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No. 6. January, 1926.

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ADDRESS.....

DATE..... T.&R. Bulletin, Jan. '26

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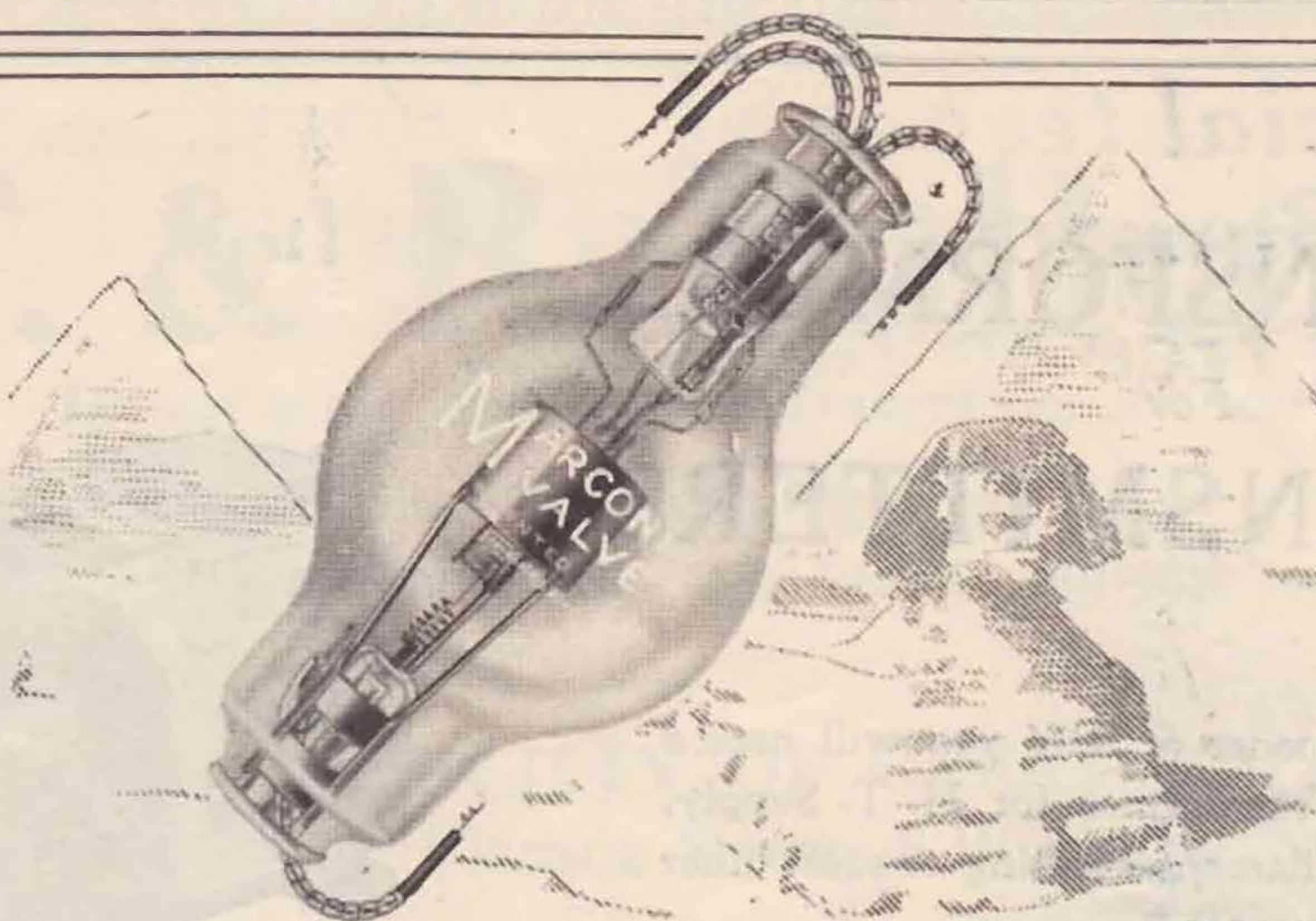
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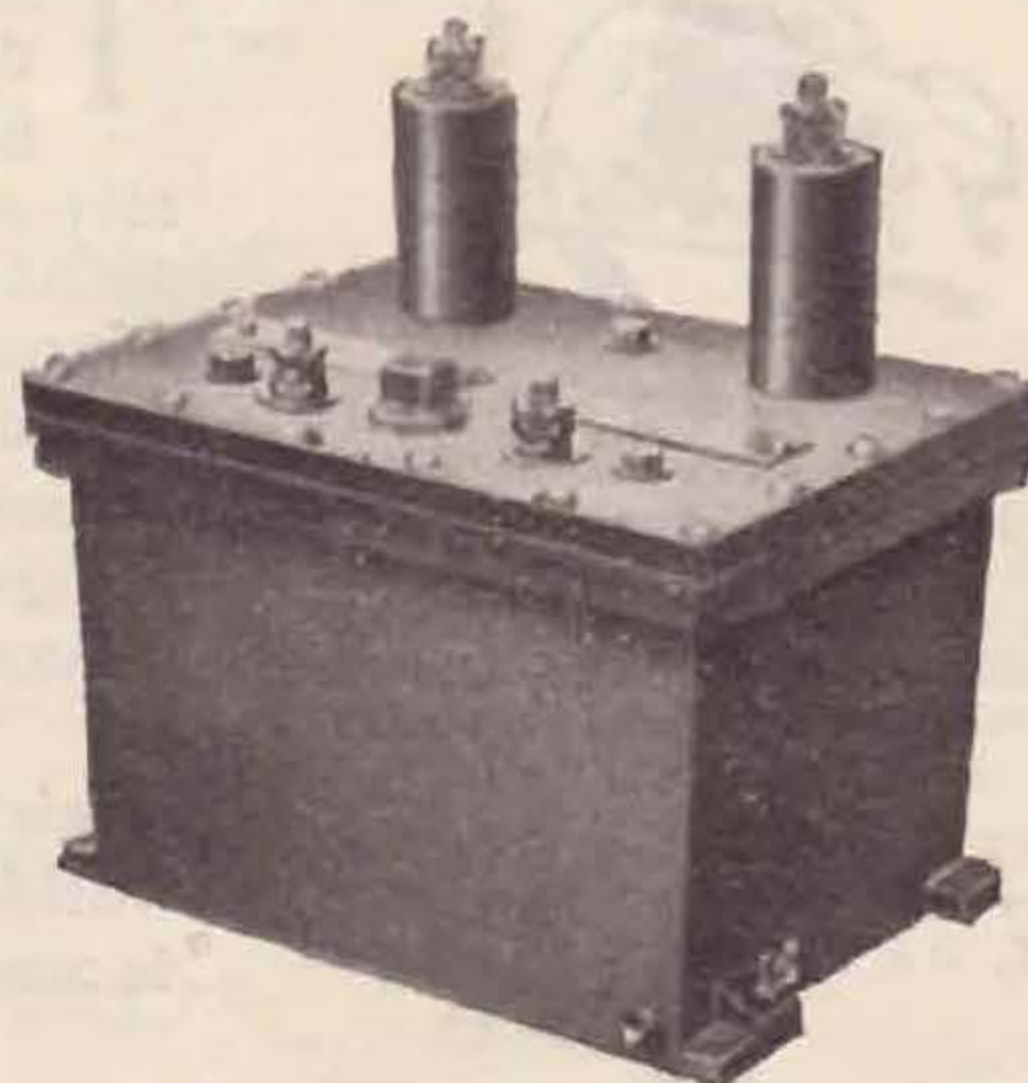
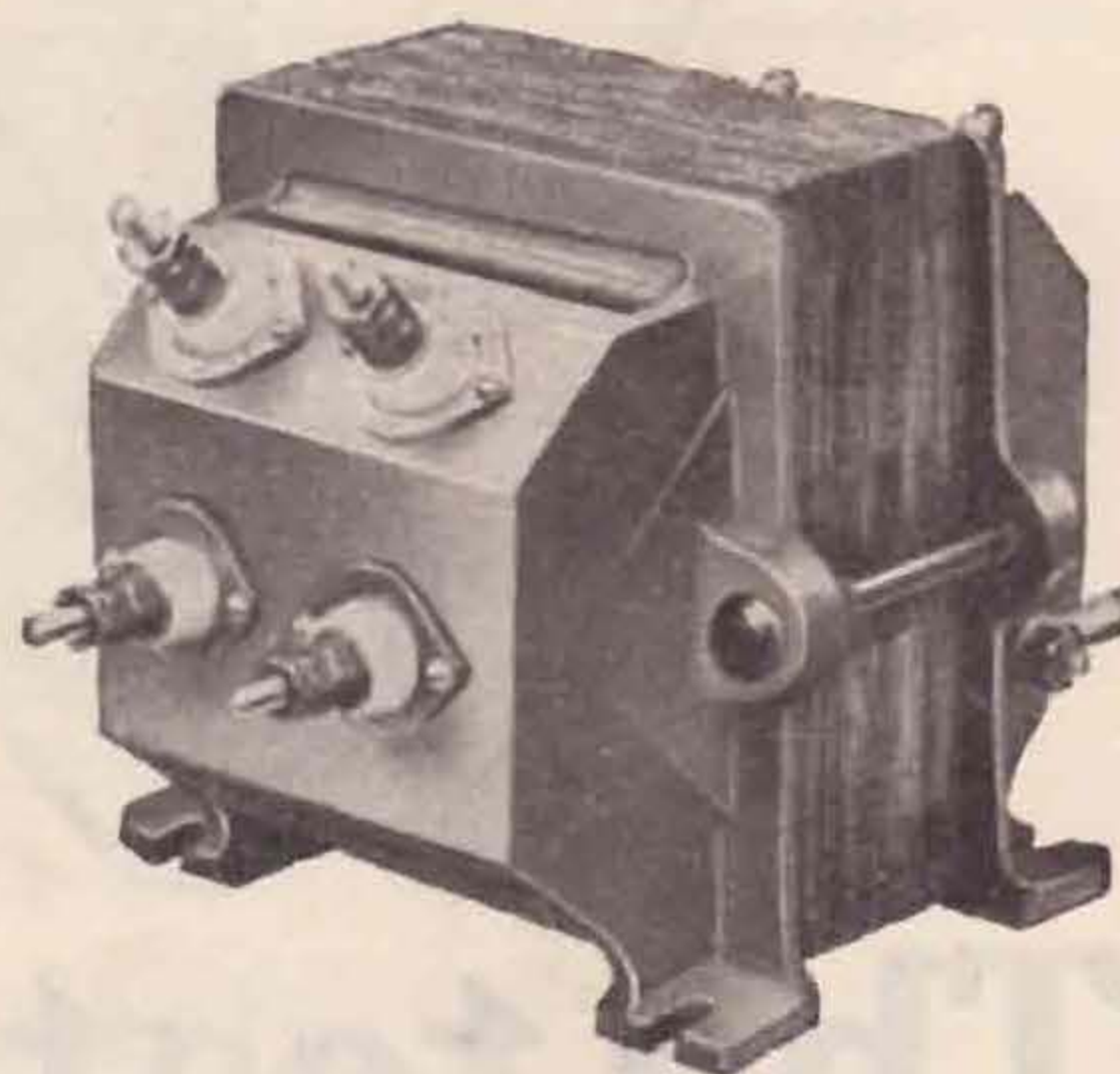
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T. & R. Bulletin

Devoted to the Interests of the Transmitting Amateur

— The Official Organ of —
THE TRANSMITTER AND RELAY SECTION

of

THE RADIO SOCIETY OF GREAT BRITAIN,
53, Victoria Street, S.W.1



HON. EDITOR:

J. A. J. Cooper, F.R.S.A., &c. (5TR)

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The EDITOR will be glad to receive articles and illustrations within the scope of the BULLETIN. The illustrations should preferably be double size and should be original. Contributions should be addressed to 53, Victoria Street, S.W.1., and marked EDITORIAL, ADVERTISEMENTS, Etc.



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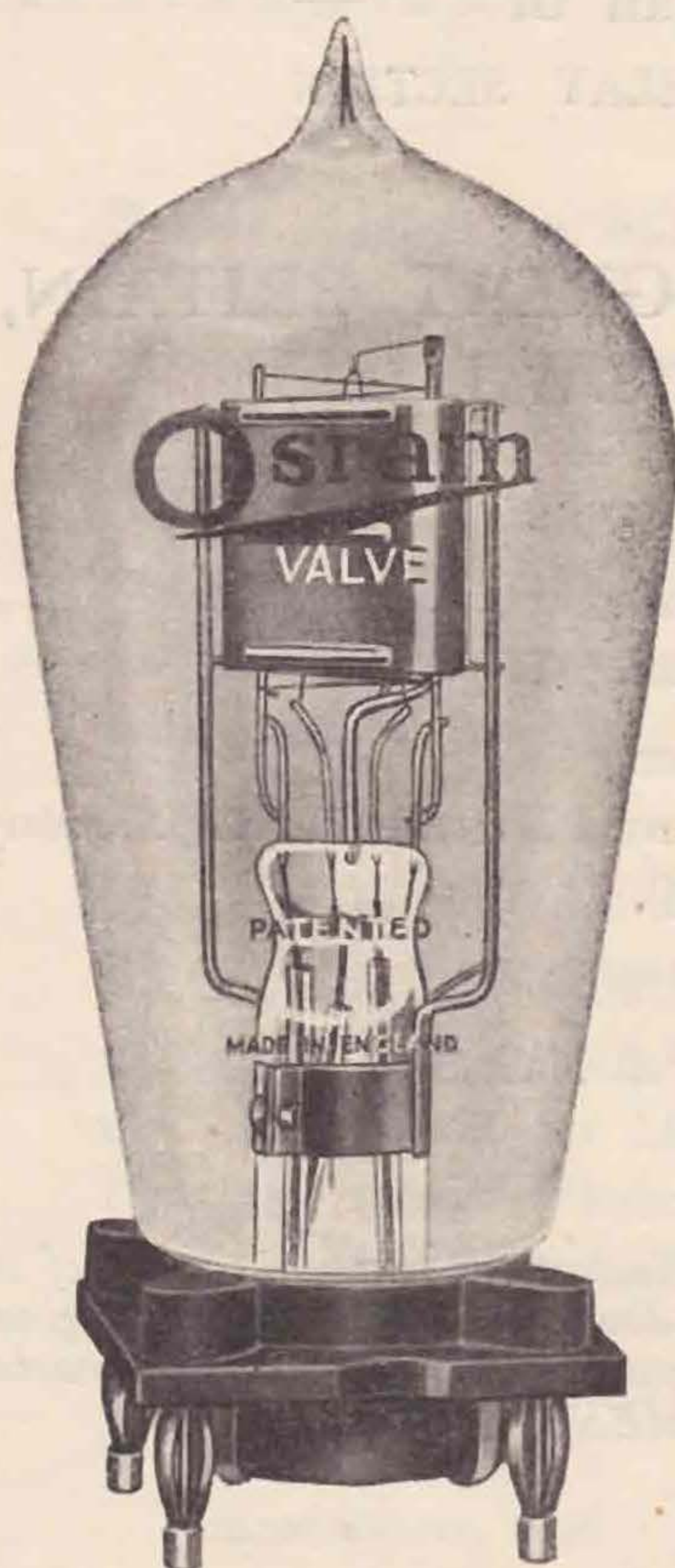
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Filament Current ...	1.9 amps.
Amplification Factor ...	8.5
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Filament Volts ...	6.5-7
Filament Current ...	1.8 amps.
Amplification Factor ...	45
Impedance ...	70,000 ohms.
Watts Dissipation ...	30
Max Anode Volts ...	1,000

T.50

Characteristics

Filament Volts ...	7
Filament Current ...	2.5 amps.
Amplification Factor ...	30
Impedance ...	35,000 ohms.
Watts Dissipation ...	50
Max Anode Volts ...	1,500

T.100

Characteristics

Filament Volts ...	10
Filament Current ...	3.5
Amplification Factor ...	55
Impedance ...	50,000 ohms.
Watts Dissipation ...	100
Max Anode Volts ...	1,500

T.250

Characteristics

Filament Volts ...	12.5
Filament Current ...	5.5
Amplification Factor ...	25
Impedance ...	25,000 ohms.
Watts Dissipation ...	250
Max Anode Volts ...	2,000

L.S.5

Characteristics

Filament Volts ...	4.5
Filament Current ...	0.8 amps.
Amplification Factor ...	5
Impedance ...	6,000 ohms.
Watts Dissipation ...	10
Max Anode Volts ...	400

T. & R. BULLETIN

The only British Wireless Journal Written and Published by Amateurs

JANUARY, 1926.

