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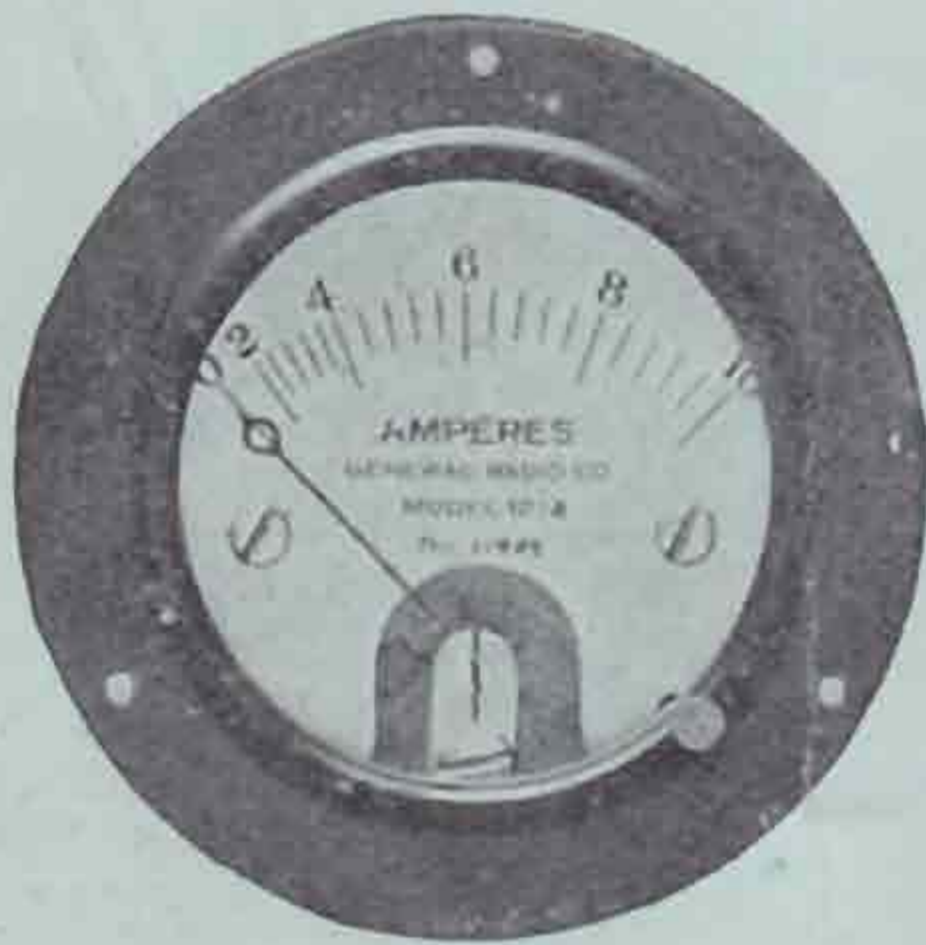
The Journal of the Inc. Radio Society of Great Britain

(BRITISH EMPIRE RADIO UNION)

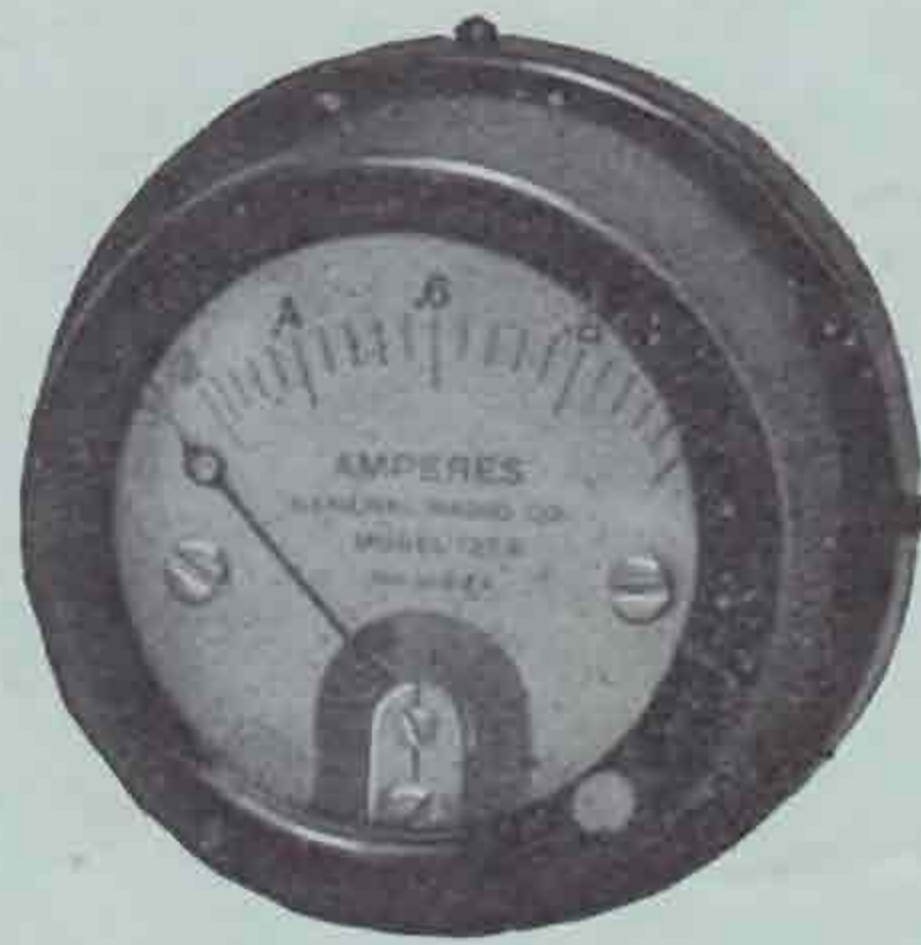
Vol. 5. No. 11.

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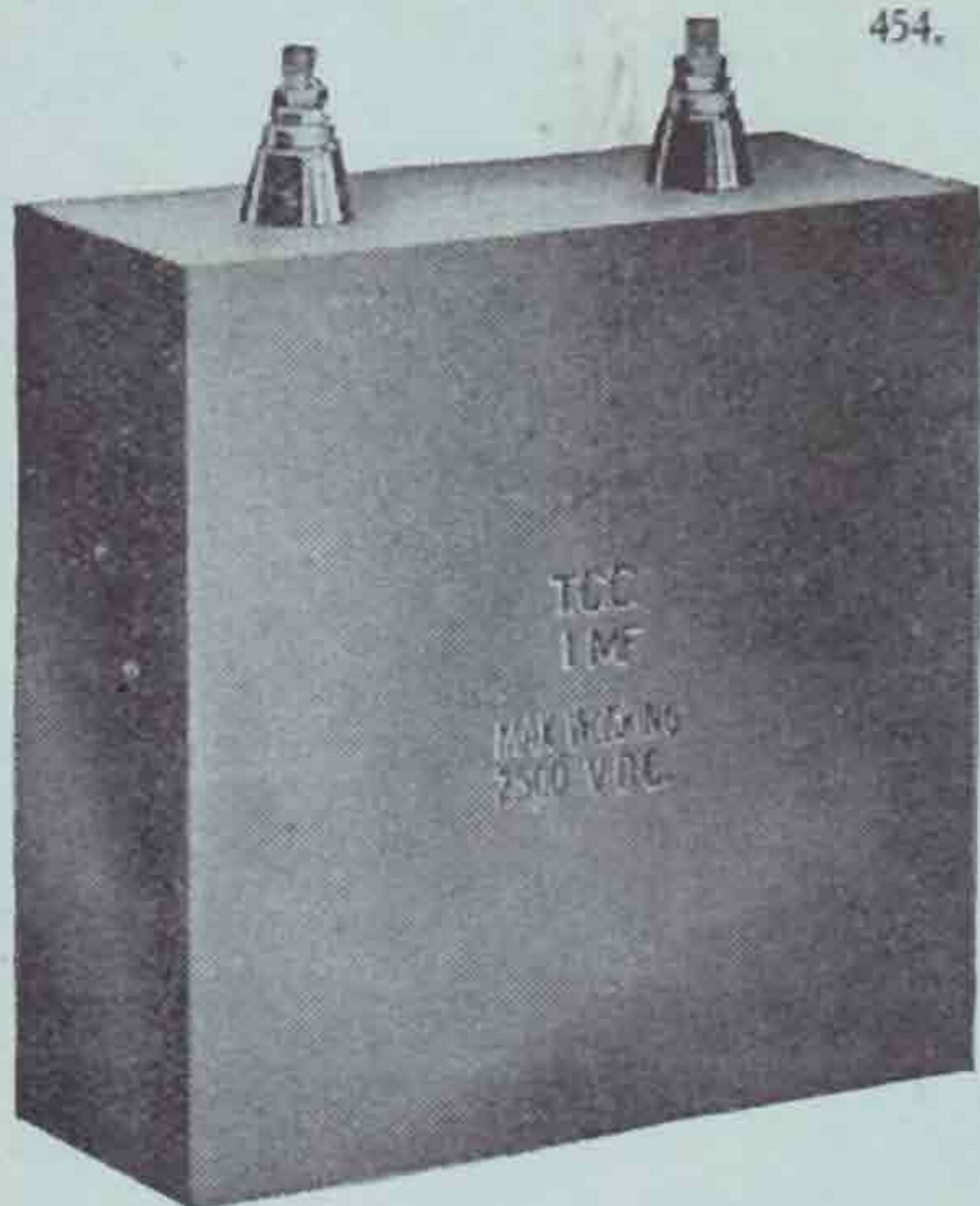
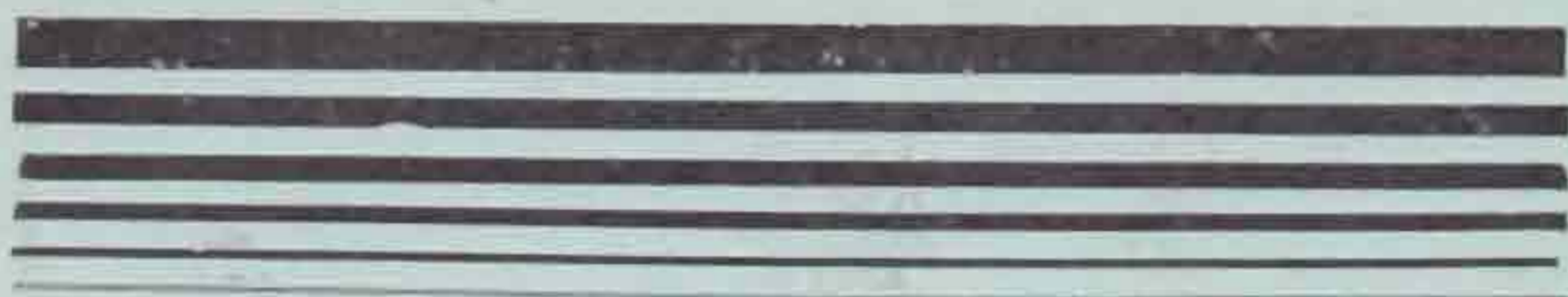
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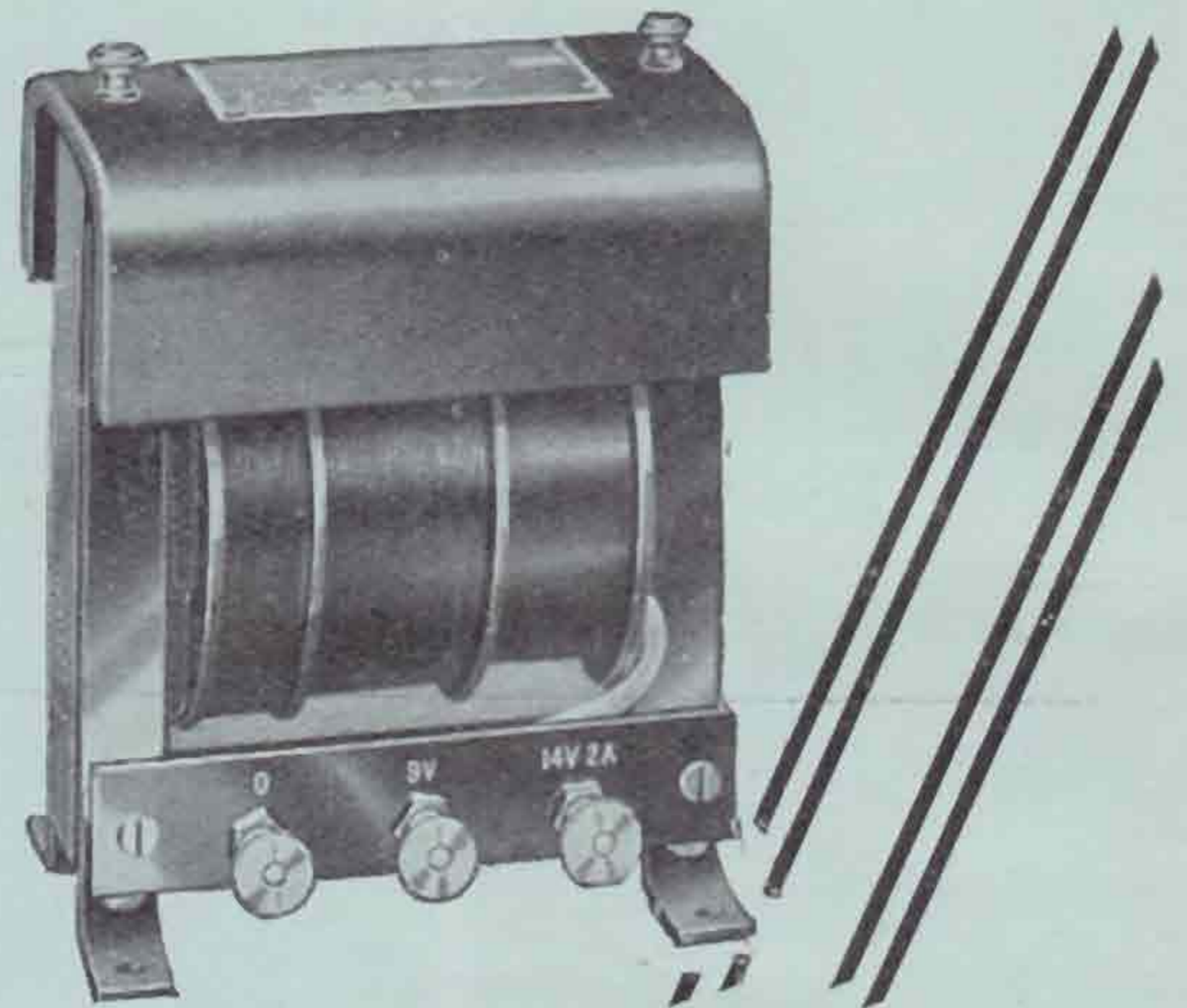
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TRAR

BULLETIN.

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MAY, 1930.

Vol. 5. No. 11.

EDITORIAL.

3,500 Kilocycles.

AFTER months of trying, Mr. Marcuse, our President, has at last obtained permission from the Post Office for amateur work in this country on the 3,500 K.C. band, a concession for which we have long been waiting. Holders of Trans-Oceanic Permits have already had this extra band included in their new permits which were issued in April, but the Postmaster-General will grant this necessary permission to any other applicant, whether he possesses a high or low permit, provided his application is endorsed by the Society. A time limit is imposed, and operation is only allowed between 15.00 G.M.T. Saturday and 24.00 G.M.T. Sunday. This is one of the best pieces of news we have had to offer to our members for some time, and we hope that they will take advantage of it. In particular, though, we wish to warn them against operating in this band before they obtain permission. Further, this band is shared by amateurs with other services, who have first call on the band. It is a splendid chance, therefore, for the British amateur to show the Services that he is not backward in the technique of Radio, and that whether it be modulated or unmodulated waves, his transmissions are second to none in quality. We have a chance of showing the Services what we can do, but we may be quite sure they will not be quick to forget our faults, should we by any chance show any.

To some of our more experienced transmitters the opening up of this band will refresh memories of the usefulness of the old 90-metre band, when excellent contacts over short distances were obtained. We do not wish to infer that long distance contacts on this band are not obtained, for the inter-continental work of some of the pioneers of Amateur Radio—ZL2AC, ZL4AA, VK2CM, G2NM, G2SZ, W1CMP, to mention but a few—will not easily be forgotten.

What we do wish to assert is that for comparatively local contacts this band has yet to be equalled, and a renewed activity there will considerably ease the congestion at present felt on 7,000 K.C., leaving this latter frequency open for more useful work in the way of medium distance daylight and long distance night contacts. Activity in Europe is already increasing on 3,500 K.C., and we hope that, with a number of our stations working there, it will not be long before this band becomes popular for short distance inter-European work.

We are sure our members will be grateful to Mr. Marcuse for his efforts in this direction. Many are probably aware that general permission had previously been refused, and that only to members of a Contact Bureau Group had a very limited permit to work on 3,500 K.C., with many restrictions, been given. We had not despaired, however, of overcoming the reluctance of the Post Office to issue permits to all, though we realised that some considerable time would elapse before we could make the foregoing announcement.

London District Hamfest.

The first London hamfest of the year was held at Pinoli's Restaurant on April 1, 1930, when just over thirty persons attended. Mr. Gerald Marcuse took the chair, supported by Mr. H. Bevan Swift.

The chief event of the evening was the presentation of the Somerset Trophy to Mr. K. C. Wilkinson (G5WK) as a memento of his pioneer 28 M.C.'s contact with South Africa. Mr. Wilkinson attributed his success to the use of crystal control, pointing out that earlier efforts without control were generally unsuccessful.

Two workers on 56 M.C.—Messrs. Moxon and Cutler—gave a brief account of their recent work, whilst an interesting contribution was given by Mr. L. Fuller on the subject of getting started.

The point of view of the B.R.S. was given by Messrs. Sherry and Allen, both emphasising that the B.R.S. who missed these social gatherings missed half the value of his association with the society.

Mr. F. H. Walters (lately SU8KW) was requested to speak of amateur conditions in Egypt, and in a brief talk explained the location and personnel of the active SU stations.

During the evening a message of greetings was received *via* G6VP from SU8RS. This had been passed earlier in the day on 28 M.C. A signed menu was dispatched to Mr. Runekles from all present.

The Honorary Secretary, in a brief speech, thanked Mr. Marcuse for presiding, and proceeded to outline several points in connection with the business side of the Society which called for the attention of all concerned. He appealed for support of the Boy Scouts' Assistance Scheme, and expressed a hope that the Letter Budget would shortly replace the News and Notes in the BULLETIN, thus giving valuable space over to more general matters.

He also suggested that wherever possible B.R.S. men should act as second operators to active stations, thus preparing them for their full licence.

He further asked that active stations should keep a supply of envelopes at headquarters for the use of the QSL Section. In many cases well-known amateurs had allowed their cards to accumulate, until it was becoming impossible to cope efficiently with the filing.

Mr. Marcuse in his speech spoke of the rapid strides the Society was making, especially in the

Colonies. He thanked Mr. Watts (who was unavoidably absent on business) for his share of the work in giving due publicity to the Society, and then announced that the licensing authorities were prepared to reopen the 80-metre band at weekends to all persons approved by the Society. This announcement was greeted with the enthusiasm it deserved.

Mr. Bradley mentioned the proposed visit to the Reseau Belge Convention in July and outlined the general arrangements.

Mr. G. W. Thomas contributed with a few remarks concerning the BULLETIN, and pointed out the necessity of supporting the advertisers.

Mr. Bevan Swift thanked the Social Committee for arranging the hamfest and commended the Honorary Secretary on his work at headquarters.

An excellent musical programme was arranged by Mr. Bradley.

FORTHCOMING EVENTS.

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

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

Liege Exhibition.

We are advised by Mr. Sagher (ON4JX) that the Liège Exhibition will be open from May to September. He expresses the hope that many British amateurs will visit his town and mentions that several of his colleagues speak English.

His address is:—5, Rue Raiken, Liège, whilst others who understand our language are:—Mr. Kahan (ON4UY), Mr. Ziane (ON4ZZ), and Mr. Legrand (OZ4FQ).

A Universal Tuning Arrangement for Short or Medium Waves.

By COL. DENNIS (EI2B).

IT is not claimed that the arrangement about to be described is original, although I think that it is little used in this country, and I therefore describe it in the hope that it may be of some assistance to those who desire to make tuning on the short waves as easy as possible. It is equally applicable, though not so necessary, on the medium bands.

For short wave work it is usually accepted that the maximum practical capacity of the tuning condenser should be of the order of .00015 mfd., but even with such a condenser the amateur wavebands now in use are frequently covered by only a few degrees on the condenser scale. A high C/L ratio may to some extent help matters, but is objectionable from other points of view.

In order, therefore, to reduce the capacity of the tuning condenser so as to get an extended scale reading it is usually recommended that another condenser, either fixed or semi-variable, be used in series with the main tuning condenser. Now at first sight this appears to be a satisfactory solution of the difficulty, but in practice it has two serious "snags." If such a series condenser is used in conjunction with the tuning condenser the resulting capacity reduction of the latter is maximum at the maximum scale reading, and is progressively reduced as the scale reading is reduced, especially in the case of a modern S.L.F. condenser, becoming almost negligible so far as increased facility of tuning is concerned, between about half scale reading and zero. Calibration of the receiver if a semi-variable condenser is used also becomes practically impossible.

A very simple and effective alternative, and one which has none of the "snags" referred to above, is to make use of a main tuning condenser of very small capacity having a second variable condenser of larger capacity in parallel with it, and I propose now to describe the method employed in converting my original arrangement of a single tuning condenser on these lines.

The receiver used for short waves is a straight O-V-1 or 2 (optional by 'phone jacks), with capacity reaction and, as the circuit employed has no bearing on the subject of this article, it is not necessary to describe it further.

The coils used were designed to tune from 4.8 to 12 metres, 12 to 25 metres, 25 to 50 metres, 50 to 100 metres, and 100 to 200 metres, five coils in all, when used with a variable condenser of maximum capacity of .00015 mfd., and under these conditions the whole of the 7 M.C. and 14 M.C. bands were covered by about 18° of condenser scale, making tuning a matter of considerable difficulty.

The main tuning condenser, an Ormond slow motion condenser of .00015 mfd. capacity, was therefore altered by removing vanes, leaving only two fixed and two moving vanes, double spaced. In parallel with it was placed a Bébé Cylton of

.00015 mfd. capacity, the fixed vanes of which had been slightly cut away at the centre in order to reduce the minimum capacity by increasing the clearance between them and the spindle of the moving vanes. This is not essential unless it is desired to work on the 28 M.C. and higher frequency bands, in which case it is advisable. With this combination, arranged and used as described below, the 7 M.C. and 14 M.C. bands are covered by 110° and 96° on the main tuning condenser scale, and operation is therefore as easy as on the B.C. band.

