



T. & R. Bulletin

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The Journal of the Inc. Radio Society of Great Britain

(BRITISH EMPIRE RADIO UNION)



Vol. 3. No. 11. May, 1928 (Copyright)

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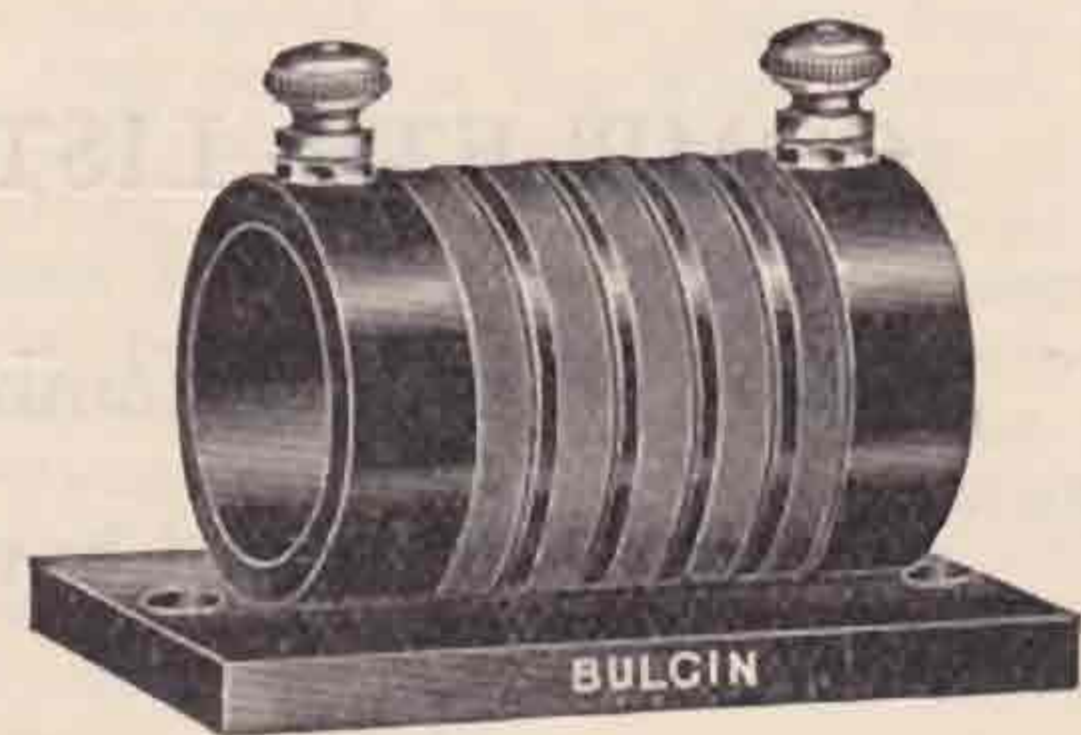
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TRAR

BULLETIN.

The only British Wireless Journal Published by Amateur Radio Experimenters

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MAY, 1928.

Vol. 3. No. 11.

SOCIETY NOTES

An article in the present issue by 5IS deals with a most important subject at the moment, It is the use of unrectified A.C., or as it is called in ham vernacular, raw "A.C." With the narrow wave-bands that are coming into vogue, we cannot but view with concern the possibility of one or two amateur stations monopolising the whole of the available band by such a widely spreading transmission. It may now be openly stated that the Society's sub-committee are fully alive to this trouble and have already been in correspondence with the authorities upon the matter. Obviously it is a point which requires very careful consideration from every angle. Unfortunately all the amateurs of the world will be working upon the same bands and any legislation which can be influenced can only be binding upon the amateurs of this country. Now we know how fond some of our Continental brethren are of using this form of H.T. supply and we feel that possibly some of them may vigorously resent our efforts to secure for the amateur bands complete freedom from these objectionable sounds. However, if we are to continue working there appears to be nothing else to do but to use all the endeavours within our power to ban the use of R.A.C. How are we going to achieve this? We can invoke the help of the I.A.R.U. in the matter and have already written to the headquarters of that body, suggesting that action be taken. Again, we know that many of the offenders are not members of that body and would not be inclined to be bound by its dictates. 5IS in his article suggests perhaps the only possible solution in the matter—the boycott of all stations who offend in this manner.

We do not like so drastic a course, but we feel sure it will be the only one to take to secure the abolition of the trouble. One would think that radio amateurs would consider the question from an unselfish standpoint, but we know from past experience that some of our kind possess skins of unusual thickness and are capable only of thinking of the getting out of their signals without thought of the other fellow who may want to work. Now there is no possible excuse for the continuance of unrectified alternating current. The use of valve or electrolytic rectifiers is so extremely simple and efficient that any station can use them. The question of cost is small and anyone who grudges the small expenditure entailed has to our mind no business to be on the ether.

* * *

We are proud of the notes generally of the British amateur. He has set a fine example to the world in this respect. The use of highly efficient rectifiers and smoothing filters coupled with the employment of crystal control has become more or less a standard in the British amateur station and has helped to characterise their work. Quite a number of amateur stations can work together in a couple of metres upon the shorter waves without interference with such notes, and if we could get all the transmitters of all nations to adopt similar efficiency, we would feel far happier over the coming conditions.

* * *

Mr. Marcuse's description of his renowned station at Caterham aroused the expected interest during his lecture upon Empire Broadcasting. We British

transmitters are proud of the achievements of our acting Vice-President in his efforts to give our Colonies such a splendid example of what can be done by amateur effort and proving that Empire Broadcasting is within the bounds of possibility. Unfortunately the question of finance in Empire broadcasting still remains without solution. Nobody has yet come forward with a tangible scheme by which listeners in our Colonies can help to meet the expenses of running the Empire service, and obviously it could not be expected that British broadcast licensees should be called upon to permanently maintain a short wave station merely to provide their Colonial cousins with a service. Fortunately Mr. Marcuse was not concerned with this part of the scheme.

* * *

The Annual Convention of the Society is now engaging the attention of the Committee, who hope to introduce some special features this year. The dates are as usual coincident with the Olympia Exhibition, viz., September 28 and 29. The Council have sanctioned the usual stand at the Exhibition, which we hope will more than ever prove to be the rendezvous of all members. We hope all will bear the dates in mind and arrange a portion of their annual vacation to cover the days. The Convention is the one opportunity we at headquarters have of getting into touch with some of the country members. The same remark applies to our Colonial and foreign friends whom we look forward to meeting.