No. 6.

Notices.

THE annual general meeting of the T. & R. Section was held at the Institute of Electrical Engineers on December 18, 1925, the chair being taken by Mr. Bevan Swift. The minutes of the preceding meeting were read by the Hon. Secretary and confirmed, after which he rendered a report on the activities of the section during the past few months. It was pointed out that much had been done to establish closer contact with public departments and other bodies responsible for radio research work. Mr. Rock presented a financial statement which was considered satisfactory. In moving the acceptance of the report Mr. Bevan Swift emphasised the very excellent work done by Mr. Mascure during the past term, and a unanimous vote of thanks was passed by the meeting. Mr. Marcuse, in replying, paid a great tribute to the untiring energy and zeal displayed by the chairman (Mr. Bevan Swift) during the period under review, and made striking observations upon the unfailing diplomacy exercised by that gentleman when dealing with many difficult subjects.

Mr. Bevan Swift also paid warm tribute to the work of Mr. J. A. J. Cooper, our editor, in producing so excellent a monthly publication, and called for assistance in managing the advertising side of the BULLETIN. He pointed out that Mr. Cooper did practically the whole of the work in this matter and that he should not be expected to manage advertising, literature, accounts, correspondence and sundry other matters unhelped. Many members expressed their appreciation of the manner in which the BULLETIN had been handled, and a hearty vote of thanks was passed.

The committee and officials then resigned, after which they were re-elected into office for the ensuing term.

The members of the committee are now as follows:—E. J. Simmonds, Esq. (2OD), E. H. Robinson, Esq. (2VW), J. A. Partridge, Esq. (2KF), H. Bevan Swift, Esq. (2TI), J. E. Nickless, Esq. (2KT), F. L. Hogg, Esq. (2SH), — Goyder, Esq. (2SZ), B. Davis, Esq. (2BZ), W. Corsham, Esq. (2UV), G. Marcuse, Esq. (2NM), J. A. J. Cooper, Esq. (5TR).

The following are co-opted members of the committee:—G. F. Gregory, Esq. (5PZ), R. L. Royle, Esq. (2WJ), F. A. Mayer, Esq. (2LZ). The order in which the names are given does not necessarily refer to the order of the voting at the previous annual general meeting. The committee was elected *en bloc* in this instance.

The meeting closed with a spirited discussion on the necessity of obtaining a standard means

of measuring short wave-lengths, and it was ultimately decided to obtain a standard wave-meter which is to be calibrated against an N.P.L. standard, if possible. The question of sending calibrated waves is to receive serious consideration at an early date.

During the discussion it was pointed out by members that the 35 metre band of wave-lengths is a very important and interesting band so far as long distance reception is concerned, and it was suggested that British transmitters should refrain so far as possible from using this wave-length for transmitting purposes. Members are therefore asked to use the utmost discretion in this respect, as reception of many Australian long-distance stations has been rendered impossible of late.

Attention !

On Friday, March 19, an informal discussion will be held at the Institute of Electrical Engineers, the subject being "Short Wave Transmitters." Other similar discussions will take place during the coming year, and members who are willing to co-operate by opening such discussions with a few suitable remarks are asked to communicate with the Secretary. Please note that it is not intended that these members should be experts on their particular subject. The idea is to encourage lively and useful discussions on subjects which are to a certain number of experimenters somewhat obscure. Come along now; if you feel that you have not the nerve to open the discussion, at least support us by joining in the debate, which is sure to interest one and all.

Department of Scientific and Industrial Branch.

Radio Research Board.

Questionnaire on Short Wave Communications.

Information is desired as to the reliability of short-wave communication at all ranges in daylight and in darkness on various wave-lengths below 100 metres, with a general description of the apparatus used for both transmission and reception which have given the best results.

Answers to the questions in the attached questionnaire are therefore requested.

General.

1.—Give description of surroundings of station, stating nearness or otherwise of local objects, such as trees, buildings, etc., which may have screening effect on radiation.

2.—Do meteorological conditions effect the range obtainable or the radiation from your station?

(Concluded on page 14)

EDITORIAL

A MERRY CHRISTMAS everybody and a real Happy and Prosperous New Year to follow it. When you are looking up your list of New Year resolutions, please do not forget that the T. & R. BULLETIN is patiently awaiting an article from you. Every member must at some time or another come across a little stunt or difficulty about which everybody else would be simply glad to hear, and we want to see that Mr. Everybody is satisfied in this respect. Descriptions and photographs of stations are also a feature which would be of interest. It is not fair to expect us to do all the work; it is really up to you to supply the articles. The T. & R. BULLETIN would be of no use to you if it became a kind of "one man band." Make a point of turning out an article every two months. It is a good practice for very often the mere fact of writing a thing on paper impresses itself indelibly on your memory. If everybody did this we should be well supplied, and you would get a good variety of interesting articles. Some members have made a point of regularly contributing two or three articles a month. For these we are extremely grateful, but we do want to hear from those people who sit back in their chairs and devour, criticise, enjoy, or weep over the BULLETIN. It is entirely in your hands as to whether or not the BULLETIN is useful. Get the BULLETIN feeling in the same manner as the Americans have the QST feeling, and all will be well.

Just a word as to sketches. These need not be "finished," so long as they are clearly drawn on plain white paper. A number of sketches have arrived on ruled paper, and it would help us a great deal if they were done on white paper and to a larger scale.

A Stationery Department?

From one or two sources we have received suggestions that we should produce a standard T. & R. QSL card and notepaper. We have considered this matter very carefully and have arrived at the conclusion that such a venture would not be a success. It seems that most members prefer that their cards should be distinctive, and in a good many instances their notepaper bears traces of personal inspiration. Added to this, we have advertisers who can supply the goods at quite reasonable terms, and we do not propose to enter into competition with them. In view of these circumstances the proposition has been put on one side.

The Importance of Keeping Records.

For some months past we have been exploring the possibilities of transmission and reception on 45 and 20 metres, and have as a consequence a fairly good, but perhaps in some instances, vague idea of certain phenomena relative to these wavelengths. Our research is not complete, however,

for no tabulated data on the subject has as yet been prepared for publication in this or any other country. We have, of course, descriptions of suitable gear to employ for the work, but what is of more interest is exactly when, where and why these short waves exhibit such a remarkable power of penetration. Our Southern Notes, prepared month by month by 2LZ, have made a start in this direction. 2LZ has taken a certain amount of care each month to write down his observations of the times at which certain signals are receivable and when they fade away, and the like. This is very useful data and will save many from falling into a trap, as did a certain writer in a commercial technical paper a few weeks ago. The author of this article stated quite definitely that certain foreign signals were at that date not receivable. He had made the blunder of inferring that the signals of which he was speaking would always be heard at approximately the same time, for the stations were easily receivable, albeit at an earlier hour of the day!

It is a remarkable fact that experimenters scarcely ever recognise that their work is in vain unless records are kept of investigations.

As early as convenient after an experiment, every experimenter should make some definite notes on the particular matter which he has been investigating and the results of the operations. It is not sufficient to make just a bald note of the experiment, but all available quantitative data should also be entered in the record, and in this manner it is always possible to repeat or follow up a given trend of investigation. The experimenter will find that by these means he will eventually have collected a valuable amount of data which, if properly indexed, will perhaps form a useful source of reference at a later date.

Organisation—to Area Sub-Editors.

I have received a request that we should state the quantity of DX matter which we are prepared to accept each month. We can find space for one to one column and a half of material from each district, and in special cases will extend the space to meet requirements. The material should be sent on one side of the paper only and should be written as clearly as possible.

To Bournemouth and District and all "HAMS."

Mr. J. P. Chapman who advertised on the front cover of our last issue, desires it to be known that he caters for amateurs in any part of the country as well as for the Bournemouth and District Transmitters.

Adapting Super-Heterodyne Receivers for the 40 and 20 Metre Band of Wavelengths.

By FRANK R. NEILL (5NJ).

FROM letters received by the writer, it appears that some experimenters experience difficulty in getting super-heterodyne receivers to operate satisfactorily on the 20 and 40 metre band of wave-lengths. The main trouble seems to be with reference to the oscillator and secondary coils.

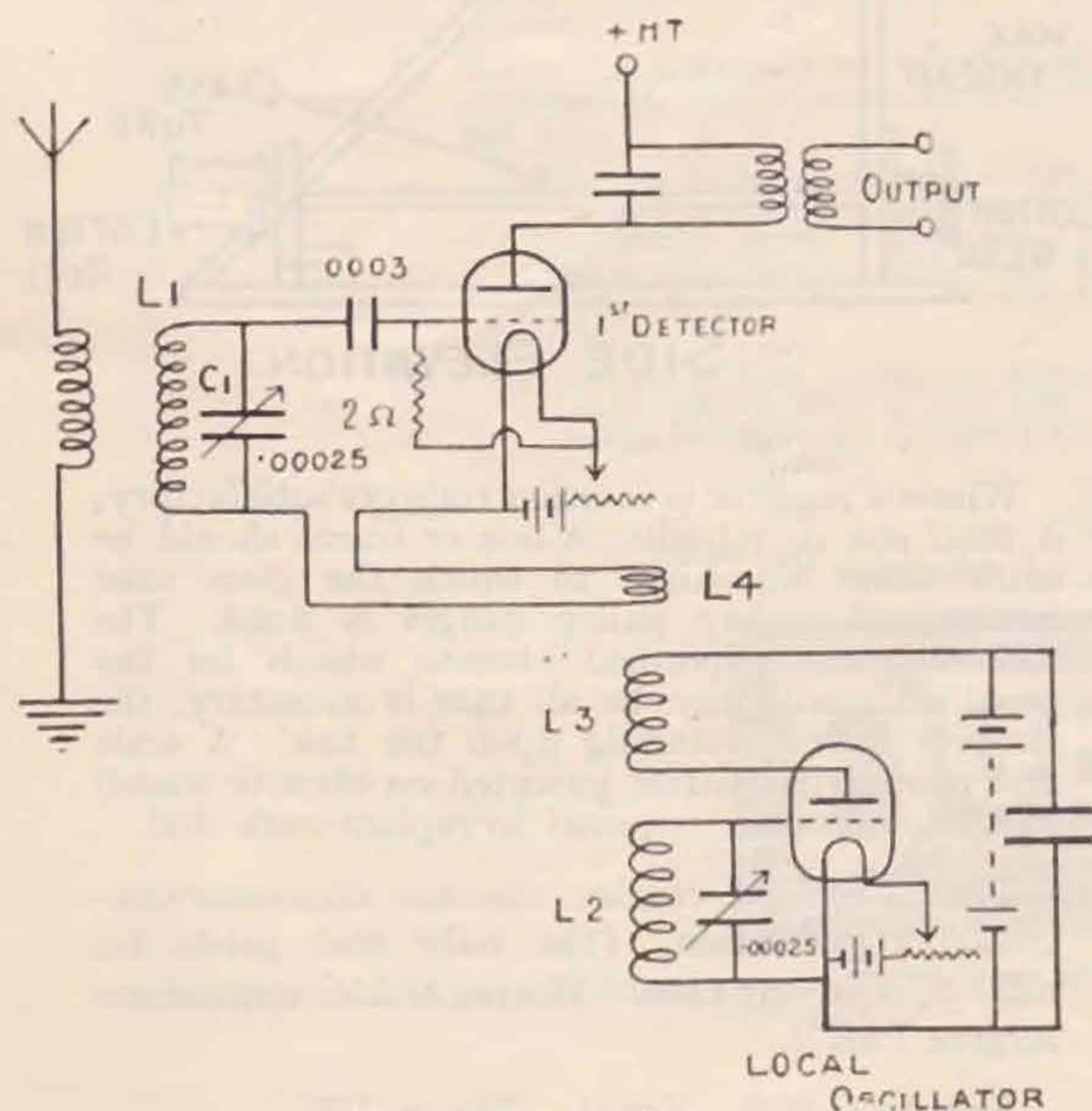
It is proposed, therefore, to give brief particulars of the coils which were found satisfactory for the lower wavebands in the super-heterodyne used at 5NJ, in the hope that such particulars may be of some interest to other experimenters.

The oscillator and secondary coils are arranged in the ordinary way as in Fig. 1, and it will be noted that variable "square law" condensers of .00025 mfd. maximum capacity are used in both circuits. All the coils to be described have a diameter of 3 inches.

For the 40 metre band, the secondary coil L.1. consists of 5 turns of No. 16 D.C.C. wire, wound solenoid fashion, the coil being self-supporting and the turns spaced one diameter by means of small ebonite strips. The oscillator grid coil L.2 is wound in the same manner and consists of 5 turns of the same gauge wire, while the plate coil L.3 consists of 6 turns of No. 18 wire, but the turns of this latter coil are not spaced, being simply tied together with thread. The main thing is to make certain that oscillation is being obtained over the whole range of condenser C.2. The coupling coil L.4 consists of 2 turns, spaced as above.