The Bébé condenser, which I will call the "Range" condenser, should not be fitted with a scale dial knob but with a "pointer" knob, the pointer of which moves along a semi-circular line scribed with compasses on the panel, before boring the fixing hole for the condenser, and filled in with Chinese white moist water colour. These Bébé condensers are delightfully smooth and free in action, are very rigid and, being fitted with a pigtail, are perfectly noiseless. It should be mounted on the panel as close as possible to the main tuning condenser and both oriented so that the moving vanes open away from one another, the necessary connecting wires being only about 1 in. or less in length.

As a datum point for all bands the main tuning condenser is set to approximately half its total capacity, in my own case at 110° of a 180° scale. Leaving it so set the appropriate coil is inserted in the receiver and, using the small "range" condenser only, it is tuned, by wavemeter or other available means, to 42 metres, the position of the pointer on the panel arc being carefully marked by means of a pen and white draughtman's ink, using a fine line and the figures "42." Exactly the same procedure is followed for any particular station or wavelength which it is desired to find again quickly such as 2XAF, 2XAD, 5SW, and which are outside the limits of the amateur bands, and it will be found that after setting the "range" condenser to these marks the required station will be found within 5° of 110° on the main tuning condenser.

I have dealt with the subject mainly from the point of view of short waves, but there is no reason why the Bébé "range" condenser should not, if necessary, be of greater maximum capacity, say .00025 or .0003 mfd., and on the medium bands it will be quite possible to tune a station in on the "range" condenser only using the main tuning condenser for fine adjustment.

Finally, use only a really good reaction type condenser as "range" condenser, the type named being very satisfactory for this purpose. I think that anyone who tries the arrangement described will find that tuning on short waves is the simplest matter possible, being quite as easy as on the B.C. bands, and that calibration of the receiver to very close accuracy is also quite easy.

Notes On Harmonic Crystal Control.

By J. H. HARKER (G6HK).

The following Article has been submitted by Mr. Harker in connection with the two guinea prize offer made on page 179 of the January BULLETIN. We hope to publish further articles in due course.

THE following notes represent the result of about 15 months' experimenting on this subject, and nothing new is claimed. The object of them is to try to fill in the gaps for those who, like the writer, have no technical knowledge of the quartz business, and after trying the various circuits described in the BULLETIN have probably come to the conclusion that there is a catch in it somewhere and have abandoned efforts. To those who have not yet tried harmonic control these notes may save them a lot of problematic experimenting with the result still in doubt.

Before commencing the writer would like to thank all those who have given their experiences in the BULLETIN, particularly G5MU, whose circuit ultimately became the basis for experiment as it seemed to offer the greatest possibilities.

OBJECTS OF CRYSTAL CONTROL.

These may be summarised as follows:—

- (a) Constancy of frequency.
- (b) Smoothing out of imperfections in plate supply, elimination of QSX due to swinging feeders, and chirp due to keying.
- (c) Absolute steadiness of note, apart from any desire to know that it is always in the allotted waveband.

ADVANTAGES.

To those who may not know, the advantage of c.c. is that a clean, constant note is emitted which can be read through a considerable amount of QRM, and QSA seems to be actually increased.

HARMONICS.

When experiments were commenced it was thought that a crystal of, say, 160 metres w/1 would control on 40 metres, but after some months of effort this opinion was changed, due to the fact that after trying what wavelength a 168 metre crystal would control, the harmonic control was found to be in the 33 metre band—not on 42 or 21. The harmonic in the receiver on the 42 band was very faint and there was none at all on 21. Divide 168 by 5 and you will get the idea. This was snag number 1. In the writer's opinion a good crystal in the 126, 210, or even 294 band may be found to give control in the 42 metre band. This seems to be borne out by other transmitters with whom the writer has been in correspondence. One man says his 160 metre crystal will only control in the 23 metre band and wonders why.

TO POLISH OR NOT TO POLISH.

It was thought at first that before a crystal would oscillate it must be polished on both sides, until a calibrated 168 metre one was purchased—which was not polished on either side! Previous to this much time had been spent in grinding and polishing various quartz lenses, which seems to indicate snag No. 2. After long periods of grinding (which in the light of present knowledge spoiled some perfectly good specimens of quartz) a fresh pair of lenses was obtained from an optician, and these were tried out for clicks. The method is

simply to place the crystal on the top of the grid coil in the receiver and tune until a click or series of clicks is heard. Ultimately in the lower broadcast band the first lens began to click and then went into oscillation. It would even make an effort to oscillate when held by the edges about one inch away from the grid coil—but the harmonic was just below the 42 metre band! More hours of grinding indicated. The harmonic of the second lens was just above the 42 band. This one was ground down slightly *on one side only* on a piece of plate glass by means of fine carborundum powder (used for valve grinding) and water, until the string of clicks appeared to finish *just above* the 42 metre band. Apparently there was not a click in the band, but it was decided to try it, having been caught that way before. It was placed in the holder in the transmitter which was tuned up, a harmonic found in the receiver, and the crystal could be heard trying to "do its stuff" right in the 42 metre band. When checking the clicks in the receiver by means of absorption wavemeter it appears to be rather difficult to decide where the clicks are, and the moral of this is, do not grind the crystal until you hear the clicks in the middle of the band or frequency—you may have ground down too far by doing so. This is snag number 3. If a crystal oscillator is available, it is, of course, a comparatively easy matter to determine the frequency of the harmonic. In passing, it may be said that this particular piece of quartz was not polished after being ground, but merely cleaned well with carbon tetrachloride.

STAGES OF OSCILLATION.

Here we are on very delicate ground, and the experts may probably heave very heavy bricks, but as nothing on the subject has ever been seen in print by the writer, here goes:—

When the transmitter has been tuned, with the crystal in circuit across the grid coil, and a suitable harmonic found in the receiver to listen to the note, it has been found that the crystal oscillates, or seems to do so, in different ways, classified by the writer as follows:—

- (1) A clear pinging note which seems to be impervious to anything short of kicking the transmitter hard, and listening to one's own keying of this note gives a thrill which well repays the weary hours of grinding and washing, etc. The clarity of the note seems to depend on the depth of control exercised by the crystal, i.e., which harmonic is being utilised.
- (2) A series of bubbly notes with (or without) a faint constant note even though the receiver is tuned right away from the harmonic. This seems to be no good for control, as it radiates just as it sounds at home.
- (3) A tremendous double peaked rushing noise accompanied by a sudden rise in the plate milliammeter. A report describes this as being a

constant stream of multiples in the receiver—not a d.c. note—and evidently not a desirable state of affairs. The writer offers the opinion, with trepidation, that when the crystal is oscillating in this condition it is considerably over-excited due to excessive grid current or excessive voltage across the crystal plates, and that it would, in short, "bust" a fragile crystal. In certain stages of this the needle of the aerial ammeter can be seen vibrating minutely at high speed in step with the crystal oscillations.

- (4) A steady d.c. note which seems to have no special features except that it does not vary in frequency—unaffected by feeder swaying, etc. At first this may not be recognised as control. When this note was obtained and keyed it was not thought to be controlled by the crystal, until by chance a spacer wave was slipped in which was found to be exactly on the marking wave. It was then recognised as crystal control, but apparently not of "Number 1 Mark 1" quality. Ultimately this note became No. 1 note, and to put the matter simply, it seems that the crystal must learn how to oscillate.

The main object of this classification is that if a quartz crystal will produce notes Nos. 2 and 3 it ought to produce note No. 4, and ultimately note No. 1 after it has been educated to its task.

TUNING.

When the crystal has been persuaded to oscillate it will be found that the grid condenser can be varied quite a lot before the crystal stops oscillating. The plate circuit is more critical and the crystal slips out of oscillation with a kind of jump. The plate milliammeter will also kick at the same time. When tuning the aerial system the same thing happens—the note may be heard to vary slightly in pitch and then disappear. Here is snag number 4. The aerial tuning arrangements must be regarded as an integral part of the transmitter tuning, and when commencing operations the aerial should be switched in with a moderate load on. Certain types of aerial alter the wavelength of the transmitter considerably after being tuned, and if the transmitter is tuned without a load it will be found that when the aerial is switched in the crystal will have stopped oscillating due to change of wavelength. Fairly loose coupling should be tried at first and increased later. The aerial system at G6HK is of the loose coupled type—V.F. half wave with Zepp. feeders, and when this is tuned it decreases the wavelength of the transmitter slightly.

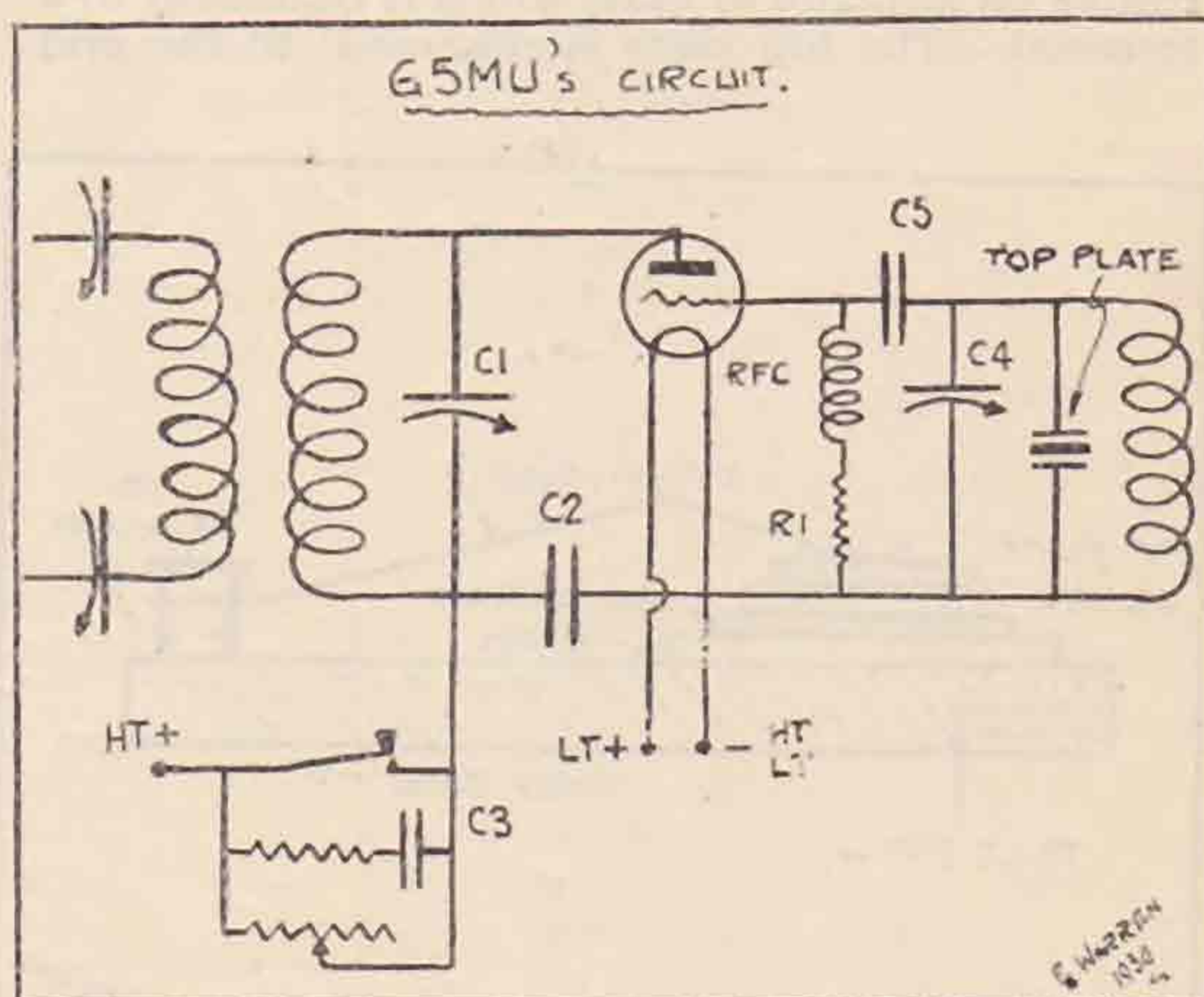
FREQUENCY JUMP.

It is essential to listen to one's own note all the time during tuning, on a convenient harmonic, or a monitor, for the following reasons:—It may be found that the note appears to be c.c. with the key up, and when the key is pressed the note has disappeared. If this happens try varying the receiver tuning and the note will be picked up again on a slightly different frequency. If the crystal is one of those which will control over a wide frequency the note may still be c.c., but, on the other hand, it may have reverted to its original state according to power supply, i.e., r.a.c. This may be due to the fact that the crystal will control on two spots close together and can't settle on one of them, or

it may be that the transmitter is not properly tuned, plate to grid, and the crystal will not oscillate all the time. This is where the final touch comes in—to tune so that the frequency remains steady when keying. It may require slight adjustment of the aerial, grid or plate condensers, or all of them. The crystal in use at this station appears to control almost all over the 42 metre band, but there is apparently only one spot where it will control consistently and stably.

KEYING.

The subject of keying is important, but not the place of keying. During preliminary tests a key filter was used and no spacer wave radiated, and although this may be regarded as heresy the writer considers that this is the better method rather than using a small spacing wave, although the latter method *sounds* like the real c.c. For one thing, it is possible to have a spacing wave *not quite* on the marker, although both are practically the same frequency; and again, a spacing wave, however feeble, *may* make one's note not quite so easy to read. This is probably a matter of opinion. Tests have been carried out on both methods. It may be



C ₁	·0002 mfd.	C ₃	·0003 mfd.
C ₂	·005 mfd.	R ₁	40,000 ohms.
C ₃	1 mfd.	R.F.C. ...	200 turns.
C ₄	·00015 mfd.		

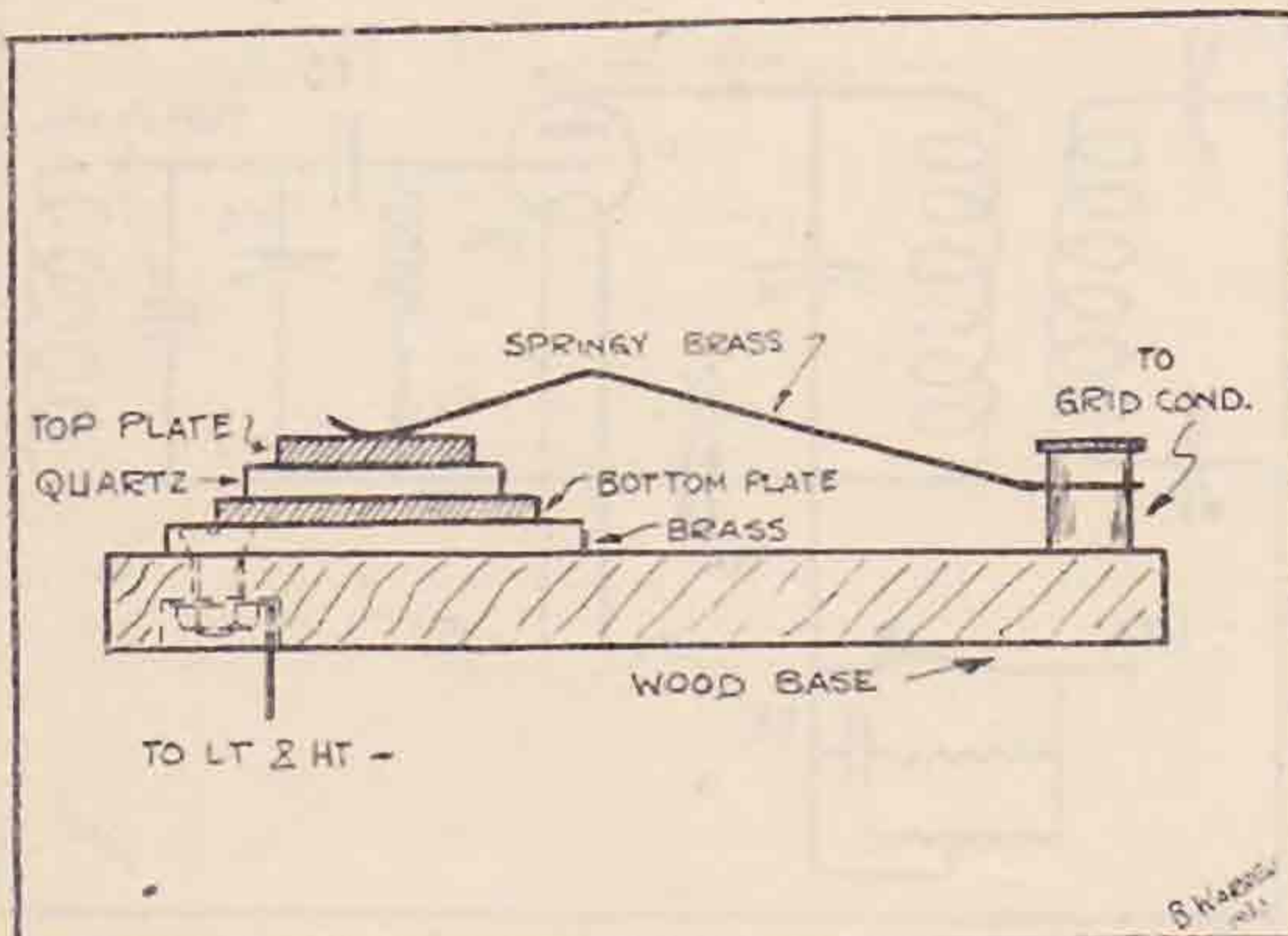
said that if there is no spacing wave the crystal will be jarred every time the key goes down. This is correct and it can be heard, but can be corrected by varying the grid condenser slightly. If a spacing wave is radiated the crystal may also be jarred (heard as a kind of squeak when the key is pressed), due to the fact that when the key is up the transmitter has a tendency to vary the frequency owing to decrease of plate current. This may also be cured by varying the grid condenser slightly. If a spacing wave is preferred a fairly large one should be used at first and gradually decreased as the crystal is "run in." A variable resistance across the key will enable this to be done. G6SO tunes his transmitter on the spacing wave—using a VF aerial clipped on to plate end of plate coil.

During experiments it is a good plan to take out the crystal occasionally and have a look at it, particularly if it has seemed persistently *not* to

oscillate. Examine the unpolished side or sides and see if there are any minute deposits on the surface. Tiny isolated spots may be found or small areas peppered with copper. If this has happened it is safe to assume that the crystal has been oscillating itself dizzy at some time during the experiments and that it will actually oscillate. The surface of the plates may also be found to be pitted with tiny marks. One crystal used at this station was a fine oscillator, until one day it did not seem to be doing very well. It was examined, and in the centre *below* the surface a tiny flaw had appeared, no doubt due to over-excitation. It required considerable grinding before the flaw could be removed, and it is at present waiting to be finished off on a fundamental of 80 metres. Crystals are also liable to chip slightly at the edges when over-excited.

CRYSTAL HOLDERS.

The one at G6HK is as illustrated. The top plate is a thin copper disc, ground and polished on one side, contact being taken through a strip of springy brass. The top plate does not by any means cover the crystal. The bottom plate is a larger copper disc, also ground and polished, and resting on a square of brass which is connected to a terminal. The top plate is connected to the grid



of the valve, and the writer has found that the polished side of the crystal (if one side only is polished) should be immediately under the top plate. Best results have been obtained in this way. Pressure does not seem to matter greatly and fairly firm contact seems to be sufficient. Mica gaps, using mica of various thicknesses, have been tried, but do not seem to affect results in any way. The crystal and plates must be clean and free from grease. Washing is not sufficient and carbon tetrachloride should be used. After cleaning, do not touch the plates or crystal with the fingers except at the edges.

A few words as to power at G6HK. The valve is a P625 supplied with plate *and filament* current from D.C. mains. An ordinary brute force filter is used, the choke consisting of about 5,000 turns of No. 26 enamelled wire wound on a core made up from two sets of L.F. transformer laminations. This passes the filament current without difficulty, the filament being fed through a 60 watt lamp. Maxi-

mum input is 6 watts, but rarely worked above 5 watts. Aerial current, according to the unreliable hot wire meter, is about .22. Normally the note is not quite steady due to fluctuation of mains voltage, and without the crystal a keying chirp cannot be eliminated. With the crystal controlling, both these defects are cut right out. It may not be generally known that if the aerial ammeter is kept in circuit in a low-powered outfit the note will chirp when it is keyed. Crystal cures this also and the meter can be kept in circuit all the time. It has been noticed that after the transmitter has been running for some little time the aerial current gradually increases, which seems to indicate that the crystal has got into its stride.

Some interesting tests were made by substituting grid bias batteries for resistance in the grid circuit of the transmitter. With the crystal out the note became RAC and tests were worked to verify this. Reports received all gave "RAC unsteady," in spite of the D.C. input. Then the crystal was placed in circuit and reports became T9 again. The frequency jumping was tested by this method for checking purposes. One could hear a T9 note with the key up, which became RAC when the key was pressed, and *vice versa*.

These notes have not been compiled for the expert! It is hoped that they may be useful to new hands and those who have spent some time trying the various circuits and don't quite know what result to expect, as was the case with the writer, and if they are the means of preventing good crystals from being ruined through over-grinding, something will have been achieved.

Acknowledgments are due to G6SO, who has read the substance of these notes. He has arrived at the same conclusion by different paths, and it is hoped that he will publish his notes in the BULLETIN in due course. The writer will be glad to hear from anyone and will answer queries, if he is able, on points not covered by these notes.

In conclusion, just a few words of encouragement to those who may try harmonic control—do not be discouraged if a few QSO's are spoilt through the crystal slipping off control. It is annoying when one is pushing out a fine c.c. note to find that the TX has apparently "packed up" and that the aerial current has vanished, after a change-over. This may be due to the fact that the crystal was not being worked on *the* harmonic. Try again—the ultimate result is worth the effort.

TRANSFORMERS

We invite your enquiries for all types of Transformers and Chokes. Special heavy duty eliminators supplied to meet any requirements. Transformers for Transmitting.

SPECIAL TERMS TO MEMB'S R.S.G.B.

CHESTER BROS.,

244, Dalston Lane, London, E.8.

The B.E.R.U.

By ARTHUR WATTS, Hon. Publicity Manager, R.S.G.B. and B.E.R.U.

We often hear grumbles about lack of keenness, but the case brought to our notice recently of a member who flew 150 miles from Aboukir to Cairo in order to hand his application in to our B.E.R.U. representative (Mr. Runeckles) in Egypt, shows that if keenness is lacking at home it is in strong evidence in our colonies.

No doubt many of our overseas representatives could add to our list of stories concerning the manner in which they have obtained the interest of new members, but the above will suffice to introduce this short article, which is designed to show the progress of the B.E.R.U.

Some of our newer members may have wondered what the name "British Empire Radio Union" means; well, in few words it stands for the Colonial Membership of the Radio Society of Great Britain.

It is not, and will not, encroach in any way on existing organisations; its sole object being to link up in one union those interested in amateur radio, and whose domicile is within the British Empire.

Surely a worthy object, and one which could be sponsored by no more suitable organisation than the Empire's senior radio society.

