Owing to the high speed required, the machine was arranged to be driven by a belt from the back wheel of a motor car.

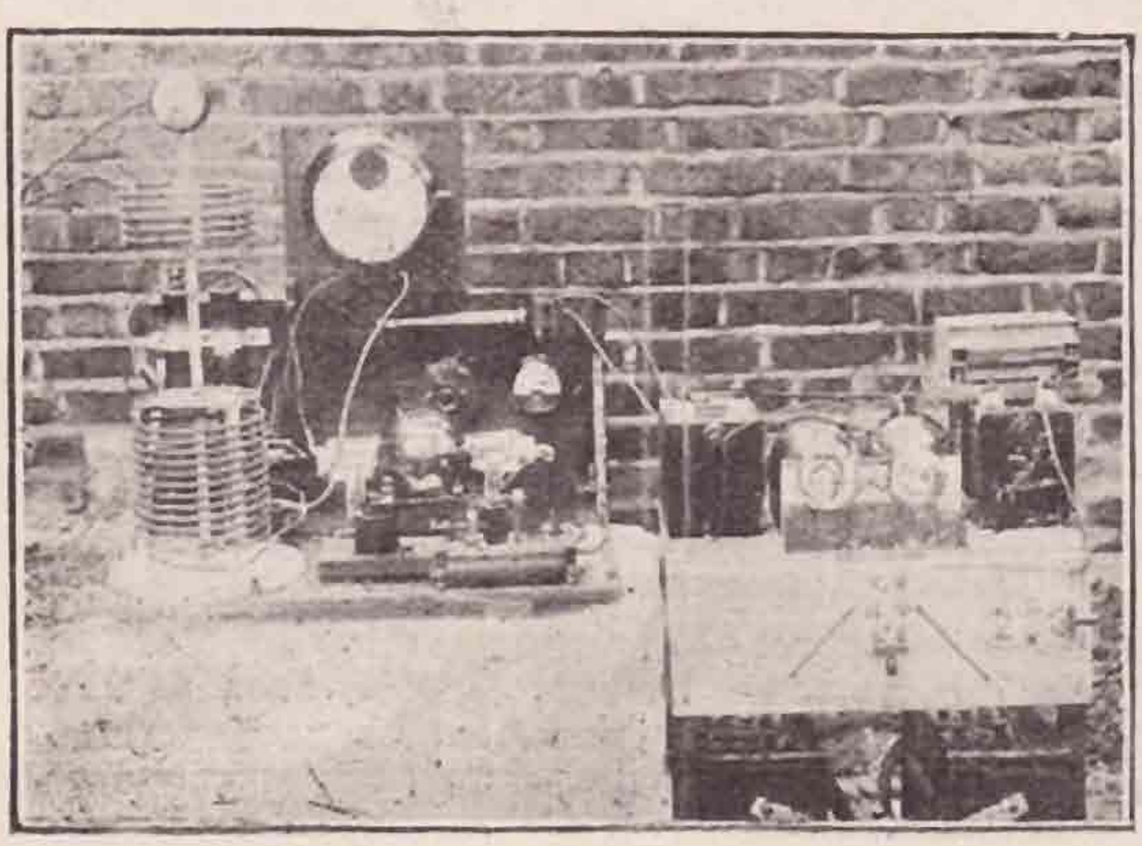
The mechanical work involved was of a simple character and involved the mounting of the generator on a long plank held down to the ground at one end by the "jack" of the car and additional security provided by a tent-peg at the other.

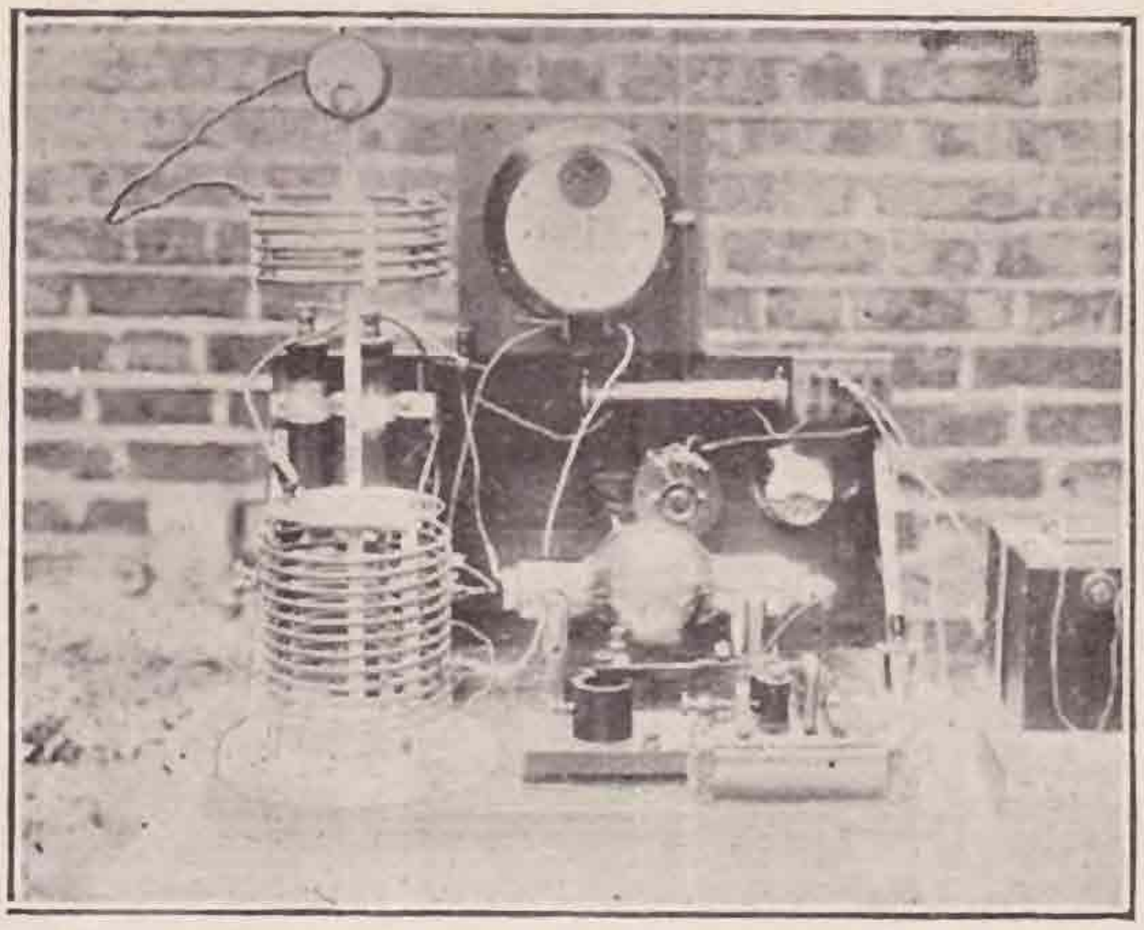
Out of line.