These coils are mounted on coil plugs and are interchangeable, and by this means the receiver may be operated on the B.B.C. band as easily as on these lower waves, simply by changing the coils.

The above coils, used with the condensers stated,



should cover an approximate range of from 30 to 55 metres.

For the 20 metre band, the coils are wound in the same manner and with the same size of wire, and the values are :—

L.1.	...	3 turns
L.2.	...	3 "
L.3.	...	4 "
L.4.	...	1 turn

Some difficulty may be experienced in obtaining oscillation on this latter range over the whole scale of condenser C.2, and it may be found necessary to employ a lower capacity valve as oscillator. At 5NJ, however, a DE3 valve was found quite satisfactory.

The range covered by these latter coils will be from about 17 to 40 metres. Below 17 metres it appears that considerable alterations are necessary to obtain good results, and no great success has been obtained as yet at 5N].

In conclusion, the writer desires to thank Mr. E. J. Simmonds (2OD) for his valuable help in connection with super-heterodyne receivers, always so kindly given.

“The Overcrowded Ether.”

By G5LF.

THIS subject is one which our daily press is ever fond of using in their "wireless news items." Those of your readers, however, who have not given the matter special attention, probably do not realise how very serious a problem it is. Our own band of waves below 100 metres are particularly interesting in this respect, so many writers having commented blithely on the tremendous number of stations that can conveniently be accommodated without interference within this cyclage. I venture to suggest that the time is not far distant when the capacity of the band 0 to 50 metres will be exhausted, and very shortly it will be necessary for the sign "house full" to be exposed.

Recently my duties took me to a conference at the General Post Office to discuss the proposed allocation of two bands of short waves for a certain commercial service, and it was only then that I fully realised the tremendous concession which was granted to us amateurs when we were allotted our two waves 23 and 45 metres. These two fixed waves have been specifically allocated to us for our own, in the same manner that the waves on either side of us have been allotted to other services.

As the ether goes on filling up our neighbours on each side of our waves are surely going to complain if we trespass into their territory, and if it is proved that we are not capable of so controlling our transmitters so as to keep our waves within our legal limits of frequency, then, as sure as fate, we are going to lose this wonderful concession which has been granted to us.

Get a wavemeter, fellows, and keep it for ever alongside the set and *don't get off your wave*. It's up to everyone of us to see that we do not all suffer through the ignorance or carelessness of a few. Do not forget trespassers are invariably prosecuted.

K.S.

ED. NOTE.—The fixed W/L referred to by Mr. Secretan has now been extended.

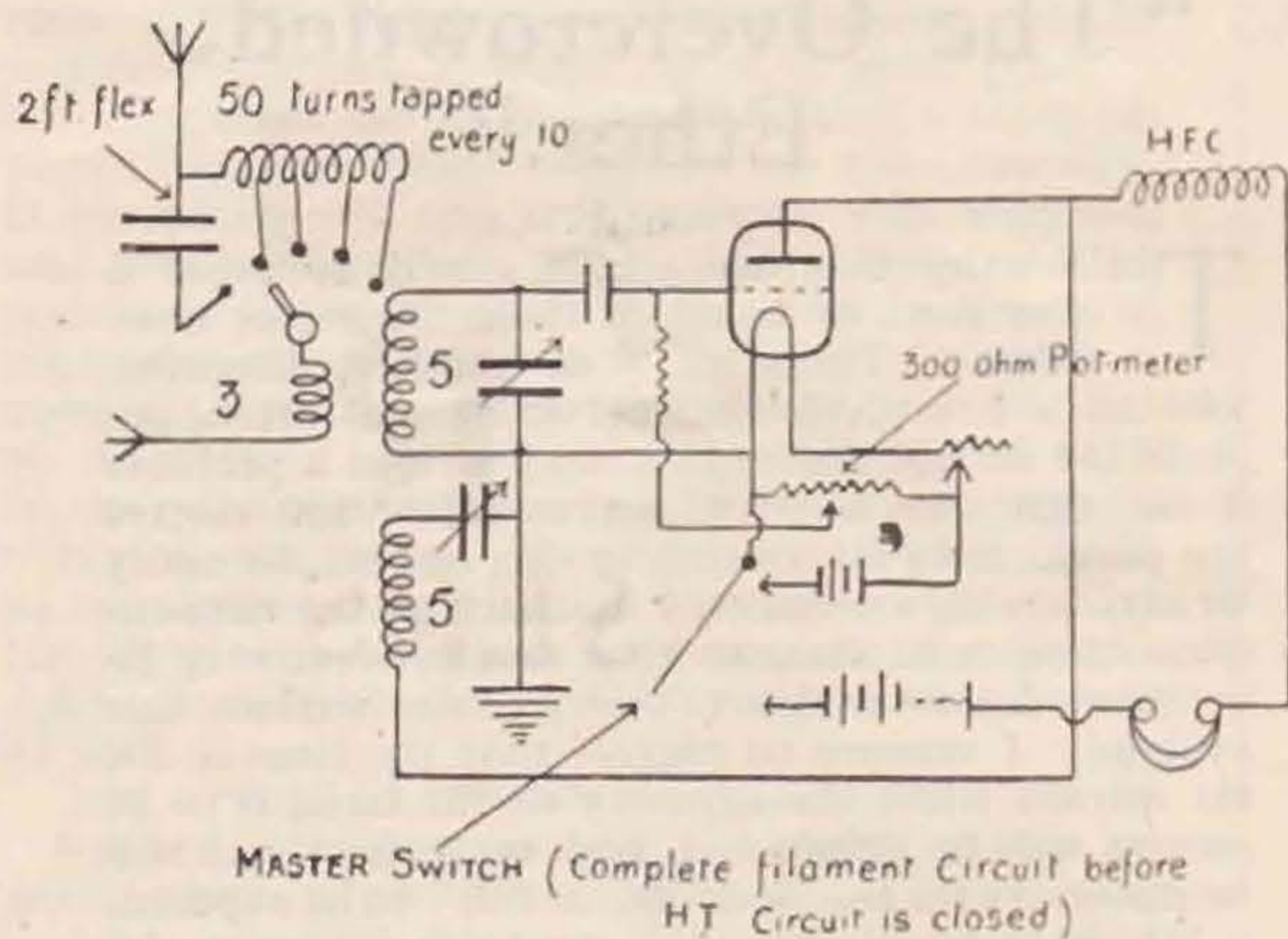
TRADE ONLY WITH YOUR SUPPORTERS.

Hand Capacity and Tuning.

By G6JY.

"Sa OM wots the best ect fer copying 20m stuf?" So runs the query daily anticipated (with resignation, be it hoped) by all OM's whose success with short waves is moderately well known. By now the query has been answered by abler pens than this. Probably there are as many "best" circuits as there are S/W stations, for each seems to have his favourite. Should there yet be some who are in doubt, they are referred to the July number of the T. & R. BULLETIN, wherein G2OD has answered them, and so these remarks do not venture upon this well-trodden field, and the text herein is less ambitious; just elimination of hand capacity and the use of fine tuning "gadgets."

No matter what circuit is favoured this is a important and is rather a question of mechanical contrivance and of intelligent (ahem!) lay-out than of radio as such.

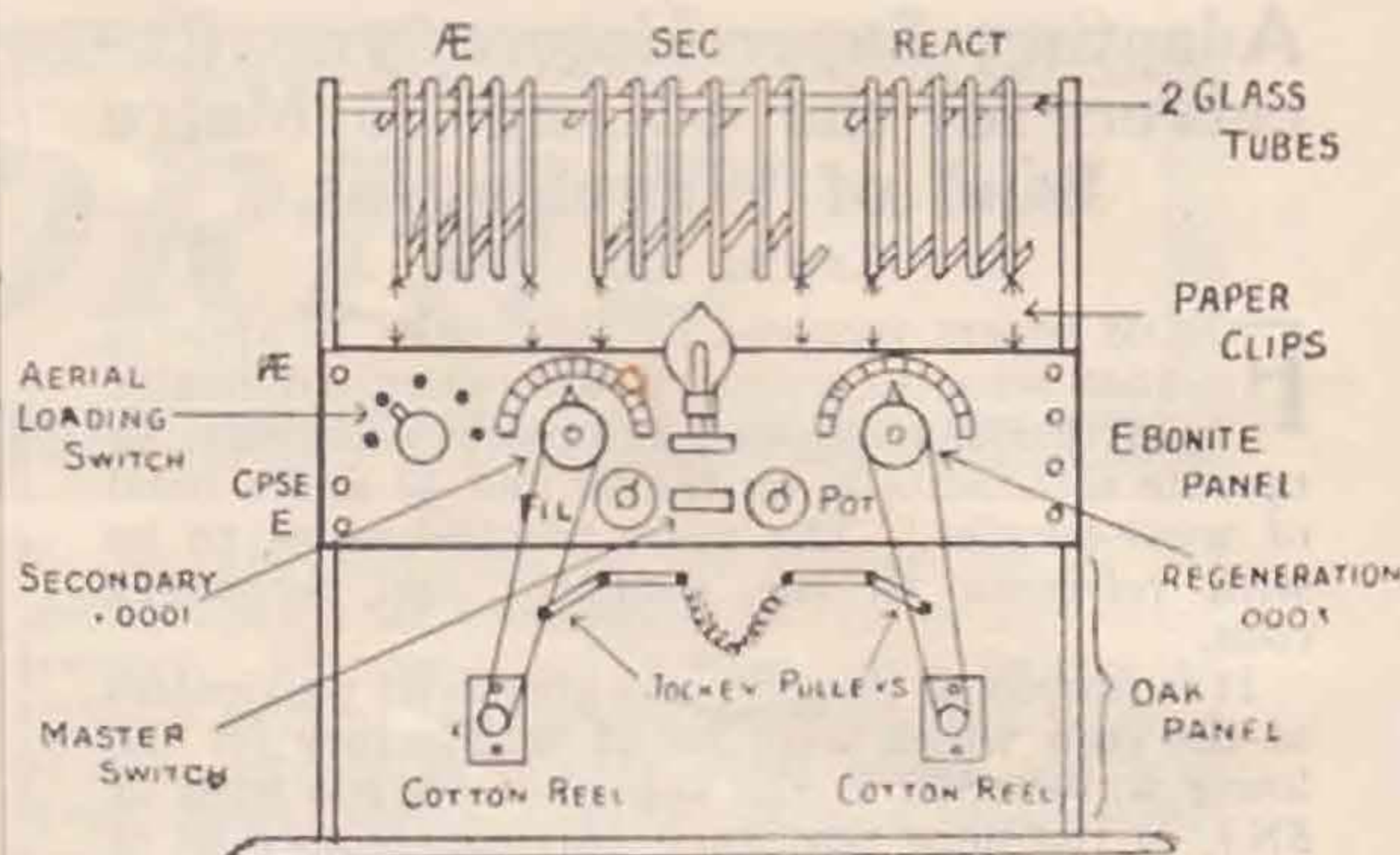


CIRCUIT USED BY G6JY.

After varied attempts at solving the problem, including long handles, half-inch wooden extensions to condenser shafts and the like, the following scheme has been adopted at G6JY, and the results are thought to be sufficiently satisfactory to justify this little bit of "ink-slinging."

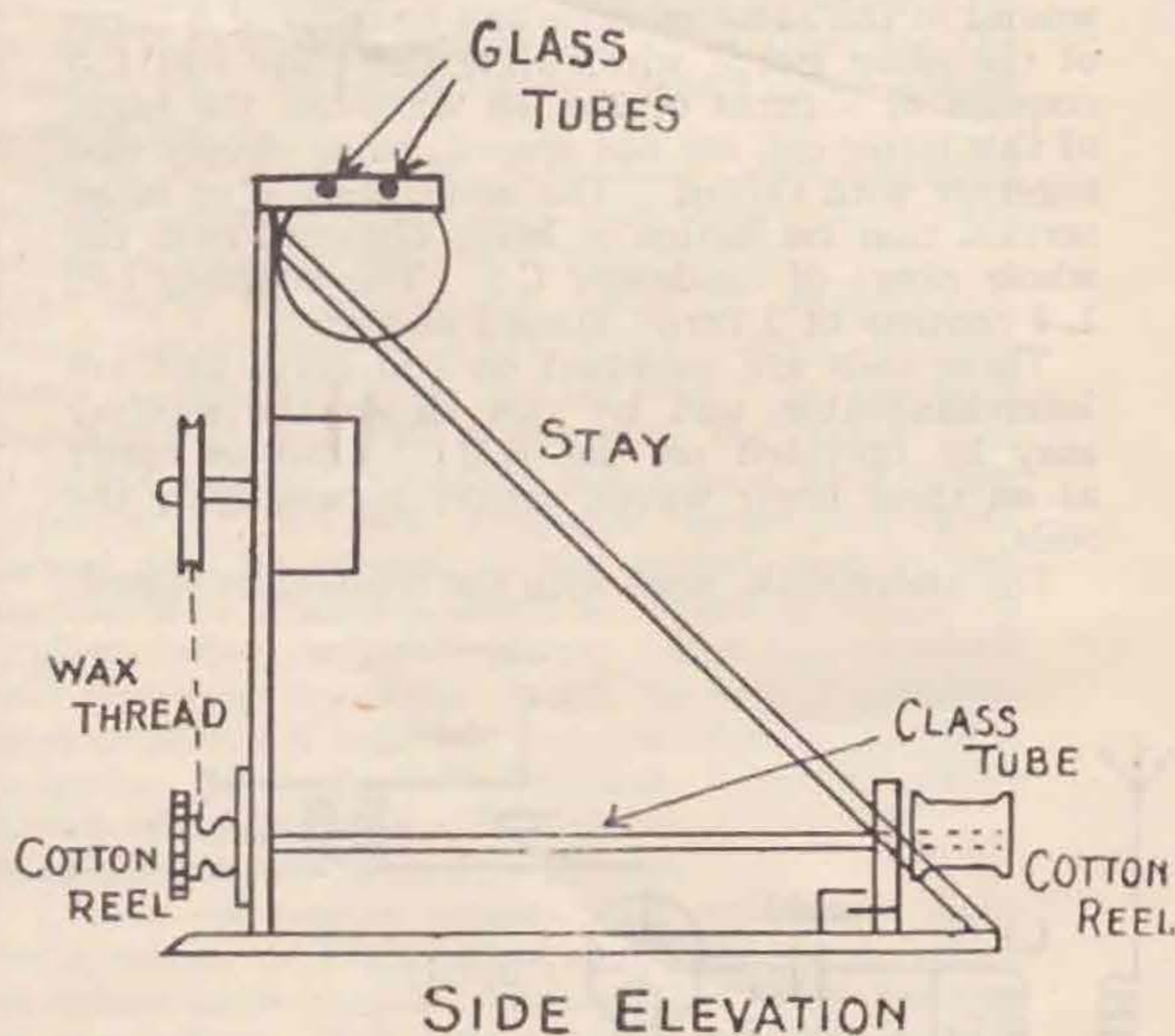
The receiver is mounted on the usual ebonite panel (the next S/W at this station won't have a panel, but a skeleton frame) 14in. x 8in.—see sketch. Below this is an oak panel 14in. x 9in. Screwed to the latter and close to the bottom are strips of 1/4in. ebonite, which are drilled to act as bearings for 1/4in. glass tubes. Fixed on the tubes (by means of shellac) are small cotton reels, into which V grooves have been turned, and to the ends of which milled knobs of usual type have been fixed. In place of the usual dial, 2 1/2in. ebonite wheels (turned out of 1/4in. sheet and also grooved round periphery) are mounted on condenser spindles and secured with lock nuts and washers.