To quote from the November BULLETIN: "We are confident that with such a body representative of the transmitters in the British Empire, amateur radio regulations could be framed by the respective Governments viewed through the perspective of Empire rather than isolated countries."

It has long been a dream of mine, shared with others who have Empire radio at heart, that we should aim to have every single overseas amateur a member of the Union, and every portion of the Empire in permanent touch with the Mother Country.

This dream—thanks to a wondrous response from certain of our leading Colonials—is coming true. Only this last month we have received permission to appoint official stations in Great Britain who will be permitted to exchange B.E.R.U. messages via amateur radio with the colonial groups. This we venture to hope is but the commencement of our idea to establish an All-Red Amateur Radio Route.

The approval of the official British stations will be made after a careful examination of each man's claims.

The advantages of such a scheme are numerous. Chief, perhaps, is the ability to make and arrange tests and pass monthly notes of Colonial activities. Elsewhere in this issue will be found a paragraph asking members to stake their claim for recognition as an Empire Link Station.

In order to further the cause of the B.E.R.U., Council decided recently to issue a special certificate, which is to be awarded to members who (through their amateur radio station) have been in two-way communication with some part of the British Empire situated in each of the five continents of the globe.

Up to April, 1930, some thirty members had claimed this honour.

It is the sincere wish of all concerned that each of our Colonies and Dominions shall have a duly appointed representative to forward notes and act as a liaison between his country and the homeland.

New Zealand, Canada, Egypt, and South Africa have appointed their delegate, whilst many other corners of the globe have been approached to follow their example.

It behoves each and all of us, who are privileged to be members of the Society and Union, to spare no pains in order to further their cause. If there are any matters which are not clear, or you feel you would like to assist the Publicity Committee in an official manner, I shall be glad to hear from you promptly.

We have set ourselves the task of increasing our membership to 2,000 before December 31, 1930. Will you help us in our effort?

In conclusion, may I reiterate our Honorary Secretary's motto, "Make Empire Friendships."

Thanks, OM, for reading me to the end.

Something Worth Doing.

No doubt some of you read that article in the March number of the BULLETIN about the Boy Scouts Assistant Scheme. We know some of you did, as you were public-spirited enough to offer your services. To you we extend our thanks. Unfortunately, very few of our members seem to realise the splendid opportunities this scheme offers. Here we, as a Society, have the real chance to be of service to another body, here also is the means of giving ourselves a good advertisement, but apparently we are not going to take it.

Those of you who read the April number of our contemporary, QST, must have noticed that article setting forth the past achievements of the American amateurs. Why cannot we show some such record of usefulness? You may say that we have not the same scope over here: perhaps not, but when we do get an opening, it's up to us to take it, and try and make such a record. Well, here we have the opening, let us make the most of it.

Don't just read this and say to yourself, this does not apply to me, I cannot possibly help. Just think a minute. You are a member of the Society, and this is to every member. Surely you are interested enough in the Society to want to help it all you can. Well, here's your chance. There are some six hundred Scouts in this country. A knowledge of radio will be of use to them. You have that knowledge, and it's up to you to try and pass some of it on, for what is the use of all your experimental work if you do not allow it to benefit your fellows?

This is not going to be any light task, but if we all put our backs into it, we shall succeed, so come on, all of you, and let's show the world what we can do.

Send your letters to the following address: H. C. Page, Newgardens Farm, Teynham, Kent.

On Starting Up.

BY UNCLE TOM.

I GATHER from what I have heard, that one or two hams of fairly long standing are not too happy about these "starting up" articles, and want to know what the QRM is going to be like when all the BRS's get full licences and go on to the air. This point of view is extraordinarily selfish and is best ignored, and luckily does not represent the average experimenter's view of things.

The reason I have mentioned this is that nothing is likely to be so discouraging to the newcomer as the feeling that he is not wanted, and should he ever hear views of this kind he can rest assured that they are the exception rather than the rule.

Continuing now from last month's article, we will assume that you have spent nearly a month on cramming Morse and listening to amateur work on the air. If this is the case you should know quite a lot about the proceedings to adopt when you once acquire your own licence, and the urgent business of the moment is the way to go about it!

First of all, decide upon some particular line of experiment that interests you, and really make up your mind to go all out for it. Of course, everybody knows that you will spend the first year of your life as a fully-fledged ham working DX and collecting QSL cards, but that sort of thing wears off after the first year or so (for the normal person at any rate) and you will have to forget the wallpaper and get down to something worth doing.

Make up your mind what broad division of short-wave amateur radio interests you most, and then do a good hard think on more specialised lines. If, for instance, you are attracted by a systematic study of conditions on 14 M.C. from season to season, decide how you want to set about it. Set down some real ideas, and when you apply for your permit send them *all* to the G.P.O. in as much detail as you can. After all, you can't cajole the P.M.G. into giving you a licence if your only line of work is a series of experiments to determine how many QSL cards can be collected from Australia in three months, so that if that honestly

represents the sum-total of your ambition you had far better not apply for a licence at all.

As suggestions for particularly fruitful lines of experiments I suggest the following:—

- (1) General work of 28 M.C. and 56 M.C.
- (2) Comparison of different types of radiating systems for 28 M.C.
- (3) The same for 14 M.C.
- (4) Study of the effect of aerial slope upon angle of propagation, particularly on 14 M.C.
- (5) Study of variation of conditions with phases of moon, sunspots, barometric height, etc., chiefly in Europe on 7 M.C.
- (6) Experiments on the screening effects of buildings, trees, wire halyards, etc., etc., on 7 and 14 M.C.

You should be able to pick on some fairly definite subject and get out pages of ideas for tackling it if you first decide very broadly what line interests you most.

You will notice that all the above require the use of an outside aerial. Such work as a comparison of the efficiencies of various circuits, methods of crystal control, methods of modulation, etc, can be perfectly well carried out with an artificial aerial or "closed circuit," and if you do not succeed in convincing the P.M.G. that you really have sufficient knowledge or interest to warrant the granting of a radiating permit, you will be given a three-letter call and an "artificial aerial" permit. It is a good plan in a way if you want to find out all you can about transmitting circuits to ask the G.P.O. for a permit of this kind, for you will not be required to pass a Morse test or to say very much about qualifications. After six months or so with a "dummy permit," providing that you really have worked with it and found your feet, you should have no trouble in satisfying the G.P.O. that you are a fit person to receive the full licence.

Next month I will finish off with a few more detailed remarks.

(Continued from column 1, next page.)

the bearing at the same time. The three lines intersected almost precisely.

Sometimes, known bearings vary considerably during the course of an evening, especially in the case of GLV, GKU, GLD (who sometimes is never heard at all), and FFU.

This receiver has been used literally from Land's End to John o'Groats. One evening when motoring in the extreme north of Scotland (20 miles from Cape Wrath) it was thought desirable to take the GFA weather report. Accordingly, on the wild, eerie Highland Moors, the receiver was put on a suitcase, and the report copied without a hitch. At the same time most of the usual European stations were logged without much decrease in signal strength being noticed, and bearings taken on GBL, GSW, and SAJ were later plotted on large scale maps, giving the position of the receiver accurately to within $1\frac{1}{2}$ miles. Another time the receiver was taken into White Scar Caves, Ingleton,

three-quarters of a mile under Ingleborough and about 800 hundred feet from the surface. Long wave signals were still quite readable.

Regarding results generally, GBR, GKU, GFA, 5XX carrier, GKZ, and some of the Ongar family come in definitely at "fones on table" strength. 5XX broadcasting is perfectly clear up to roughly 200 miles. The American side of the transatlantic telephone service is faintly audible. Russian, Spanish and Italian commercials come in well, also FF and FUA. On 600 metres West Mediterranean, Channel, North Sea and Baltic coast stations and ships are received at good strength. By the way, as a DX wave, 600 metres seems to be just as fickle as our own short-wave bands.

In conclusion, the writer will be glad to hear from anyone using or possessing one of these B.T.H. receivers.

Your Article, Please.

A Portable Long-Wave D.F. Receiver.

By G. H. RAMSDEN (G6BR).

SOON after the Armistice the B.T.H. Co. manufactured and sold a portable, long-wave direction finding receiver. This instrument was self-contained in a walnut case 18" x 15" x 6½" deep. The door of the case was made to slide off its hinges and it was provided with a compass, a compass card and an aluminium swivel upon which the receiver was fitted when in use. The set itself consisted of a frame aerial, wound inside the case and provided with eight tappings to which contact was made by means of a calibrated brass slider-bar through a slot in the back of the case; a tapped reaction coil, wound on a light wood frame hinged to the case, which also carried clips for the slider-bar and filament plug; a tuning condenser and L.F. transformer, the rest of the available space being occupied by the L.T. and H.T. batteries and the valves. The circuit was an ordinary detector and single stage audio-frequency amplifier, and the cost at that date was about £36.

About four years ago the writer was able to gratify an ambition, long prohibited by the cost, to possess one of these receivers, when he was fortunate enough to pick one up, in brand new condition, for five pounds. The first thing to do was to modernise it somewhat, because originally the wavelength range was from 300 to 30,000 metres in eight tappings! Hard tack for a short-wave "ham" to swallow. Accordingly, the condenser was pulled out. This condenser was a truly miraculous affair, consisting of an incredible number of copper plates, separated by thin ebonite discs. It was replaced by a .0005. A new grid condenser and leak were fitted, and also a new L.F. transformer, which, out of courtesy to the makers of the receiver, was a B.T.H. 2.1 ratio. The normal wavelength range is now 280 to 6,000 metres, which is loaded up to 13,000 metres by means of a Formo semi-fixed condenser. The set will carry eleven four and a-half volt flash lamp batteries, which give ample H.T. This receiver has given the writer so much amusement and pleasure that it is thought a short account of the operation and results obtained may interest "T. & R." readers.

To begin with direction finding. The door is laid on a table and oriented by the compass. Allowance for magnetic variation is made, so that all bearings read are true bearings. To obtain accurate bearings the set must be placed well away from walls, etc. In a small "shack" it is almost useless in this respect. Maps, whose projection make a great circle a straight line, are used. Bearings obtained are extraordinarily accurate, the line generally passing right through the position of the station as marked on the map. Many hitherto unknown European stations have been identified in this manner. On 600 metres it is amusing finding the positions of ships, and sometimes one can follow their progress for days, especially from the Tyne to the Channel. On one occasion a ship demanded QTE(?) from GCC and GKZ, and the writer took

(Continued at foot of previous page.)

The Pentode Valve.

In spite of all that has been written both in the technical and in the semi-technical Press, there still appears to be some doubt in the minds of many listeners as to the functions of the pentode valve and its value in a modern receiving set.

Most people are aware that the pentode is a power amplifier or "output" valve; that is to say, it is the valve the anode circuit of which supplies the power for operating the speaker. Now wherein lies the difference between the performance of a pentode and that of a normal three-electrode output valve?

In the first place it must be understood that to "control" a three-electrode valve of the super-power class, that is to say, to permit it to give its full output, it is necessary to apply to its grid a fairly large alternating signal voltage. Because the voltage swing in the anode circuit of the average detector valve available for application to the grid of the following valve is of the order of a volt or so only, it is necessary, if a three-electrode output valve is to be used, to interpose at least one stage of low frequency amplification between the detector and the output stage.

HIGH AMPLIFICATION FACTOR.

By means of its special construction, however, the pentode valve will give its full output for a much smaller signal voltage than that required by a three-electrode valve of equivalent output rating. This means that less low-frequency amplification is necessary between the detector and the output valve. As a matter of fact, in many domestic sets where only the strong signals from the local stations are required, a pentode can immediately follow the detector without intermediate low frequency amplification. The value of the pentode in this connection will be appreciated from the statement that the Mullard P.M. "Pentodes" have amplification factors ranging up to 82, as compared with about 4 to 6 for normal super-power triodes.

At the same time it must be remembered that a pentode should not be substituted for a super-power valve in receivers which already give full loud-speaker strength, for in such cases the pentode would undoubtedly be overloaded. If it is desired to use a pentode in such a set, it is advisable to incorporate some form of volume control or to add a switching arrangement whereby the intermediate low frequency stage can be cut out when strong signals are being received.

Such an arrangement, of course, makes available a further degree of amplification which will be of considerable help when receiving weak signals from distant stations.

Strays.

G2AI will welcome reports on his 14 M.C. signals, especially from our DX members overseas.

* * *

Since the April issue appeared, we have been informed that PK1CX's address should not have appeared in print on page 159, and that all cards for this station should be sent under cover.

HIC et UBIQUE.

The 3,500 K.C. band is now open. Apply for your Permit and get to work.

28 M.C. Tests in June organised by A.R.R.L. See current QST for full details.

W.B.E. Certificates.

The following have qualified for W.B.E. certificates:—

G2CX, J. D. Chisholm.
 G5YG, J. Wyllie.
 G5YK, G. W. Thomas.
 SU8RS, C. E. Runeckles.
 G6QB, L. H. Thomas.
 G6HP, H. D. Price.
 VE2CA, Earle H. Turner.
 G6CL, J. Clarricoats.
 VU, H. O. Pargeter.
 W3PF, W. P. Brown.
 G2CJ, S. Townsend.
 G2ZC, A. M. H. Fergus.
 G5QF, S. Buckingham.
 G6WY, H. A. M. Whyte.
 G6VP, Alan Smith.
 G5WK, K. C. Wilkinson.

These certificates are now printed and have been sent to all who have qualified.

First Contacts.

The following first contacts are claimed:—

By G5YK:—

India (VT2KT), 28 M.C. band, 12.10 G.M.T., on February 10, 1929.

Germany (D4UE), 28 M.C. band, 14.40 G.M.T., on June 23, 1929.

Grenada (NL-GREN), 7 M.C. band, 23.30 G.M.T., on December 17, 1927.

Singapore (SS-2SE), 14 M.C. band, 17.00 G.M.T., on May 15, 1927.

By G2ZC:—

Tasmania (A7NW), 7 M.C. band, 19.05 G.M.T., on March 24, 1926.

French Indo-China (F18FOK), 7 M.C. band, 17.55 G.M.T., on December 25, 1926.

Balearic Isles (EAS2), 7 M.C. band, 21.20 G.M.T., on February 25, 1927.

Switzerland (H9XA), 7 M.C. band, 17.50 G.M.T., on May 29, 1926.

By G5FS:—

Luxembourg, on 125 metres, on April 11, 1924.

TRADE NOTICE.

The Mullard Wireless Service Co., Ltd., have supplied information regarding their new P.M.5D valve. This has a 6-volt .075 ampere filament; an anode impedance of 20,000 ohms, and an amplification factor of 26 produces the "Mutual" of 1.3 mA/v. The valve is suitable as a detector, with anode bend or leaky grid rectification, or as an L.F. amplifier where the coupling is by a transformer of fairly high primary impedance and suitable for only small primary currents.

Empire Communications.

The Council invite members of the Society to make application for recognition as Official Empire Link Stations.

Such applicants must be in a position to maintain reliable communication with the Empire and be prepared to stand-by at predetermined times for work with selected Colonial stations. Interested members are requested to forward details of their stations to the Hon. Secretary, *as soon as possible*.

CALIBRATION SERVICE.

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

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

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

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

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

Erratum.

Page 276, April, 1930, issue, Exchange and Mart column, No. 4 advertisement, for G2CW read G2CJ: address quoted is correct.

April T. & R. BULLETIN, page 271, col. 1, New Members, W. F. Bennett, of Chatham, for G6QC read G6QG.

Binding Cases For "Bulletins".

We have received information from Mr. Kellett (G5KL), 11, Allerton Road, Southport, Lancs., that he has made an arrangement with a local printer for volumes of the BULLETIN to be bound in stiff dark blue cloth covers, suitably inscribed.

The cost per volume of twelve copies is 5s. 6d., and delivery can be made in one week. Requests for variations of this specification and all enquiries should be made to the above address.

Mr. Kellett wishes us to point out that he is in no way connected with the trade. The above arrangements are the results of a personal order.

B.E.R.S. Numbers Issued.

1. W. MAKEPEACE, 1st Battn. The Worcestershire Regt., Shanghai Area, Shanghai, China.
2. C. E. RUSSELL, P.O. Box 742, Los Angeles, Calif.
3. CPL. C. F. C. WHEELER, 2nd Indian Divisional Signals, Quetta, India.

Summer Visit.

Through the good offices of our President and the General Post Office, we have pleasure in announcing that our Summer Outing is to be held on June 28, when the Dorchester Radio Station will be visited.

Members intending to participate in this most interesting visit must make application to the Honorary Secretary immediately.

It is hoped that several motor car parties will be made up, thus adding to the social side of the outing.

A trip to the Somerton Receiving Station will be arranged for those travelling by road.

Names of members with cars who are willing to accommodate others will be appreciated.

Full details of times and routes will be published in the June issue.

W.A.C. Certificates.

In accordance with the recent decision made by the I.A.R.U., it is not necessary for persons claiming W.A.C. certificates to forward their cards to Hartford.

Arrangements have been made whereby the Hon. Secretary of each National Society is given power to examine the cards and, if satisfied, to forward to the claimant a letter, certifying that the claim is correct. The claimant must then forward this letter to the I.A.R.U. Headquarters, Hartford, Conn., U.S.A., and the certificate will be despatched.

Persons desiring to have their claims checked in London are requested to forward their cards, securely packed, with a stamped addressed envelope for return.

District 15 Conventionette.

A Welsh Area Conventionette is to be held at Cardiff on May 31. Will anyone intending to be present communicate with Mr. H. Andrews, G5AS, Wireless Depot, Ystradgynlais, Swansea, who will send full particulars.

Belgium Convention.

The following is an extract from the March issue of "QSO," the official organ of the Reseau Belge.

A national gathering of radio amateurs will be held at Antwerp on July 12, 13, and 14. These dates have been well chosen as they will permit those attending to visit the Centenary Exhibition which is being held in Antwerp this summer. An extensive programme is being arranged, full details of which will be published in the next issue of "QSO."

We would mention that every step will be taken to render the stay of our visitors as agreeable and instructive as possible. Meetings will take place daily from 9.30 a.m. to 12.30 p.m., whilst during the afternoons visits will be made to the Exhibition, as well as to the museums, Zoological Gardens, and Maritime Installations. Visits to Old Belgium and theatres will be arranged during the evenings.

Special arrangements have been made with the railway companies for those attending the Convention. A reduction of 30 per cent. on railway fares and free entry to the Exhibition are but two advantages.

Special guides will be placed at our disposal by the Exhibition authorities. After the Convention in Antwerp a visit will be made on July 15 and 16 to the Liège Exhibition. We are assured by our Liège friends that active preparations will be made to entertain those attending the meetings in their city.

Special discussions will take place dealing with the technical side of short-wave radio, whilst the main practical problems relating to traffic, etc., will be dealt with in Antwerp.

The Congress will terminate in Brussels on Thursday, July 17, when a dinner will be arranged.

In conclusion, we would mention that an accommodation bureau is to be set up at Antwerp, and this will be utilised to ensure that everyone obtains satisfactory accommodation.

Visitors requiring further information are requested to communicate with Monsieur A. Respen, 15 Plaine de Maliens, Antwerp.

QUARTZ CRYSTALS

Standard - - £1 0 0

Heavy Duty £1 10 0

**THE CLEANEST AND BEST
FINISHED CRYSTALS OBTAINABLE.**

HOLDERS Open 4/6

HOLDERS Sealed 7/6

Crystal Oscillators

**COMPLETE WITH VALVE,
Certificate of Frequency,
Crystal in Sealed Holder.
Mounted in Oak Cabinet
with Lid. Including
Marconi Royalties - £3 5 0**

CARTER BROS.

1, NEW MARKET ROAD

CAMBRIDGE

Mention the "Bulletin."

Calls Heard.

By CT2AA Western Union Cable Station, Horta, Fayal, Azores, February and March :—7 M.C.—G : 2az, 2gm, 2gz, 2ip, 2ja, 2jf, 2kl, 2ow, 2pp, 2rm, 2r, 2sa, 2ug, 2ux, 2vq, 5aq, 5bd, 5bj, 5br, 5cm, 5cx, 5fa, 5jf, 5kl, 5mb, 5oc, 5pj, 5rj, 5rv, 5sn, 5tz, 5uy, 5vm, 6bo, 6br, 6fo, 6gx, 6hl, 6ly, 6or, 6pa, 6py, 6rk, 6xb, 6xj, 6yq, 6yr, 6zs, ei2b, ei6b, ei8b, gi5nj, gi6wg, gbjv. 14 M.C.—G : 2aw, 2az, 2bm, 2cg, 2dh, 2dz, 2gm, 2ma, 2oa, 2ol, 2op, 2ux, 5bd, 5fa, 5is, 5jf, 5ml, 5ms, 5mu, 5qf, 5qy, 5rq, 5tz, 5ub, 5uf, 5vb, 5vl, 5wk, 5yg, 6dr, 6dw, 6gc, 6gd, 6gs, 6gz, 6hl, 6lk, 6ou, 6rb, 6rc, 6rr, 6tx, 6uz, 6vp, 6wo, 6wt, 6wy, 6xb, gi5hv, gi6hi, gbjv. 28 M.C.—G : 2cx, 2kf, 2lz, 2od, 2ow, 2ux, 5ml, 5wk, 5yk, 6dh, 6hp, 6ll, 6mn, 6nf, 6vp, 6yc.

By VK4AW during December, January, and February, 1929-30 :—14 M.C. Band.—g5is, g6nf, g6vp, g6xn, f8btr, f8ex, f8da, f8lgb, f8flm, f8whg, f8fk, on4uu, on4hc, ok2ss, iler, splae, ct1aa, tf3bh, pa0tw, vq4tg, su8wy.

By ex-G2WR, in Toronto, Ont. :—

March 8.—Sp3li, uolzh, d4rh, g2cj, g6qb, g6wo, f8hr.

March 9.—G2cj, g5is, on4jj, g6ms, g6wt, on4fp, g5bd, g6xb, g6yq.

March 10.—F8ef, f8jc, on4jj, f8axq, ear96, g6nf, on4dj, g6qb, f8cs, g6xb.

QRA Section.

Now that Austrian amateurs are being licensed, the country has been divided into three districts, indicated by the numeral after the prefix. The districts are :—

1.—Vienna. 3.—Lower Austria. 6.—Steiermark.

New QRA's.

G2KL.—F. ROBERTS, 176, Greenacres Road, Oldham, Lancs.

G5FH.—L. H. LEE, 35, Marian Road, Smethwick, Staffs.

G5LX.—J. LITTLEWOOD, 49, High Street, Starbeck, Yorks.

G5QV.—F. L. STOLLERY, "Kingsmead," Lancaster Gardens, E., Clacton-on-Sea.

G5SR.—S. RIESEN, 192b, Fulham Palace Road, London, W.6.

G5SV.—M. F. SOMERVILLE, 185, Elm Park Mansions, London, S.W.3.

G6AP.—A. C. PORTER, 12, Stanhope Road, Sidcup, Kent.

2BMB.—A. W. ALLISTON, Corners, Cross Road, Tadworth, Surrey.

The following is cancelled : G6WO.