The tyre was removed and the belt was placed on the rim itself. A gear ratio as between wheel and generator of 12 to 1 was obtained. By placing the gears of the car into top, and with a further 2 to 1 ratio obtained by the differential itself, the car engine "revs" were quite slow and no serious heating of the engine or high petrol consumption was experienced. It was found, also, that the speed was practically constant for "light" and "load" running.

The above work was carried out by the Park Motor Co., Ltd., of Wells Street, Jermyn Street, S.W., under the supervision of Mr. J. A. Woodhams, and was entirely successful.

With regard to the rectifying plant, the photograph indicates the matter of arranging this.





At the bottom of a wooden stand were placed two 6-volt 80 ampere-hours accumulators, joined in series. These were for lighting the valves mounted horizontally in order to economise space. The valves were M.O.U.1's, which, although somewhat large for the work, avoided all over-heating trouble which a smaller size might have involved. A small battery of six U3's were constructed under the writer's guidance by Mr. Terberville-Crewe, of the G.G. & H. Society, and were available if necessity arose.

A small transformer from a Naval Air Service unit and provided with a centre tap on the secondary, was used to raise the voltage from the alternator to 3,000 volts for the two rectifiers. Two oil-immersed main bridge condensers of 1mfd. each were employed with a large choking coil between them in the positive lead. This choke was made by the writer and consisted of a stalloy core (built up) 4in. x 4in. x 1in. x ¾in. wound on two limbs with No. 30 S.W.G. D.S.C. copper wire with 3,000 turns per coil, making 6,000 turns in all.

Two switches of the D.P. type on porcelain were provided. One for the filaments and one for the A.C. supply to the primary of the transformer. Well insulated cable was used in all the positive leads and the A.C. leads to the generator, and the whole frame containing the apparatus was insulated from earth by standing it on sheets of ¼in. ebonite.

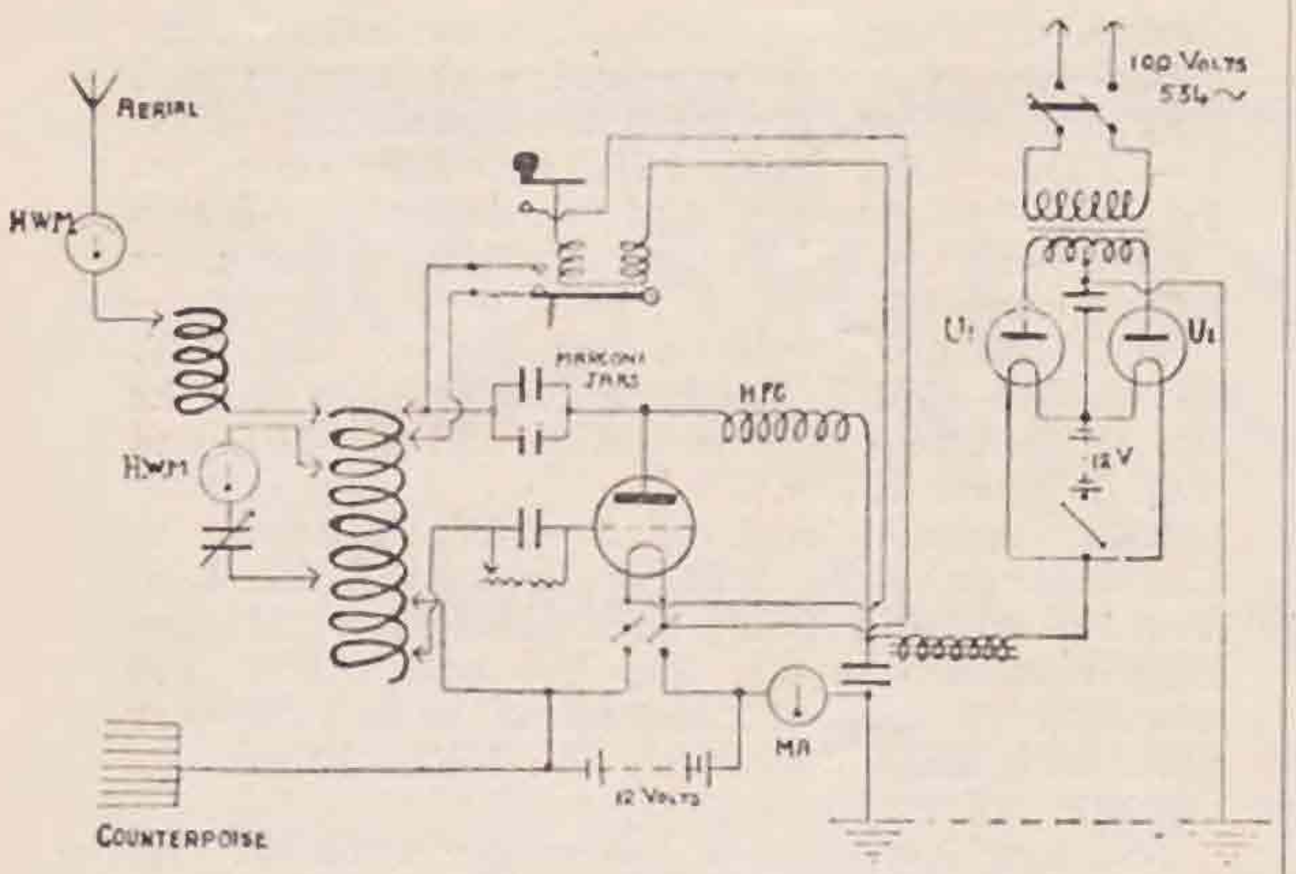
The rectifier gave normally 40 to 50 M.A. pure D.C. to the power valve anode when the latter was oscillating.

The arrangement of the power valve oscillator can be seen from the photograph.

A base board approximately 2ft. 3in. x 1ft. 9in. was fitted with a back board 2ft. 3in. x 1ft. 3in with an extension to support the hot wire ammeter seen at the top.

This instrument was carefully modified and re-built by the writer in order to reduce capacity currents through the brass case to a minimum. It has a maximum reading of 5 amps. and is placed in series with a variable condenser of Admiralty pattern (usually calibrated in jars), and the inductance seen at the extreme left and front of the photograph.

The capacity of the condenser (placed behind



the inductance) for 45 metres was approximately .00045 mfds. and nearly three complete turns of inductance were required to give the above wave-length.

The inductance was well built by Mr. Bremner and consisted of twelve turns, 6in. diameter, sp ced ½in. from centre to centre of thin copper tubing. The turns were laced by thread to three dry wood supports about ¾in. square.