* * *

We also understand that we are likely to be visited by a number of our American friends during the summer. We have already written over expressing the hope that all American Hams visiting these shores will not fail to get in touch with us. Wanted, volunteers to help us to entertain our visitors and show them their stations.

* * *

The General Committee have recently discussed a new scheme for dividing the areas of the British Isles. As this is possibly a subject which may interest our provincial members, we shall be glad to have any comments, so that the scheme when put forward at the Convention is as near perfection as is possible.

* * *

Our thanks are due to the many members who have rallied to our call for articles. We hope that the response this month will continue.

* * *

We hope by the time this issue is in your hands the long-awaited-for annual will be ready for distribution. It was originally intended to publish this upon March 1, but various circumstances prevented this being done. When the work is in your possession, you will comprehend the stupendous amount of work it has entailed in compiling, correcting and printing. That, together with the passing of the work into three separate hands for completion, is the only excuse we have to offer for its tardy appearance. As, however, the annual is a directory of call signs and not a diary, its publication is independent of any period of the year. We can only apologise to those who have already placed their orders, and thank them for their extreme patience.

In the present issue we begin a description of a short wave receiver especially designed for operation upon the new bands a about to be established for amateurs. Great care has been given to the design of this set, and we hope many of our members will take advantage of the descriptive articles. Unfortunately we are unable to include the whole of the description in the present issue owing to lack of time in preparing the necessary illustrations. We have therefore decided to defer the constructive portion to the June issue.

The Editor to His Readers.

DEAR BROTHER HAMS,—

Since taking over the Editorship of our little magazine, more than ever can I appreciate the anxieties which your late Editor was wont to show at times, both as regards the editorial portion of the work and perhaps more especially the business part. Many of you no doubt think that editorship consists merely of collecting together contributed articles, sending them to the printers and writing an editorial or two. Would that it were; the duty would then be an easy one. Unfortunately, it does not stop here, there is the ever pressing question of ways and means to be considered. The cost of printing and publishing our paper is not small, and the curtailed circulation limited to members makes the cost high in proportion to the regular Radio papers. This has in the main to be paid out of the advertisements. Without them we would have to shut down immediately. In other words, the firms who advertise with us are keeping us going. What are **you** doing in return for this assistance they give us? You have over and over again been asked in the BULLETIN to patronise our advertisers, but do you? When you want any radio gadget you usually want it in a hurry, and, naturally, you drift down to the nearest radio store for your requirements, forgetting all about our continual injunctions. Would it not be possible to sit down and drop a card to one of our advertisers, asking if they can meet your needs and mentioning the T. & R. BULLETIN. By doing so you are helping to keep the "Bull." going and easing slightly the burden of finance upon the shoulders of the Editor. This period of the year is known in the radio trade as the "lean" time, when sales generally fall off and many firms curtail their advertising. The bigger papers prepare for it and are able to tide over the difficulty from their reserves, but the "Bull." has, unfortunately, no such funds to meet the costs and it either means cutting down the size of the paper or shutting down entirely. I am sure that no member wishes to see so drastic a step taken and it can be prevented if you will give the help indicated. Do not think because one of our advertisers does not specify your particular requirement in their advertisement, they cannot serve you; they are out for business, and will esteem your enquiry. If all of you did this, we should have a rush for our advertising space and, consequently, a bigger BULLETIN, more articles, more room for area notes, and an Editor able to devote his whole attention to producing the "Bull." instead of having to worry over the business of it.

What about it, OM's? Are you going to help?

Yours sincerely,

THE EDITOR.

Our President Speaks.

CAPT. IAN FRASER, M.P., C.B.E.

A Society with a relatively small number of members, by which I mean anything from a few hundred even to some few scores of thousands, if it is national in its character, and operates in Great Britain, is almost certain to have its headquarters in London. This is principally because about one-sixth or one-seventh of the population of Great Britain lives in and around the Metropolis. Every society of this kind, no matter what its objects, suffers from certain disadvantages. The Radio Society is no exception. The executive is almost certain to be composed mainly of persons who live in London. This is not because London wants to "run the show," but because those who live at a great distance cannot afford the time, and possibly the cost, involved by regular service on an executive committee. Londoners must not be blamed for this. Rather ought they to be thanked for bearing the burden of office, which is very often onerous.

But if the London committee man gets more kicks than halfpence, the London member as a rule gets more benefits from the Society. We may as well frankly admit this because we all know it. To admit it, however, is not to admit that the country or provincial member has a legitimate grievance. He knows perfectly well, or ought to know, that this is inevitable in almost every society of a national character, and he has joined, or is presumed to have joined, with this knowledge.

My experience of societies of the kind, and I have in the past few years been associated in one way or another with quite a number, is that the committee, composed, as I have indicated, mainly of London men, goes out of its way to try and devise means of giving greater benefits to those who live outside London, and that it is usually rather unsuccessful in this endeavour.

It is unfortunate that it should be, for one of the principal advantages of any society founded with whatever object, is that it enables people who have a common interest to meet together and talk, and this is the very service that can be so easily arranged in London, but is almost impossible in any other part of the country. In our society, for example, there are regular meetings which Londoners can attend, but there is no other town in the country where there is a large enough membership for successful meetings to be held, except, perhaps, Manchester, and there I am glad to say, good efforts are being made by the local committee to make this provision for their members.

If, then, belonging to a society is as unattractive as I have indicated to country and provincial members, why do they bother to belong at all? I must confess that I cannot imagine why anyone belongs to the dozens of societies that are in existence with their headquarters in London, which cost a good deal of money and apparently do nothing for those who live outside the Metropolis.

Our society is a little different, for most of our members are persons who have at their hand, in their house, marvellous means of annihilating distance and keeping themselves in touch with their fellow-members. No other society that I know of

has this extraordinary advantage. Then, again, there is this paper, written by amateurs for amateurs, an exclusive paper, rightly kept only for members of the Society, and containing information, the result of practical experience, which many a commercial journal would like the opportunity of securing.

Country and provincial members will always grouse that they are not getting a fair show, and London members will always grouse at the country and provincial members for grouching. This does not matter, for Englishmen always grouse, and I am fully convinced that many a society or association would cease to exist if there was no thing or person connected with it which justified a good grouse. There would be nothing constructive left for any of us to do if the society we belonged to, or the world we lived in, was so perfectly constructed as to be foolproof. We could not tolerate a foolproof society, for if we did we should be presumed to be fools.