Waxed thread is passed over the wheels and cotton reels, while small jockey pulleys held up



GENERAL ARRANGEMENT.

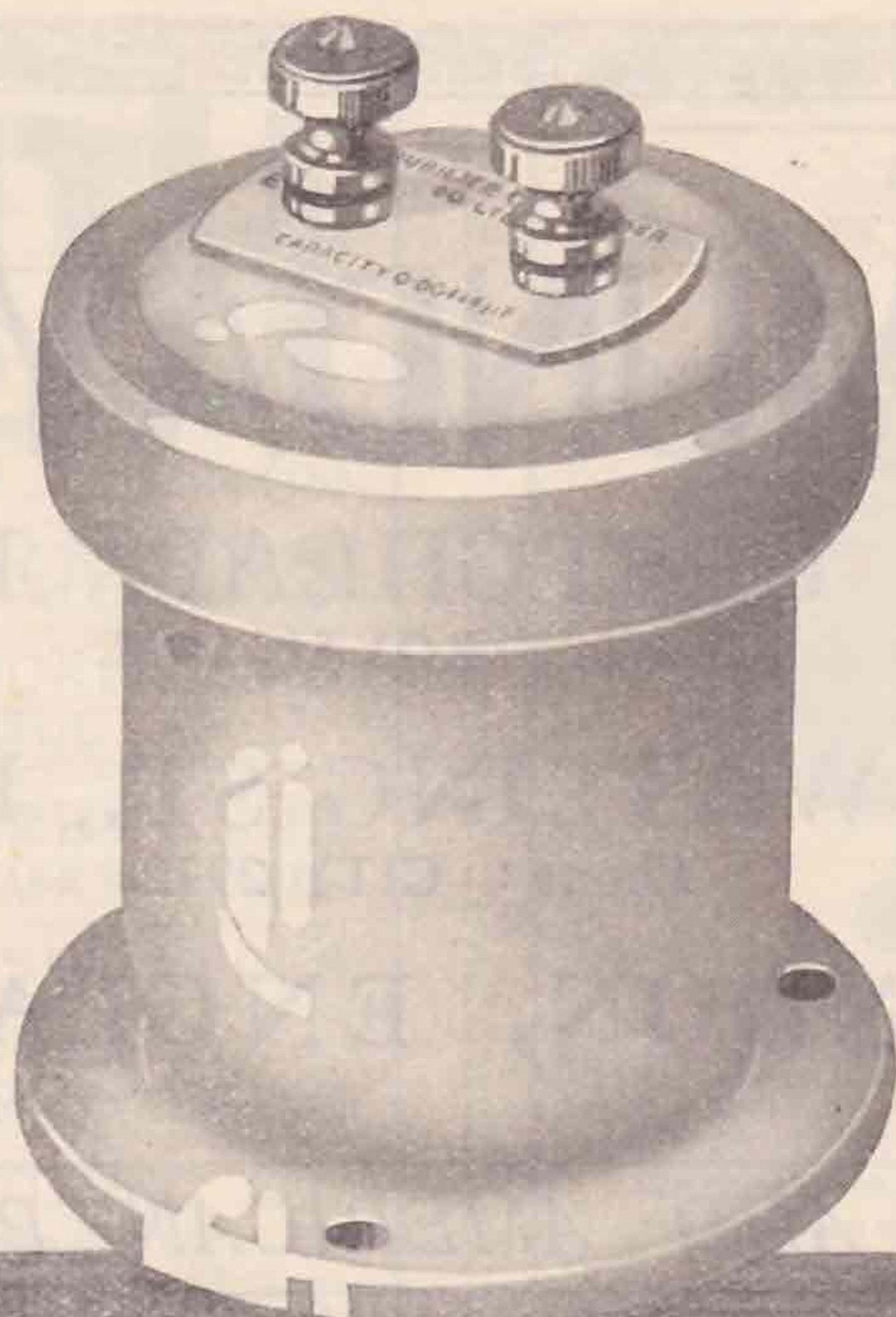
to their work by light springs bear upon the thread and maintain necessary tension. In this way a smoothly-acting reduction gear (without back lash) is obtained, while body capacity effects are eliminated *in toto* — the hands being 12in. below any metallic object on the receiver, which is at H.F. potential to Earth.



Where a receiver is in other respects satisfactory, it need not be rebuilt. A box or frame should be made some 9in. high, to which the glass tube cotton reel jockey pulley gadget is fixed. The substitution of specified ebonite wheels for the usual dials will then be all that is necessary, the receiver merely standing upon the box. A scale and pointer (the latter mounted on ebonite wheel) will be, of course, required to replace each dial.

The above, of course, assumes condenser-controlled regeneration. (The only real goods for ultra S/W in any case. Moving tickler enthusiasts forgive PSE!)

Sure fo O.M.S. Try it. 73's os DX.



DUBILIER

TRANSMITTING CONDENSERS

The small transmitting condenser illustrated here is one of the many specialised Dubilier products, and is particularly suitable for use in experimental and amateur transmitting stations.

Among the many purposes for which these condensers are used, we would like to mention the following:—

- (a) For use in low-power transmitters up to 100 metres as aerial series condensers, oscillating circuit condensers, grid condensers, etc. (Types S.W.A.F. 650, S.W.A.F. 700, S.W.A.F. 750, S.W.A.F. 800.)
- (b) As Arcde Feed Condensers (Capacity range 0.00005 mfd. to 0.05 mfd. for working voltages up to 6,000 D.C.).

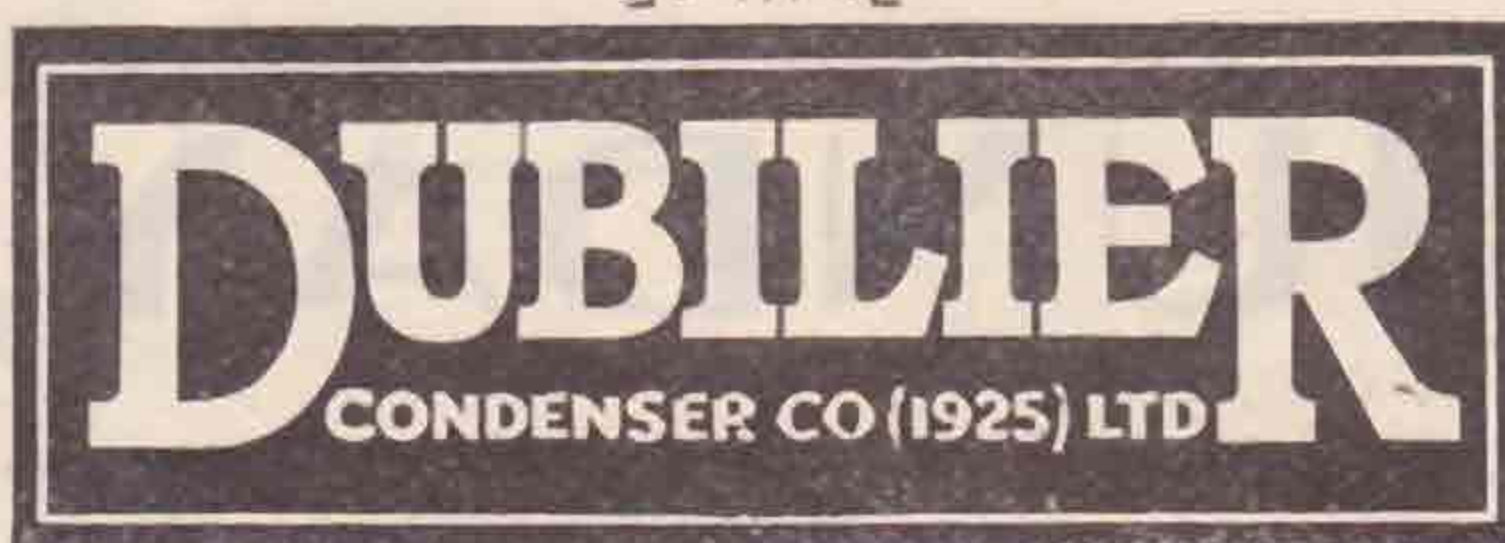
(c) As high-frequency by-pass condensers.

(d) As grid condensers.

Condensers for the last three purposes are scheduled as types A.F. 650, A.F. 700, A.F. 750 and A.F. 800.

They are enclosed in porcelain containers, so as to insulate the whole condenser when used at a high potential above earth (e.g., as in the case of Arcde Feed Condensers). The terminals are mounted on the porcelain lid, and this type of condenser is a most reliable and convenient unit for experimental use.

Prices from 25/- to 60/-, according to requirements.



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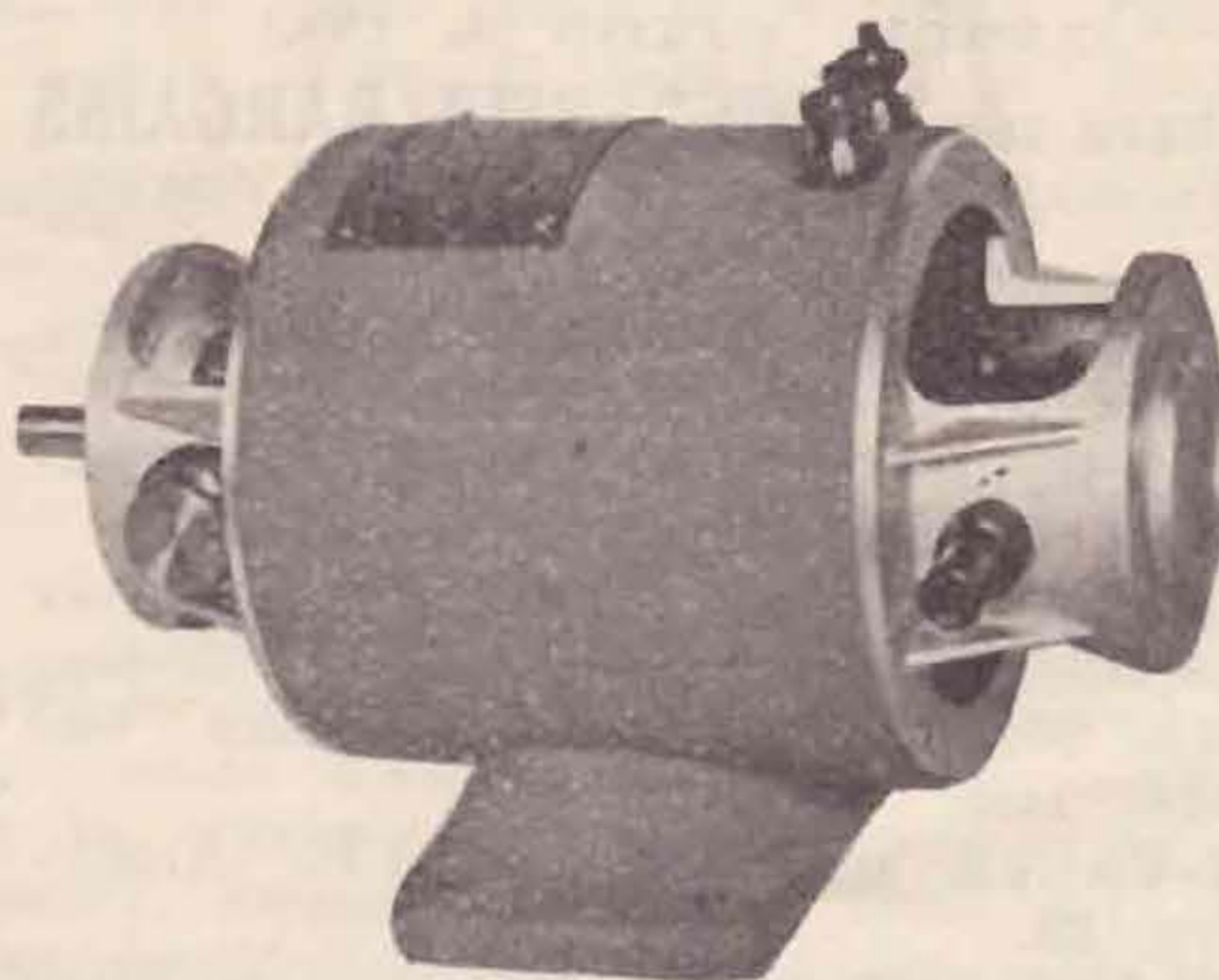
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Telephone Willesden 4087-8

ROTARY TRANSFORMERS

Type T. 147.

Output 75 watts at 1,000-1,200v



Reporting on tests carried out with one of these machines, 2KF writes:—"I exchanged signals with Australian 3BD at 6.30 p.m. and maintained contact for over an hour."

We have a few in stock, ready for immediate delivery, both open and enclosed type, wound for 12v. input.

C. E. MORTLEY SPRAGUE & CO., LTD.

Nelson Road, TUNBRIDGE WELLS,

HEAYBERD'S Radio Precision Testing Sets

RENOWNED in all corners of the Electrical World.

A complete and compact Moving Coil Testing Set, beautifully finished and perfectly accurate.

Its very high resistance, of 40,000 ohms, makes the Voltmeter almost Electro-static, which is essential for measurement of H.T. Battery voltage.

Measures the resistance of all your accessories.

Demonstrates the principle of Ohm's Law.

Enables you to obtain perfect reception and to know exactly by what means you obtained it.

Will last a lifetime with ordinary care.



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Moving Coil Instrument, 120v, 6v, 3ma, 300mv **35/-**

Triple range shunt box, 12ma, 120ma, 6 amperes ... **15/-**

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Trade Notes and Catalogues.

Messrs. Gambrell Bros. are placing on the market their new Baby Grand two-valve broadcast model. The receiver is entirely self-contained and has incorporated in the one cabinet the whole of the components of the set as well as devices for reducing main current to the correct values for the supply of H.T., L.T., and grid bias. The set is simplicity itself to handle.

* * *

Messrs. The Marconiphone Co. have sent to us particulars of their new hanging model loud speaker, which is handsomely disguised as an electric light fitting, complete with silk shade. It is a delightful piece of work and one which will grace any drawing-room.