The bottom point was directly connected to the grid condenser constructed by the writer.

This consisted of five strips of copper foil 2¼in. x 1in., and separated by paper ebonite (about 1-64in. thick).

There were three plates opposed to two, and the capacity is .0006 mfds. The plates overlap by 1¼in.

A variable grid leak giving a maximum of 30,000 ohms was provided, and it was found that the maximum efficiency obtained when the whole of this was in circuit.

Two Marconi copper-plated glass tubular condensers mounted vertically on the back board at the left-hand corner served the purpose of the isolation condensers. They were in parallel and had a joint capacity of .0032 mfds.

An ebonite tube about 6in. long and 1in. diameter, wound with No. 36 S.W.G. D.S.C. copper wire in a single layer, served the purpose of a high frequency choke. A milliampere meter is seen on the right of the back board, near the four terminals for the supply current.

The valve lent by the M.O. Valve Co., Ltd., was a T250, and it may be interesting to note that this valve, with a supply of 5 m.a. from a small induction coil giving an output of 15 watts, produced an oscillating current of 1.2 amperes at a frequency of 6×10^6 cycles in the closed circuit.

The key is of the high tension relay pattern and was constructed by the writer for the "train experiments" last year. It has been so placed as to make possible any of the various known methods easily available.

It consists of any ordinary 40 ohm sounder, with regulating resistance in series with its coils, and an ebonite extension arm carrying a brass contact screw. This latter can be brought into contact with a stud placed in the centre of an ebonite cap.

The method of keying adopted was to short-circuit about four inches of that portion of the inductance forming the anode tap.

Sufficient wave-length change was produced by this means and the "note" was reported very steady.

The aerial was a T type. The horizontal span was 30 feet, and the down lead to the hot-wire ammeter 11 feet.

Two counterpoise wires, 100 feet each and fed from a mid-point, were erected four feet from the earth and eight feet either side of the aerial centre line.

The aerial current on the fundamental wave of 45 metres on the tests was 0.6 amps., with a power input of 120 watts.

The diagram of connections of the whole plant is shown in Fig. 1.

The Amateur and the Postmaster-General

It has been brought to the notice of the T. & R. BULLETIN that many amateurs have received letters etc., from the Post Office during the past few months concerning alleged breaches of the terms of their licences. The T. & R. BULLETIN proposes to compile statistics concerning these matters for future reference, and with this end in view those amateurs who have, since the beginning of 1925, been approached by the P.M.G. or his agents concerning alleged interferences, misuse of wave-lengths, CQ calls, etc., are asked to communicate the following information to the "Statistical Department," T. & R. BULLETIN, at their earliest convenience.

1. Nature of alleged offence.
2. Whether the alleged offence is admitted or has been admitted.
3. Date of alleged offence.
4. A brief précis showing the circumstance which caused the accusation to be made.
5. Original correspondence or copies of same.

The information will be treated as strictly confidential, and all letters should be addressed to the "Statistical Department," T. & R. BULLETIN, and marked "Breaches."

An Ode to Short Waves.

By 2PX.

They want a saint for short-wave work,
I hope they'll get one soon!
The need for one occurred to me,
Last Sunday afternoon.

I have a three-valve short-wave set, sir,
And am not one to shirk,
Three hours I spent upon the thing,
To hear 5-metre work.*

They seek a saint for short-wave work,
By Gad, that seems quite fine,
Here's luck to them, for I know this,
It needs a saint for mine!

[* We should be glad to hear as soon as 2PX hears a five-metre transmission on three valves! —ED.]

Notes on Short Wave DX Work.

By G—2LZ.

NOW that the days are getting shorter, I think we can say that we are at the beginning of the real DX season. Judging by the amount of long distance work done during the summer, since we have been working on the 40 metre band, it seems that there will no longer be what we call a " DX Season," and we shall be able to carry on all the year round. As far as I am concerned, I must say that I have done a great deal better during the last three months than I did all last winter. Here is my " bag " for the " off season " :—Two-way QSO. Us15, Cs2, Zs7, As5, BZs2, Rs2, Chs1, Mex1.

Up to date I have been in QSO with Mosul 149 times. We work regular every day now. I have also worked NRRL, NUMM and NTT.

I certainly did well with the Us and Cs last winter, but have not worked so many stations in other countries as I have these last three months. Communication with the Antipodes has been reliable every morning, and it remains to be seen whether we shall be able to carry on all the year round on the 40 metre band. The Australians can now be worked during the evenings. I have had numbers of reports from stations and countries not worked, including four from South Africa, so we hope soon to be able to work the S.A. amateurs as soon as they put out enough power to reach us.

DX Reports.

Several stations have sent me in reports of their activities during August, but there are still a number who I should like to hear from, who I know are carrying on the good work.

2NM appears to have been too busy to report. Having conquered all the DX possible on morse, he has now turned his activities to telephony, and has done some very good tests with NRRL at Wellington, New Zealand, and with Mosul. A very funny incident occurred when working NRRL. Schnell, the operator on the ship, called the captain into the wireless room to hear speech from England. Although 2NM called the captain by name, he could not be convinced that he was hearing England, but insisted that it was a hoax by a New Zealand amateur.

6RM has been on during the latter part of the month and has worked seven Americans, Z—2AC, and 2AE, also BzIAF. On the 17th he had a whole night on, when several Us were worked and NEDJ, U.S.S. " West Virginia," at Auckland, N.Z. (power 150 w.).

5QV reports nothing startling. He is shortly moving to a new house on the cliffs, where he hopes to have a better position for DX work.

2MD, late of Oulton Broad, has removed to Ipswich, and hopes soon to get on the air again.

2TO, of Ipswich, is fitting up a new transmitter, and hopes to be working soon on 45 metres with about ½ K.W. of A.C. We hope he rectifies and smoothes it.

2QD has been very active during the mornings, and has worked A—2CM, 2YI, 2IJ, 3BD, 3BQ, Z—IAX, 2AC, 2AX, 4AL, 4AR, also NRRL and NUMM. Mr. Simmonds reports that Z—IAX is Mr. J. Orbell, late Z—3AA, the well-known New Zealand amateur, who visited England last autumn.

5LF works between 5 and 6.30 a.m., g.m.t. only, and has been in communication with A—2YI, 3—EF, Z—2AC, 2AE, 4AL, also the American, 1st, 2nd, 3rd, 4th, 8th, and 9th districts. Mexico IB has been worked on three consecutive mornings (max. power 180 w.).

2GO has done well on low power. His H.T. consists of a M.L. anode converter. On this he has worked 4SA at Porto Rico and U—IPL and 2AGB (power 12½ w.).