There is another reason why our Society thrives. It is the same thing that keeps nations together, namely, that there are enemies at the gate, who require to be watched, and who can be best dealt with when we are united. I need not specify these enemies. Roughly speaking, they may be said to be all other persons who want to use the ether, and particularly those who want to use the parts we want to use. This is a strong reason for unity, for though no society ever secures what its members really want, they very often prevent the loss of privileges which might, if there was no organisation whatever, be taken away. The other day the Post Office asked the Radio Society what it thought about the new proposals which were under consideration for carrying out the Washington Convention. Whether they take any notice of our observations or not, and as to what our observations will be, is not the point to which I desire to call attention. I want merely to place on record the fact that the Post Office did ask us for observations. In other words they know we exist, and are prepared, as they certainly should be, to give us an opportunity of expressing our views. It is, therefore, important that we should continue to exist, and should flourish and increase our membership.

Forthcoming Events

MAY 19 - 20. South-Western Area Conventionette at Bristol. Open to all members.

MAY 30. Lecture I.E.E. 6 p.m. C. W. GOYDER, Esq., "Short Wave Antenna Systems."

The R.S.G.B. Amateur Band Receiver.

By R. L. ROYLE (2WJ).

The wave bands allotted to amateurs as a result of the Washington Conference have called for some special conditions which we shall have to accustom ourselves to, and one of the foremost means the acquisition of a receiving set of great selectivity and capable of extremely fine tuning. Such a set implies a tuning scale to cover the whole band and a really small condenser.

This will be, without doubt, a most essential feature owing to the crowding which must necessarily occur when all the amateurs of the world will operate upon the narrow bands used.

With this end in view an attempt is made in the present article to describe a receiver to conform to this requirement and at the same time to be so constructed that it is completely shielded from hand capacity and free from variation of tuning due to vibration of coils and other possible circumstances.

It might be remarked that a D.C. crystal-controlled note is often spoken of with disfavour owing to the alleged difficulty of its being read. That is the difficulty of holding the signal steady upon the receiver. How often have we found the signal disappear upon the mere act of removing the hand from the condenser knob to pick up a pencil to start copying.

The fault obviously lies in the receiver, and when the difficulty is universally overcome we shall find the steady D.C. note back in favour with a corresponding decrease of R.A.C. and other objectionable notes put out simply because they "get there." This will be a most important point under the new conditions, especially in our campaign to endeavour to prevent the use of R.A.C.

There can be little doubt that a steady controlled D.C. transmission will be read from longer distances and with greater ease through bad interference than a "mushy" R.A.C. note of even greater strength. The latter may be regarded simply as a "brute force" method of getting your station over, while the sharply-tuned pure note is undoubtedly the more scientific and rational method of working, but, of course, calling for greater skill in the tuning on the part of the receiver.

In order to guard against the insidious hand capacity and body effect which are so noticeable in many amateur receiving sets to-day working upon the shorter wave-lengths, the whole set, including batteries, is enclosed in one carefully

shielded container. The coupling between the aerial and the grid coil has been made exceptionally loose, thus avoiding hand capacity and frequency variation due to aerial swing and, at the same time, keeping the background hiss down to as low a ratio to signal strength as possible.

It may here be pointed out that a strong signal is not essential but rather a clear one emphasised by contrast with a really silent background. With a set designed to have all extraneous noises eliminated a very weak signal which would otherwise be almost unreadable, can be brought into prominence and easily copied.

Rigidity in construction has been made a strong point, bearing in mind the same care which would be bestowed upon the construction of a wave-meter. The coils have been carefully made and securely mounted to avoid any possible chance of movement, while the connections have received a similar care.

The receiver itself has already been tried and has proved itself of the utmost efficiency, while being of the utmost ease in handling fully demonstrating the value of the precautions taken to achieve the ideals aimed at. In order to avoid the making of a large number of parts, an endeavour has been made to utilise, as far as possible, commercial apparatus obtainable upon the market. In this connection great care has been bestowed upon the selection, and a list of some of the components used is given below:—

Inter-valve transformer, Marconiphone Ideal 6 to 1.

Telephone transformer, Leslie Dixon, ratio 10 to 1.

Valves, Marconi Osram DE5 and Cosmos Blue Spot.

Variable condensers, Cyldon.

Condenser dials, Burndept Etholog.

Fixed condensers, T.C.C. 1 MF and 2 MF.

H.T. and grid bias batteries, Messrs. Ripaults, 60 volts and 9 volts.

L.T. accumulators, Messrs. Oldham, three 2-volt cells.

A full list of all the components, and details such as Clix-lox plugs, H.T. chokes, etc., together with circuit diagrams and photos of the complete set will be given in the June issue of the BULLETIN.

(To be continued)

Cooper Testimonial.

THE subscription list for the testimonial to our late Editor will be definitely closed on May 20. Will all members who have not responded please forward their donation before that date to Headquarters?

Notice.

THE Mullard Company announces that the Mullard Rectifying Valve type U.12 has been reduced in price from £10 10s. to £9. This is a medium power rectifying valve tested at 400 watts anode dissipation, full details of which are available from the Mullard Wireless Service Co., Ltd., 21, Denmark Street, London, W.C.2.

Operating Under the Coming Conditions.

By P. JOHNSON (5IS).

Now that British amateurs are aware of the new conditions under which their stations must be operated, some general remarks on "Ham" transmissions may not be out of place. The frequency bands in which we are to work are very narrow, and as amateurs all the world over will be in the same bands, the outlook from QRM point of view is very black if we regard future transmissions in the same light as we know them to-day. At the present time the 44-46 metre band is very congested on week-ends, 150-200 is fairly full, and 23 is getting pretty full, to say the least of it. When we consider that our frequency bands are to be cut down to a little over half of what we have been accustomed to and that the other hams of the world are moving from their various frequency bands into those to which we are to work, jamming will be something which has never been realised before, unless the average quality of transmission is improved. At the present moment the average quality of short-wave amateur transmission is poor. The ether is tortured with QSB's of all descriptions, some like wails of lost souls, some like the noise the jazz drummer makes when the low comedian stoops, and then we have a few QSB's which raise the average a little—good, pure notes which cause as little interference as possible and are pleasant to read. Comparing transmissions internationally, the British ham can well be proud. We have a higher percentage of good QSB's than any other nationality, but, nevertheless, we cannot say we are perfect, and it should be the aim of British hams to lead the world in this matter and let every man make his station a pleasure to be heard. Many of the stone-crusher stations that we hear on the air and which cause unnecessary jamming are illicit Continental stations. While we licensed hams are sympathetic towards our less fortunate brothers, at least we ought not to be caused pain and anguish when the illicit station is removed from under the bed and plugged into the mains! Imagine two such stations pumping out their half KW's on the future 41-42.8 band! Until they QRT, European hams hear nothing of DX stations on that band. Therefore I think we should ask, in the interests of all, that hams all over the world should cease to use raw A.C. and unfiltered rectified A.C. If the operators of these stations do not fall into line, in our own interests, we must boycott them. From the QRM point of view the pure DC station is the least offender, but to ask every station to work P.D.C. would be asking for an unattainable ideal. In any case, every ham would like his sigs. to be in some way distinctive, and in the past a quartz-crystal controlled transmission was distinction *par excellence*. Now, even if everyone worked with a pure D.C. anode supply, there would be many operators who would introduce some form of modulation to make their QSB's distinctive. Immediately modulation is introduced, increased broadness of tuning occurs. Provided the percentage of modulation is low the