* * *

Messrs. Falk Stadelmann have furnished us with a complete list of the Efesca component parts made by them, and also particulars of an interesting money prize competition.

* * *

Messrs. Burndept Wireless, Ltd., have sent us their list of valves. The list comprises a wide selection of types to choose from, and the firm has entered into this new venture of valve manufacture with characteristic thoroughness.

* * *

Messrs. the General Electric Co. have invited our attention to the D.E.T.1 (dull emitter) transmitting valve. This new type of valve has already given great satisfaction to amateur transmitters.

ELECTRADIX RADIOS

(LESLIE DIXON & CO.)

We have some WONDERFUL BARGAINS
for Transmitters from the R.A.F. at Watford
at Bargain Prices.

950 LUCAS AERO GENERATORS, complete
with auto cut-out. £3 10s. each.

100 B.T.H. 12/1,000 VOLT MOTOR GENERATORS, with condenser. £12.

50 R.A.F. 7-VALVE 5,000 metre Receiver Amplifiers, 3 H.F. 1 Det. 3 L.F. Receives 5XX without an aerial. Makes fine Super Het. £5 10s.

25 7-VALVE MARCONI 55 H.F. Amplifiers, £8.

LOUD SPEAKER BARGAINS, Western Electric, 70 ohms, 15s.; T.M.C. 2,000 ohms, 15s.

INSTRUMENTS. We have, beyond all doubt, the finest range of instruments ever stocked by one firm, and most of them British. Come and see our fine stock.

CONDENSER BARGAINS. We have just bought 2,000 Variable Condensers of all sizes from the liquidator of a well-known London make, and are offering these at lower prices than any hitherto obtainable, as follows:—

M.F.D.	Plain	Square Law	Plain with Vernier	Square Law with Vernier
.001	4/6	6/-	5/9	7/6
.0005	4/-	5/3	5/3	7/3
.0003	3/10	5/-	5/-	6/6

Callers only for first week of sale.

TAKE YOUR H.T. FROM THE MAINS.

The Generometer Set for D.C. costs 55s. only. If you have A.C., make your own set with our Double-wound Transformer with two tapped secondaries, 25s. only. 1,000 ohm Chokes, 1s. 6d. 4 M.F.D. Condensers, 6s. 6d.

H.T. ACCUMULATORS. We have some fine 80-volt sets in ebonite cases with lids. Brand new, latest design, 45s.

You should come to our new Showrooms at 218, Upper Thames Street, and see the enormous range of Government and other apparatus for sale at scrap prices. Our new Showrooms are four times the size of our old premises, and we shall be pleased to see all old customers and welcome the new.

218, UPPER THAMES STREET

is of easy access and near Mansion House Station and Blackfriars Station on the Metropolitan Railway. 218 is at the corner of Lambeth Hill, connecting Upper Thames Street with Queen Victoria Street, and is between Siemens Bros. and Ediswan depots.

TELEPHONE:
City 191.

TELEGRAMS:
"Electradix, London."

Northern Notes.

Prepared by 2DR.

I AM thankful to say that I have had a number of new reports this month, but so far no Lancashire ham has come forward with an offer to collect some reports from his area for me. As a matter of fact, I have not had any reports from Lancashire for two months now.

Owing to the fact that the Editor is pressing for very early delivery of reports this month, to be in time for the Special Christmas Number, some may arrive late, and will have to be put in next month.

It does not appear to have been a very good month for DX, for there seems to be a dearth of reports. Certainly, the very severe weather we have had up here of late has not been conducive to turning out bright and early in the morning. 5DA (Berwick-on-Tweed) puts the matter in a nutshell, when he tells me that he has been keying with one hand, and stoking the fire with the other!

The mysterious GBI has been worked by 2IH and 5SZ this month, whilst the latter has been QSO in Tasmania during November.

DX Reports.

The furthest North report this month comes from 5DA (Berwick-on-Tweed). On low power, 8 watts, he has worked phone with 6OX (Jersey). He is busy with a new transmitter for 45 and 23 metres, and is using a 150 watt motor generator set from the D.C. mains. States he confidently expects to see a 150 watter on the Christmas tree. I hope it will be well tied on, O.M. This station reports a scarcity of Canadians on 45 metres, but plenty of Brazilians, some of them new stations.

2LH (Sheffield) has got going again on 45 metres, and has been busy among the European stations, before essaying further afield. He tells me that 5DN (Sheffield) has closed down, as he is much troubled by B.C.L.'s complaining about interference. I hope this is only a temporary stoppage, and the Northerners cannot afford to lose men like 5DN.

2NB (Newark) reports being QSO by Z2AC and Z2AF, but has done nothing with Australia. Has been QSO by twenty Canadians and Americans during the last month, and also was the first to work BER (Bermuda). This latter station has been frequently worked since, and 2NB says he has a very fine note and strength when using an input of 10 watts on 35.2 metres. The power has been recently increased to 35 watts. His note is pure D.C. 2NB is working on 18.3 metres and also sends a regular transmission on 9.2 metres on Thursdays at 22-30 and Sundays at 11-00 G.M.T., five minutes on and five off, for half an hour. This schedule is very rigidly adhered to, and reports would be most welcome.

I hear 6YU is doing good work among the Canadians.

2JP, Mr. M. C. Ellison, has changed his address to: "Brooklands," Follifoot, Harrogate. He is using an Evershed generator, and has worked LAQA (Tromso, Norway), among others, during the preliminary tests. A Hertz aerial is now

(Concluded on page 13)

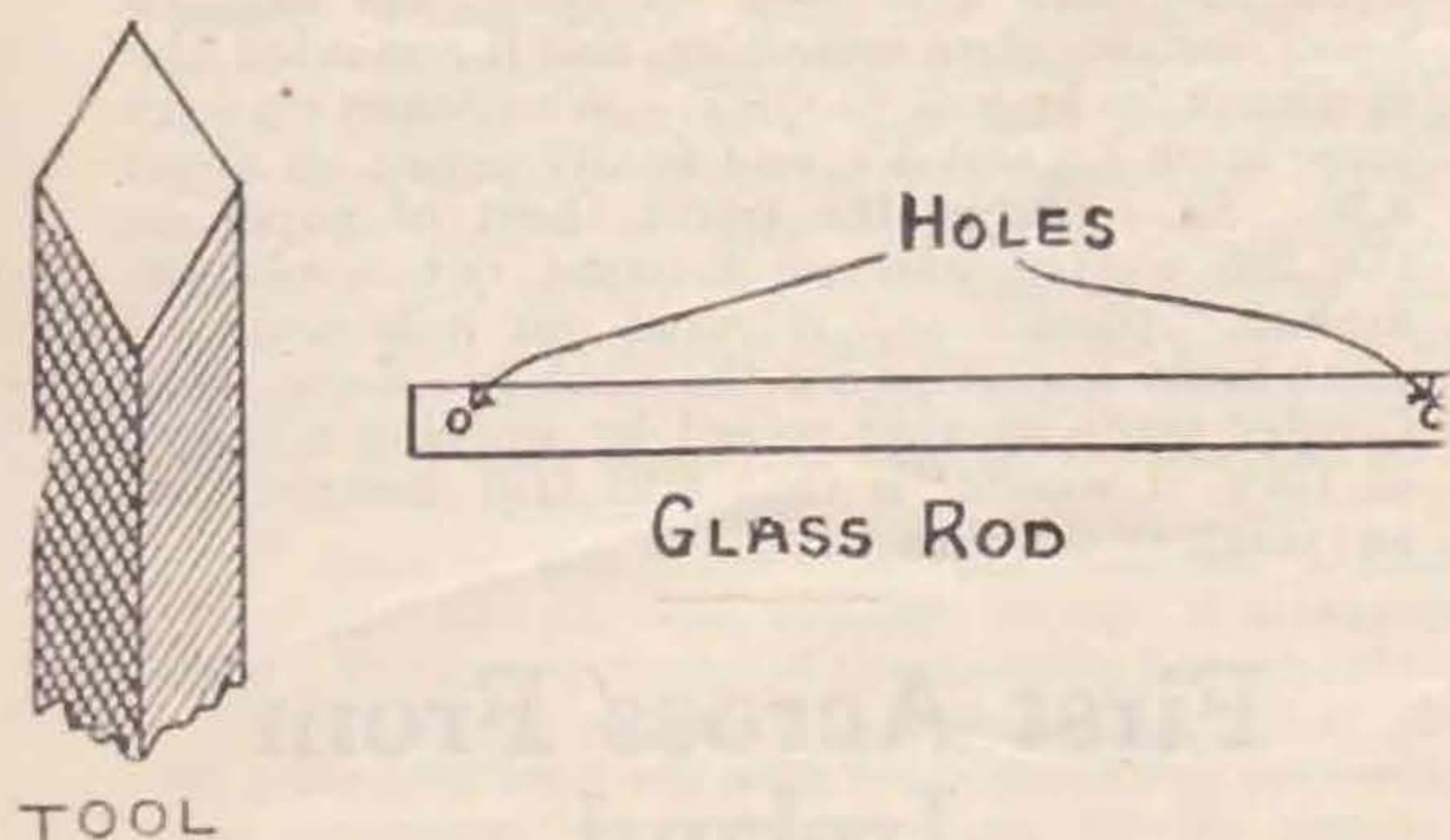
An Insulation Wrinkle.

By 2XV.

IT is generally recognised that glass forms one of the most useful and effective insulators which we have available for our use, but its working seems to present difficulties to most of us.

Insulators may very easily be made with little expenditure of either time, temper or money, if set about in the following manner:—

Call at your local plate-glass merchant and get him to look through his scrap and find you a couple of strips of plate-glass about 18in. x 1½in. x ⅜in. thick. Having obtained the material, call round to the oil shop and buy 2d of turpentine; then go back to the "den" and turn out an old ¼in. square file and carefully break it in half; then grind off the clean end left till it looks like Figure 1, carefully finishing on an oilstone by hand.



Now take a strip of glass and lay on a flat surface, dip the end of your tool in the turpentine and apply the point to the glass where you desire the hole (about 1in. from the end), and with a firm but steady pressure give the tool a rocking, twisting motion similar to using a screwdriver, only that you apply pressure on both left and right-hand twists. Make sure that the tool is well lubricated with turpentine, and don't press with undue force: you can tell how hard to press by the feel of the cuts.

When the hole is half through, turn the glass over and start from the other side, and be careful, as the two holes meet, not to press too hard, or a crack will result.

When finished, these insulators are fairly strong and quite efficient, and of low capacity, and will repay the trouble expended in their construction.

The writer has also drilled a hole through the centre of a window-pane in this manner. This makes for practically perfect aerial insulation, but *don't* attempt to drill a window without removing the glass first. Figure 2 shows a completed insulator.

Change of QRA.

2XD.—H. R. Gladwell, Esq., late of London Road, Abridge, Essex, has now been transferred to 54, Alexandra Terrace, Brynmill, Swansea, Wales.

2QM has moved from Glasgow to Borough Hill, Daventry. He has our deepest sympathy.

uIXM Standard Frequency Schedules.

Time: Eastern Standard.

40-Metre Band.		80-Metre Band.	
Time (p.m.)	Frequency	Time (p.m.)	Frequency
9.00—9.07	9100 (33)	10.06—10.13	4300 (69.8)
9.11—9.18	8000 (37.5)	10.17—10.24	4000 (75)
	(U.S. limit)		(U.S. limit)
9.22—9.29	7500 (40)	10.28—10.35	3750 (80)
9.33—9.40	7000 (42.9)	10.39—10.46	3500 (85.7)
	(U.S. limit)		(U.S. limit)
9.44—9.51	6400 (46.9)	10.50—10.57	3250 (92.3)

Intermediate Point

9.55—10.02 5300 (56.6)

Dates for January, 1926:

Every Friday, commencing January 8.

The frequencies indicated above (corresponding approximate wavelengths given in parentheses) will be transmitted every Friday night during January, except January 1 from uIXM, the experimental station of the Massachusetts Institute of Technology Radio Society, acting in co-operation with the M.I.T. Communications Laboratory. It is hoped that the intermediate point and a point or two in the 80-metre band may later be omitted, their place being taken by points in the 20-metre band. Further announcements will appear in February QST. Each frequency will be approximately that given above, but while the "long dashes" referred to below are being sent, the exact frequency will be measured by a very carefully checked standard frequency meter, and then announced. All transmissions will be by unmodulated continuous wave telegraphy.

The 7-minute period of each transmission will be divided as follows:—

2 minutes: QST QST QST u IXM IXM IXM, etc.

3 minutes: Series of long dashes broken by "uIXM."

1 minute: Announcement of exact frequency just sent.

1 minute: Announcement of approximate next frequency to be sent.

Four minutes will then intervene while the transmitter is being adjusted to the next frequency. The accuracy that may be expected is 0.2 of 1 per cent. or better. It is hoped that more stations will later join in the work of transmission of signals of about this accuracy.

Considerable doubt has been expressed as to whether or not a fair number of amateurs will use this service; if you use it, drop a card to Standard Frequency Committee of uIXM, M.I.T. Radio Society, Cambridge, Mass., U.S.A., telling us so. If the service seems to be of but little use it will be abandoned.

On Friday, May 7, 1926, Mr. M. Bakewell will speak on "Americans and their Methods." Mr. Bakewell has recently returned from an interesting trip in America, and can speak with up-to-date knowledge of this subject.

Cards and Communications.

Cards from U4JE for G6NM

" U5NJ for 2BAO

" U4JE for 6LO

" U8B2K for 2BAO

Please apply and remit postage.

Boiled Owls, or a Night at 2SZ.

By S. K. LEWER, 6LJ.

AFTER looking through stacks of cards from Yankee 6's all reporting strong sigs, I followed Goyder upstairs and had a look over his own private station. The QRM factory was not yet in operation, but the receiver was, so we put on the ear-muffs. "Good-night," I sez. "But you're not going yet, O.M. You're only just come!" sez Goyder, worried like. "I mean DX is good tonite." After cooling down some he agreed with me, so we set out for the mile walk up to Mill Hill School. How he walks all that way just to pound a key all through the winter I dunno; but to the uninitiated the journey is a nightmare. It was about midnight, and it had just stopped raining. Our pace was brisk, for DX was going to be F.B. that night. As long as we were on the road everything went O.K., but as soon as we left the street lamps behind and followed the long footpath leading to the school, I lost my bearings. The darkness caused by the overhanging trees (which reminded me of the darkness you can "feel" when the bottle refuses to light any more), and the wet blanket of mist wiped out all sense of motion. A huge wooden post suddenly leaped up from nowhere, and I instinctively ducked, but Goyder said it was at least two yards away. We went back to investigate, and he was right. After we had been walking on for some time during which all I had seen was pitch blackness everywhere, I espied a bush made visible by a few stray beams of light, and I hopped out of the way pronto, but it was at least thirty yards off. I felt that under a strain like this I would lose my steady fist, so I hooked tight on to Goyder and shut my optics until he said the masts were at last visible in the DX. While I was investigating I nearly tripped over a mound, but Goyder was QRV and pushed me into stable equilibrium again. I looked up and saw him heading straight for a glistening sheet of water. I QRO'd and joined him at the brink. "Bathing isn't in my line to-night, O.M." I sez. "It's only asphalt—wet," he replies. He dragged me across it and into the building.