2XY reports working Z—2AC, NUMM, at Christchurch, N.Z., NTT at Brindisi, IDH, 4SA, Porto Rico, and BSM, 6YX, Palestine. He has logged numerous As, Zs, Us, and others too numerous to mention. He claims the first two-way QSO with BSM, Palestine, and NRL, Russia, on the 8th June.

5SZ now has his new 100 watter working. He has been held up waiting for four Amrad valves from America. (What's the matter with the English ones O.M. ?) On 45 metres he has worked three Us with 46 watts input and three with 100 watts. He reports very little DX work with the amateurs round Morecambe. Most of them are on the 440 metre wave, and engaged in putting out " indiarubber music " on Sunday mornings.

6YJ sends in a long report of stations logged all over the world. He hopes to get going on 45 metres as soon as he has a permit for this wave.

5NJ, of Belfast, is one of the latest recruits, and although he can only muster up about 15 to 20 watts from dry batteries for H.T. supply, has already worked America.

2LZ has been on every morning during August, and has been in two-way communication with five Americans, 3As, 4Zs, 1Bz, 2Rs, 1Ch, 1Mex, also NRRL, NUMM, and NTT.

2KF sends in an excellent report of stations worked. He has been in QSO with Z—2AC, 2AE, 2XA, 4AA, 4AG, 4AR, A—2CM, 2IJ, 3BD, Ch—IEG, Mex.—IB, Bz—2SP, NTT, Palestine, 6XY, SGC, which is a Swedish motor-ship on the way to Buenos Aires, and has been reported as being received by U—6AQP. He has also logged three American 6th district stations. Speech has been transmitted to Mosul. A—3BD was worked with a power of 50 watts only. (Low power merchants please note.)

2DX is more of an experimenter than a DX hunter. He has worked all the US districts except the 6th, and also 3As, 2Zs, and 3Bzs. He is now engaged in getting a crystal controlled transmitter to function. His latest stunt on the receiving side is the reception on the loud speaker of New Zealand stations, using only a 2-foot loop. Eleven valves are used for this.

I should like to have reports from more stations who are engaged in DX work. 2CC and Northern amateurs please note. I have had a few other reports than those included in the list, but they do not refer to two-way long distance working. Please confine reports to actual two-way work and make them as brief as possible. Calls heard can be sent in to the Editor for inclusion in the " Calls Heard " section. In order to get these reports ready for publication as soon as possible, please send in to me directly after the end of each month.

ED. NOTE.—*Other reports have been received since the above, but are too late for insertion in this issue.*

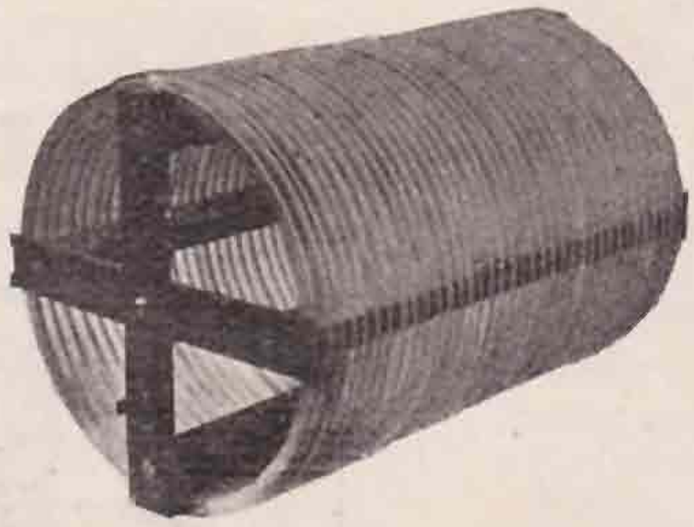
RADIO IGRANIC DEVICES

TRANSMITTING APPARATUS.

IMPORTANT ANNOUNCEMENT.

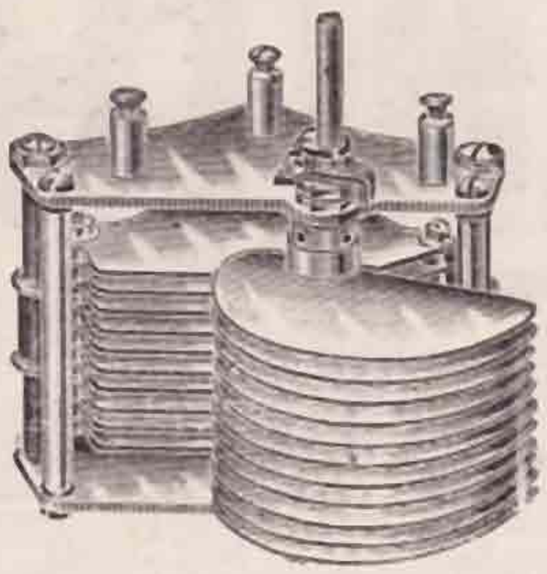
IGRANIC ELECTRIC CO., LTD., have pleasure in announcing that they have now decided to manufacture a number of components of special interest to Amateur Transmitters.

REALISING that the requirements of this class of experimenter are inadequately catered for, Igranic Electric Co., Ltd., wish to co-operate with the small band of workers who have contributed so much to the science of radio, by placing at their disposal a range of highly efficient transmitting apparatus at reasonable prices.



Igranic Low Loss Transmitting Inductance.

Wound with heavy high-conductivity copper strip, edgewise, and silver-plated. Diameter 7 inches. Any number of turns to suit requirements.



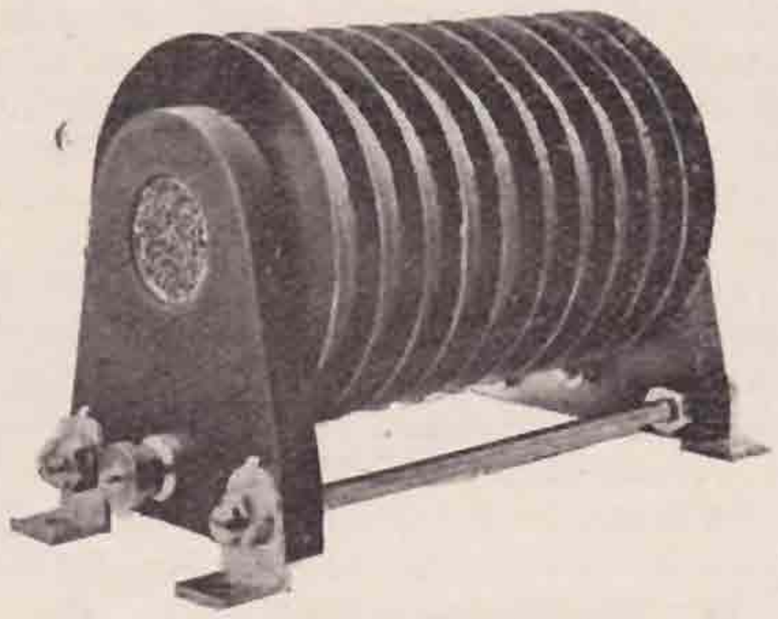
Low Loss Transmitting Variable Condenser

(Square Law type). *Patent No.* 220312.