broadness of tuning is not very serious, but some operators prefer to over-modulate to such an extent that their QSB resembles a spark oscillator. Even among the pure D.C. QSB stations we find the "Yoooper," the QSB that traverses from the top of the audible scale to the bottom and sometimes up again, and there is a station that key-clicks like a Brock's benefit. These are a source of sorrow to the ham copying a weak signal; so also is the station using a spacer and marking wave. He wants twice as much room in the wave-band as he need use, therefore he is "not playing the game." Various systems of keying have been described in which absorption circuits, dummy loads, etc., are substituted for the radiating system when the key is up, and keyclicks and thumps can be smoothed out by filters or cushioning circuits. The "Yoooper" signal is generally caused by anode voltage fluctuating or in the case of QRP stations, filament brightness variation. The first of these troubles can be cured by dummy loading, and the second by the use of a valve which does not flicker on load. To the writer it appears that the most suitable of short-wave systems is the master-oscillator, power-amplifier. It is flexible as regards wavelength changes and the utilisation of a dummy load makes it easy to key without large voltage differences between load and no-load, and it is an easy circuit to make clickless. When we commence operating under the new conditions, I foresee a new outcry against 'phone. Some operators who habitually use the key will get up on their hind legs and say unkind things about the 'phone man, and, as in the past, their complaint will be that he is too broadly tuned. This, generally speaking, is true. Most short-wave 'phone is truly horrible, but as long as we have keyclicks, unsmoothed R.A.C., generators, "Yoopers," and raw A.C., the key operator is not in a position to cast a stone. A word here for the 'phone operator. Please, OM, don't attempt to use 'phone unless you have a steady pure D.C. carrier, and don't use a system that gives modulation by frequency variation. If you can light your filaments on A.C. or if you can use semi-smoothed rectified A.C. and an Xtal and still get that pure D.C. carrier, then you are a good ham and worthy of a place in the wave-band, but if you put out 'phones with an A.C. ripple or a generator hum or use "Wabulation" modulation, then your name is mud.

QRO AND QRP.

When the new conditions arrive, we shall have that vexing question of power licence rising again, probably very QSA. The QRP ham who wants DX says he gets no chance while the QRO man is on the air, while the QRO man says that the power he uses is necessary for his experiments, and replies that the QRP ham cannot do very much good work under low-power limitations. Now, while both can do useful work, it is obvious that a clever technical man can do more good work with QRO than can a less technical man. Since the R.S.G.B. was asked by the P.M.G. to undertake these selection and recommendation of applicants for licences, many applications have been received by the R.S.G.B. for high-power licences, and where these have been turned down the applicant frequently takes up the attitude that he is being unfairly treated, that "others have it, why shouldn't I." The writer would like to suggest a scheme in which

he Society and its members would benefit under these applications. The Selection Committee has considerable difficulty in judging whether the QRO applicant has the technical ability to do good work and to need high-power. Many a clever man has no diplomas or letters after his name to show his capabilities or achievements, and to the R.S.G.B. Smith is as good as De Vere. Now, let us not forget our BULLETIN. We have this periodical, which a hard-working Editor has difficulty in filling each month with technical articles. Now we surely will all agree that the man who wants to use QRO must have knowledge of its necessity, and he must, at least, have some knowledge of QRP. Then let him tell us something about his work and his trials and difficulties on QRP or medium-power in the BULLETIN. Two birds will be killed with one stone. The Selection Committee of the R.S.G.B. will be greatly helped in their job; they can recommend the applicant to the P.M.G. in absolutely good faith, and the BULLETIN and its readers will benefit. The applicant will have suffered no harm, since he will be fairly judged and known to his brother hams, and he will, in some measure, atone for the extra QRM he is bound to cause to his QRP friends.

QRP Tests.

FOR TRANSMITTING AND RECEIVING STATIONS.

This is the last announcement which will be made before the June tests. Full details have appeared in the March and April issues.

I can state that the first prize for the transmitting side of the contest will be a quartz crystal ground to the winner's desired wave-length in the 80 or 90-metre band. The committee hope to arrange for further prizes.

In view of possible changes in the wave-bands licensed for amateur transmission in this country, the wave-lengths, as stated on page 17 of the March issue, should be read as any wave-length you are licensed to use in the 20 and 40-metre bands. This does *not* include the use of the 32-metre band.

A request has just been received from ED7MT asking whether the Danish amateurs might be allowed to enter into the tests as well. I have replied to the effect that we shall be very pleased to allow the Danish amateurs to take part. Denmark has not the organisation we have for arranging tests, and we are, therefore, pleased to help them all we can. Members taking part in the reception side of this contest are, therefore, asked to note that they should include all incoming calls to both Danish and British stations. Don't cover up pages of log sheet with very local calls, as this will only mean an immense amount of work in sorting the logs out; above all, please turn in your logs so that we can read them. G. W. THOMAS (5YK).

Calibration Waves.

Calibration waves will be transmitted from 5YK on May 27 as follows:—

13.00 G.M.T., 46 metres (nominal).

13.05 G.M.T., 45 metres (nominal).

13.10 G.M.T., 44 metres (nominal).

A similar schedule will be transmitted on June 10 at 09.00 G.M.T. The call is R.S.G.B. DE 5YK, and the exact wave-length announced at each change.

Push-Pull Amplification.