Oh, that my anode would keep as dark as the air around Mill Hill! After that blinding darkness the stone staircase figured with eerie shadows from a solitary lamp in a corridor above, looked like the place where King Tut buried his 250 watters.

2SZ at last! Here was the DX devourer of world-wide fame. This was the gadget that tore holes in the ether over in the States two years ago. The 250 watter was covered up one side with a sheet of paper. I expected to see "Notice, no thoroughfare," or something like that for the benefit of the electrons, but SZ said he didn't want to get sunburnt any more. I said, "Oh!" and QRX'd. He went out to hook up some juice-pots, came back and switched on. I peeped behind the sheet of paper, and my eyes stopped oscillating for the next five minutes.

When I recovered he was going all around 40 metres, yelling out all sorts of calls to me, but I

took no notice and had a look at the cards. Some from A's, O's, R's, Z's, and hundreds of U's. Suddenly something like four 50-watters (dear old UV-203's) lit up at my feet—but they were only carbon heating lamps. So I put the cans on and listened to the world. Sure, it was a fine night. We gave a "U" call—in strong sunlight, too, from that filament—and a whole flock of U's came straight back. We picked out one and QSO'd for some time. Then we signed off and picked another one out of the next edition. We tried fone with him, but he had a dud receiver. So did the others we worked. I fixed up a few schedules with some of the gang for the next night, and we thoroughly chewed up one guy about his QSB. It sounded like a whole family of crystal scratchers and then some! Next night he had almost pure D.C. After working a few more we got fed up and began to feed on chocolate. The next guy that came along was Z4AR, so we chewed the rag and some chocolate with him on fone. He said he heard our chocolate munching, and it reminded him of dinner, so he had to QRT. We hooked up with some more Z's and A's, and finally signed off about 8.30. SZ replaced the burnt sheet of paper on the 250 watter, and we tottered out across the asphalt "pond," and retraced our mile walk. I went home and slept for the next two days, while Goyder made another record by working a couple of U6's. I wonder if that Mill Hill darkness has anything to do with it.

First Across From Ireland.

By 5NJ.

DO you remember how cocky you were when you first got QSO with the boys across the Herring Pond? That's what 5NJ and his pals felt like—only more so—on August 22 last when he tried for the first time and succeeded in raising UIPL in spite of severe QRN on the other side.

Those tense moments won't come again in a lifetime, when the switch is "over" and you hear your call-sign coming back and then "... GU...!" "HOOKED him, by jove! Shake!"

Of course it is old history to hams galore in England, but it's only a few months since the ban on transmitting licences was raised in the Green Isle, and 5NJ, operated by Frank R. Neill at Whitehead, Co. Antrim, was the first to get on the air, using d.b.'s.

For this August test a special push was needed. Bertie Walsh, another well-known ham from Armagh, 45 miles away, came to the rescue with a 20 watt m.g. Then he began unloading Ford starting-batteries from the back of his car, until the flattened tyres rose visibly off the road. Bertie believes in reserves, and does nothing by halves!

They say that 3 is a lucky number, so by arrangement they met the Bookworm off the Belfast train, and all three wired in to wiring up. (The Bookworm lives on the "Wireless World" for breakfast, "Experimental Wireless" for lunch, "Q.S.T." for dinner, and now the T. & R. BULLETIN has come along to finish him off!) He kept a fatherly eye on the connections.

The generator was started up for a trial run about 23.30 B.S.T. on August 21, but a QRT was immediately received from the head of the house at 5NJ owing to the serious QRM in adjoining bedrooms.

A raid was made downstairs, and the offender was soon reposing comfily on a bed of pillows and cushions, when the Home Op. seemed satisfied and retired again to bed.

Then Bertie's lust for power got the better of him, and he began tacking additional accumulators on to the input side. That was all very well, but the Bookworm didn't like the smell of hot insulation, and suggested fanning with a newspaper. Also that it was up to Walsh to look after his own blinkin' property.

After five minutes' fanning Bertie said he was fed up with wireless, and cut a whole accumulator out of circuit.

The next trouble was the heating of the oscillator anode, which wasn't built for Armagh ideas of input. Someone suggested plastering the bulb with ice-cream, but as it was past midnight this was unobtainable even for the operators. However, by means of slide rules and the binomial theorem and things like that, the Bookworm calculated that the anode would not drop off, so at 1 a.m. the first attempt was made to get over, and at 1.55 a.m. B.S.T., IPL answered our call and greetings were exchanged.

As soon as the great event was realised a loud cheer rent the air, but, needless to say, this was at once QRP'd on account of the sleeping household.

This is about all there is to tell, except that old 5NJ has now been left with his original dry batteries, the generator being taken home by its rightful owner.

In conclusion, it may be said that the whole object of the test was to reach the U.S.A., and it was not merely a chance "hook-up." This makes the experiment all the more valuable.

Queries From East Anglia.

Has 2TO's aerial fused?

* * *

Is 2KT's cough ever likely to get better? (Would some gift the giftie gie us to hear oursels as others hear us!)

* * *

When is 5QV going to asphalt the garden path again? Is it true that he puts a large ammeter in circuit with his aerial mast when storms are in progress and goes out to check the reading?

* * *

Does 2QN's arm ache every Sunday night?

* * *

Has 2QQ got a receiver to work on the amateur wavelength yet?

* * *

Were amateur transmitters of other towns, in addition to Bury St. Edmunds, blamed for the recent foreign heterodyne on 2LO?

* * *

How many times has 2SM's motor burned out, and why?

* * *

Has 6LJ yet reached 2,000 Yanks?

* * *

Is there still a scarcity of glass beads in Norwich?

PRODNOSE.

NORTHERN NOTES—Concluded from page 10.

being put into operation here. Reports on this station requested.

6YR (Follifoot, Harrogate) sends me word that he has been QSO twice in America using 3½ watts dry battery supply. This speaks well for the efficiency of 6YR's outfit. He says he gets very flattering reports about his pure D.C. note!!!

In conclusion, may I request the favour of more reports from Northern hams, and I must apologise to those hams whose reports have arrived too late for inclusion in this month's notes.

A later report from 5SZ (Morecambe) states that he worked UIII at 20.30 G.M.T. on December 1, and that he is experimenting with a Hertz aerial, and it is working so well that he has burnt the flashlamp bulb out!!

S. R. WRIGHT.

Southern Notes.

Prepared by G2LZ.

CONDITIONS for DX work have improved somewhat during the past month, but they are still far from ideal. It is very peculiar the way the North American signals come through well every few days and then completely disappear for a similar period. It is noticeable that when the U's cannot be heard the Bz's come through at an extraordinary strength. There is much room for experimental and research work in discovering the cause of this erratic reception.

Signals from stations out East are still coming through as regular as ever from mid-day onwards, also several G stations have now hooked up with the South Africans. The Z and A stations also come through exceedingly well during the afternoons, and this appears to be the best time to work the Australians. The New Zealanders seem to reach a maximum signal strength between 8 and 9 a.m. just now, and it is quite easy to work them at this time on very low power.

Everything seems very dead during the evenings, the only stations it is possible to do much with being the South Africans. No reports have been sent in dealing with the 100 metre band. Nearly everyone appears to have forsaken this band of wave lengths. There is no doubt that excellent work can still be done here, and there are innumerable Americans working around 80 metres. Also the signals come through much stronger than on the 40 metre band. No new records have been reported this month. There is still two-way working with Japan to be established, and J-IPP can be heard nearly every morning about 8 to 10 a.m.

DX Reports.

2KF has done some very good work lately, although he is only able to work at week-ends. He has been in communication with Cape Town and the American 6th district, as well as A-6AG in the afternoon and several Z stations.

2NM is mostly working regular schedule with HBK India on phone, but he has also worked Pi-IHR. This is the second G station to hook up with the Philippines.

5YM has been struggling with a hand generator and a Hertz aerial. Considering his low power

he has done some very good work and has been in two-way communication with all Europe.

2SZ reports working phone to GFUP at Hong Kong, and has also hooked up with NPP at Peking. He claims a record for working the Canadian 4th district, having been in communication with C-4GT at Calgary. Other stations he has worked are O-A6N Cape Town, NPO Cavite, and U-6CTO again. He reports hearing A-3BD as early as 2 p.m. He is at present experimenting with a crystal controlled transmitter.

5QV has worked O-A6N Cape Town, and is still endeavouring to get QSO with Calgary. He also claims to be one of the first to work Bermuda last October. He is getting good reports on the reception of his signals from various Canadian districts this side, so he hopes to get through to the 4th district soon.

6BT is trying to keep up the reputation of East Anglia. Although he has only 20 watts available he is working all Europe on 46 and 96 metres, and hopes soon to do something more ambitious.

6LJ does not report much in the way of two-way working, but has been doing some good reception, having received 4 Philippines GFUP China and IPP Tokio.

6TD reports the usual night working with America, but has done very little early morning work, as he says he cannot face an unheated room with 20 degrees of frost outside. He tells me that 6US seems to have faded away, and gives me three guesses as to the reason. The only thing I can suggest is a YL.

2SH has just completed the construction of a "pukkah" telephony station, and in a few weeks will be heard on high-power on or about 200 metres immediately after 2LO closes down. The station is situated about 25 miles N.W. of London. Reports will be very welcome.

Department of Scientific and Industrial Research— (Continued from page 3.)

Description of Transmitting Apparatus at Your Own Station.

1.—Give brief description of transmitting installation, stating general type of circuits employed, number of valves used, input power.

2.—State type of transmission (cw and low or telephony).

3.—Wave-lengths emitted.

4.—Describe fully transmitting aerial and earth or counterpoise, giving dimensions, height, etc. (Diagram may be given if desired).

Description of Receiving Apparatus at Your Own Station.

1.—Give general particulars of type of receiving apparatus used.

2.—Describe fully the receiving aerial giving dimensions, height, etc., and describe also earth or counterpoise system. Is it quarter wave-length tuned, untuned, or tuned with capacity or inductance. (Diagrams may be given if desired).

3.—Can any variation signal strength of received signals be attributed to the receiver or aerial system? If so, in what way?

Members who will volunteer to assist in obtaining the above-mentioned data are asked to send their name, address and call sign to The Chairman, T. & R. Section, Radio Society of Great Britain, 53, Victoria Street, Westminster, S.W.1.

Mid-Britain Notes.

By 6JV.

AND now, Mid-Britons, I make my bow. Just a word to you all, if you please. Sorry we can't make much of a show this time, but the fact is my BULLETIN was a bit late, and I didn't know about this little job before. Struck me all of a heap like, and no time except to write this in time for next issue. Still, we will alter all this next time if you will ONE AND ALL (I mean that!) help me.

Now, come along, fellows, just take a peep at page 4 of December BULLETIN, and if you are in any of the counties specified (Norfolk included, of course) just push along those reports and articles, and so on—and yes, even the grouses, too! Don't be afraid if you aren't used to "writing for print"—neither am I. Its only ourselves, just, who see all this, and we are all in the game, and just as ready to make allowances as we are for a beginner on the key, and we shall improve as we go on. Reports by 10th of month, please, latest.

And now another thing. I want to start a sub-sub-area office in each county, and if the thing is to go I shall want a LIVE helper to run it, and to collect reports, etc., from his ground. Volunteers forward, please, and *don't* give me the opportunity of saying that my appeal fell flat, will you? On the contrary, why not make our area THE area? We can do it. Shall we? Lets! Here's wishing you all the old, old wish for Christmas and New Year, and to it please add 99DX as well.

North-Western Transmitters' Notes.

The Manchester and District Radio Transmitters' Society, with its membership of sixty, is probably the strongest transmitters' society out of London, yet it does not represent all the transmitters in the North-West of England; at a rough estimate there must be thirty or forty transmitters within easy reach of Manchester who have not yet joined the society. The assistant hon. secretary will be glad to hear from any amateurs holding transmitting licences who wish to join the society, and especially those who are actively interested in short-wave work.

There seems to be a good deal of DX work going on in the North. One hears in a casual round-about way that so-and-so worked a couple of Australians in the early hours of Sunday morning, that someone else has been working Yanks on low-power, that someone else has heard a Philippian and two Chinks, but no official reports are to hand, so no details can be given. If these gentlemen could overcome their shyness and drop the assistant hon. secretary a line giving details of their DX work, it could be incorporated in the next report to the T. & R. BULLETIN.

Assistant Hon. Sec. M.R.T.S.,

J. F. BROCKBANK, G6PL,

51, Palatine Road,

Withington,

Manchester.

Correspondence.

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

DEAR EDITOR,—It is clear from Mr. Merriman's letter in the December issue that he has not realised the necessity, on our part, of using abbreviations in correspondence as well as in transmitting.

Isn't it far better for us to clear off the pile of correspondence as quickly as possible and to spend the extra time on radio work, than to write lengthy letters all the evening, when we might be logging heaps of O's, A's, Z's, etc.? When the correspondence amounts to several dozen letters per week (which is very often the case) several hours may be lost by writing in full-blown language. Abbreviations in our correspondence indicate hard work, and not laziness or "swank." In answer to Mr. Merriman's question—"Why should a correspondent write 'hrd u wkg' when he means 'I heard you working'?" I would like to ask "Why should he waste time in writing at unnecessary length when the abbreviated form is understood?" And why on earth should I talk about an "Amateur experimental transmitter" when I mean a "ham"?

Most of the abbreviations have certainly been imported from U.S.A., but that is no reason why we should not use them. The "R" code of signal strength was originally British. Did the Americans refuse to use it? No, they grabbed at it, and it is now used all over the world—simply because it was more convenient and more satisfactory.

73's.

S. K. LEWER, 6LJ.

32, Gascony Avenue, London, N.W.6.

To the Editor of T. & R. BULLETIN.

SIR,—Who could read "Sec's" letter in your December issue, and still doubt that he has been to America, and has seen battalions of U stations?

I feel exceedingly obliged to "Sec" for correcting my apparently erroneous impression of their unfailing neatness.

Nevertheless, the Americans are ahead of us, after all, for according to "Sec's" version, they do spend three weeks occasionally, cleaning up for the advent of the camera man.

Judging by the photographs one sees of English stations, we don't spend even so long.

Thank you, "Sec," for helping my point along.