QRA's wanted :—CR4AD, CT2AG, PY2SB.

M. W. P.

NEW MEMBERS.

J. E. RHYS-JONES, "Hilys," Cedar Gardens, Upminster, Essex.

B. POTHAST (PADW), Eemnesserweg 25, Laren, N.H.

G. L. BOAG (E057), Aguilas, Murcia, Spain.

C. P. L. NICHOLSON (BRS338), 187c, Gloucester Terrace, Hyde Park, W.2.

ROBERT MILLAR (BRS339), Balmuto, Kirkcaldy.

HERR WERNER HESS (DE862), Blumenthalstrasse 75, Koln, Germany.

E. G. NURSE (G5NR), 1, Cambridge Road, Hammer-smith, W.6.

B. WICKHAM (G2DW), "Osmonde," Woodstock Road, St. Albans, Herts.

C. F. C. WHEELER (BERS3), 2nd Indian Divisional Signals, Quetta, India.

J. F. JUDD (YI2GQ), R.A.F. Wireless Station, Sulaimania, Iraq.

K. S. J. RANCOMBE (YI2GQ), R.A.F. W/T Station, Sulaimania, Iraq.

NORMAL SLATER (YI2GQ), R.A.F. Wireless Station, Sulaimania, Iraq.

H. L. KING, 27, Grange Road, Ealing, W.5.

C. L. HICKS (B S340), 1, Belle Vue, Bude, Cornwall.

ARTHUR CARDER (BRS341), 517, London Road, Westcliff, Essex.

R. E. THOMAS (BRS342), 2, Victoria Cottages, Pitsea, Essex.

S. C. GODDEN (BRS343), 50, Cheltenham Street, Swindon, Wilts.

R. A. BRUCE (VK5BJ), Henry Street, Glenelg, S. Australia.

L. FORD-SMITH (SN1AA), Whittlesey, Bowers Way, Harpenden, Herts (Home Address).

W. E. HAGARTY (VK4WH), Longreach, Queensland, Australia.

R. M. NICHOLSON (VK4KG), Coombe Martin, Ilfracombe, Australia.

J. W. MAVIS (FO5SRA), P.O. Box 160, Umtali, S. Rhodesia.

H. E. CALLIS (ZU6T), 55, Railway Avenue, Premier Mine, Transvaal.

E. C. J. FOORD (BRS344), Holmestalls, Cross-in-Hand, Sussex.

C. A. WEBB (G5WB), Public Drawing Office, Bank of England, E.C.2.

F. J. RHODES (G5WL), 318, Canterbury Street, Gillingham, Kent.

R. H. HAMMANS (G2IG), 119, Nelson Road, Gillingham, Kent.

M. E. ZWOSTER (W9GFG), 6125, South Rockwell Street, Chicago, Ill., U.S.A.

S. W. GOODSON (BRS346), 16, Upper Melton Terrace, Melton, Woodbridge, Suffolk.

J. D. C. BOYES (BRS348), "Tostig," North Cliff, Hornsea, E. Yorks.

J. BOYCE (BRS347), Wynyard, Bradford Avenue, Cleethorpes.

F. A. COOKE, 112, Bessborough Road, Harrow, Middlesex.

C. E. RUSSELL, P.O. Box 742, Los Angeles, California.

G. W. A. DUMMER (BRS350), "Redcroft," Carrington Lane, Ashton-on-Mersey, Cheshire.

T. B. SMITH (BRS349), 106, Cloberhill Road, Knightswood, Glasgow.

G. W. READE, 1, Bradford Cottages, Kingston Road, Ewell, Surrey.

J. E. BURNS, Sgt. R. Signals, W/T Station, Navy House, Port Said, Egypt.

S. HIGSON, Hebblecroft, Egremont Promenade, Wallasey, Cheshire.

J. L. NIXON (BRS351), 33, Seaview Road, Gillingham, Kent.

C. HARRISON (Hon. Sec., W.I.A., Tasmanian Div.), Bank of Australasia, P.O. Box 633B, Hobart, Tasmania, N.Z.

GRIFF THOMAS (BRS352), "Glen-Moor," Penpark, Nr. Cardigan.

QSL Section.

Those who were present at the last London Hamfest will remember that the Honorary Secretary made some remarks about the slackness of London members for not claiming their QSL cards, and allowing the files of the section to be blocked with cards which do not seem to be wanted.

It would be a great help if all members would take this to heart and determine in future that the QSL section shall not suffer because of their thoughtlessness. There is no excuse for not having envelopes now that it is possible to obtain them ready stamped and addressed at 2d. each from the Section. Of course, if you don't want your cards at all, then please let us know, so that we can deal with them accordingly. There seems to be quite a number of active transmitters who obviously don't want their cards in any circumstances, as we have huge bundles of cards which have been accumulating for months, almost years, and if these men would only tell us definitely that no QSL cards are of use to them we should be rid of a heavy burden.

J. D. C.

Correspondence.

Key Clicks.

To the Editor of T. & R. BULLETIN.

DEAR SIR,—I wish to thank Mr. J. Eric Johnston (G2ZN) for his reply to my letter on "Circuits at Resonance" in the December BULLETIN.

The fact that the trap might not eliminate clicks owing to the cause mentioned by Mr. Johnston completely escaped my mind. However, one imagines the following explanation to be feasible:—

When the transmitter key is closed, a small current flows through the trap inductance, and generates a back E.M.F. (wLI volts). This E.M.F. is applied across the trap condenser, thus setting up the usual rejector action. However, for small E.M.F.s the condenser will have a cushioning effect. Consequently there would be a tendency to eliminate the click at "Make."

The higher the C/L ratio of the trap, the greater would be the cushioning effect. (Because of the greater capacity, and the lower E.M.F. applied across it by the smaller inductance.) Theoretically, the circuit should be more effective at high C/L ratios.

At "Break" the oscillations in the trap do not cease instantaneously but fall off with logarithmic decrement. Therefore little or no click should be heard.

In conclusion, I sincerely hope that some of our more enlightened members will point out any flaw there may be in this explanation.

Yours faithfully,

C. D. CONNERTON (Yi-1LM).

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Baghdad.

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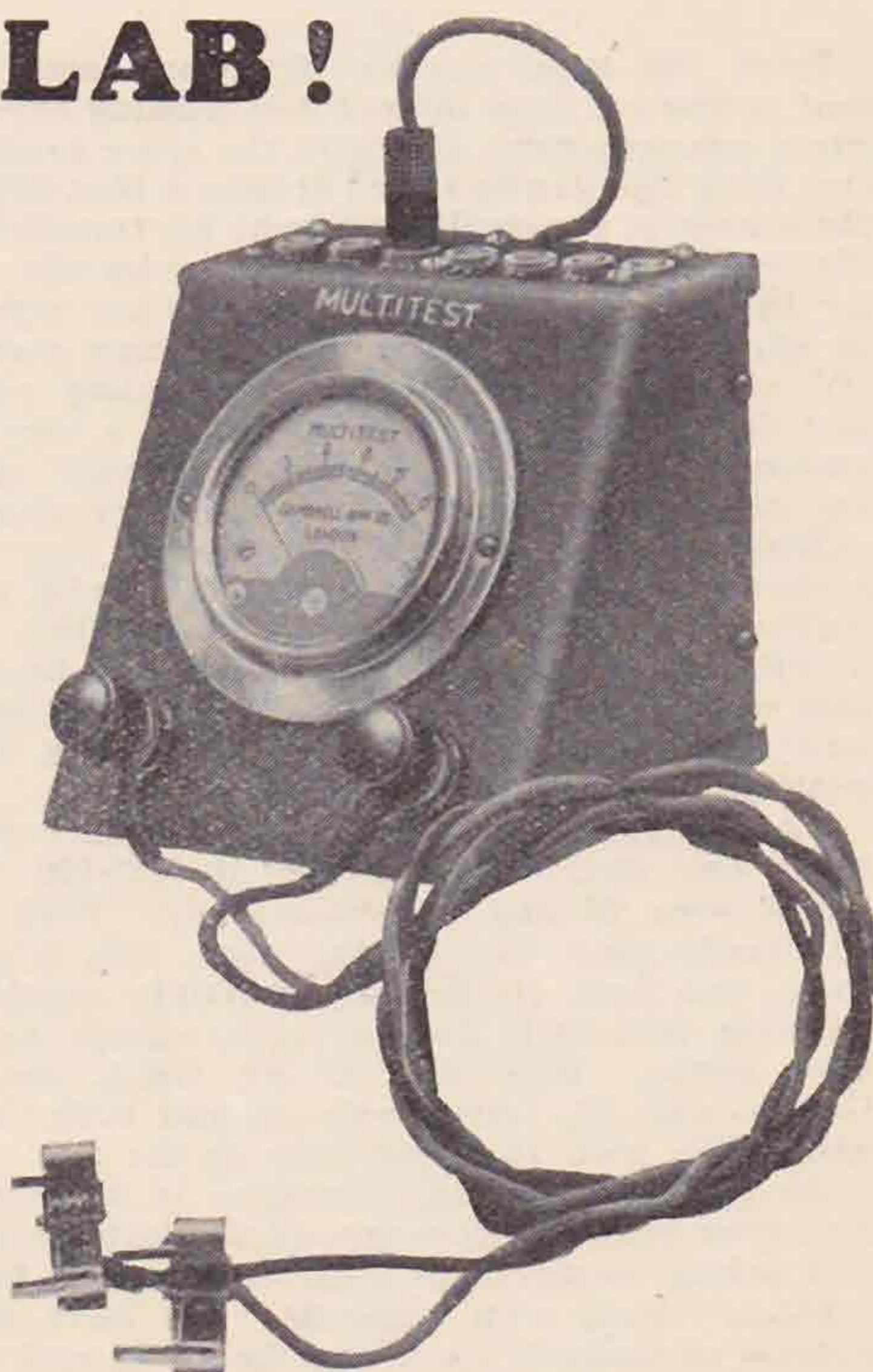
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Re this DX Business.

To the Editor of T. & R. BULLETIN.

DEAR SIR,—I think that by far the easiest way out of the difficulty is to use the method that I append below. To start with, it is sometimes very necessary to get reports from certain distances, and as the DX call is being used at present I consider it practically useless for serious experimental work. My suggestion is that in order that the DX call may be used to its fullest advantage, after the call should be sent the number of miles from within which a report is *not* required. The call should then be sent as follows:—

Test de G5AV DX 200M.

This would mean that I do not want a reply unless the station is more than 200 miles away, or again:—

Test de G5AV DX 2 Thou.

This would mean that I do not want a reply unless the station is more than 2,000 miles away.

Yours faithfully,

G. W. MELLAND (G5AV).

"Directional Aerials."

To the Editor of T. & R. BULLETIN.

SIR,—While agreeing with G6CI as to the directional properties of "Hertz" aerials, I think the subject warrants a little elaboration.

J. K. Clapp and H. A. Chinn, in QST March, 1928, showed that in regard to half-wave horizontal

aerials working at 40 metres, the radiation at *right angles* to the line of the antenna is always greater than that in the direction of the antenna.

For transmission in the line of the antenna, the maximum radiation falls off, also the angle of maximum radiation is reduced, as the height is increased from $\frac{1}{4}$ to $\frac{1}{2}$ wavelength.

For the same angle above the horizontal, the radiated power is not the same in the direction of the antenna as compared with that radiated at right angles to the antenna.

For transmission at right angles to the line of the antenna, as the height is increased from $\frac{1}{4}$ to $\frac{1}{2}$ wavelength: (1) radiation vertically falls rapidly from maximum to zero; (2) radiation horizontally never rises above zero; (3) the angle of maximum radiation progresses from vertical towards horizontal.

Distortion of the field due to the aerial supports would account for the 45 degree phenomena Mr. Warren has noticed.

Thus, from a refraction theory viewpoint, it would be expected that a low aerial would be very effective over short distances, while a higher aerial would be more effective over greater distances and show more clearly defined directional characteristics.

This, I think, is generally experienced in practice, and would apply in Mr. Warren's own example of South America as compared to U.S.A.

Yours faithfully,

W. D. KEILLER (G6HR).

The March 28 M.C. Tests.

From the large number of reports and deas sent in there is some difficulty in framing anything like a comprehensive article in the space available. One thing that can be stated at once is that G6LL is the winner of the challenge trophy for transmitters. He worked 10 stations to count under the rules for the competition, and his signals are reported in almost every list sent in by foreign stations. PY was, as mentioned, an outstanding report, and G6LL is to be congratulated on a very fine all-round performance, especially in view of his log of stations heard, which ran very close to pulling off the receiving stations' cup. The runner-up for transmitters is G6HP, with seven stations worked, including the fone QSO with SUSRS. Again a good log of stations heard is also sent in and both 6HP and 6LL must be the lucky possessors of that rare article in a transmitting station—a F.B. receiver.

For the receiving stations' cup, BRS310 comes home one station only ahead of BRS190. The scores were 26 and 25, respectively. With only one really good day for the work, this is going some, and both stations are certainly capable of claiming that little 28 M.C. radio energy escapes their notice. BRS 25 with 23, G6LL also 23, G6WN with 20, G6HP with 19 and both G6DH and G5VB with 16 follow close in the list.

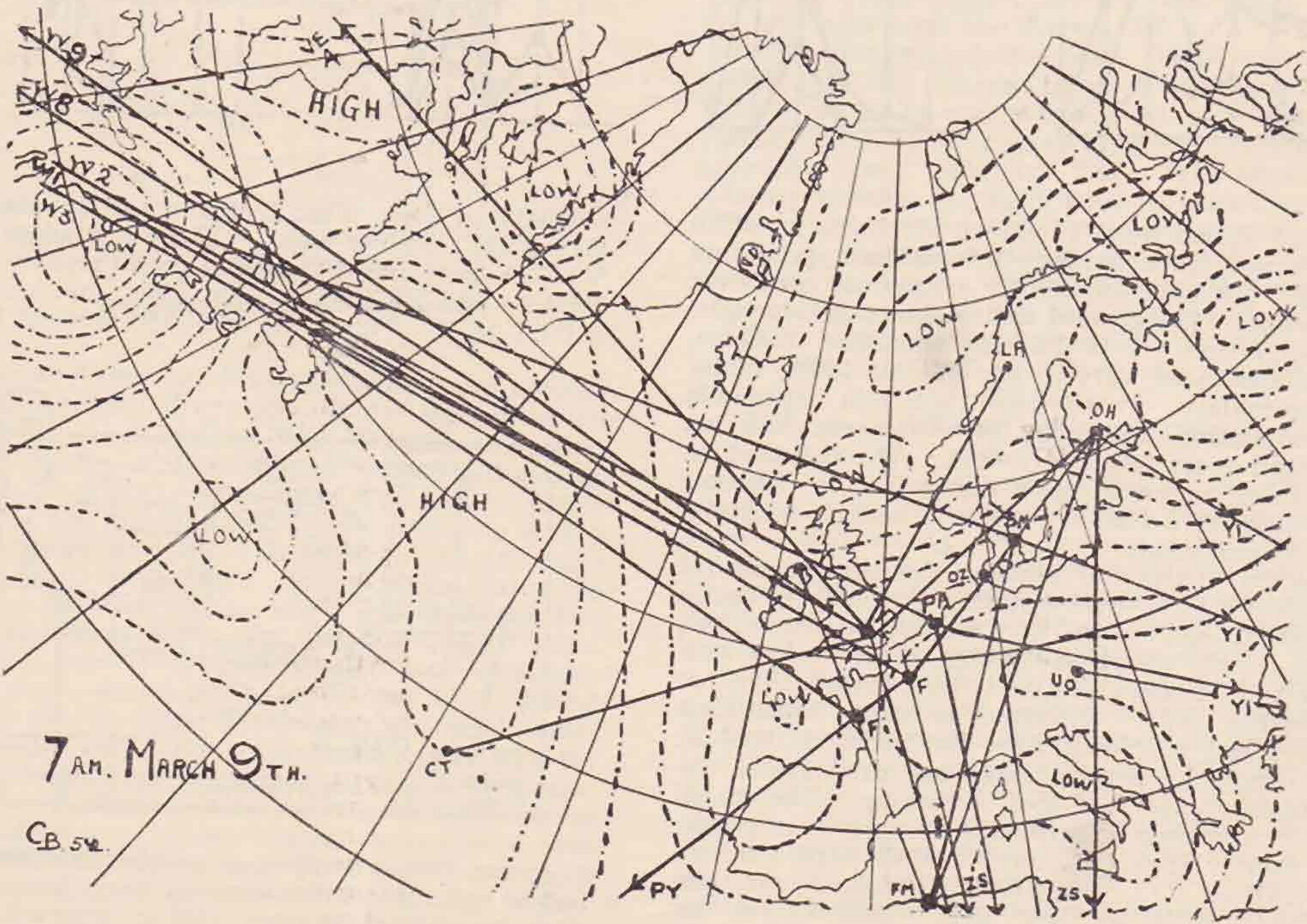
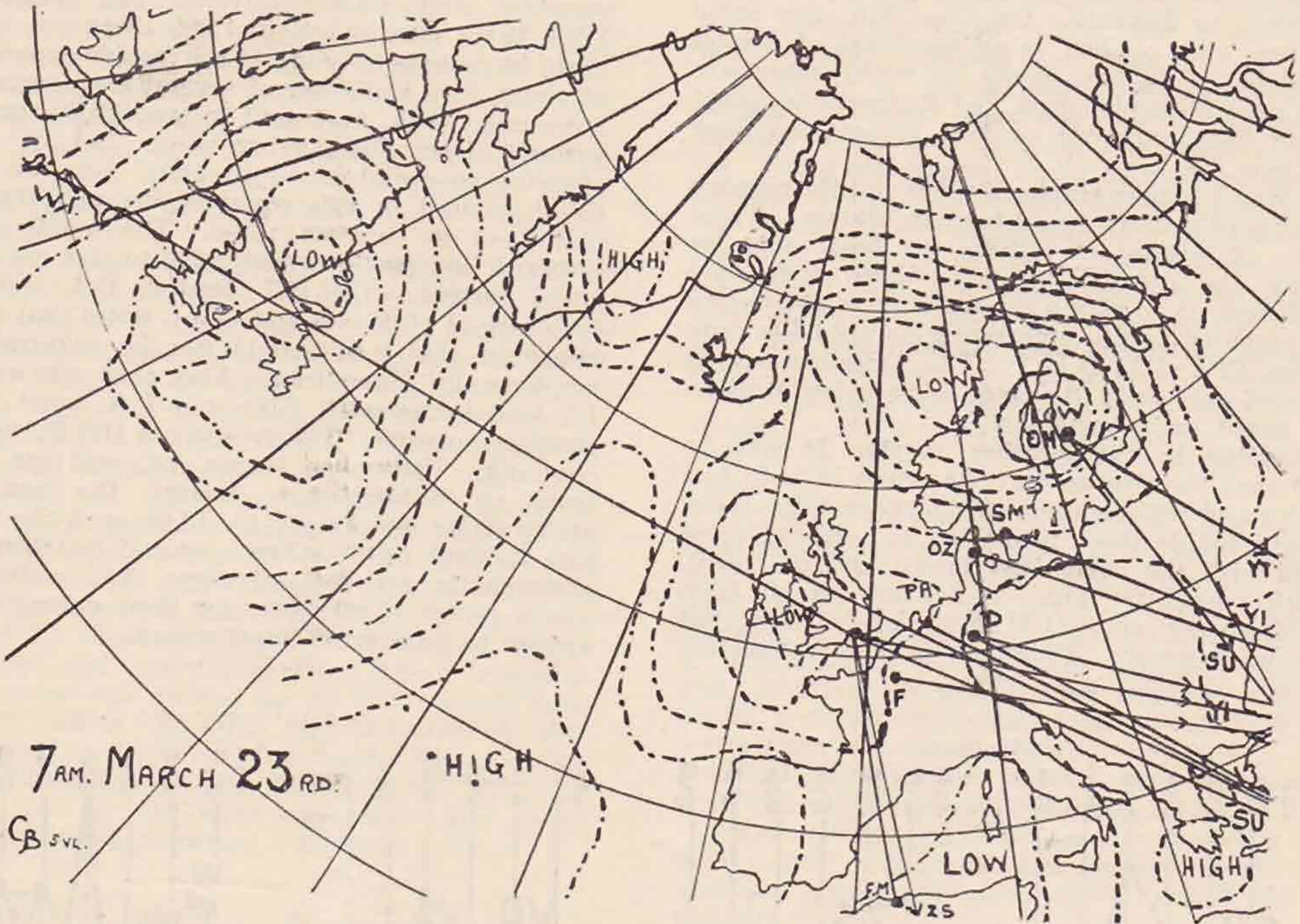
As to the whys and wherefores of the results. I propose putting before you all the facts available and asking members to form and send in to the "BULL." their own opinions. We have many schools of thought regarding the band and what causes good and bad days, and I am trying to give

food for thought to each of those interested. Probably organised data has not previously been available for one day on the same scale.

First as to the Weather and Barometric Pressure question. I am showing two weather charts, one for March 9, a good day, and the other for March 23. This was largely a washout, except as regards a few stations in YI and SU. On these charts are shown in heavy lines the general directions in which signals travelled, but it is not possible to show whether the G or foreign station originated the signal—the lines show only that signals got across one way or the other.

The charts themselves and the barometric distribution are copied from the Weather Charts issued by the Air Ministry and are reproduced by special permission of H.M. Stationery Office.