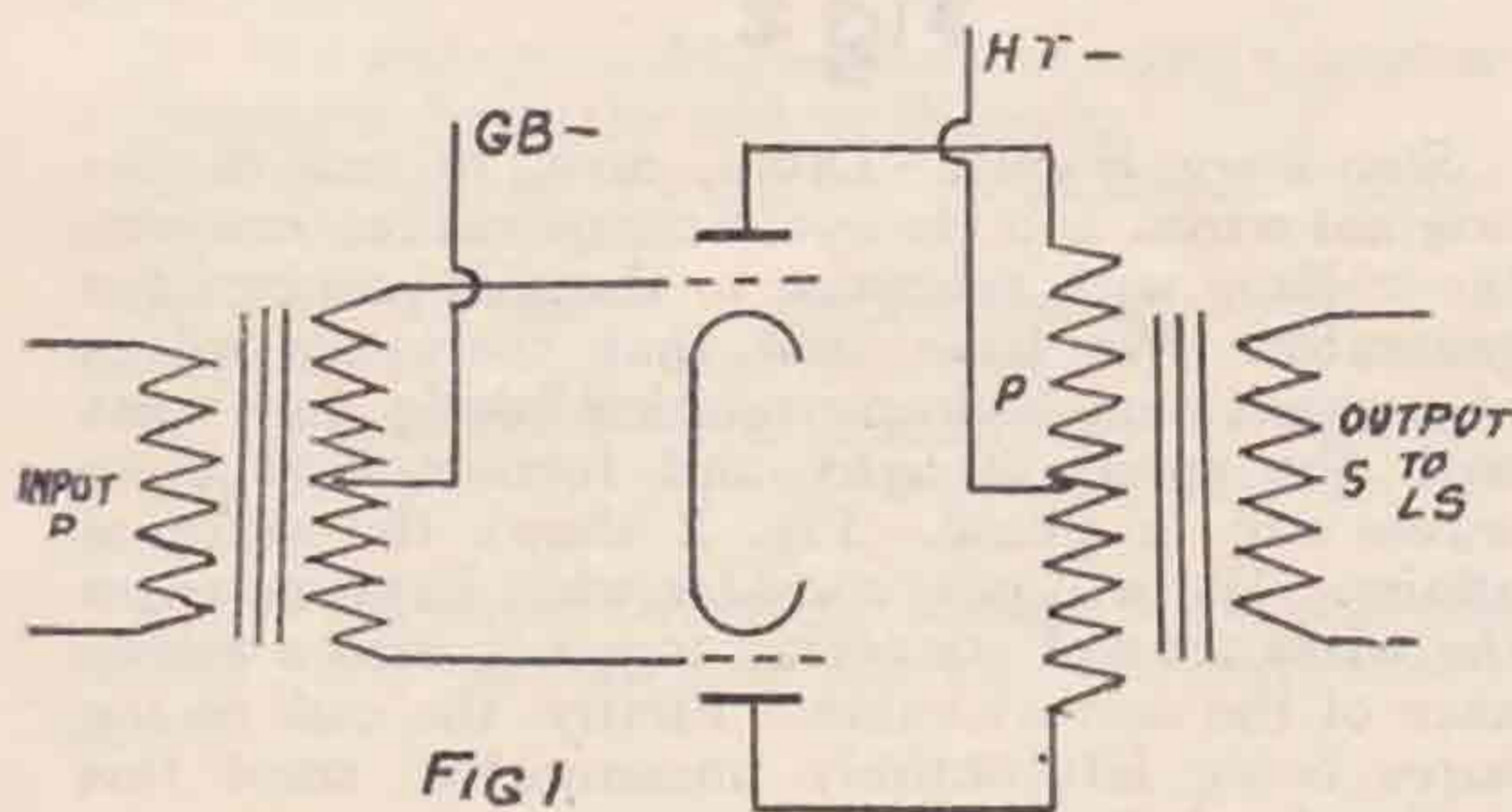
The problem of obtaining a sufficiency of low frequency amplification for the operation of moving coil loud speakers is very much in the foreground at the present moment. The articles in the radio Press have brought this type of speaker into prominence and a large number have been acquired. It is doubtful, however, whether all have given their owners the satisfaction they expected, for many have simply been made to replace a Horn speaker previously used without any change being made to the set. It is safe to say that a great number of users have been frankly disappointed and have unjustly blamed the moving coil loud speaker as being inefficient and lacking in power. Indeed, the writer knows one case where a set of speaker parts were carefully made up and afterwards sold for a third of the cost to a lucky purchaser who, building a special amplifier was able to make full use of his bargain. Unfortunately the vendors of the moving coil speaker parts do not warn their customers of this fact in their anxiety to make sales, and there are a lot of sufferers in consequence.

Since Dr. McLaughan gave his famous lecture before the Society with the demonstration of his fine speaker, many have followed his advice both in speaker and amplifier design. Others having seen that the power required was of considerable magnitude, entailing a high current at some three to four hundred volts, have done little in view of the high cost of H.T. supply on such terms. Obviously such output is beyond the scope of dry cells although not a few attempted the feat, only to experience the same troubles which early transmitters found when they essayed practically the same thing. Even the H.T. accumulator hardly offers a solution, the current may easily be fifty or more milliamperes and the small cells require constant recharging under such a drain. The battery eliminators have come into the gap although there are not many yet on the market to give so high a pressure as 300 volts. It is here that push-pull amplification comes in, for with its assistance, voltages of quite normal value will achieve the same results as the high pressure. In the latter system it is necessary to employ valves having a very low impedance and capable of withstanding a large grid swing. To bring the extremes of the musical scale out without distortion, it is necessary to employ a valve with a long straight characteristic with a high value of grid bias. This obviously accounts for the high voltage necessary. Again we must consider what actually happens in a low frequency valve when we remember it has to magnify the audio frequency variations delivered to it by the detector or the valve before it. With the simple grid charge, the corresponding position on the anode current is central, and the positive and negative grid swings must never be so great that the excursions of the anode current will exceed the saturation or lower bends.

With the push-pull system, each of the valves has only to deal with half the grid swing, in other words one valve deals with the positive and the other the negative impulses. By this means the output of a valve is practically doubled. It might

be thought that if two small low impedance valves had been placed in parallel the same result would have been achieved. Such, however, is not the case, for the simple fact that we are only providing additional conductivity and not for the heavy fluctuations of voltage upon the grid. Again from a musical point of view, it is much better to provide ample margin for normal working and against sudden calls for excessive grid swing and this can only be assured by lightly loading the valves.