Again, he states that: "the Yank is nothing if not honest," but the remainder of his letter conveys the fact that the American stations are really very untidy affairs, in their normal state; but their owners, afraid of letting the world see the mess by means of a photo in "Q.S.T.," spend the aforesaid three weeks cleaning up, covering up their misdeeds, and incidentally creating a false impression of their neatness to innocent and gullable people like me.

Oh! "Sec!!"

I am, Sir,

Yours faithfully,

S. R. WRIGHT.

14, Bankfield Drive, Nab Wood, Shipley, Yorkshire.

December 10, 1925.

To the Editor of T. & R. BULLETIN.

SIR,—I want some amateurs to co-operate with me in some meteorological observations, and 5YM, Captain E. H. Robinson, suggested that the T. & R. Section would be very useful, which I am quite sure it would. I have been carrying out observations for some time now and have come to the conclusion that without co-operation we cannot learn much which is new. But if we have, say, 20 stations all over Western Europe, much valuable information would be gained.

The general scheme which Captain Robinson and myself thought was suitable is this: Reception DX conditions classified as follows:—

5. Excellent night.
4. Good night.
3. Fair or medium night.
2. Bad night.
1. Very bad indeed.

We came to the conclusion that 1—5 is the most suitable code, as more would lead to confusion.

If 20 amateurs could enter the number of the code each night and morning they listen and send the reports into one centre at the end of each month together with the QRN, much useful information would be gathered without much trouble to the amateurs concerned.

I am willing to gather the reports. No meteorological observations need be given, as I have all this in the daily weather report which the Air Ministry send to me daily.

If, however, you feel that there are more competent people to deal with the reports, I shall, of course, be willing to leave it to them.

I have a friend in Paris, F8GX, who is starting observations on my lines, who, I am sure, will help, and I will write to D7EC in Copenhagen as soon as I hear from you.

If you leave the collecting of data to me I will supply all the amateurs who send me reports, and the T. & R. Section with the results of the collection each month.

I would like to hear of your opinions and criticisms of my scheme as soon as possible, as the sooner we start the better.

I consider the 40 metre band is the most useful, as most DX is on there. If you would like me to talk it over with you, I can call every evening after 6.15 p.m.

Yours faithfully,

E. J. ERITH,

Winchfield,

Albion Road,

Sutton, Surrey.

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

SIR,—In the December issue of the T. & R. BULLETIN there seems to be a general "bemoaning of fate" as to the lack of transmitting going on.

As an interested "receptor" (if I may term it as such) I can only say that my experience has been that the numbers are increasing and not decreasing. I refer particularly to the 45m. hams working "fone." On page 17 G5FQ writes in a complaining fashion. I think he should overhaul his receiver.

It may be of interest to your readers to know that, taking last Sunday alone, I received the following 45m. fone. Strength of course varied from R2 o.v.2 to R10 o.v.i.:—Gs: 6OH, 2LZ, 5NJ, 2OD, 6FA, 6GF, 6YU, 2XV, 2QB, 6YG,

2KF, 6JW, 5YI, 5LF, 5DN, 6PT, 6UZ, etc., etc. These are taken at random from log). There were one or two foreigners, also Gs, whose QRA I could not determine, while there were about a dozen more stations who were RI. A lone station whom I have heard on several occasions is ?2ZA. Who is he?

Transmitters should be told to make their QRA distinct. A lot of them finish up with a jumble of words ending up with "oh-verrrr." Now, when some of these are at the best R2, how can they expect QSL's.

There seems to be also a considerable doubt as to w/n. Anything from 30m. up to 48m. I find.

I shall be pleased to furnish further reports if required.

Best 73s.

Yours truly,

R. W. LODGE.

To the Editor of T. & R. BULLETIN.

DEAR O.M.,—In various "DX Notes" I often see a complaint of lack of news from the North, so here goes. Firstly, could you find a corner in THE BULLETIN to advise the gang that 5KO's new QRA is 107, Park Road, Newcastle-on-Tyne? Tnx, O.M. I keep getting cards addressed to my old QRA at Bristol.

And now I'd like to say your BULLETIN is much appreciated here, and the following "kicks" are not aimed at our mag., O.M. But I want to express the opinion of all real hams on Tyneside—viz., that these high-power telephony people on 45 metres ought to add a "nought" to their wave-lengths and leave the short wave band to the brass-pounding fraternity. This $\frac{1}{2}$ -k.w. gramophone stuff takes up too much room on our little 44-46 metre band, and is N.G. anyhow. Hi! Leave music to the Bch's.

"Kick" the second: What is DX? Every week, in valve advts., and DX Notes, we see that "2 so and so" and "2 somebody else" ("No names, no pack drill!") have worked New Zealand, or India, or Timbuctoo, with $\frac{1}{4}$ or $\frac{1}{2}$ -k.w. Very fine work, no doubt; and then, in a little two-line paragraph, the news, "5SI has worked New Zealand on 11 watts." Well, I say DX is not just miles, but *miles per watt*: and 5SI and similar stations are the real DX men. On the one hand we have "amateur" stations with (see last BULLETIN) six 250-watt modulators and a 50-amp. filament load (a veritable young broadcasting station!), and at the other extreme, a man with a battery-run generator which won't deliver more than 15 watts. Which station is the real DX station? No reply is needed, I think.

High-power DX is easy these days. Let's have some more low-power work.

73's and good luck.

G5KO.

DEAR EDDY,—Wouldn't it be fine if all stations looking for QSO's would, when calling "CQ" or "test," *always* indicate the wave-band upon which they intended listening for replies? This, I venture to suggest, is best done by simply using the intermediate of the country: i.e., "CQ, CQ, GNZ, GNZ," or "GGG, NZ, NZ, NZ," etc. When one hears a call made in this manner, one can be

certain that the DX man is listening⁸ for one's own sigs.

I wonder if any readers have used vertical cage aerials, and with what results, say, compared with aerials of the more usual type (inverted "L," T, etc.) excited on third harmonic. At G2XY, a vertical cage, having a natural wave-length (in conjunction with a small cage counterpoise) of 56 metres has been used fairly successfully. Series condensers were used in both aerial and counterpoise leads to tune the system to 45 metres, stronger sigs. were radiated in this manner than when only the aerial was tuned.

At present a fairly low twin inverted "L" is in use. This has a natural wave of about 117 metres and is tuned to 135 metres by a condenser and inductance in parallel.

The energy transfer seems very small, and not so good as with the vertical cage. It seems to me that aerials are the most important factor in S.W. transmitters, and it would be of general interest if those hams who have used both types (or any other for that matter) would let the Section know their results.

I believe it is a fact that the radiation from the upper portion of a vertical aerial is very low. Has anyone tried using, say, a copper ball, or copper basket, or a cone, at the top of such an aerial, and with what results?

Our best wishes for the T. & R. BULLETIN.

Yours, etc.,

H. T. LITTLEWOOD, G2XY.

I have a card from F8BR for G6MP QRA? Pse.

To the Editor of T. & R. BULLETIN.

DEAR SIR,—Re the notice in the T. & R. BULLETIN regarding the use of the prefix GI by Ulster transmitters, this is under the consideration of the P.M.G., and the Ministry of Commerce (Northern Ireland) has just replied to him recommending that it be officially confirmed. Best 73's.

J. A. SANG,

22, Stranmillis Gardens,

Belfast.

Calls Heard.

20—50 Metres only.

British—2gy, 2in, 2qh, 2eq, 2xy, 2uv, 2vs, 2un, 2of, 2it, 5xo, 5yk, 5sh, 5pm, 5ha, 5sk, 5mo, 5gs, 6vp, 6tw, 6do, 6fa, 6pt, 6qb, 6yu, 6ox, 6td American—1aao, 1yb, 1ka, 1za, 1ahg, 1bad, 1cmx, 1bna, 2aim, 2zv, 2kx, 2wr, 2gk, 2cv, 2cg, 2xac, 2cco, 3bet, 3hnu, 4we, 4rr, 8aly, 8aul, 8bw, 92a Brazilian—6g, 1ia, 1av, 1af, 1gt, 1wr, 5ib, 1bc, 1ba; Holland—owc, oxx, oaw, opm, owb, oze, okw, okv, ogg; France—8brp, 8sax, 8ldr, 8th, 8vx, 8fp, 8hu, 8pi, 8ix; Italy—1as, 1gb, 1af, 1bo, 1ac, 1rm, 1bd, 1gw, 1au; Belgium—w3, 8ag, g6, m2, v2, h6; Finland—2co, 2nl, 5nf; New Zealand—2xa, 4as; Sweden—smxu, smtn; Miscellaneous—wqo, nisw, rfb5, nip2, la a, c2be, nlsn, nisp, gif, gha, fw, fnk, csok1, pr4kt, 3e, ear10, eak2.—"A card for a card" qrk mi sigs. on 45m.—G. A. JEAPES, G2XV, Gt. Shelford, Cambs., Eng. g2gk, 0504, working 9ad, sigs. r6; g2xy, 0742, test r7, qso, om; g2xy, 0745, calling 4xe, r7; g2xy, 0753, calling 4xe, qsl pse; g2qf, 0743, calling g2xy, sigs. r7. ur sigs. are not so qsa.—Cpl. REX A. COATES, No. 2 Wireless Company, Rawalpindi, Punjab, India.

Have you any difficulty?
Our purpose is to help you!

DON'T USE HARTLEY

(To the tune of "Don't Bring Lulu").

You can use Colpitt's—a darn good circuit,
 But don't use Hartley;
 You can use Meissner—maybe it's wiser,
 But don't use Hartley;
 Hartley always makes you blue,
 Makes your temper go coo-coo;
 When you're poking out the best,
 Hartley makes your tubes go "West."
 You can use DC—or RAC,
 But don't use Hartley;
 No T.C.A.'s—it never pays,
 So put Hartley on the shelf;
 Hartley's so uncertain,
 You can never get it working;
 WNP—don't use Hartley—
 I'll use it myself.

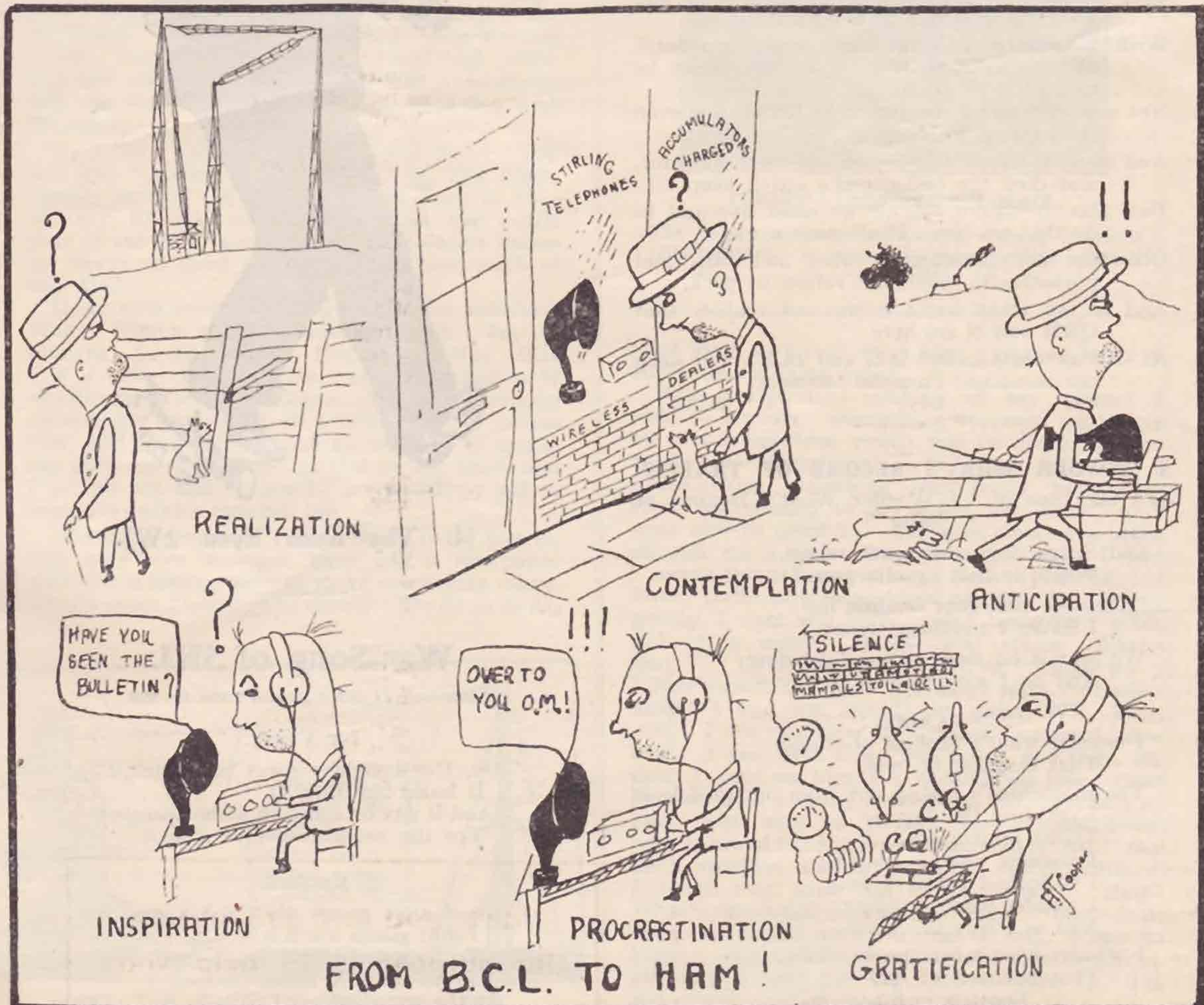
9ALJ.

ED. NOTE—The little poems published in this number are with acknowledgements to the Third National American Radio League Convention Banquet managers.

JUST A LITTLE DRINK.

Oh, I wish I had a (sync), wish I had a (sync),
 Just a little sync for you;
 Can't you get a sync, only just a sync,
 Any little (sync) will do—
 If you had a (sync), any little (sync),
 Then you'd work some DX, too;
 Don't you really think, you ought to get a (sync),
 Like all the sixes out West do.
 Out near the Pacific,
 Yes, we are specific,
 Something scientific,
 We would tell to you—
 Call, and hear 'em call you—
 East and West all seem to hear you,
 North and South all jump to queer you,
 Because they have no syncs.
 Now soup is nice and soupy,
 S-tubes are nice and bloopy,
 Kenetrons are very croupy,
 But syncs sure do their stuff.

W. S. WIGGINS, 6CHZ.



More "HAM" Songs From Chicago.

HEAT'N ON ME.

STUART B. McLAUGHLIN, 6ALF.