Widely spaced vanes for high insulation. Heavily silver-plated. Capacity ·00 2 Mfd. H.F. Resistance at 3000 kilocycles, ·1 ohm.)

Price - **35**/- each.

WRITE FOR LISTS Z739.



Igranic Iron-Cored Smoothing Choke.

Inductance 2 henries. Low self-capacity owing to sectional windings. Suitable for powers up to ·5 kw.

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NEWCASTLE.
CARDIFF.

Northern Notes.

By 2DR.

ARISING out of the recent activity on the part of the P.M.G. on the 45 metre band, Northern hams have been enquiring who calibrated the official wavemeter ?

In spite of the popular supposition that Northern hams are still inhabiting caves and enforce claims to record DX working by means of clubs, it is interesting to note that real ham work is being done by a few stations, and some of it on very low power.

2VO, having worked Mosul on 45 metres on phone with an input of 6.2 watts, using 120 volts plate supply from dry batteries, and a Cossor P1 receiving valve with grid modulation, is looking for fresh fields to conquer.

Mosul reported him as the best British station heard to date. FBOM.

The question naturally follows : Why have a miniature Daventry for DX work ?

Incidentally, with an input of 3 watts from the same source, C.W. sigs. were reported. QSA by 8ALG (Algiers, 1,200 miles).

2VO complains bitterly that he has only two hands when working on what he terms high power. He has to key, turn the hand generator, and tune the transmitter all at once.

QSA in Brazil, but cannot work the States, is the peculiar position of 2IH. Brazilian 1AB has been worked half a dozen times since July, using 37 watts. Sigs. have also been reported QSA by BZ1AF and BZ2SP. Hams requiring the addresses of these stations can obtain the information from 2IH. Power is taken from the A.C. mains and a step-up transformer, but very successful trials have been carried out with a Newton 500 cycle alternator. Rectification is performed by a valve which is a gift from a Dutch amateur, and when it is said the filament takes 11 amps. to keep it warm, we can understand the generous feeling prompting this gift ! !

At any rate no candles are used at 2IH since this valve arrived.

5LB is slowly converting Hornby Castle into a spider's web in an endeavour to find the best aerial for 45 metre work. He had eight up a short while ago. 5LB has worked a considerable number of U.S.A. hams on 45 metres.

6YR has been QSO in U.S.A., using 3 watts. Hi !

BER (Bermuda) has been logged consistently of late on approximately 40 metres.

Who is the South Country ham, using 14 valves plus one crystal (not an oscillating one), to send out real Savoy Bands ?

2XY is apparently resting on his laurels after working Yanks on two LS5 valves in parallel ? Perhaps, like others, he is re-building.

5SZ has been roaming the New Forest in a caravan, complete with a portable set, using a twelve-foot aerial. His station is shortly to undergo drastic alterations, which include a new Zenith transformer with S-tube rectification. He has managed to work a few Yank hams of late, but did considerably better in this direction during last winter.

2DR has been ejected from home, and has taken refuge in an asbestos-lined cabin in his garden.

(*Continued at the foot of column* 2 *page* 13)

The B.B.C. Wave-Lengths.

A STATEMENT has appeared in the popular wireless press to the effect that the B.B.C. wave-lengths are not as stated in their official figures. In view of the fact that many of our members use B.B.C. emissions for checking the accuracy of their wave meters, we approached the company and asked them if they would kindly give us a statement on the matter. We have, of course, long known that the wave-lengths were not entirely accurate.

We have now been informed that the wave-lengths used were fixed in collaboration with the National Physical Laboratory, and that they are within an error of 1 per cent. plus or minus, which limit of error is allowed by the Postmaster-General. 2LO, however, has been driven down in wave-length as the result of interference from foreign stations.

It was pointed out to us that it is not the function of the B.B.C. to provide a service for the calibration or checking of wave meters. This, of course, we know, but as we have found them very useful for this purpose we naturally felt that we should like to know the truth or otherwise of the assertions made, especially as the question of wave-length measurement is rather an important one to us at present.

It seems quite clear that members can use the emissions as heretofore, but, of course, their results are only likely to be approximate and should not be relied upon for exacting work.

THE EDITOR.

International Amateur Radio Union.

British Section.

National President: E. J. SIMMONDS, M.I.R.E., F.R.S.A., G20D.

MAY I bring to the notice of readers the formation of the British Section of the Union, and request the help of all interested in short-wave amateur radio activity and two-way communication with other countries?

The formation of the Union has been the result of a universal and world-wide desire to build an organisation to link together the amateur transmitters of all countries, based on the happy fraternity existing in the past, and having as its chief care of the future the promotion and co-ordination of two-way radio communication between amateurs of the various countries of the world.

We hope, in the next issue of the BULLETIN to give full particulars of the constitution of the Union, membership and our own section organisation.

Meanwhile, may I ask the co-operation of all who are at present actively engaged on short-wave work by sending me a card on the last day of each month reporting any items of interest concerning reception conditions, DX worked and heard, new local short-wave clubs formed; in fact, any news that can be made interesting to readers of our British Section report in QST.

W. G. DIXON (G5MO),
Secretary.

"Dipwood," Rowlands Gill,
Near Newcastle-on-Tyne.

Trans-Oceanic Tests, 1925-1926.

Arranged by International Amateur Radio Union: British Section.

Short Wave Tests. Great Britain/United States. Winter 1925/26.

AT the request of A.R.R.L. headquarters a fixed working schedule for the winter season has been arranged for the purpose of following up the results obtained in their midsummer tests on wave-lengths of 20 metres and 40 metres. Examination of the information collected in the latter tests has shown the need for further regular experiment to ascertain the full variation in operating conditions due to daily and seasonal effects.

Arrangements have been made in the United States to have some of their best experimental stations available to work with our stations at the times given below, and measurements of signal strength of our signals will be recorded by these stations. American stations will include such well-known experimental calls as u8GZ, u9BIK, u9YI, and u6BUR.

These tests will run through October, November, and December, and the following times constitute a fixed daily schedule for experimental work:—

Saturdays and Wednesdays: 6.30 p.m. to 7 p.m., 23 metres.

Other days except Sundays: 6 p.m. to 6.30 p.m., 23 metres.

Every day: Midnight to 0.30 a.m., 23 metres and 45 metres, and 7.30 a.m. to 8.00 a.m., 23 metres and 45 metres.