The push-pull system of amplification is shown in Fig. 1. In this case the transformers used are of the special type now commercially sold by Messrs. Ferranti and other makers. The intervalve transformer is provided with a centre tap on the secondary winding into which the grid bias voltage may be fed, the extremities of the winding are connected respectively to the grids of the two valves. Thus when one grid is at its highest negative, potential or otherwise, the grid bias plus the negative grid swing, the other is at its highest potential towards the positive side or, similarly, the grid bias, minus the positive swing. The anode current in the latter valve will be of high value while that in the other will be at its lowest.

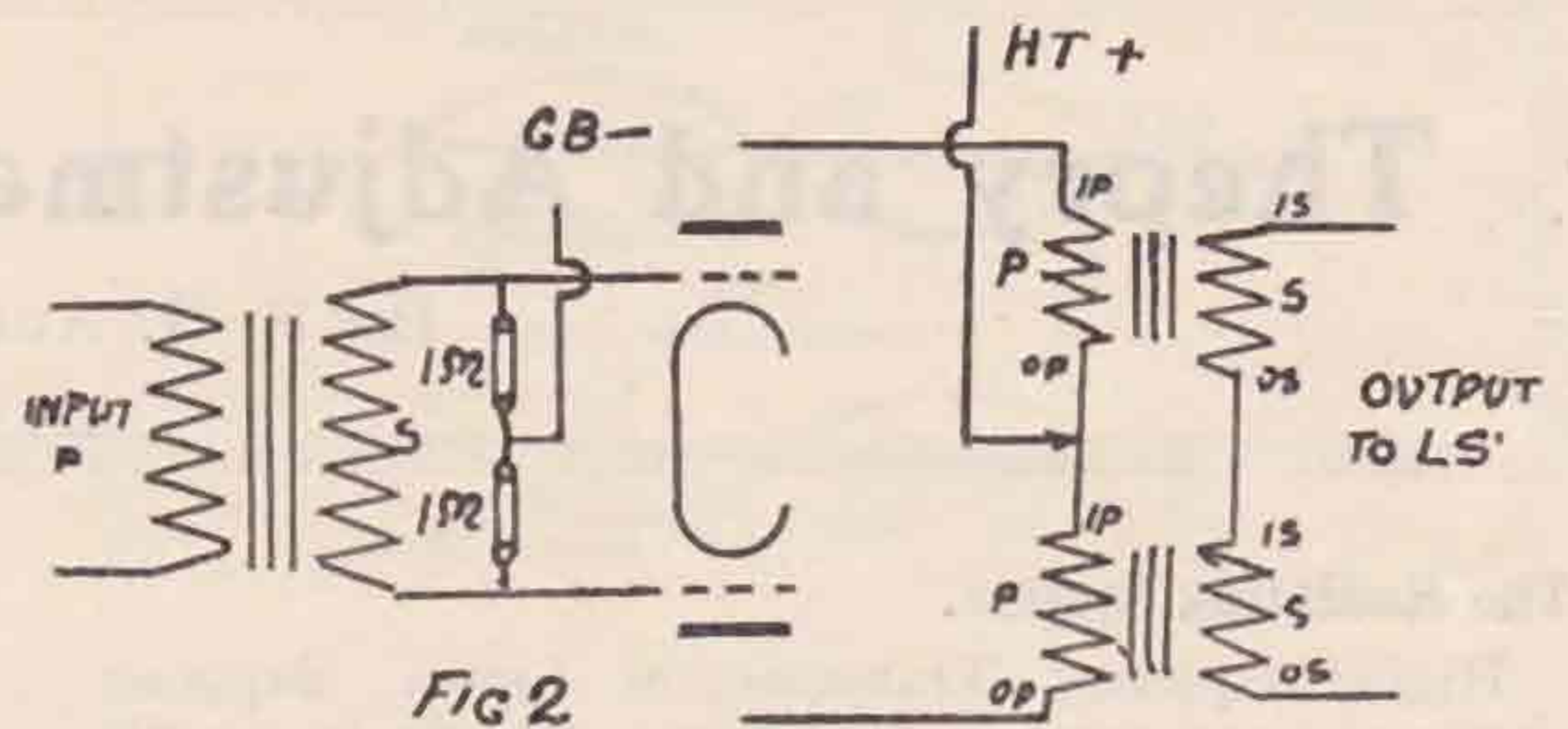


The positive feed to the plates of the two valves is made in the centre tap of the output transformer. Thus one section of the primary winding may be regarded as the magnetising while the other is a demagnetising; the current in one being at its maximum while the other is at its minimum. The transformer current is taken out of the secondary direct to the coil of the loud speaker. The ratio of transformation is of course arranged to suit the turns upon the coil or as it has come to be commercially known, as high or low resistance valves.

If the windings are arranged to suit each other in this manner and the resistances are equal, the utmost efficiency is obtained. With high resistance speakers it is possible to substitute the output transformer with a centre tapped choke, the leads to the speaker being taken to each end or otherwise to the plates of the valves. It is practically necessary to insert a high value fixed condenser in one of the speaker leads to prevent the flow of plate current.

While the special centre tapped transformers are readily obtainable now, there may be some who desire to experiment in push-pull amplification without going to the expense of obtaining the special apparatus. To such Fig. 2 will be of interest, for it shows how ordinary transformers may be used to attain the same results.

Instead of using a centre tapped secondary on the input transformer, we may form an artificial



centre by placing two high resistances, such as two grid leaks of about one megohm each, in series, and feeding the grid bias in at the centre. It is important that the two leaks be of the same value; therefore it is advisable to use a good make and even then if we can get access to a Megger as used by electricians, to go through a batch and select two of equal resistance. An alternative method which has been used by the writer consists of rubbing one side of an ebonite strip with graphite and fitting end and centre contacts. These latter can consist of brass screws and nuts with a tinfoil washer under a brass washer for making contact upon the graphite.

Instead of the centre-tapped primary output transformer, we may use two similar ordinary intervalve transformers with the primaries connected in series and the H.T. positive fed in at the centre connection.

The secondaries we may either connect in series or parallel according to which suits our speaker coil best. In either case we must be careful in our connections. In connecting in series, we must be careful to join the OS of one to the IS of the other, otherwise the two currents will be opposing each other. When connecting in parallel the two OS terminals will be joined together to one lead to the speaker.

The writer has been using push-pull amplification for some time past with Mullard P.M. 256 valves, and finds it most successful. The voltage employed is 180, and the power obtained for full quality, bringing out well the low notes, including the drums and double basses in their correct proportion.