As regards the two weeks not illustrated. On the 2nd, a high pressure system was close to the American coast, a low-pressure area covered the Atlantic and pressure was high to North-East of England. Another low area was over the Bay of Biscay and a high area over Germany. On March 16, pressure was low over Newfoundland, Azores and mid-Atlantic and another low area covered all Southern and Midland England. The series of low areas extended from Eastern America to Belgrade and Spain. Pressure was high over Morocco and Egypt, and to North-East over Sweden. For the two weeks for which charts are shown, the interesting point to the writer appears the absence on low-pressure systems, generally speaking, at intermediate points on the signal path. On the end this was not the case, except



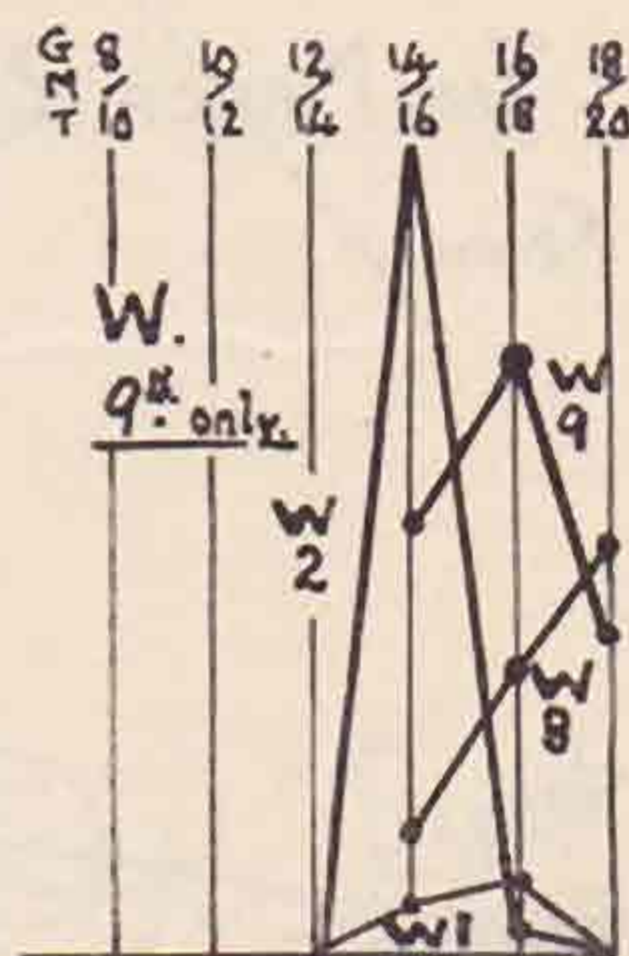
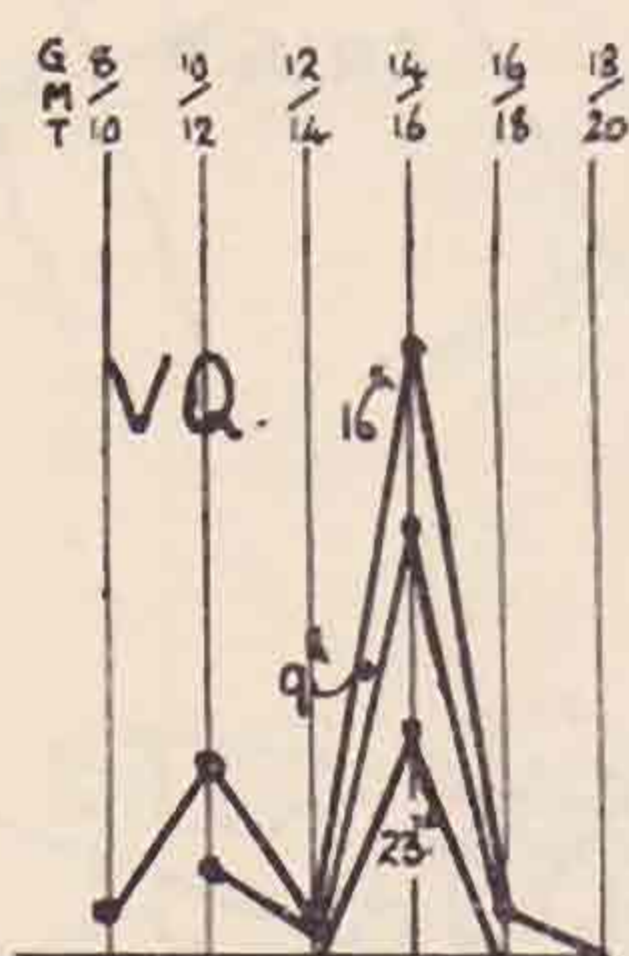
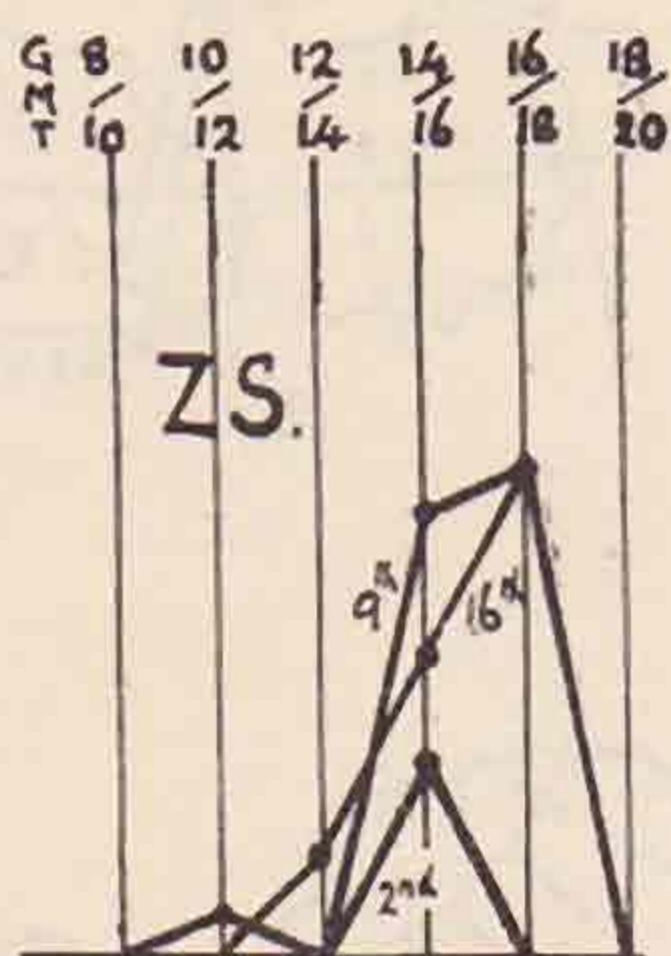
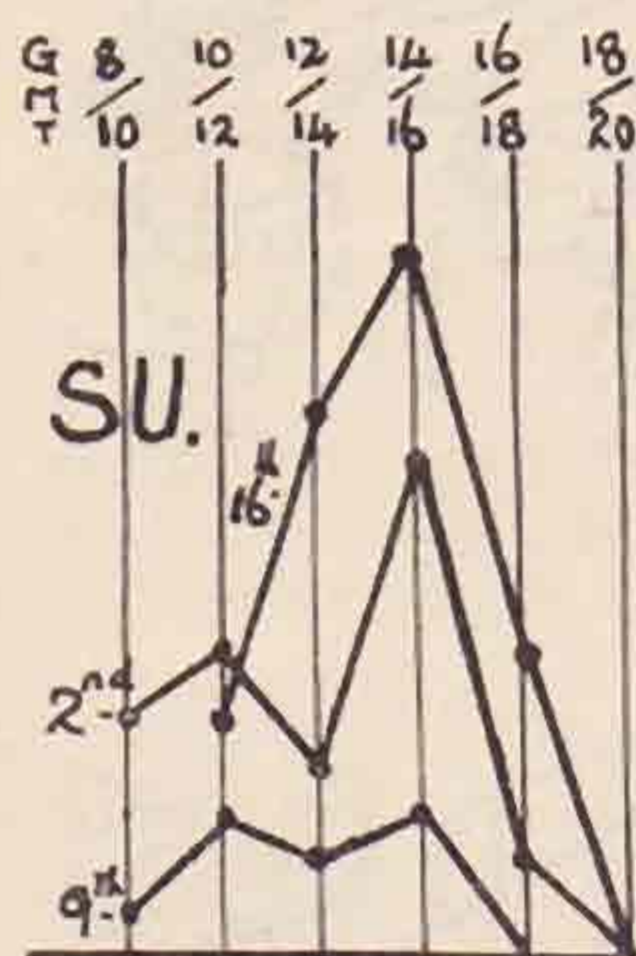
IMPROVING THE BULLETIN?

as regards an arc to South-East; roughly, East of Tripoli to Batoum. On the 16th, the same conditions only applied to an arc West of Tripoli to Madeira. The two weeks for which maps are shown need no explanation, but it should be noted that on 23rd only one or two W stations were heard here.

For March 9 some graphs of times and the number of reports of stations heard here are shown. These may be of interest as regards the best times for working the countries. Only where there are enough reports to give a fair basis have the curves been prepared. It is interesting to note the drop between 12 and 14 G.M.T. The American results are based only upon March 9, as very few stations were heard on other days.

Reverting to the weather charts. It will be found that the lists of stations heard in both last month's and this issue are given under their dates, and will enable those interested to compare these results with the conditions shown and described.

With regard to skip. It has not so far been possible to get out lists of local signals heard, but these were many. There are several interesting

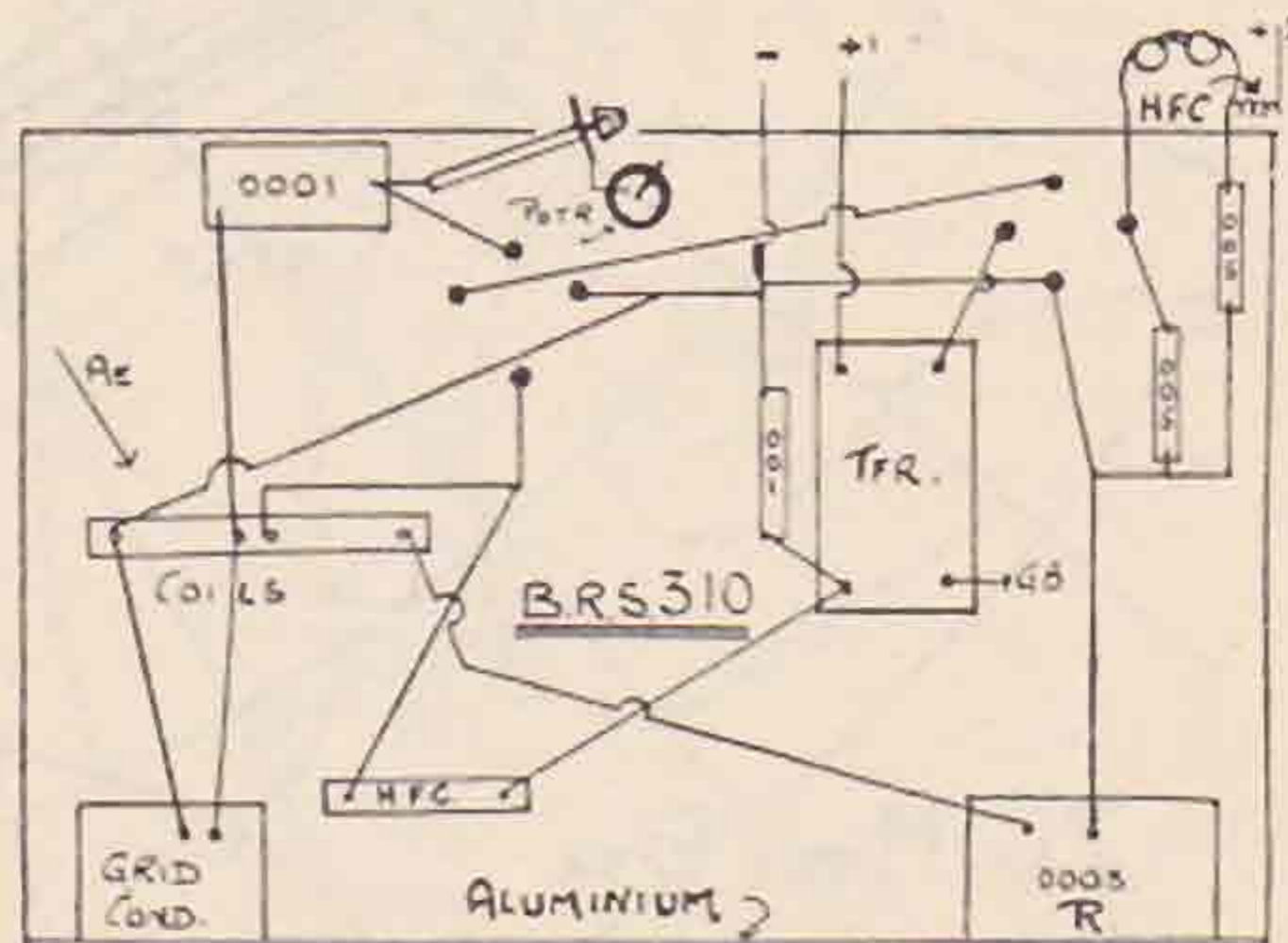


cases of signals from YI shown on charts in which the signals have reached intermediate points in Europe, but have apparently afterwards gone over our heads. The general radius shown is G to OH, G to CT and GI to FM for reception distance. These distances vary from 800 to 1,300 miles, approximately. It appears that this represents the minimum distance for communication on the band apart from local work. The point which has been raised several times as to whether harmonics have a less skip distance is, unfortunately, not cleared at all.

Coming to the gear used by the more successful stations: G6LL, whose station I have been lucky enough to see, is badly screened by trees. His aerial is only about 25 ft. high, double-wave with short twin feeders of about 6 ft. length from set to lead-in only. Direction is from South-East at free end to North-West by North at lead-in. The results he obtains make one doubtful of the deleterious effects of local screening. The transmitter has been described before in this paper, but shortly it is C.C. for 3.5 M.C. band through a DE5B as C.O. Two L.S.5B's follow and then a DET 1SW as last F.D. This drives an unneutralised P.A.—a Mullard SW 1 with 1,500

volts on plate. The F.D.'s take 480 volts as standard and when volts on last stage (the DET 1SW) were raised to 1,000 there was only a slight increase of output and the trouble experienced at times with radiation of several frequencies was not cured. P.A. is biased to practically zero feed without drive and keying is on 2nd FD. The coupling to aerial is "split coil," i.e., the aerial coil is wound in two equal halves and the P.A. plate coil is between these. The aerial coil is untuned, coupling being adjusted to give maximum aerial current. The H.T. feed to P.A. is tapped to centre of plate coil and G6LL notes that a H.F. choke in this lead should not be required, but emphatically is required. Also, that the negative LT lead between all FD's and P.A. must be the shortest possible. The receiver is D2LF, with RC coupling. Valves are Mazda A.C. and are heated from an accumulator. During the tests this accumulator was empty by 18.00, and the station had to shut down. From several quarters come enthusiastic accounts of these A.C. valves and where power is available for their demands they appear to be a great improvement.

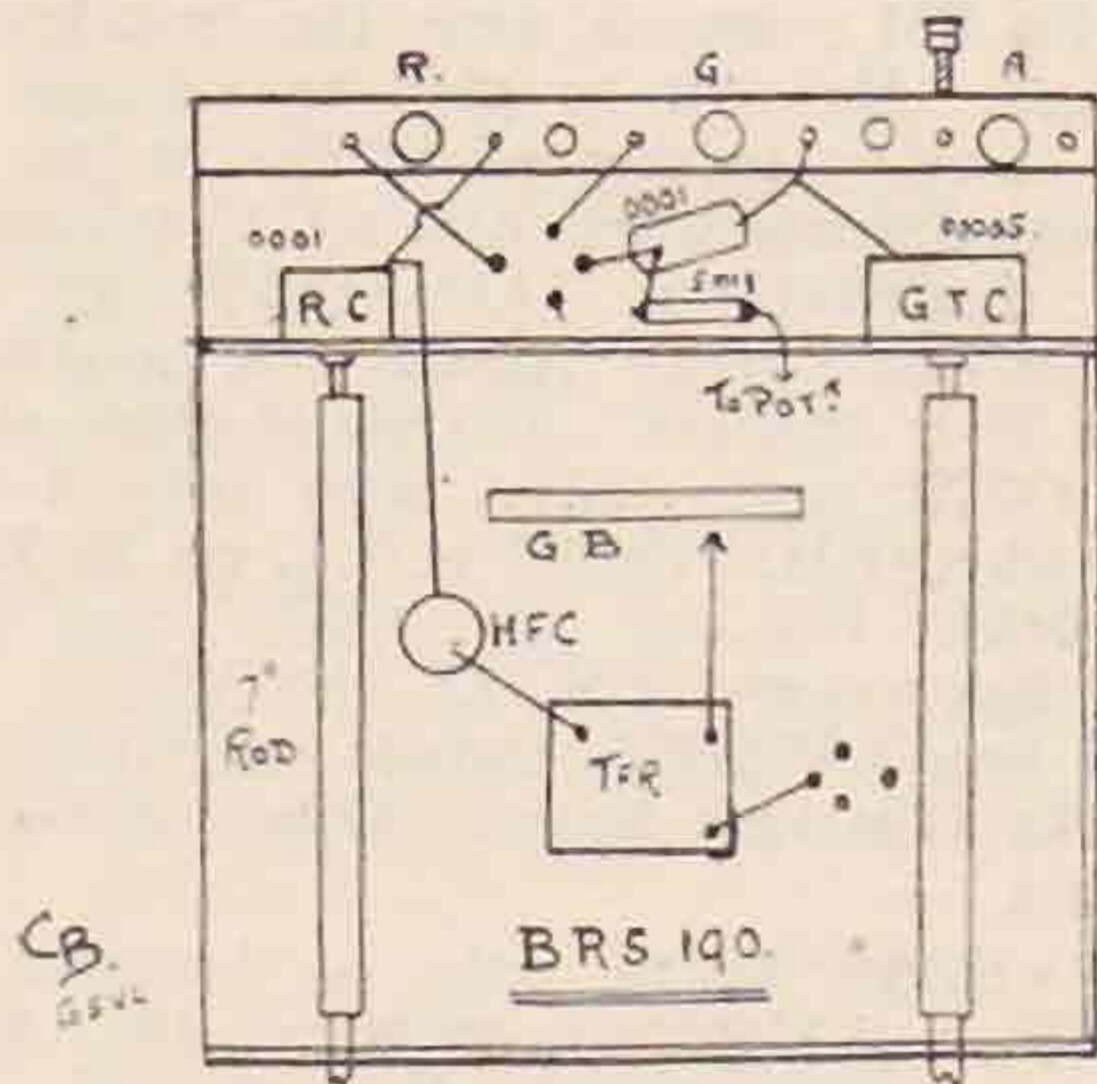
G6HP is located at Sydenham. He also uses C.C. with "Goyder lock." The CO is an ex-army VT 13A (cost 2s. 6d.) working on 80 metres. Two DFAS's and a LS5B are the FD's, and oscillator a DET 1SW. This is fed with 750 volts of R.A.C.



from two Phillip's valves as rectifiers and smoothed by 20 mf. of condensers and two chokes. The FD's take 400 volts from a U8 rectifier with 4 mf.

The aerial is a full wave, inverted L type, with 5 metres at top and 5 metres in down lead. Free end is to South and height 30 ft. to 40 ft. The aerial is surrounded by 50 trees, one only 5 ft. from aerial. As with G6LL, screening does not seem to affect results. As the station is 350 ft. above sea-level and the 'buses go up there (or endeavour to), QRM is the great trouble. The Crystal Palace, with its enormous metal framework, is "next door."

On the receiving side, BRS310 sends details of his gear. The aerial is an inverted L, 66 ft. in length with 36 ft. top. Earth is four buried wires of 20 ft. each, forming an arc of 45 degrees below aerial. Direction is from N.N.W. to S.S.E. at lead-in end. No screening of any sort exists. As regards the receiver, this is a standard circuit with aerial tapped to low end of grid coil. Coils are wound on 8-rib formers, 2½ ins. diameter, tuned by five-plate condenser, spaced ½ in. It has been found that when the reaction circuit tuned to same wave as grid circuit, T.H. was very bad and hand capacity was noticeable. A cure was effected by increasing either the reaction coil or condenser and everything then acted smoothly. The receiver has picked up 56 M.C. signals from EU5AM, calling CQ, QRG approximately 58 M.C. An earth connection is found to give better oscillation. Valves used are a very special PM 1HF (other ones of the same type were not good). Cossor P22 and, at times, a ST22 as L.F.



In view of the vast difference in the same circuits arising from lay-out, copies of the lay-out of receivers used by BRS310 and BRS190 are given.

BRS190 uses a Schnell circuit with 3-in. diameter coil of 16 S.W.G. Condenser five plates, treble spaced. The valve is held upside down by wiring almost below grid coil and leads to coil and condenser, etc., of detector are all under 2 ins. in length. Reaction coil is only 2 ins. diameter, five turns, grid three turns, and aerial, like grid, 3 ins. diameter, four turns. All spaced ¼ in. and self-supporting. Aerial coil is earthed to L.T. Aerial itself is 66 ft. long, North-West to South-East, with lead-in to North. This runs across roof for half its length and a curious arrangement is also used. An indoor aerial, running directly under the outdoor one, is also tapped to centre of grid coil. BRS190 claims that this increases signal strength without increase of background noise. Either detector only or one weak L.F. stage is

used. W9's are found to be scarce, East coast a little better and South Africa very good. Is this due to aerial direction?

BRS327, to whose partiality for pulling in stations not heard elsewhere I called attention last month, uses a one-valve (or sometimes one L.F.) set, with aerial tapped direct to modified Reinartz circuit. He is, like myself, at a loss to account for the special reception conditions. His QRA is in Thames Valley, nine miles from Oxford. Aerial a standard 60 ft. BC affair. Why on earth signals from VE4, W1, etc., should arrive there when they are not reported from any other part, is a mystery. Although an underground aerial was tried, this was disconnected, as it only reduced strength. It is especially noticeable that such stations as W2JN and SUSRS have never been heard.

I propose to add to this article such extracts from reports as can be squeezed in and which will give further information on the conditions in various parts of the world and more especially in Great Britain. It is almost impossible to work these into an article which will draw any definite conclusions and, as stated earlier, I hope sincerely that our 28 M.C. experts will draw and publish their own views from the details shown.

G5LU (Basingstoke) was on duty for the four days but only heard W2 and OH on 2nd.

G2OD (West Drayton) used a five-letter code word, but, owing to very severe local QRM troubles, was handicapped right through the test periods.

G6PP has a long list of G's heard, starting with G6HP at 00.25 on 9th. W2JN and SUSRS are the only foreign stations. I notice he used a 15-ft. four-wire cage aerial part of the time. Any improvement over the Hertz, OM?

G5SY (Torquay) heard both G5ML and G6LL on 9th at 19.00. He also brings in strange districts, VE4EL at 18.15 and W6BAX at 18.57, on 9th. Here SU and YI seem to be difficult to receive, SU appearing once only on 2nd. It is worth considering whether the later hour of sunset in West affects the reception of W6 in view of the cut-off shown in American signals from 8th and 9th districts on curves. Daylight would naturally linger longer at Torquay than further East.

G2GM sent a message from ZLIAN saying that no G's reached him on 2nd. ZL worked W6 that day.

G6VP gave PY1AA's list of stations heard, including G6LL.

G6OO (Bridlington) was reported by VQ2BH at 15.15 on 9th. I had previously received a note from G6OO saying that it seemed to him that when dates were arranged for tests, the powers in charge of the world's radio conditions smiled and turned off the tap. I hope that G6OO feels better now and will allow me to pull his leg slightly.

G5PL (Herne Hill) was on both receiver and transmitter, but heard nothing on 2nd from 00 to 05.30. On 16th between 00 and 04.30 harmonics of 14 M.C. were good strength. On 23rd between 00 and 12.00 it was noticed that WIK harmonic came in with good strength at daybreak. W2JN was heard in afternoon, 15.30. This was one of the few W2 signals heard.

2BIV (Sheffield), who had a good log of W's on 9th, blames "Cloudy weather, unsteady pressure

and snow," for the failure of signals on 16th and 23rd.

BRS77, who was at Cambridge on 9th, notes that, although conditions were fairly good, each station was only audible for a short time. Usually fewer stations are heard, but they are there all the time. His aerial was 80 ft. long and 25 ft. high, with a Schnell circuit using DEQ detector.