Commencing October 3. All times are Greenwich. Wave-lengths are those of transmission on our side. U.S. stations will use 20 and 40 metres respectively, and an endeavour is being made to confine their upper limits of these bands to 21.4 metres and 42.8 metres in order to prevent interference with our signals. Our calls will take the form "Test ug—" with code group.

In order to make these tests a success we require as many stations as possible to enlist their calls for one or more of the above times for daily testing, and I shall be glad to have the names of those of our members who will give their time to the working out of this opportunity of accomplishing something which will still further add to the prestige of our cause.

This schedule has been delivered to the T. & R. Section for making the necessary arrangements with the Postmaster-General to have the present short wave permits renewed after their present expiry on October 15, as well as revised and extended to enable the schedules which have been proposed to other countries to be effected. Although no reply has been received officially at the time of writing, there is good reason to believe that the T. & R. Section's proposals will be received favourably.

W. G. DIXON,
Secretary British Section,
International Amateur Radio Union.

G—5MO, "Dipwood," Rowlands Gill, Co. Durham.

A Method of Getting New Members.

Write at the bottom of your DX cards, in red ink, "Are you a 'T. & R.' member?" and pass on your copy of the BULLETIN. We will send you another on receipt of your application.

DX Notices.

From 2LZ.—NUMM asks for reports and QSL cards to be sent to Radio Room, U.S.N. Destroyer "Litchfield," c/o Postmaster, San Francisco, U.S.A.

Postcards for Delivery.

From American 2DD for 2BAO.

From German F8NTA for 11RT.

We have a postcard from 3BHV for 6RM Will 6RM please claim it?

Addressees please claim from T. & R. BULLETIN.

Correspondence.

We regret that owing to excessive pressure on our space we are compelled to hold over correspondence until next month.

NORTHERN NOTES—(*Continued*).

Local hams have stated that the asbestos is there to protect the wood when 2DR used the thumb-hammer. A new transmitter and receiver are under construction, and a Mortley Sprague double current generator is due for delivery.

Calls Heard.

G—5SZ, White Croft, Bare Lane, Morecambe, England.

30 to 48 Metres.

AMERICA.—1AB, 1AAC, 1ACI, 1AEP, 1AHG, 1ALR, 1ARH, 1BES, 1BQI, 1BZP, 1CMF, 1CMP, 1PL, 1ZA, 1ZS, 2AFN, 2AGB, 2BEE, 2BBX, 2CR, 2CTH, 2II, 2UD, 5UK, 2ZV, 3JA, 3JW, 3XU, 4DU, 8DON, 8EYI, 8SF, 9KN, NKF, KDKA.

AUSTRALIAN.—3BO.

PORTO RICO.—4KT, 4SA, 4SR.

BRAZIL.—1AB, 2SP.

MOSUL.—1DH.

NEW ZEALAND.—4AR.

DENMARK.—7EC.

ITALY.—1AS, 1ER, 1GN, 1ND, 1MT.

FINLAND.—1NA, 2ND, 2NM, 3ND.

SWEDEN.—SMHI, SMVL, SMVZ, SMXG, SMXU, SMYY, SMYU, SMZS.

MOROCCO.—8MB, MAROC.

ALGIERS.—8ALG.

FRANCE.—8BF, 8BN, 8BV, 3CA, 8CT, 8DP, 8EE, 8FQ, 8GK, 8HU, 8HSF, 8JRK, 8PLM, 8RRR, 8RDI, 8VAA, 8WAG.

HOLLAND.—OFP, OGN, OHL, ORO.

BELGIUM.—2E, B7, B9, S2.

PORTUGAL.—EAC9.

SWITZERLAND.—9AD.

UNKNOWN.—BN7RZ, 8A, OCTU, OCDB, GCS, M2, 4TU, KY5, RWZ, YZ1, K4EA.

MISCELLANEOUS.—POF, POW, FNT, PCUU, GFP.

J. W. RIDDIOUGH.

G2XV, "Chandos," Great Shelford, Cambs, Eng.

30/7/25—28/8/25.

BRITISH.—2KZ, 2VO, 2UY, 2ZG, 2VR, 2LR, 2ZT, 2AOX, 2IH, 2XY, 2IN, 5UW, 5OC, 5RB, 5VP, 5IO, 5BA, 5LF, 5DA, 5DH, 5BV, 6JV, 6HS, 6MP, 6KK, 6LF, 6MX, 6IZ, 6TD, 6RM, 6WG, 6ER, 6IV, 6SU.

AMERICAN.—1ACI, 1CAW, 1PL, 1BOM, 2BEE, 2HA, 2APN, 2BQA, 2GY, 2MU, 2XBB, 2CRB, 3SA, 3AFQ, 3UR, 3RL, 4SB, 4RL, 4DU, 4DI, 4TV, 4ER, 8BGN, 8WPN, 8SF, 8AY.

DUTCH.—NONO, PCMM, NOKG, NOPM, NOAM, NORM, NORO, NOF3, NOAW.

ITALIAN.—1GN, 3TR, 1BD, 1AS.

FRENCH.—8AQ, 8RCR, 8RAT, 8PAX, 8LDR, 8TOK.

SPANISH.—EAR17, EAR14.

BELGIAN.—BR22, B3LK, B4YZ.

SWEDISH.—SMXX, SMUV.

MOSUL.—1DH.

MISCELLANEOUS.—W1R, 5ZHC, KXK, WQN, POF (on 27 metres), 9CH, BV2, K15, S2XI, A8, S2NS.

All QSL crds promptly replied to—QRK, 2XV?

GERALD A. JEAPES, G2XV.

G6JV. Norwich, July.

G. (75/110 metres). 5NW, 2VO, 6RM, 5XY, 2NB, 5MS, 6YR, 2BDQ, 5MA, 2MK, 2FT, 2YQ, 2UV, 5OC, 5DK, 5CW 2WA, 2MX, 6YK, 2FM, 2DF, 2FK, 6VP. (18/45 metres.) 2NJ, 2NM, 2CC, 6RY, 5SZ, 2VR, 2XY, 5SI, 2SZ, 2OD.

F. (75/110 metres.) 8VAA, 8GJ, 8BN, 8Z3, 8JO, 8CC, 8AQ, 8TU, 8VO, 8NY, 8NS, 8WIN, 8RA, 8KK, 8OMA, 8LDR, 8JAB, 8TK, 8CF, 8VU, 8GVR, 8HSG. (18/45 metres.) 8KL, 8VAA, 8RA, 8QQ, 8BN, 8CT, 8WA.