Important Notice.

Our BULLETIN has grown and is growing. Right from the start, Mr. F. G. Turner (2DB), has reproduced the very excellent circuits we see in the BULLETIN. Of late, this work has grown too heavy for one man, and Mr. Nickless and others have very kindly done some of these circuits in what little time they have had to spare. We would like another member who has some spare time and who can draw circuits clearly to come forward and offer his services and relieve Mr. Turner of a little of this work. It is a job which has to be done quickly and one which everybody cannot undertake. You will be doing a great service to the Society if you help in this way.

The thanks of all the members, and especially those intimately connected with publishing the BULLETIN, go to Mr. Turner for his very excellent work in the past, and may it long continue.

Theory and Adjustment of a Transmitter.

By F. G. AUGHTIE (6AT).

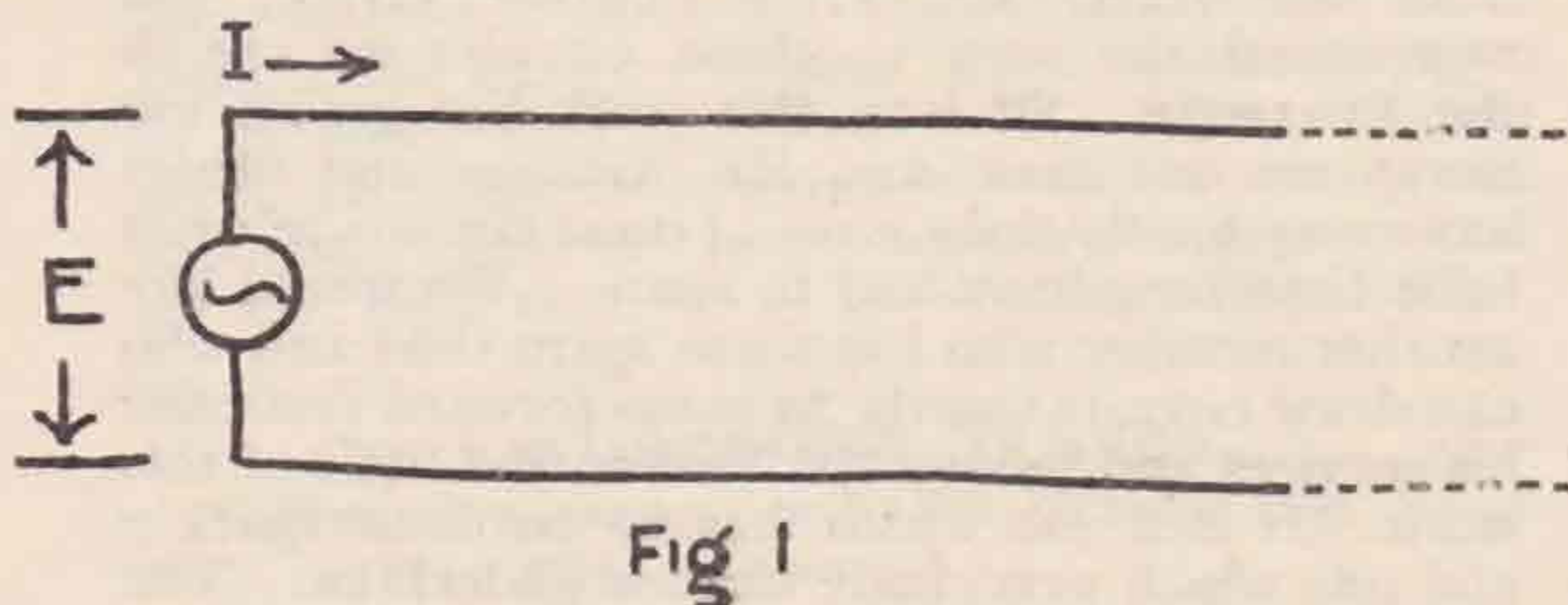
The Radiating System.

High-Frequency Transmission Lines. Suppose that we have two parallel wires of infinite length (Fig. 1) well removed from the earth and connected to a source of high-frequency energy. Then, due to the capacity between the lines they will take a certain current from the source. But, due to the fact that the capacity is distributed along the length of the wires, and also to the fact that they possess distributed inductance, the current will be in phase with the supply voltage; that is they take power from the source.

A further result of the distributed nature of the capacity and inductance is that the current is not the same in all parts of the wires at the same instant. The current at any instant follows a sine distribution along the wire, just as the current at any point follows a sine distribution in time. The simplest way of looking at this is to imagine waves of current and voltage running down the wires, these waves being in phase with one another both in time and space.

These waves travel along the wires with a velocity very closely equal to that of light, and if we neglect leakage of the system and also the resistance of the wires, there will be no dissipation of energy. The energy supplied by the generator is stored in the medium in the form of electro-magnetic and electrostatic lines of force.

At some point a definite distance from the generator there is a definite R.M.S. current I flowing through the wires, and a definite R.M.S. voltage E between them. If we now cut the wires at this point and connect between them, a resistance of such a size that it takes a current I for an applied voltage E , the conditions for the wires between this point and the generator will be exactly the same as before the wires were cut. The energy supplied by the generator is now dissipated as heat in the resistance instead of flowing into the medium surrounding the wires. (The original wires being of infinite length, the medium surrounding them is also of infinite extent and could store infinite energy.)



This is the simplest case of an H.F. transmission line. Note that the R.M.S. current is everywhere the same, although the instantaneous current follows a sine distribution along the wire. Also, a point of special importance, this state of affairs

holds only a definite value of resistance between the wires, a resistance equal in value to E/I . This value of E/I is the characteristic impedance of the line, and depends on the diameter of the wires and the spacing between them.