Heat'n on me, heat'n on me;
You're not the kind of a fifty I thought you'd be.
I trusted you—
Didn't think you'd blue (blew).
My mills were so strong I just went along,
Hopin' some time to work Hong Kong.
DX is a game that I played on the square,
Though I knew RCA would never play fair.
Heat'n on me, but sure as you live,
Some day you're gonna be sorry you heated on me.

To Tune of

"WHERE THE LAZY DAISIES GROW."

Gee, it would be great if I could go to sleep and
wake up in a real ham's paradise,
With transformers, tubes and keys, spaghetti,
meters all around, now wouldn't that be
nice?
Not a worry, not a trouble to be found, not even
need for us to sleep,
And all we'd have to do is pick out what we want,
and then the boiled owl's watch keep.
But, alas, it cannot be, for we must live and to
do that we one and all must work,
Otherwise our generators, tubes and cans and
pocketbooks would all refuse to perk,
And so we must settle down and realise, that
QRM and N are here
As well as single circuit sets and BCL's and sleep
our wondrous Paradise to smear.

9CAA.

I WONDER WHAT'S BECOME OF TRAFFIC.

(To the tune of "I Wonder What's Become of Sally.")

Old Spark days and spark relays,
Where is that system gone?

"Message nine your sending fine,
I haven't anything wrong."

We hear it no more as we did before,
And so I am tempted to say—

Chorus:

I wonder what's become of traffic,
That business of ours.

The moonshine's leaked out from our grid leak
Ever since the day
Traffic went away.

I wonder what is wrong,
I've looked for very long
I wonder what is wrong,
And so I sing this song,

I wonder what's become of traffic,
That business of ours.

THOMAS J. FILAS, 9GE.

CELEBRITIES by a Celebrity:



(4) The Keen Eyed 2WJ.

War Song of 3NJ.

(Tune: "It ain't gonna rain no mo.")

1ST VERSE.

"Oh, I've bought a great big Emma-Gee,
It hums like Billy-O!"
(And it sits on a bed of sorbo sponge,
'Cos the neighbours love it so!)

CHORUS.

"Oh, I ain't gonna use "d.b.'s" no mo,
I aint gonna use d.b.'s,
So no more damns
From the DX hams,
At the sound of my QSP's."

"Some Hopes."

THE interesting remarks about a transmitter, who kept going down on to lower wavelengths, and found that he could not get back to his original wave for some strange reason, placed me in an awful position after reading the remarks in the August number of the T. & R. BULLETIN.

This matter "put me furiously to think," and that takes a bit of doing, at least, so my Station Director says, and she is usually right.

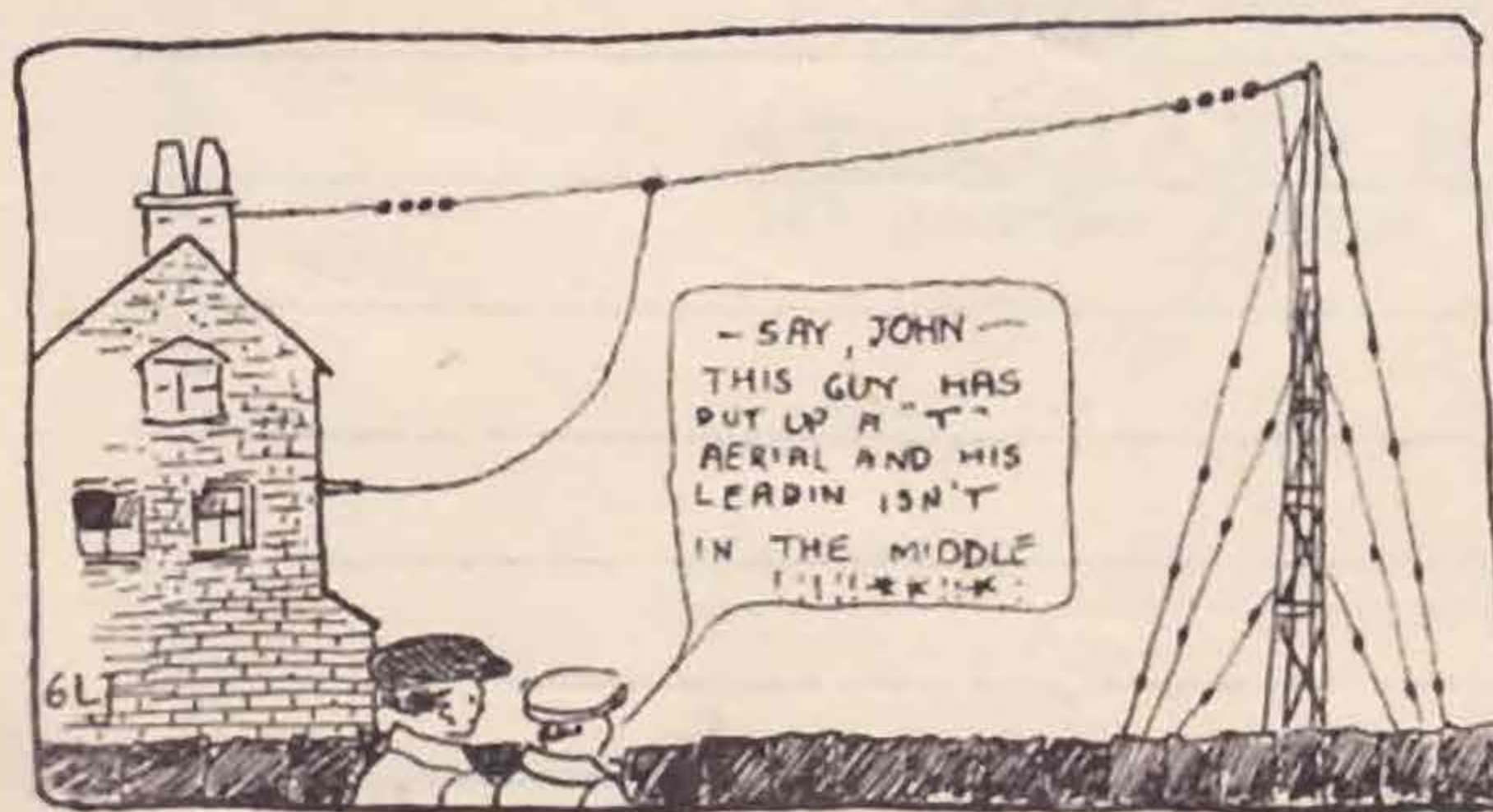
Meditating one sunny afternoon as to what would happen if I were to go down to, say, 5 metres and found that I could not get back again, brought to my mind the funny things that can happen on very short waves. So short that the plates of the valves become transparent, and shorter still one is supposed to actually see the "field" or 'lines of force.'

All very wonderful. Well, what about lower still, mused I. So I said, here goes. Searching around first on 45 just to warm up my junk, there were a few hams slinging remarks about, so I tuned in lower still, but, as I said, it was such a lovely day, and I could have enjoyed a nap in the hammock. Yes, one or two stations were working on 40; funny notes they had, too; high notes, and low notes, one with a note like a meat-saw and one very faintly like the yelp of a dog with distemper.

So down I went to 25. What was that? Yes, just two "lambs" working o.k. o.m. 73's finish, sleepily turning the knobs. I went down to 15—nil, try 10—nil, nothing now 'cept the gentle purr of the H.T. accumulators. It always makes me sleepy on short wave work; in fact, work of any kind.

Down to 8 metres, nothing but a faint bubbling. Wait. What's that? Strange sounds. Try 5. thought I. Shades of Horsea!!! Was that C.W.? No. I.C.W.? No. Spark? Imposs. It was like mush with jazz effects. This was becoming exceedingly interesting, so I went lower, 5 metres now, and everything began to float, so to speak, the good old "Browns" rattled on my head, and I got all hot and bothered. I noticed my valves began to twinkle-twinkle, too.

Becoming desperate I went down to 2½ metres. that note now stronger, more like a saxophone with steam hissing seem to make everything misty. After a pause I heard quite clearly. Da de da de da,



WHAT THE BCL'S SAY ABOUT YOUR HERTZ

IF NOT YOU LOSE BUSINESS



FLIGHT-SERGEANT F.H. HALL.

The cheery operator who until recently operated IDH MOSUL. He is seen in characteristic attitude at IDH.

what joy! so I held on to him, and then he gave R10K, but nothing doing.

With perspiration running off my 'phones I went to 1 metre; everything uncanny, my valves by now a beautiful violet, and an ozone like the smoke of "Woodbines." I tried point 5 of a metre. Yes, something was really happening, some one seemed to say lower yet please, so I went now to point 25. The mist clearing a little, showed me a face. Yes, there he was. I was "seeing things" marvellous. Great (JOFUBO!!! Fancy traffic now being heard on point 25! Being greedy, I went still lower. Ah! beautiful; point 375 of a metre. Voices, yes, voices. What's that? "Hi diddle diddle" calling "Pinkie poo." "Now switching over to the short wave." Snakes alive!!! and me already on point 375. Well, well. I am not clear as to what happened after that; I just went down and down, and then, oh, dear, I could see him, yes, actually see him; there he was, such a funny little chap, too. He had no hair, there were no 'phones, just a switchboard with tubes of liquid air; and he said to me, "Say 6BQ, would'st like a 'hookup' for 0000015?" I could only nod yep. Then bang!!! Help! What's happened? Then a voice, "Say, dear, there the gentleman from the G.P.O. wishes to inspect your transmitter." I am able to sit up and take a little beef tea, since I woke up. I'm not messing the ether about any more.

A NEW YEAR RESOLUTION

The T. & R. Section is to be increased in strength by 100%. With the New Year we are to go forward with renewed energy in the firm establishment of the transmitting amateur. Some excellent programmes are being arranged, and the Section is to have its own Headquarters High Power station which will, amongst other things, give out calibrated waves. Do YOUR BIT.

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.

THE SECRETARY,
Radio Society of Great Britain,
53, Victoria Street, S.W.1.

T. & R. BULLETIN

From

To Messrs.

Please send me particulars of

as advertised in the T. & R. BULLETIN,

Please use this form when corresponding with advertisers.

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Doesn't it stand to reason that we can give you a better service?

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When "Daddy Mullard" will make us an "S" tube?

Is not rumour busy in that direction?

If the iron core choke is not the most neglected part of the amateur transmitting circuit?

Why not put in a good adjustable one?

If anyone could guess the number of active stations on the air to-day?

Why there are still people who are not "T. & R." members?

Whether "Ratheon" tubes are not the berries?

If it is not a fact that ordinary people seeing the peculiar things we keep in stock think we are mad?

Is there anywhere else in England where one can get these peculiar things?

If we have ever made a dissatisfied client?

If so his name?

If we may have the pleasure of hearing from you as well?

**We wish you all A Very Happy "Xmas"
and A Prosperous New Year**

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EVERYTHING FOR THE TRANSMITTER.

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Moving Iron Instruments.

The Patented Movement in these Meters enables **Dead Beat** Readings to be obtained.

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Pocket Type 0-6, 8, 12, 15v.	8/-
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Cases for above	9d.
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Charge and discharge, to match flush type Voltmeters 5-0-5, 10-0-10, 15-0-15, 20-0-20 amps. ... 7/-

Moving Coil Instruments.

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Single Scale 0-6, 20, 30, 60, 120v.	25/-
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These meters are of high resistance, approx. 70 ohms per volt.

Ammeters. HA35.

0-1, 0-3, 0-6	25/-
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Milliammeters. Type HM35.

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A good meter is a sound investment; send for one to-day. Please state Reading and Call No. when ordering. Particulars of larger meters gladly sent on application.

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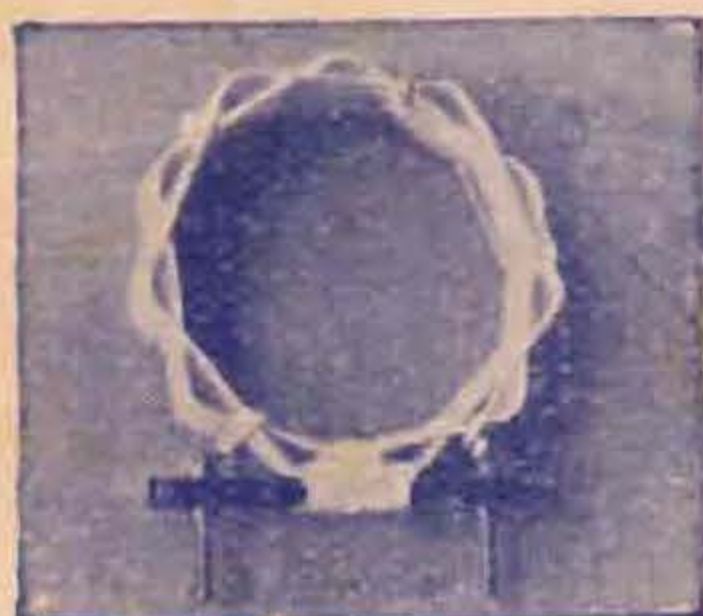
THE CROFT, WILLESSEN,
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Transmitting and Receiving **APPARATUS.**

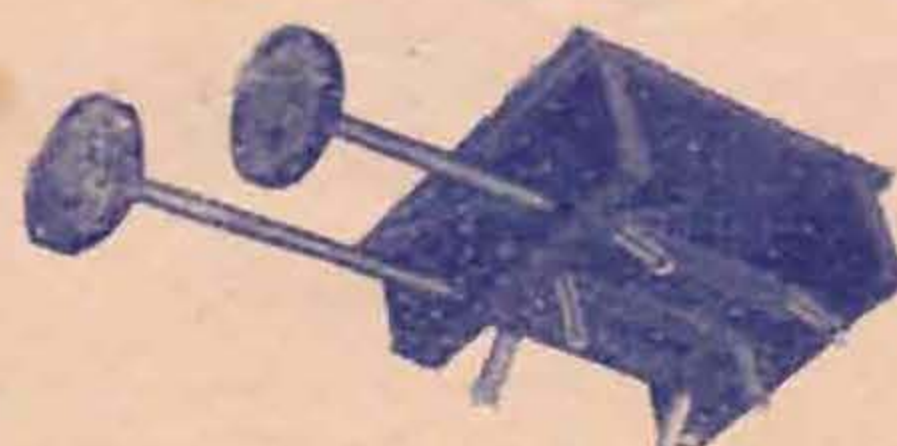
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Another Mullard Record!

INDO-CHINA ON 45 METRES

Another long-distance feat by amateur radio was achieved on Dec. 5th when Mr. F. R. Neill (5 NJ) successfully established direct communication with a station in Saigon, French Indo-China.

Mr. Neill has the satisfaction of being the first amateur in the British Isles to work direct with French Indo-China. The wave length employed was 45 metres and a **Mullard 0/150 transmitting valve** was used in a Hartley Circuit.



The Mullard 0/150 short wave transmitting valve.

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