B. (75/110 metres). 2Q, 4SR. (18/45 metres) BG6.

K. (75/110 metres). I2, Y5.

N. (75/110 metres). ORO, OZA, OKG, OMS, OAAA, OPM, OMR, OKV, OCO. (18/45 m). OBA.

S. (75/110 metres). SMUF. (18/45 metres) 2NM, SMXU.

D. (75/110 metres). 7ZM. (18/45 metres). 7EC.

I. (75/110 metres). 1BP, 1AY. (18/45 metres). 1AS, 1NO, 1MT. (18/45 metres). American. 4SA, 1ARH, 2BB, 1NC, 2LU, 3AHA, 1AFM, 2BBX, 2CAZ, 1UW, 9BB, 8APO, 4OA, 4KT, 2XBB, 1AX, 2XAF, 8MAQ, 3AEW, 3AA, W1Z. Australian. 3BD. Unknown—QRA'S Wanted. B9, 7E, 51GG, HLB, 1AM, 1AE, RDV, CHR. H. J. B. H.

CALLS HEARD DURING AUGUST.

G—2LZ.

U—1ABJ, 1ANQ, 1AHG, 1CMF, 1ARH, 1ACI, 1ANG, 1CKK, 1CLZ, 1CLN, 1CMX, 1ARE, 2AFN, 2AGB, 2BBX, 2BEE, 2CGJ, 2CVJ, 2XBB, 2BMZ, 2BQT, 2BRB, 2GY, 2WR, 2NR, 3CKG, 3CHG, 3CMZ, 3CM, 3OT, 4OI, 4VL, 5ZAI, 8CYI, 8ALY, 8SF, 8PL, 8JQ, 8GI, 9MN.

A—2IJ, 2YI, 2BB, 2CM, 2TM, 3BD, 3BQ, 3EF.

C—1AR.

Z—2XA, 2AC, 2AE, 2AQ, 3AL, 4AZ, 4AK, 4AL, 4AR.

BZ—1AB, 1AF, 2SP, 7AA.

R—AF2, BA1, CB8.

Mex 1AA, 1B.

CH—1EG, 2LD.

Others: LN, WAP, WNP, NKF, NIRX, NVE, ENJ, RFRL, NRRL, NUMM, NTT, GFP, Mosul 1DH.

G—2XY.

Z—1OI, 2AC, 2AE, 2AX, 4AG, 4AL, 4AK.

BZ—1AB, 2SP, 7AA.

Mex. 1B.

PR—4RL, 4SA.

Palestine, 6YX, BSM.

Others: NRRL, NUMM, NTT, WAP, WIZ, WIR, GCS, GFP, GBL, IDH, NRL, IC—BGI.

SMALL ADVERTISEMENTS.

Our charge for "Small Ads" is 1d. per word, minimum charge 2s. 6d.

FOR SALE.—Experimenters' surplus gear—L.F. Transformers (Royal), 15s.; Lissen, 10s.; Rheostats by various makers, from 1s. 5d.; H.T. and H.F. chokes; a universal Receiver, 1 H.F. Detec., 2 L.F., £10. Bargain.—Box 42, T. & R. BULLETIN.

FOR SALE.—A compact Flewelling Receiver, price £5 (best condenser).—Box 90, T. & R. BULLETIN.

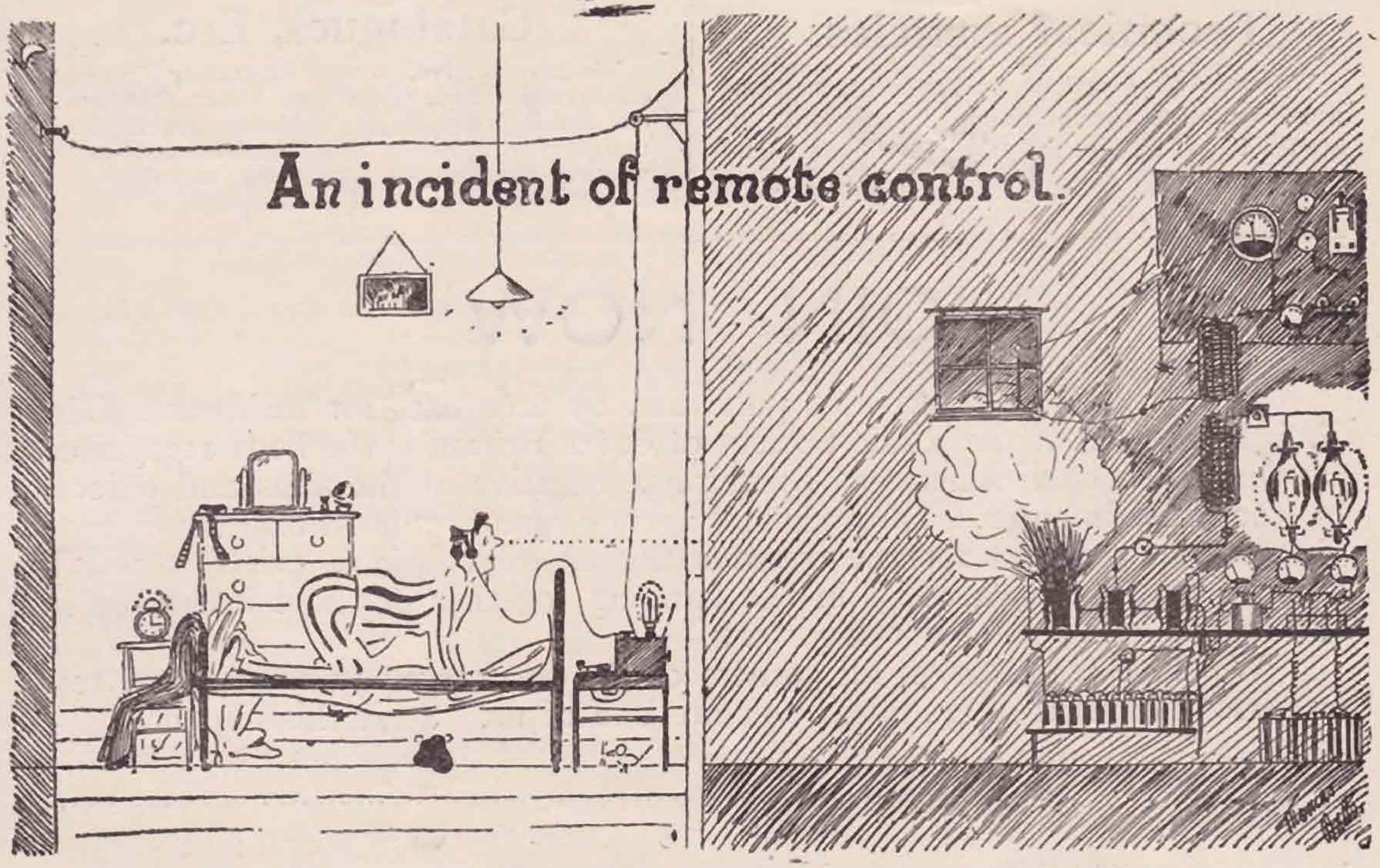
FOR SALE.—Newton 200 watt Alternator, in new condition, 30s.—Box 100, T. & R. BULLETIN.