BRS25 (Thornton Heath) used a 60-ft. inverted L aerial and Schnell ILF set. He points out that either his location or aerial appears unfavourable for signals from southerly direction, and that VQ and ZS were not received as well as at other stations. W2 disappeared suddenly between 14.53 and 15.20 on 9th, and then the W8 and W9 signals came in at wonderful strength.

G6CI (Coventry) notes that local weather was similar for the three Sundays (9th, 16th and 23rd), but reception was practically nil for last two. He also notes the sudden drop of signals from R6/8 to zero without gradual falling off on evening of 9th.

G6DH (Clacton) was reported R7/3 by SU8RS on 2nd. Input 16 watts. The transmitting circuit was used mentioned in C.B. notes recently. Aerial 20 metres, with 14 metres top.

BRS314 appears to have heard every G station working, plus a few foreigners. He notes a curious wave change and recovery on G6HP's signals at 10.45 on 16th. Also a variety of waves from G6LL. All waves below 7 M.C. were blank from 00 to 02.15 on 16th.

G2GG (Newbury) used a half-wave vertical aerial. Receiver 0—V—I. A HW meter showed .15 amp. in centre of aerial. On 16th a change was made to Byrne Brook aerial (QST September, 1929) almost horizontal and about 40 ft. from ground. Current on this was .08 amps in centre. I have to apologise to G2GG for labelling him as W2GG in calls heard last month. A corrected log is given later.

GI6HI (Belfast) was QSO FM on 2nd, with under 5 watts. Only three FM's and SU were heard otherwise.

G5VB (Hampton) was also working with 5 watts. Aerial double wave. On this SU was worked on 2nd, and again with 7 watts on 16th and 23rd.

G6MN (Worksop) found all days except 9th "dud." He notes that conditions improved from 14.15 up to 17.00 then nil. An earlier fade-out was noticed than in other districts.

G2CX had a "blow-up" on 9th. Otherwise, from his results, he would have been way up with leaders.

G5YK was unlucky as compared with other stations in Cambridge. He was using 60 watts of C.C. power to a 68-ft. Zep, top 34 ft.

BRS268 (Bishops Stortford) notes a coincidence on 9th between the DX conditions appearing about 14.00 and a simultaneous jump in G6LL's ground wave. (I gather that even some minor members of the wave family were located.)

BRS310 (Gloucester), whose station has already been described, puts the credit for good 28 M.C. reception to the account of lunar periods, around the first quarter being best. He comments that, of course, this is speaking of reception generally, and cannot be taken to cover every district where local conditions will affect results.

G6YL and G2GG both give the QRA of the GBZW call heard by BRS327 on 9th as s.s.

Berengaria. Her CW transmissions are on 36.54 metres, and 17.81 metres for the short-wave set. Can anyone with a shipping list handy say where she was on this date?

G5ML (Coventry) found the tests rather a failure with terrible conditions, except on 9th. He was reported by VQ2BH on 2nd. A full-wave vertical aerial was used for tests.

G6OT/G6CJ (Harringay) heard a lot of G's and a fair list of foreigners. A two-valve receiver is used. The transmitter is C.C. and the last FD coupled direct to aerial. The aerial is a half-wave vertical, mean height 30 ft., fed by two 80-ft. feeders to centre. The operators report hearing the unknown station VKP1 (reported by G6LL) on 2nd and also hearing this station calling G6LL on 9th at 16.05.

G5VL (Cornwall) was using both a tried old D.2LF receiver and a SG. D. LF affair, but had no luck. Transmitter was the usual one, which gave good results last year. Aerial 68 ft. inverted L, with feeders to lead-in only.

D4AUH's log is shown later. On 16th he heard SU8RS calling a large number of G's to say that nothing was heard in Egypt. No G's were heard by D4AUH. A D.2LF set is used with aerial 100 metres long (!) for receiver, L type and 20 metres high. Transmitter is an Ultraudion, input 17 watts. Aerial L type, with 2 20-metre C.P., excited on 23rd harmonic.

SM6WL started 28 M.C. on February 23 with two QSO's with FM. During our tests his log is shown. His FM contacts were the first from SM on the band. He will be glad to arrange skeds with any stations interested in the work.

OZ7T, who did fine work, uses a C.C. transmitter, which he describes as "CO-FD-PA-FD," with 60 watts to last valve. Aerial is a double-wave Zepp, with 25-ft. feeders. Details of other stations given by OZ7T are: OZ1A uses only 5 watts, but has worked FM. OZ2U is C.C. on 28.72 M.C. He has worked FM and ZS. OZ7Y uses 90/100 watts and has worked FM, ZS and VQ.

PAOVN found W2BG's signals unbearably loud on 9th. No G's were heard. Other stations are shown in list.

VE2AC/VE2AS heard only a doubtful G5?? working W6 at 17.11 E.S.T. on March 16. Anyone able to give information? No amateur signals were heard with many hours of listening on 2nd and 23rd. W's came in on the other two days—but not the ones we heard in England.

W9AZZ was only able to be about on 9th and 23rd. He says: "On March 9 I listened for the first time on 10 metres and was surprised to hear G6LL. . . . My transmitter was then tuned to 10 and a call 'Test' was made, and a reply from G5WK was heard. . . ." Auto QRM and local BC station WOC made conditions difficult. Signals faded out at 18.00 G.M.T. W6BTO reports no G signals heard on 9th. W9AZZ heard none on 23rd. As a result of these tests he will be on alternate Sundays from April 6 and would be glad of any dope on 10 metres, receivers or transmitters. (I think W9AZZ should be pleased to note the reports of his signals over here. Will anyone who has time start a rag-chew with him on the points he mentions.) The receiver is a "1929 3-tube SG—peaked audio LF" and transmitter a CX310 with 530 volts. Aerial 20-metre Zepp.

OH reports come *via* "Suomen Radioamatoori-liitto" and are: OH2NM was, as usual, very busy, but heard no G's. OH2OP and OH7ND also heard other stations, but G was not amongst them. OH2NM uses a CC set with output stage acting as last FD. Input about 20 watts.

ZS reports shown below are "lifted" from the *Ultra Bulletin* sent by courtesy of ZT6C.

YIILM could not do much on transmission side early as the CC set, specially built for tests, refused to FD beyond 7 M.C. After a week's efforts it was given up as a bad job. YIILM has by now left Baghdad and QRA will be: Aircraft Depot, Drigh Road, Karachi. For the middle part of tests a "60-watt transmitter, hastily built from rubbish heap," was used. The receiver, which pulled in so many stations, is an 0—V—2, with resistance-controlled inductive reaction and one stage each transformer and resistance LF. The tuning is by an old-type Sterling condenser, using the original single-plate vernier driven by an Ormond slow-motion dial. The main portion of the original condenser can be set to cover the band in use by means of a dial mounted a few inches behind the panel. The aerial is a single-wire feed Hertz on 30-ft. masts, which, in turn, are on a 16-ft. roof. On March 23 power was increased to, I think, 300 or 400 watts, and the standard 14 M.C. transmitter used in a modified form. Wave was also altered at 11.15 from bottom of band to 10.5 metres.

YI6HT, whose log of G's must have cheered up many of our stations, is near Basra. His receiver is a D.2LF set with a vertical 21-metre aerial. A balanced Colpitt transmitter was used, feeding two aerials, a half-wave vertical and a quarter-wave vertical, through long lecher wire feeder line. Apparently signals did not get away. Heavy QRN was experienced, although the long waves were fairly clear. On the 9th heavy thunder caused interference on all waves. On 16th there were several periods of fading when all G stations disappeared, *e.g.*, 11.20, 11.40. At 12.55 O.K. was heard, and then a complete fade-out till 16.30, when FMSRIT was heard for a few seconds only. Signals came in about 9.30 on 2nd and 9th. On 16th the first was heard at 10.35. At this time both SU and G6HP were logged, so that it was not a question of English stations only affected. On 23rd, no stations were heard, and YI6HT suffered from a severe dust storm with a full gale behind it. In a later letter it is stated that better facilities for the erection of an aerial system of any type up to 70 ft. and a more suitable operating shack for the summer heat will be available and a lot of new gear is expected. A MOPA set is intended and later a CC outfit. YIICD and YI6KR are on the air and the operator of IMDZ has joined the YI gang from Mosul, so there should be a hot spot round there, both in temperature and radio. NO REPORTS HAVE BEEN SENT BY YI6HT. WRITE TO HIM DIRECT IF THESE ARE WANTED.

SU8RS.—What would our last two Sundays' logs have been without this call? He is a believer in a long aerial and "otherwise proceed as for 20 metres." G6HP's note, "A CC RAC is the best" for reading. The aerial used was mentioned last month and receiver is a SG D 2LF, which brought in every word of G6HP's fone. On this day (23rd) working was as easy as on 14 M.C.

and every QSO was carried right through. SU8WY has joined the band and reports hearing several G's. On 16th SU8RS heard no G stations and only ZS in the way of DX until dark, when—for the first time—ZS4M and G2OD were heard AFTER sunset. The T.H. mentioned last month still comes on at or soon after sunset. SU8RS winds up with the following general inference: "Conditions on 28 M.C. show an improvement each week. Conditions seem localised to a certain extent, for I did not hear G6NF on the 23rd, but SU8WY tells me he was calling." The station will be on every Sunday afternoon, traffic permitting. And—who was the G?? calling "Test, TEN" on 20 metres on 16th?

XU2UU.—I would dearly like to reproduce your letters in full, but space won't permit. Anyhow, to become less personal, XU2UU is at Shanghai now. His nearest man East is in W6, South VK, North none, West perhaps four between there and Europe. It is, as you say, a hard life! However, compensations are the QSO's with VK3BQ and VK2HU. Four calls heard, three QSO's and possibly heard by fourth is a good and cheering average. In addition to VK, a report from Brazil for a previous week must be good wallpaper. We all remember the G2FN transmitter which stirred up W6 last year, and this is still in use and has worked PK4AZ, VK5HG and learned Japanese *via* J1AW. The filament is now supplied with A.C. and a Phillip's TBO 4/10 valve is used. The conclusions concerning radiators previously drawn still hold good, *viz.*, that a properly designed radiator will produce results. A half-wave 14 M.C. Hertz single-feeder type is used and 15 watts into this raises VK2 and three at R5/6. Another later letter from XU2UU says that no G's have been heard in VK or ZL. The news was received from ZL2AC during the first ZL/Asia QSO on 28 M.C. There is a rumour that a ZL/F QSO has taken place, but nothing definite can be said. ZL1AO has been heard over 10,000 miles, XU2UU was heard, from India, in W2 and from China in PY. 28 M.C. signals come in in both India and China almost as soon as the sun is up. For working across the Equator, the early morning is found best, providing difference in longitude is not over 50-60 degrees. For greater differences, sundown at Eastern end appears best. Europeans are heard now and then on 14 M.C. about midnight, but no contacts have been made. Hope is still maintained of a contact with G.

W9BBA, who was heard over here frequently, was using a balanced Colpitt feeding a voltage-fed Hertz. He is willing to stand by for future tests or skeds on all waves from $\frac{3}{4}$ metre. We may see him this summer as well as hear him.

Through the kindness of BRS25, the following late reports have come in:—

W9BBA.—March 9 was the first trial on 28 M.C., when G6HP, G5ML, G6LL, G2OD and G6DH were bagged and several QSO. On 10th G6WK (?5WK) was heard. "Ten is fine all right but QSS is terrible."

W8SS on 9th used aerial only 18 ft. high, 40-metre Zepp. This has since been raised to 40 ft. Although this station was heard several times during tests, he writes: "Thus far the only stations heard here on 10 metres are: W5AOT last year and on March 10, 1929, G5VL and G2CX. W6EC

on same date. This year only WSMV? 5 miles away." The transmitter uses a 15-watt tube and feeds a 66-ft. aerial with twin feeders, each 33 ft.

VQ4CRE.—"Last Sunday, March 9, I listened at various times in the hope of getting a G, but N.D." ZS4M and a W are only stations heard.

Regarding the query station, ?6ZY who worked G6HP. BRS25 definitely heard this station sign G6ZY, so hopes of a W6 are extinguished. Sorry, G6HP, to blight your hopes.

I think that completes all the reports. If anything is missed, apologies in advance. There have been a mass of papers to deal with here and I have that uncomfortable feeling that one may have gone astray. If the tests have helped (and I think they have) to direct more interest towards the band, then all is well. When you read the above reports, that's if you do, refer to the logs printed last month and this. Reference to the results attained by the stations mentioned is necessary to follow the reports fully.

Calls heard and stations worked during tests. This list is additional to that in last issue:—

CORRECTION.—G2GG.—2nd, su8rs; 9th, w9azz, w9cca, w9bba; 16th, nil; 23rd, su8rs, vq2bh.

G2OD.—9th, *zs4m, *w9exw, *w3aqt; 16th, *zs4m; 23rd, *su8rs.

G2VQ.—Nil (in spite of many hours listening).

G6OO.—2nd, 16th and 23rd, nil; 9th, w2jn, w9bba, w9azz.

G5ML.—2nd, eu5kau; 9th, w2aqb, *w9bba, w9ef, w2byg, *w8ss, w2bhq, w8djv, w8apd, w9exw, w9azz; 16th, *vq2bh, su8rs, w2bg; 23rd, *su8rs, fm8rit, *vq2bh.

G6OT/G6CJ.—2nd, nil; 9th, vkpl, wlcmx, w2aqb, w2acn, w2bg, w2jn, w8adm, w8djv; 16th, su8rs, vq2bh, zs4m; 23rd, su8rs.

G5SY.—2nd, vq2bh, su8rs; 9th, vq2bh, w9exw, w9ef, w9bba, w3aru, w1bjd, ve4el, w8djv, w9bzg, w6bax; 16th, w8bjv, wlcmx, zs4m; 23rd, nil.

G6NF.—2nd, su8rs, eu5ka; 9th, w2bg, w2jn, *w9ef, vq2bh, w9bba, zs4m, w8djv, w2amr, w9azz, w9bba; 16th, zs4m, vq2bh; 23rd, su8rs.

D4AUH.—9th, *w2bg, w2jn, w8adm, w8djv; 16th, *su8rs; 23rd, *su8rs, *yillm.

SM6WL.—2nd, *fm8bg, fm8rit, ear96, ctlaa; 9th, *fm8rit, *fm8bg, fm8cr; 16th, nil; 23rd, su8rs.

SU8RS (continuation from last issue).—23rd, g6dh, *oh2nm, *fm8cr, *d4uah, *oz7y, *fm8rit,

*g5ml, *g6ll, *g5vb, *g6hp, *g2od, g6vp, vq2bh, zt6c, *g5by, pa ovn.

PA OVN.—2nd, su8rs; 9th, vq2bh, w2bg; 16th, su8rs; 23rd, nil.

YI6HT (continuation from last issue).—23rd, nil (dust storm locally).

CV5EF.—2nd, g6ll, g6nf, g6lk.

ZS2N.—2nd, g6ll, g2ck, su8rs, g2od, g6dh, w2aqb; 9th, f8bg, g6ll, g6hp, g6nf, w2jn, oz7t, g5wk.

ZT6K.—2nd, g6ll, w2aqb, w2jn; 9th, g6nf, g6ll, g6hp, w2jn, wlcmx.

ZS5C.—2nd, nil.

ZS4A.—2nd, nil; 9th, g6ll, w9bba, oh2nm, wlasf, *g5wk.

ZS4M/ZS4E.—9th, *g2od, g6ll, oz7t, *oh2nm, w1bux, w2jn, *w2bg; 16th, *oz2u, *oz7t, *oz7y, *g6ll, su8rs, *g2od.

ZT6C.—9th, w2za, w2jn, g6hp, g6ll; 16th, oz2u, w2bg, g6ll.

CN8MOP.—ok1?, oz7t, oz5uj, g6ko.

F8AG.—16th, zs4m.

F8AAP.—9th, vq2bh, w2bg, w2bwx, wlcmx, w9bba, w9dft, zs4m, w8ss, w9bba, w6bto, w6kj.

F8EF.—9th, w2jn.

F8GQ.—9th, w2bg, w2jn, *wlcmx; 23rd, su8rs.

F8EX.—vq2bh, su8rs.

F8DT.—23rd, su8rs, yillm.

F8VLP.—16th, su8rs; 23rd, su8rs.

F8BL.—2nd, nil; 9th, w2bg, zs4?, w2acn, oh2nm, wiasf, pylaa, w2jn.

W9AZZ.—9th, g6ll, *g5wk, *w6bto, *w6kj, *w7if, *w6bet; 23rd, nil.

VE2AC/VE2AS.—2nd, nil; 9th, w4aiq, w9aok, w9aod; 16th, w4aq, w6ejc, w6blv, w4pau, w6cix, g5?? (wkg w6-); 23rd, nil.

G5LU.—w and oh.

G6LK.—2nd, sm6wl.

OH2NM.—2nd, fm8bg, *fm8rit, su8rs; 9th, *fm8rit, *fm8bg, *fm8cr, *zs4m; 16th, *fm8rit, *fm8cr, su8rs, yillm, zs4m, vq2bh; 23rd, *su8rs.

OH2OP.—9th, yillm, uoxy.

OH7ND.—2nd, fm8rit, su8rs; 9th, fm8rit, zs4m; 16th, fm8rit, zs4m.

W2JN.—2nd, g6ll, g6dh, g2od.

SU8WT.—g6dh, g6vp, g6nf, g6ll, g5ml, g2od, g6hp, f8rvl, zt6c, pa ovn, uoky, uo3op, uodx, oz7y, oz2u, fm8ih, fm8cr, sp3ar, d4uah, vq2bh.

Contact Bureau Notes.

By H. J. POWDITCH (G5VL).

As these are essentially C.B. notes I would like to thank the C.B. stations who helped with the 28 M.C. tests. In some cases sleep must have been a rare event.

Unfortunately, the dark hours proved a complete wash-out except as regards strictly local sigs. Sorry to have given you so much wasted time. My excuse still is that as these dark hours had never before been systematically explored for the band we have settled the point once and for all. Several of the receiving stations who achieved the greatest success were standing by throughout the night

watches, and as there was no question of their powers to bring in any sigs. available the obvious conclusion is that there were none about.

To the winners of the competition side, our best congratulations on their work. To the runners-up, better luck this year.

I would like to emphasise here the note in my account of results, printed separately. Use the lists of calls heard and QSO's in conjunction with the other matter. Work out *your* opinions on the results and push them along to C.B. or the BULLETIN. I feel that with the first organised

report of 28 M.C. conditions and results to give a fair amount of data there must be material to cover each station's pet ideas concerning the vagaries of the band.

Please don't think I am saying anything to belittle the 28 M.C. tests run by C.B. last year. They were unfortunate as regards conditions and therefore did not yield so much information as the work of organisation deserved.

Since the tests, a report has come in to C.B. direct and also to G5HJ from W6BXV (who was standing by for the tests but had no luck) of the reception of G5HJ's signals at Monterey Park, California, on March 30, at 11.30 P.S.T. (19.30 G.M.T.). The power used at G5HJ is stated never to exceed 10 w. from dry cells. We would all like further details of this event, G5HJ. How does it agree with your log? It should be an added inducement to G stations to stick to 28 M.C.

Beyond the test results it will be seen that there is little to report from the 28 M.C. groups, who are resting on their laurels.

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Group 8A.

By J. E. JOHNSON (G2ZN).

When the result of the 1929 QRP contest was announced and Group 8A declared the winner, the writer was asked to provide an article with the object of ascertaining to what group members owe their success in this interesting branch of C.B. work. It was at once realised that the conventional station description was not the all-important feature; specific points which enabled each member to achieve his own measure of success have, therefore, been accorded priority.

The first QRP group came to life as a result of the writer taking to transmission under difficulties; to wit: no power supply. Nothing deterred, however, it was soon found that the QRP man would compare his log-book with that of the high-powered fraternity, and then feel justly proud of his efforts. Accordingly, a group was soon in full swing, the members consisting of G5RV, G5PJ, G5AZ, 2AUT, BRS245 (now G5FA), with the writer as G.C. As mentioned above, is it not desirable to take up valuable space with stereotyped station descriptions; however, a brief resumé will not be out of place.

The T.P.T.G. and Hartley circuits seem to find particular favour, no doubt on account of their simplicity of operation, and also on account of general efficiency for this work. Whilst, of course, there exists diversity of opinion regarding suitable valves, it is interesting to note that small dull-emitters are deservedly popular. The writer has used a P.M.2 for *all* his work with extreme satisfaction. G5RV has done most of his work with a DE4, but considers a PM254, which he has just installed, to be better.

Much discussion has been waged respecting the relative merits of high and low "C" tank-circuits. It is unanimously agreed that a relatively high "C" circuit is conducive to a good, steady note, the foundation stone and mainstay of QRP work. In passing it must be added that G5RV was the first man in the group to boost the circuit. It is one much favoured by himself, and the mere fact that

The 2 M.C. tests have brought in a very large amount of matter for examination, and C.B. had reluctantly to leave this over for the month until the 28 M.C. load was off his hands. Generally speaking, the variation in conditions between various localities seems marked. Beyond this, please look for details in next month's BULLETIN.

This month I am giving you the views of G2ZN upon the points which led to his group, 8A, pulling off the QRP trophy for 1929. The points he mentions are likely to give rise to some discussion, but the group did the trick and will no doubt stand by their opinions.

G5VL does not often intrude his own ideas, but the article by 2ABK on the series tuning receiver (first described by BRS255) reminds him that a S.G. stage, untuned, with the series tuned detector circuit, is a very fine combination and has been used for 28 M.C. lately here.

G6HP makes special mention of the "receiving" qualities of BRS250, who helped him with the 28 M.C. tests during the small hours.

he has made the best contacts of all should speak for itself.

This, of course, brings us to a more detailed discussion of notes. There is little doubt that an absolutely pure D.C. tone is *the* thing for QRP. This, fortunately, generally follows quite naturally in this type of work, for both G5RV and G5PJ started with H.T. accumulators, whilst G5AZ and the writer used dry batteries, both an obvious source of pure D.C.

Regarding aerials, the "end-on Hertz" or "A.O.G." is very popular. G5FA (ex-BRS245), however, is disposed to favour the Zepp antenna, which has, apparently, a higher angle of propagation, and should, therefore, be more suitable for DX.

Importance of antenna length should be emphasised. It is true that any length of wire will suffice for contacts up to, say, 400 miles, but there is little doubt that the conventional $\frac{1}{2} \lambda$ or $\frac{3}{4} \lambda$ antenna is definitely superior for DX work. However, the writer has not found any necessity to quibble over a few inches in aerial length. One should not worry unduly about abstruse theoretical pros and cons, as frequently one finds that an antenna with no scientific foundation whatever is admirably suitable for QRP work; G5RV, for instance, achieved excellent results with a $\frac{1}{4} \lambda$ "A.O.G.," an aerial which in theory should not function.