FOR SALE.—Magnavox Senior Loud-speaker, price £5 5s.; 230-volt. high-speed Motor, ¼ H.P., £2 10s.—Box 41, T. & R. BULLETIN.

FOR SALE. — "Mullard" 0/150 Transmitting Valve. Also an 0/50 ditto. What offers? Box 1.

FOR SALE. — "Mackie" 600 volt H.T. Generator. Cash £6.—Box 2.

FOR SALE. — 3-valve ex-R.A.F. H.F. Amplifier, suitable for super-heterodyne. £2 10s. —Apply 2KT.



Inspired by Mr. BEVAN SWIFT'S Article last Month.

Technical Articles.

We want some articles on the design of short wave transmitters and receivers. We are badly in need of them for our next issue. Please send them along.

Catalogues, Etc.

We have received a very interesting illustrated catalogue from our advertisers, Messrs. The South-end Radio Company, of Wickford, Essex. Some useful gear is listed, and members will not be wasting their money in writing for this—it is worth keeping by for reference purposes.

JOIN NOW

The T. & R. BULLETIN is published by amateurs for amateurs. The T. & R. Section of the Radio Society of Great Britain is the body recognised by the Postmaster-General as being representative of the aims and objects of the experimenter. Through its agency great concessions have been obtained in the past for the transmitting amateur, and it exists to watch your interests and to assist in the banding together of those interested in the transmitting side of radio work.

We have members in all corners of the earth, and you are not a real or serious experimenter unless you are one of us. Send this slip now.

Name .....

Address .....

Please send me application forms as I wish to become a T. & R. member.

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Radio Society of Great Britain,
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For Short Wave Operation.

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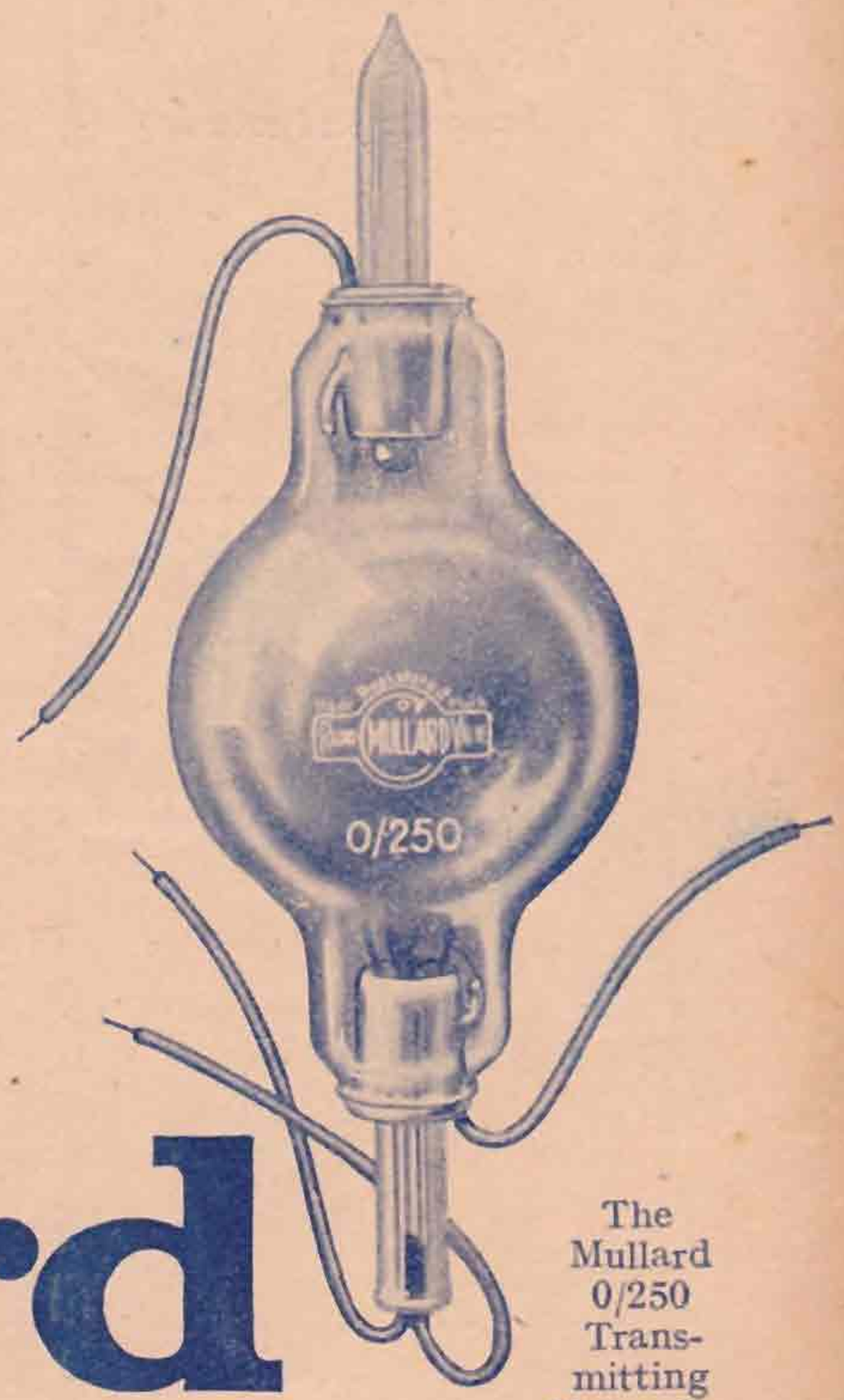
As the result of recent developments, Mullard Medium Power Transmitting Valves have been completely re-designed in the method of construction without alteration to the electrical characteristics.

In the case of the 0/150 and 0/250 valves the filament consumption has been increased slightly to obtain longer working life; the particular feature of **a renewable filament** is retained in all types, and the prices remain unchanged.

The new valves are as follows :—

Type.	Fil. Volts.	Fil. Current (Amps.).	Anode Volts.	Impedance (Ohms).
0/50	9	2.8	800/1200	13,000
0/150	9.7	4.4	1500/2500	24,000
0/250	11.5	6.2	2000/3500	11,000
0/500	19	5.1	2500/5000	10,000

Your enquiries will receive complete technical information. No other valve manufacturer in the world has given amateurs such full and comprehensive information. Experimenters who require special wireless valves should write giving details of their requirements.



The Mullard 0/250 Transmitting Valve for Short Wave Operation

Mullard

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