A point well worth mentioning is that when an ultra-QRP transmitter is installed you *cannot* obtain results unless *everything* is pulling together. On the other hand, the high-power man can well afford to lose ten of his fifty watts through inefficiency and hardly notice it. QRP men automatically acquire good habits, for every milliwatt must do its full work.

At this point one could do no better than quote G5AZ's two fundamentals for QRP work—intelligent operating in the choice of calls and patience. Elimination of "frills" in transmitter construction, even to omission of switches—always a possible seat of loss—largely account for the successful activities of the latter station, which embrace a contact with U.S.A. and a report from Rio de Janeiro on a few watts.

It would not be amiss to discuss points upon which the group's work is dependent, which are outside our control. G5PJ generalises his reasons for QRP success by stating that favourable conditions account for his DX contacts. It certainly does not matter whether your input is 2 or 20 watts when conditions are really good. An unscreened outlook to the east is also quoted as a feature worthy of mention in the latter station's opinion, as radiation in this direction is particularly good.

Discussion was at its height a few months back on various "inertia" (for want of a better term) theories. The writer suggested that providing a small definite "impulse" was given to the radiated wave, successful contact was assured. Anything above this was more or less waste. The idea is analogous to the trigger of a gun which requires a small, but nevertheless definite pressure to assure spectacular results. So with QRP.

Needless to say, objections were soon forthcoming to this rather crude analogy. G5RV thought it was rather a matter of "ear inertia" on the part of the receiving station, for a considerable increase in sound is essential before it is apparent to the human ear.

BRS245 (G5FA) suggested the inertia principle was applicable to the aerial, and pointed out that efficiency was always relatively high on low inputs.

A rather ingenious explanation is put forward by 2AZR, a new member, on the superiority of higher power for *ultra-DX* work. He suggests that whereas QRO signals would be reflected, QRP signals would tend to become "lost" in the Heaviside layer. The writer is inclined to think that in the case of pure reflection QRP has every bit as much chance as higher-powered transmissions, but if *refraction* also enters into it then first place must be accorded to the latter owing to losses in passage through part of the layer.

Last, but by no means least, a few words must be said regarding the non-transmitting members of the group. As, of course, more or less conventional receivers have been in use, it was not thought necessary to go over old ground. 2AUT, 2AZR, and BRS245, as the latter was at the time, have rendered invaluable service to the group in consistent reporting on signals. If the really excellent work which these "A.A." and "B.R.S." men do were better realised, the writer ventures to suggest that they would enjoy a decidedly better representation in groups than they do at present.

In conclusion, G.C. would like to express his warmest thanks to all members of Group 8A on their co-operation, and the fine spirit of "parallel sailing" to which the successful outcome is due.

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Group Reports 28 M.C. Work.

Group 1B.—G.C. G5SY sends in results of his group's activities during tests. These appear in the analysis of results. I note that 1B keeps up its average of successes on 28 M.C. G6LL comes home first. G5ML is there, as usual, though not so far up as is his custom. G5SY scores a VE4 and W6 of the few heard from these districts.

Group 1C.—G.C. G6VP follows G6LL to indirectly heated valves for receiver and finds them "immeasurably superior to ordinary 6v. types!"

G2NM, G2GM and XSN1AA have been visiting and G6VP wishes to also thank the many who have written him concerning the account of his station recently published in the BULLETIN. G5YK is rather doubtful concerning the working of his S.G. stage in receiver. On the 8th, however, several W stations were "good." G6WN have had trouble with power and halyards. Their log is elsewhere. A note is made that when WIK was audible, WIZ faded, and vice versa. It is suggested that differences of angular reflection due to differences of frequency between the stations may account for this. (The fact has been noted at several stations.) G6DH has a good "test" record. An additional report came from W2JN on the 9th. 2BIV blames the abnormal weather conditions for results during tests. G6VP was in trouble with new 50w. C.C. set owing to condensers melting and H.F. in keying leads. After the first two Sundays the troubles were righted. Although SU8RS heard his sigs, this station could not be heard at G6VP and these conditions persisted. A later sked, however, enabled the two to QSO on time for five consecutive days. G2ON received 56 M.C. harmonic each Sunday.

Group 1F.—BRS25 finds that all his reports are covered by tests. He hears from W9BYC that this station is closing on 28 M.C. and moving to Arizona. On March 9 the first G sigs. were heard, G6LL and G5BY, about 16.00 G.M.T. G2CX had a bad blow-out—sorry, blow up—of valves and transformers but stuck to the receiver. Other members of the group are making up arrears of sleep.

Group 1H.—G.C. G6OO is using a card from VQ as bait to those who feel tired of struggling with the band. G6UJ is said to be nibbling. A beam type antenna is going up shortly at G6OO.

Fading, Blanketing and Blindspotting.

Group 2B.—G.C. G2ZC sends in the following report:—

So far as general conditions go, March has been peculiar in having produced several days, on which no British signals were audible in Britain, such as the Calibration service, and other schedule work that was known to be "on the air." These bad conditions started about March 13 (on the 7 M.C. band), and a sked. between G2IM and G2ZC was quite inaudible, but one G station was audible in Jersey, namely, G6YL. The 16th gave an inaudible Calibration service, and not a G was heard, except in a few cases of very nearby ones. On the 17th there was a semi-blanket. On the 23rd, not only do the group report a blanket of all G signals but G5CI kindly sends in a report which says that from 09.15-12.30, not a G station was to be heard, and I have since heard from him, that the same conditions were with him on March 30. The Calibration service was also inaudible, on the 23rd, while on the 24th, G6PP and G2IM in London did not hear either G6YL or G2ZC, nor did the latter hear the former, though each group QSO'd on its own. The curious point of this is that the two more distant stations had a normal QSO, yet two others in between them did not hear a sound of them. Once before this happened, and an Aurora display was reported after, so will anyone who can throw any light on these conditions please offer us something in the

way of an explanation? Conditions on other bands seem to have been normal, judging from reports.

Next month the group are going to discuss "Absorption," CT1BK having already sent in a long report, and a sum up will be given. G2IM, G2ZC, G6PP and G6YL all report on the above curious conditions, while CT1BL sends in a long report answering many questions put to him on the subject of his very interesting potential theory, showing that potential differences in cloud is just as apt to interfere with signals, as P.D. of earth, or water.

I fear I cannot give justice to this excellent paper in so small a space as we are allowed to take up, and for that matter the same holds good with the reports of others, but apart from absorption we have made up a list of 27 different things that may cause fading, and each one is to be discussed in turn.

The group is in a healthy position, and from the length of the reports, and the contents, we hope to offer some interesting "dope" from time to time.

56 M.C. Work.

Group 7A.—G.C. G2DT writes:—

In the *Proc. I.R.E.* for March is a paper on 3-metres experiments conducted by the C. Lorenz Laboratories, and it is worthy of note that when the aeroplane, with transmitter on board, was at an altitude of 1,000 metres reception was possible up to a distance of 50 kilometres from the aeroplane, thus apparently disproving the mathematicians' theory that the ultra short waves do not come down to earth. Again, it is reported that 3-metres signals sent out by Dr. Alexanderson from Schenectady have been picked up in San Diego; consequently, Group 7A is renewing its optimism! It is gratifying to note that G6TW some time back came to the same conclusions as the Lorenz Laboratories in that it is advantageous for the transmitter to be elevated and, if possible, in the open. The G.C. remembers that G5VL mentioned that G2HJ had suggested the use of super-regeneration and the G.C. would be grateful to this OM or any other for a design suitable for a 56 M.C. receiver as in the *Proc. I.R.E.* it is stated that this type of receiver proved to be the best after prolonged tests. In the matter of directional aerials W6BX sets a simple resonant wire at one-fourth wave-length distance behind the main vertical antenna and then goes on to say, "It absorbs power and re-radiates it so as to reinforce the radiated wave in a direction through both wires and from the reflector wire through the transmitting antenna; it is a simple matter to arrange that this single wire can be rotated around the transmitting antenna as a centre, and it is cheap compared with the price of equipment to double the signal strength as a distant receiver." G6XN has been "learning things" from his different aerials and cannot make out why G2OW who is about five miles away gets his signals R2 to R4 with a 67 ft. aerial, but can hear nothing with a 33 ft. Another matter of interest is that whilst G6XN can hear G2OL (also five miles away), the latter cannot hear the former and G2OW can hear G6XN but not vice versa! G6XN thinks this is due to some form of screening, in which case 5-metres is apparently a different proposition to 3-metres as the following extract from the experiments of Herr Gresky would

seem to indicate:—"... there now followed a number of experiments in which the transmitter could freely radiate into space at a high level above the ground, whilst the receiver was moved around in an automobile in order to determine what influence would be exerted by obstructions such as hills, houses, etc., located between transmitter and receiver. It was found, contrary to expectation, that a screening effect caused by groups of buildings and conductors could not be observed or only to a very slight degree." G5WK is not on the air yet, owing to being unfortunate enough to crack two 7 M.C. crystals, but hopes to be going strong by the time these notes appear. VQ2BH is both transmitting and receiving but no details are yet available. Whilst not being too hopeful, G6TW is rather of opinion that he heard W2AIU during 56 M.C. transatlantic tests a short while ago, he having reported to W2AIU that he heard "a long drawn out note" to which W2AIU replies: "At the time you mention I thought that I would throw excess plate current to the big bottle, so I hooked an old $\frac{1}{2}$ -kw. spark transformer to the 110-v. line and threw the plate current at the tube. To prevent sparking within the tube I choked the secondary leads heavily with plate glass condenser. I really believe that when the key was pressed the condenser was charged to full capacity and, upon release, the condenser discharged and produced that drawn out note." G6TW is about to try out a Telefunken RE-604 transmitting bottle and hopes for great things from it. G.C. G2DT has transmitter going most satisfactorily to a 15 ft. A. of G. aerial, but is in a state of chaos with new receiver and is temporarily held up pending "manufacture" of a new and weird variable capacity!

The following skeds are in operation until further notice:—

G6TW Sundays 11.00, 14.00 and 18.30 G.M.T. each for $\frac{1}{4}$ -hour.

11.30, 14.30 and 19.00 G.M.T. each for $\frac{1}{4}$ -hour.

G2DT Sundays 11.15, 14.15 and 18.45 G.M.T. each for $\frac{1}{4}$ -hour.

(Frequency 57-Megacycles).

Group 7B.—G.C. G2OL gives a resumé of activities. G6WN ops. have received G2OL on two nights at $1\frac{1}{2}$ miles, with hill between stations. G6CO at three miles without hills gave QSA5. The G6WN receiver is series tuned, range 4 to 6 ms., with no extension handles to tuning. G2OW receives G6XN consistently at five miles. 14 and 28 M.C. harmonics also come in well. In addition to the G2OL/G2OW fone QSO, communication can be kept up with receivers at $\frac{1}{2}$ mile distance. G6CO also heard G2OW and G6XN although a shorter aerial, screened by house, was found to prevent reception. G5QY has now a receiver going and has fixed up skeds with London. G2OL is dissatisfied with Neon tests for H.F. after passing chokes, and thinks that it may not be possible to locate voltage node for test in this position. He suggests that all standard chokes show standing waves and finds that only a large coil of $2\frac{1}{2}$ " dia., 150 to 200 turns basket wound, 20 S.W.G. is satisfactory. On this he traces out dwindling nodes, finally disappearing. A $\frac{3}{4}$ wave, 14 M.C. aerial with 4 ft. C.P. is used, coupled by 2-turn coil, untuned, to transmitter. The aerial slopes at about

45 degrees. It is probable that the sked of transmissions by this group will be radiated on 7 M.C.

QRA Work.

Group 8A.—VOLUNTEERS are needed to bring this group to strength. G5PJ resigns owing to exam. QRM and later a QRO tendency.

Reports on conditions for QRP work this month seem somewhat mixed, although G2ZN is apparently the only member who reports conditions definitely good. G2ZN reports a number of good contacts, the best being EU3KAC, who gave R4 on 1.3 watts. A new country has been worked on 14 M.C., in the shape of HAF3AV. In addition contacts were made with EAR, SP, OK, OZ. G2VV's suggestion that QRP sigs. seem less prone to skip than QRO is borne out by an R7 report from OK2VA when nearly all other Europeans had disappeared. G5RV is getting R6-7 all over Europe with his new C.C. transmitter. The original High-C transmitter gives R7 from S. France and R8 from Holland on 4 watts in daylight. G5PJ has been inactive and resigns from group. G5FA thinks the "AOG" aerial O.K. for Europe but bad for real DX on account of low angle of propagation. CTIBY gave R4 with 4.5 watts on 14 M.C. G5FA also remarks that he finds OH ridiculously easy to work in comparison with other countries but can assign no reason. 2AUT remarks on the absence of QRP sigs. after a fall of snow! The RX is now going on 2 M.C., but, as yet, he has not logged G2ZN's single watt on this frequency in spite of skeds! An S.G. stage is to be added to this end. 2AZR has heard all members of the group on 7 M.C. at strengths between R5-7, the farther stations being R7 whilst G2ZN was R5, a clear indication of skip. He is still anxious to arrange skeds on 2 M.C. with other members.

Group 8B.—Seem out to lift the trophy for QRP from 8A. G5JF starts with N.W. Frontier of India on 5 w. G5JF shifted to 7 M.C. as 14 was bad. He appears to have been strafing G2RT for the latter's statements that QRP was not always reliable. G2OA has another W report, plus HB and UN, CT2AA is a regular. G6SO tries 2 M.C. band, with fair result. G5CM upholds QRP, backing

opinion with a long list of contacts made. He is building a new "T.P.T.G." receiver. From the circuit this seems to be a T.P.T.G. standard Txmtg circuit with shunt feed and L.F. transformer behind the H.T. feed choke. Anhyow, the G.C. states it works very well. G.C. G2VV finds that from 07.30 to 08.45 conditions on 7 M.C. are dead but 20.00 to 23.00 is FB. A QSO with EU2 got R3/4, whilst EU was only R2/3 here though using "umpteens" watts. A good report from W1 for last September gave R4 on 7 M.C. with 3.5 watts input.

Group 8D.—G.C. G5PH finds things quiet. G5AQ says the worst ever on 7 M.C. He is using the D.E. type of receiving valves as osc. and mod., and finds them up to the L.S. type. G2AV has been working Europe on 3 w. with CT25X valve. A new transformer is being built. G5PH is crystal grinding. Has got one for 21 ms. to take full control, and wants to know if this has ever been done. (Do you mean 21 fundamental?) Main energies seem to be on fone with Europe, plus R9 from EAR. G5QA, G6PS, and G2AT are defaulters with reports. G.C. wants to know why.

Group 8D.—G.C. G2XB has C.C. and got this to Bavaria. G6GL watches moon and chooses the full period for DX. G2SA favours the previous week. He is QSO Faroes, EU and EAR. G2GA goes to 14 M.C. and works UN there. G6HK worked YI on 5 w. He is still interested in harmonic C.C. G2YU also goes to 14 M.C. to dodge QRM and intends to stay there.

2 M.C. Work

Group 10A.—With tests on 28 M.C. and his own band, G.C. G6OT is rushed. G5UM sends a fine list of stations heard. He found March 2 a good day for DX on 2 M.C. and G6OT found it good on 28 M.C. Any connection? From a well-kept schedule report from BRS164, February 23 seemed to be the best night in the month. G2AX has been experimenting with L.F. amplifiers for modulator. He concludes that transformer coupling CAN be made as good as R/C, with the extra stage gain. BRS164's results confirm better reception during wet weather.

NOTES & NEWS FROM THE BRITISH ISLES.

DISTRICT No. 1.

Representative: D. J. BEATTIE (G6BJ), 14, Rosehill Mount, Manchester Road, Burnley. (Tel. 2659).

G5JF is still working DX, his best being VS7AP (Colombo, Ceylon) with the usual 5 watt gear. He finds the best time for PY and LU to be about 22.00 G.M.T. on 14 M.C., but has not worked South America yet. G5RX has rebuilt and is QRP 4 watts on 7 M.C. G2XB has done little, being bothered by BCL QRM. He is on 41.8 metres using harmonic crystal control. G2DH has his best QSO, also VS7AP. His DX is very similar to that of G5JF, but with 8 watts instead of 5. G6CA is testing an end-on aerial instead of his Zepp. feed. We have two new stations this month, G2OI, who was formerly 2ABQ, and G6RH, Mr. Holmes, of Liverpool.

The former is on 7 M.C. with a Hartley and also a CO-FD-PA circuit, and the latter will be on the air shortly with crystal control. G6BJ has nothing to report, being too busy with Easter QRM and letter-budgets, etc. G5JF again gets the star position, but he is closely followed by G2DH. The first letter-budget has now gone out. If anyone has not received it and wishes to do so, he will get next month's copy if, and only if, he sends a letter for contribution along; therefore send it now!

DISTRICT No. 2.

Representative: T. Woodcock (G6OO), "Santos," George Street, Bridlington, Yorks.

G6BW reports considerable success with C.C. on 7 M.C. using two valves and a 3.5 M.C. crystal, the 3.5 M.C. oscillator driving next valve direct on 7 M.C. Most of Europe has been worked, but no success on 14 M.C. G5QY has only had 7 M.C. contacts and reports conditions bad on all bands.

On 56 M.C. schedules have been kept, but nothing heard; 28 M.C. produced commercial harmonics only. Using 4 watts fone he has had good work with grid modulation. G6UJ, after participating in 28 M.C. tests without much success except a report from YI on his sigs, joined in the 1.7 M.C. tests, and reports about twenty-two contacts on the latter band to date, using 8 watts C.C. A new counterpoise system was erected for the tests and proved of great value. G5DR is specialising in 14 M.C. work in hopes of raising at least W; he has increased power to 8 watts. G2KO participated in 1.7 M.C. tests and worked G6UJ, G6OO on QRP using battery supply. He asks for 7 M.C. reports and contacts. 2AUT reports receipt of "full ticket" and his call sign is awaited impatiently; he will commence on 7 M.C. using 2½ watts T.P.T.G. circuit. Later joining 1.7 M.C. band. He asks No. 2 District hams to give reports on either band. BRS290 reports good reception conditions, particularly on 14 M.C. On 7 M.C. YV2XE (Venezuela) logged. 28 M.C. still blank. BRS336 (of Leeds), a newcomer to the Society, says on 14 M.C. logged LUVS very consistently at night. April 4 and 5 were particularly good nights. No luck with RX on 28 M.C. Built portable S/W RX for the summer. BRS253 now in town and visiting some of London hams. Received "A.A." ticket, so building G2NH type adaptor. G5UB participating in 1.7 M.C. tests; doing well; seems very consistent on this band using 8 watts.

G6OO, after termination of 28 M.C. tests which brought no success, except a report on his sigs from VQ, joined the 1.7 M.C. tests, making 18 contacts to date using 4 watts C.C. Note holiday QRM responsible for lack of reports for our notes this month, OM's. Hope next month will show increase. Will settle down to 14 M.C. and 28 M.C. work on termination of 1.7 M.C. tests. Building special beam type antenna (as described on page 17 of April "QST") for 28 M.C.

DISTRICT No. 3.

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

The reports are very meagre indeed, but the few that have herewith. G2OA: A little work has been done on the 14, 7, and 1.75 M.C. and on the 1.75 band fone has been done; also a QSO on 14 M.C. has taken place with an aeroplane OHAEG. G5FC: Nothing has been done this month owing to sickness, but has now got back to it. 2BIK reports a new country. CM8YB has been heard also TS, RX, KFR. The usual Africans, and W's on 7 M.C. The 14 M.C. band has been very disappointing. A great number of G stations on the 1.75 band during the tests, the best DX being Exeter and London. Some A.A. work has been done with a T.G.T.P. circuit. G6TW: The usual 56 M.C. work has been done, also DX on the 7 and 14 M.C. band has been active. Have found the Brazils very active. Two new transmitters have been built for 56 and 14 M.C. with success.

DISTRICT No. 4.

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

The past month seems to have been the worst since last September, conditions being very moderate on 7 M.C. and distinctly dull on 14 M.C. I have no dope on 28 M.C. yet, but keep on trying. Ten hours of listening to-day (Easter Sunday) make me

wonder if more than a dozen British stations are active. Is it the gale of the last week which has blown all our aerials down? G2AT is trying a fresh QRA, with space enough to erect a full wave Zeppelin aerial. G5CY says he has nothing to report; his receiver is so good that he listens to PCJ and W2XAD; has now 28 M.C. and 56 M.C. permits. G2QH has spent a lot of time with crystal control, both harmonic and F.D. (7 M.C. and 14 M.C.). Hopes to get down on 28 M.C. in the near future. G5BD has worked Ceylon for first time. He has unsuccessfully tried to find the 28 M.C. activities, and had a bit of luck replacing broken aerial halyard. G6MN is now working on the 1780 K.C. band and has four separate transmitters, one for each band. He can hear his neighbour on 28 M.C., but not *vice versa*. G2XS is working regularly with 2.5 watts on 7 M.C. G5FA has chiefly been testing new current fed aerial and finds a big improvement on 7 M.C. Bad conditions on 14 M.C. do not warrant comparison as yet. He comments on the extra lively conditions of twelve months ago. 2AYX has been swatting instead of radio, but since meeting G2OC has awakened interest. W phone heard on 14 M.C. G2OC (ex 2BIC) has just got his call sign through in time for this report. He hopes to be going strong soon. G6LI is awaiting an improved power supply for the transmitter, but has logged a lot of real DX on 14 M.C., contrary to other opinions, regarding the 14 M.C. band. G6HK is active on 7 M.C. and is now trying phone for local working. He wonders where all the G stations have gone, after working Continentals on Easter Sunday minus any of that "fone QRM!" It is



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very encouraging to have eleven reports to write up this month. Please keep it up, OM's.

DISTRICT No. 6.

Representative: R. C. HORSNELL (2ABK), "Hevani," Wickford, Essex.

I am starting an area budget this month, and I should be pleased to hear from anyone who is not included and who would like to be. I hope it will be helpful and interesting, as well as a more personal link-up for the district. G6QX has WAC on 26 watts on 14 M.C. He has had a local report on 28 M.C. BCL/QRM is causing a curtailment of work. 2BVR has a new R.X. o-v-2, R.C. and transformer. He reports good results, and no threshold howl on all frequencies. 2BJG has built a monitor, and got it going O.K.; 14 and 7 M.C. have been dead with him, and 1.7 M.C. band is now receiving his attention. G2SA has been busy on 7 M.C. and continues his observations on moon's phases and DX results; he is finding the supposed "good times" to be a wash-out at his station. He wants the QRA of REK. BRS191 is busy building a screened grid receiver as described in Livesey's article in the BULLETIN. BRS233 has been active, but no report is to hand. Many District 6 stations are heard every week here, who never report, so I am hoping that they will have plenty of dope for my budget. I am sending it to all active stations. 2ABK has been busy with series-tuning, reports 28 M.C. dud. G6DH, of Clacton, was the only signal heard in two hours on April 13.

DISTRICT No. 9.

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

Conditions during the month have again been very patchy with some completely blank periods. I have received only four letters for the budget and want many more before I start circulating it. G2CJ is on at the week-ends only. Has had good DX. Has also been trying fone on 7 and 14 M.C. G2OP has not spent the usual time listening. Best DX VU2DG. G5FS is C.C. on all bands and is hoping for better conditions. G6XB has been trying out 28 M.C. Best DX on 14 M.C., VE, VK, VS7, PY, ZL, and W. G6RB has been on 1.7, 7 and 14 M.C., and has had good DX. BRS212 has been QRL and reports that he will be in Rugby again during July, August and September, and would like to meet OM's in that district. BRS310 has been active mainly on 28 and 56 M.C. The former band has provided a complete blank. Skeds are being run on the latter with G2OL and G2OW. Please accept most sincere congratulations on your success in 28 M.C. tests—D.R. FK4MS, who has been on leave in this district, is sailing for Kenya on April 30, and hopes to be on the air again very soon under a new VQ4 call on 14 M.C. The following met during Easter at Bristol, Gloucester or Cheltenham:—G5FS, G6RB, G2CJ, G6XN, G5SV, BRS212, FK4MS.

DISTRICT No. 10.

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

G6PP worked YI, but found conditions generally poor for April; he has started up on 28 M.C., but has no contacts to report. Mr. Richardson (G5MJ) sends a remarkable report in which he states that

although he has made no contacts on 28 M.C., his signals have been received in California (W6BXV). He is arranging a series of schedules with this station. G5QF, G6UN and G6CL have been active on 14 M.C. The latter succeeded in working more Yanks than he had watts at one sitting, viz., nine with seven!! YI was the only new contact; schedules with SU8RS were maintained with fair consistency. Apparently all BRS stations and the remaining licensed stations were inactive.

DISTRICT No. 11.

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

BRS25 is undergoing a change of QRA and consequently has not done much. He has found 28 M.C. ND since the tests, except for SU8RS. BRS190 writes to say that he is giving up amateur radio for the time being. Sorry to hear it, OM, and hope you come back some time soon. BRS250 has been logging some very interesting things on 14 M.C., including quite a list of unknown stations and one new country (Salvador). BRS300 is spring-cleaning and has also found that a pentode does not work too well on short waves with 40 volts on the filament. BRS317 reports conditions very variable both on 7 and 14 M.C. He also has logged a new country—Belgian Congo—having heard ON4CAA at Leopoldville. G2AI is the only ham to report; he is apparently going through the trouble of putting strong signals into Europe and not being able to get far outside. He wants to know if he can claim first contact with YL, having worked YL2AW and YL2AS. (I don't think these can be counted as first contact with YL by any means.—D.R.).

DISTRICT No. 12.

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

District meetings are held at Chingford on fourth Tuesdays of each month, and members of other districts will be welcome at any of these meetings. Members of No. 12 District notice that on 14 M.C. skip is experienced at 20-30 miles, and it is a rare thing to hear a G station beyond this radius, yet French stations beyond this radius and not a greater distance than, say, Bradford, are frequently heard. Scottish stations, too, are not logged; reasons for this will be appreciated.

G2ZN, using 1.3 watts on 7 M.C., has been working all Europe and his QRK is R4 at all times. 2AZR is working hard on code and will shortly apply for full permit. G6LB still trying out various tests on V.F. Hertz, is also preparing for a change of QRA. G6FY reports Irak on 14 M.C. G6UT, on 14 M.C., has worked Java for the first time.

DISTRICT No. 13.

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

As this area is a little more scattered than the other London districts it is proposed to follow the example of the provincial areas and institute the "Letter-Budget." This will commence with the next month's reports and will only go to those who send me a report. So don't forget to report by the 20th. G2BY has been on phone and C.W. on 7 and 14 M.C., built a screened-grid three-valver for 7, 14 and 28 M.C. Found threshold howl and hand capacity bad, although fully shielded.

Built 56 M.C. receiver and has transmitter under way. G6VP found Asia and Northern Antipodes good, but North America bad. Heard a new country viz., ZP. Has been heterodying another C.C. station so now uses air gap and cleared this trouble. Is still using Goyder Lock on 14 M.C. only (sorry misunderstood you, OM.—D.R.). Using A.C. valves in receiver and will not change. G2OL spent most of his time on 56 M.C. Burnt out about five valves. Has schedule on 14 M.C. with two W fours. At last worked U.S.A. on this band and been QSO. G6CO on 56 M.C. G5PJ found conditions bad, but has worked some DX with a 66 foot voltage fed aerial. G6CO has been on 14 M.C. and worked the States. R4-5 using $6\frac{1}{2}$ watts. Also working on 56 M.C. G6XN has his C.C. going OK now and worked VT, AU, VQ, etc., on 14 M.C. Uses $9\frac{1}{2}$ λ . V.F. Hertz with half wave feeders. G2OW worked WXX and XWIM, both American ships, on 7 M.C. Has done quite a lot on 56 M.C., including relaying G2OL's signals back to him by telephony. G6WN has been rebuilding for QRO and raised VQ and SU on 14 M.C.

DISTRICT No. 14.

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

This month I have, unfortunately, been a little out of touch with my District owing to the fact that I had some illness in my home, and my attention was consequently centred on matters other than radio. The most notable performance this month is that of G2MA, who, during one week, was WAC twice and WBE once, this with an input power which at no time exceeded nine watts. During the month we had several visits from G5WQ, whom we were most pleased to welcome. One of his visits coincided with our monthly rag-chew, so that he was able to meet quite a few of the "A" District men who formerly were mere names to him. I am pleased to receive a report after a long silence from G6IZ of No. 2 District. He states that things are moving again in the North and that Aberdeen is once more on the map. Further, and apropos of my recent circular indicating "first Scottish contacts," Mr. Ingram has kindly offered to present a small prize to the first Scottish amateur who works a new DX country

prior to August 31. His kind offer I have gratefully accepted, and although Mr. Ingram has not done so, I have taken the liberty of imposing the condition that in order to qualify, a new country must be worked which lies not less than one thousand miles from any part of Scotland. I further suggest that on 7 M.C. the input power be limited to 10 watts, but that on 14 M.C. there be no such limitation, as on this band I consider that the QRP man stands quite as good a chance as the QRO man. G2MA, as mentioned above, is now WAC and WBE. He has just received his 28 and 56 M.C. permits from the G.P.O. and expects to start work shortly on these frequencies in conjunction with G5YG. G5XQ has nothing of note to report. G5CL anticipates a change of QRA at an early date (jolly ole Hymen—G5YG), and will not be doing much prior to such change. G6WL is known to be working but has not reported. G6NX is now working with a half-wave V.F. Hertz, but cannot pass an opinion on its capabilities yet. He has at last succeeded in getting his generator to yield PDC. G6MS has been doing a little DX, but is understood to have embarked on television work with considerable success. G5GK has been doing a lot of phone work and is trying as best he can to smooth down wild BCL's whose "Noah's ark time signal" receivers (sorry for the plagiarism, OM—G5YG) are hearing much too much of him. G5NW is meantime using his "genny" for the "talkies" (*sic transit gloria radiæ*—G5YG). G6RG is also known to be going strong and recently had a visit from G5TZ. G5YG still carries out schedules on 14 M.C. and has also done some work on 28 M.C. with quite an encouraging amount of success. Experimental work with G2MA is proceeding. G6VO is at present working with $3\frac{1}{2}$ watts C.C. and has worked the greater part of Europe on 7 M.C. He finds DX best between 23.00 and 01.00 G.M.T., also that a new moon synchronises with good eastern DX, while a full moon has the opposite effect and produces best DX from the west. G5JK, using rectified TVT supply, has worked all Europe and Palestine on 7 M.C. He is preparing for QRO and has just purchased a new DO.40. G6IZ, using harmonic C.C. on 7 M.C. with an input of 10 watts, has worked all Europe. His aerial system is a $\frac{1}{2}$ -wave C.F. Hertz.

B.E.R.U. NEWS.

SOUTH AFRICA.

By W. HEATHCOTE (ZT6X).

Reports from nearly all Divisions mention that on 14 M.C. European amateurs have been very consistent, whilst the Americans appear to have fallen off considerably. Quite a number of contacts have been established with India, Ceylon, Australia, New Zealand, and South America. Our old friend the "Wipe Out" has made an unwelcome appearance, and it will be necessary in the near future to QSY to the 3.5 M.C. for reliable inter-divisional working. Several members have intimated their intention of making a careful study of the barometric pressure during the "Wipe Out" period this year.

The annual Conference of the S.A.R.R.L. will be held at Durban during the Easter holidays, and a large number of members of the League have expressed their intention of attending.

Quite a number of our members are eligible to apply for the W.B.E. Certificate, but Canada appears to be a stumbling block for a number of amateurs in this Division, and I personally have only heard two of them during the past few months.

It is pleasing to note the growth of the B.E.R.U. and O. M. Watts is to be congratulated on the excellent work he is so ably carrying out.

New members of the B.E.R.U.: J. W. Mavis, FO5SRA, Box 160, Umtali, Southern Rhodesia; H. E. Callis, ZU6T, 55, Railway Avenue, Premier Mine, Transvaal.

HELP US TO GET THEM.

EGYPT.

By C. E. RUNEKLES (SU8RS).

The 28 M.C. band provided us with the only interesting news for March and April. Static has rather upset things on the 14 and 7 M.C. bands. There is a certain amount on 28 M.C. also, but at its worst does not prevent working.

Notable contacts on 14 M.C. are almost nil. SU8WY worked YK2XX and a few VK's. He is after a very elusive VE to enable him to go "nap" for a W.B.E. certificate. Has done some listening on 28 M.C., and logged, amongst others, most of the G regulars.

SU8RS has met with a certain amount of success on 28 M.C., and been in QSO with nine countries, but cannot get any real DX. Has had great pleasure in working most of our 14 M.C. pals down there, but there is one signal that, up to the present, seems to lose its way. Mention must be made of G6HP's record fone transmission on 28 M.C. QSA5, R7, and modulation nearly perfect. Congrats. HP. OB.

We are pleased to welcome Mr. Hill (ex G6HL) fresh from England. He is at Abukir now, but hopes to be in Cairo soon.

We now boast a B.E.R.S. station, also at Abukir, the operator of which flew some 150 miles for information *re* B.E.R.U.

"Jock Burns," of SU8WT, another B.E.R.U. member, welcomes calls from fellow "Naggi." He works on 7 M.C. at present, but will be on 14 shortly.

IRISH FREE STATE.

By COL. DENNIS (EI2B).

EI3B is not very active this month. Members seem more inclined to work their own transmitters than that at W.S.I. EI8B worked Ceylon on 14 M.C. This is the first time Ceylon has been worked by an EI station. EI8B has also worked some G's on 1750 K.C. EI8C found conditions bad in April. Hopes to be on 1750 K.C. in May. EI6B, EI3C, EI7C, and EI8D are on the air, but have nothing of interest to report. EI5D is working Europe.

SOUTH RHODESIA.

By G. G. LIVESSEY (FO3SRB).

Static and rain was prevalent during February and March, and such static! The star QRP station of the season appears to be FO9SR, who with 5 watts (never more than 8) has worked all continents and 23 countries FB! FO3SR and FO6SR have also been working successfully on 14. VQ2NC and VQ2BH are active in N. Rhodesia. Quite a lot of phone is being carried out on the 7 M.C. band in the Union, some good and some bad. FKLR2 in Tanganyika using 2.5 watts was called by VK6HE. An extraordinary echo is noticeable on English CC stations around 18:00 G.M.T., and some of them, particularly G6VP and G6DH, are unreadable at times. Why? VQ4 is Kenya, VQ2 N. Rhodesia, VQ5 Uganda. The Northern Rhodesian stations may have their calls changed soon.

* * *

[We are sorry to learn that Mr. G. G. Livessey, FO3SRB, has been forced to give up transmission on account of power supply troubles. His only available source was H.T. accumulators with the

charging station 50 miles away. If, through lack of personal contact with other amateurs, he is unable to continue the Southern Rhodesian notes, it is hoped that FO3SR will be able to carry on.—ED.]

NOTES AND NEWS FROM EUROPE.

As only one European country has reported this month, I fear these notes will be very short.

Good DX conditions appear to be prevailing in Belgium, and many ON stations have been QSO SP3YL and SP3KYL; both these stations are owned by YLS, as are four other SP stations. (What about a fone QSO?)

ON4UU suggests that W.A.C. certificates might be registered as at the date of reception of the last QSL card proving the contacts. He suggests that this would be more correct than the existing method of dating them. Possibly Mr. Warner could devise a small seal containing date, IARU seal, and his signature for affixing to existing certificates.

Belgian amateurs are very busy preparing for their July International Ham Congress to take place at Liège. Permission has been granted to erect two 100 watt fone and code stations to work during the period of the Exhibition. These will be situated at Liège and Antwerp.

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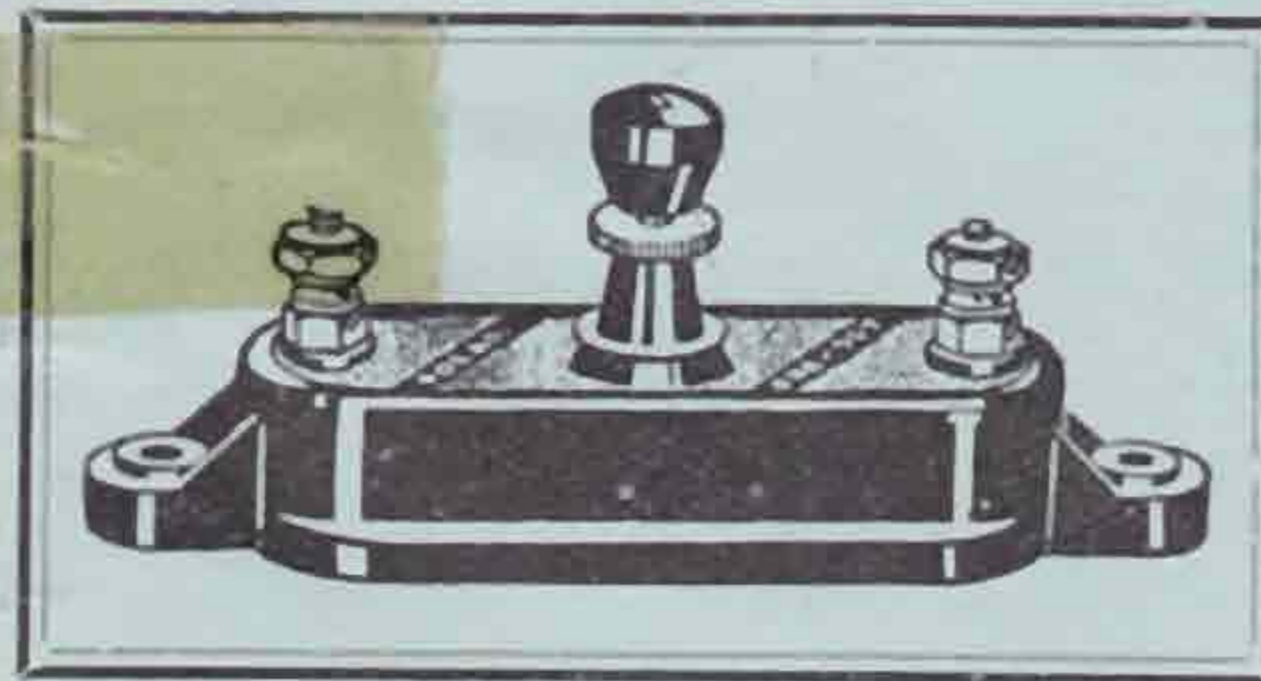
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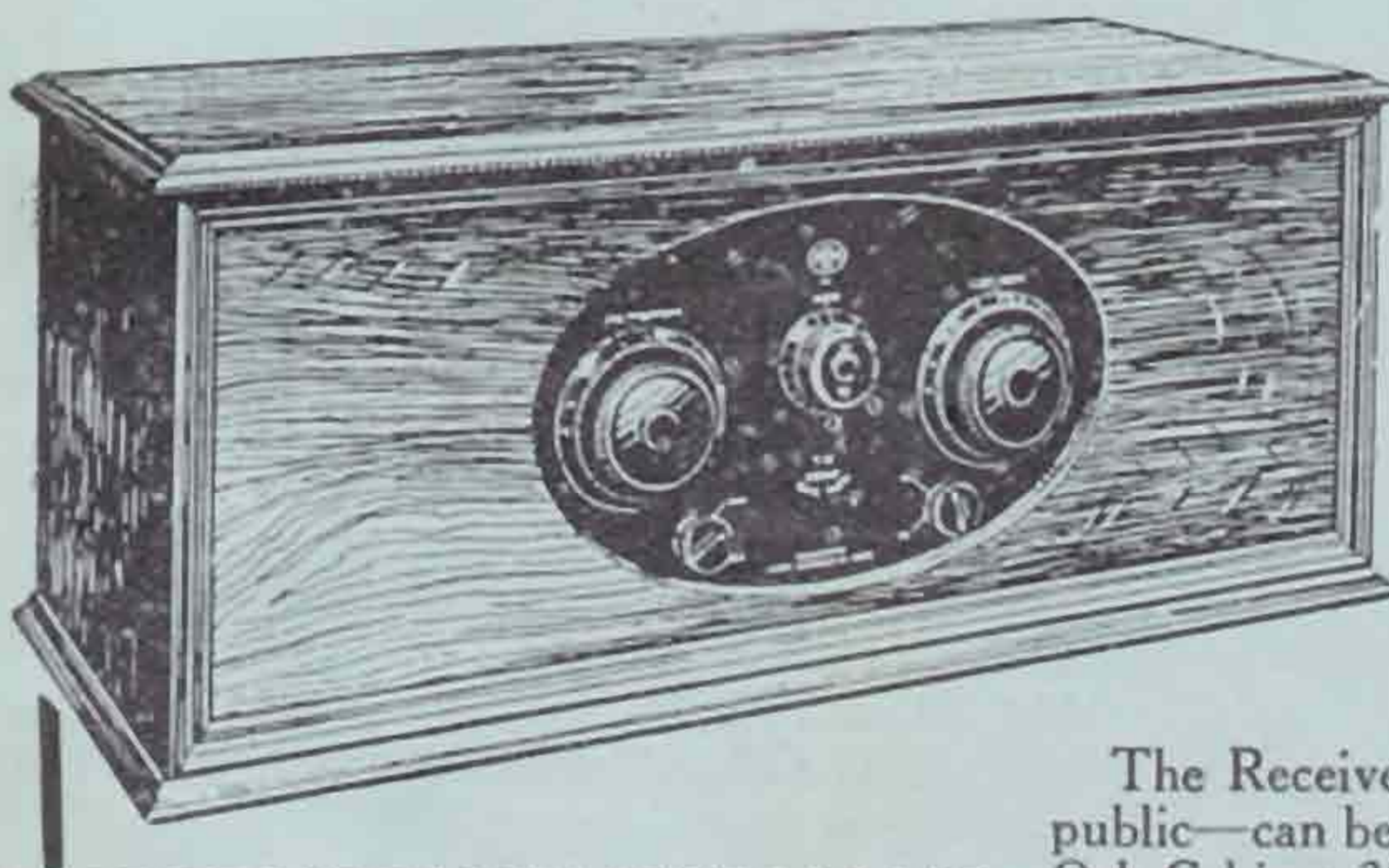
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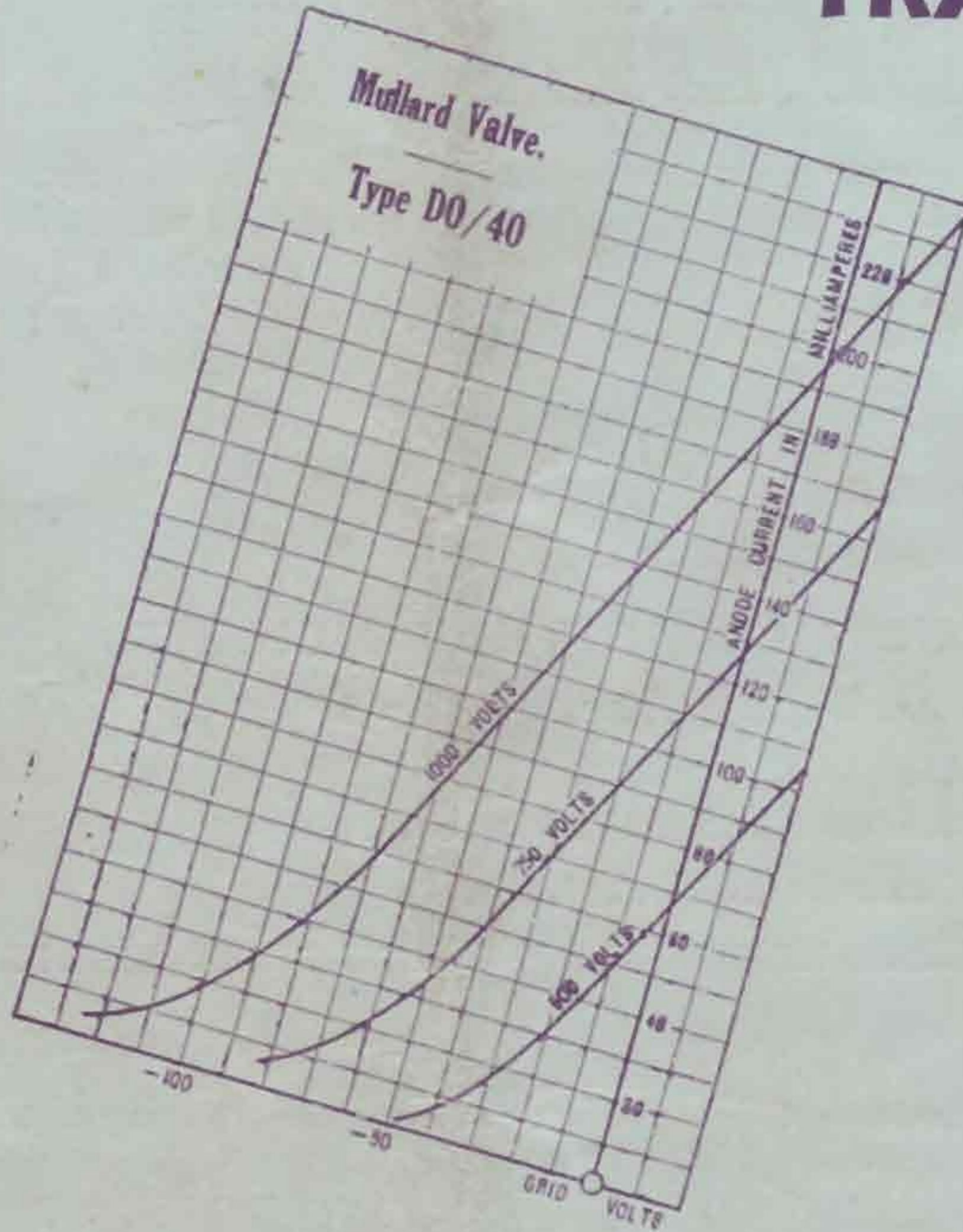
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