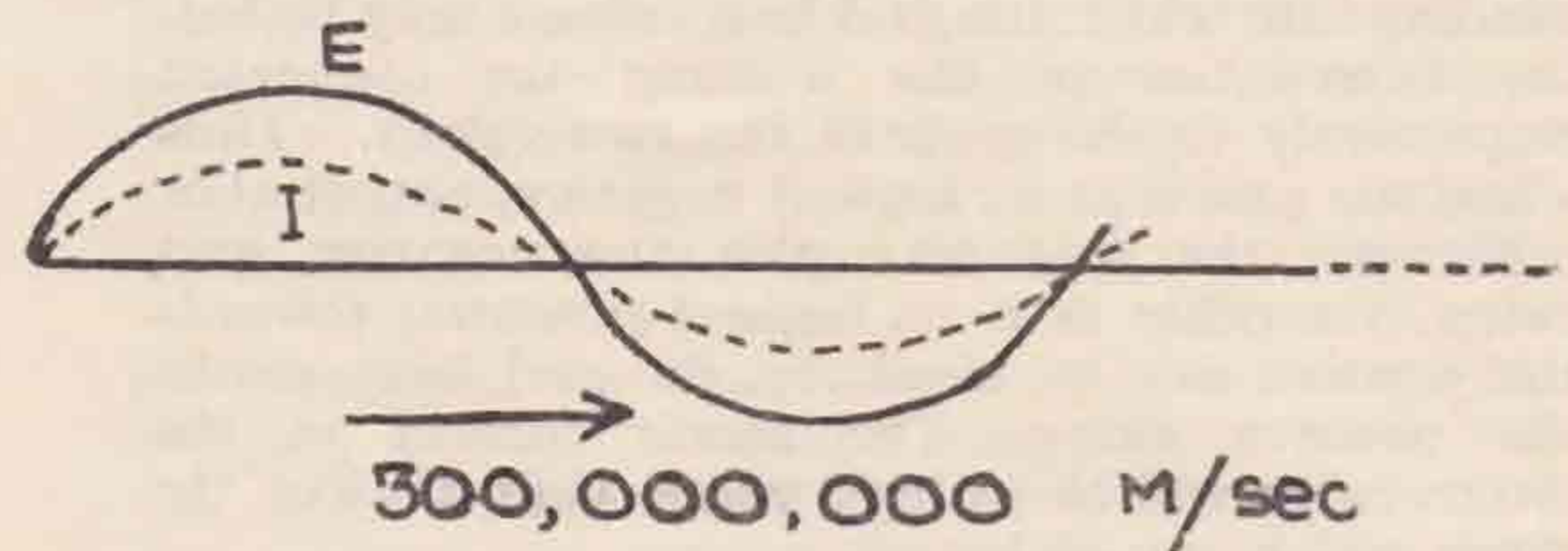


Fig 2.

Stationary Waves.—Think, now, of one of the original wires, and, to avoid complication, measure the voltage with reference to the mid-point of the generator. We have seen that there are waves of current and voltage running along the wires with the speed of light, and further, that these waves are in phase. Fig. 2 shows the state of affairs. We will now consider what happens when the wires are not connected together with a resistance of the correct value. Firstly, the case of the wires being left entirely unconnected, since this is the simplest case to consider.

When the travelling wave arrives at the end of the wire it can go no farther, and there being no resistance to absorb the energy, it is reflected back along the wire. The voltage wave is reflected back unchanged, but the reflection of the current wave is somewhat different.

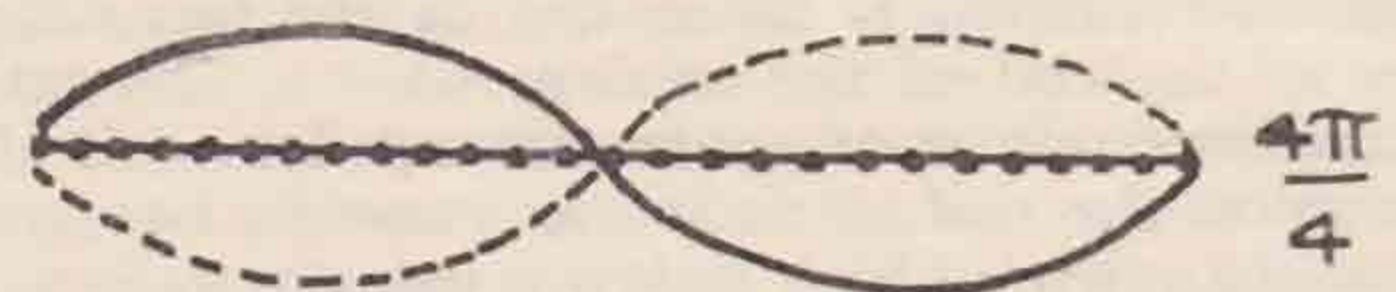


Fig 3

VOLTAGE WAVE

The positive direction of the current in the wave is conveniently regarded as that of the direction of motion of the wave itself, hence when the wave is reflected, the positive direction of current in the reflected wave is in the reverse direction to the positive direction of current in the forward wave. This is usually expressed by saying that the current wave is reflected with a change of phase of 180 degrees. These reflected and forward waves combine to give a stationary wave of current and voltage on the wire.

In Fig. 3 the main and reflected voltage waves are shown, and the third curve is the sum of the two and gives the instantaneous voltage at various

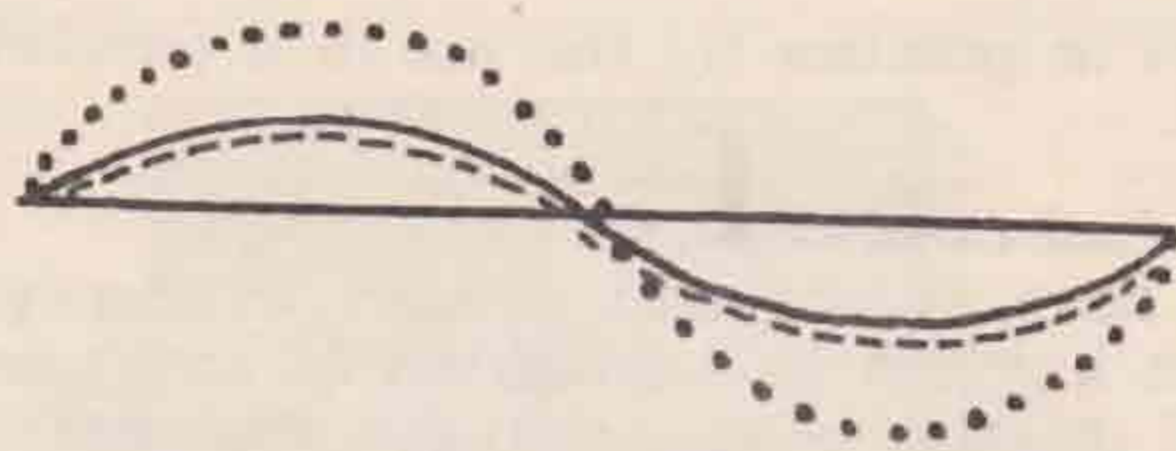
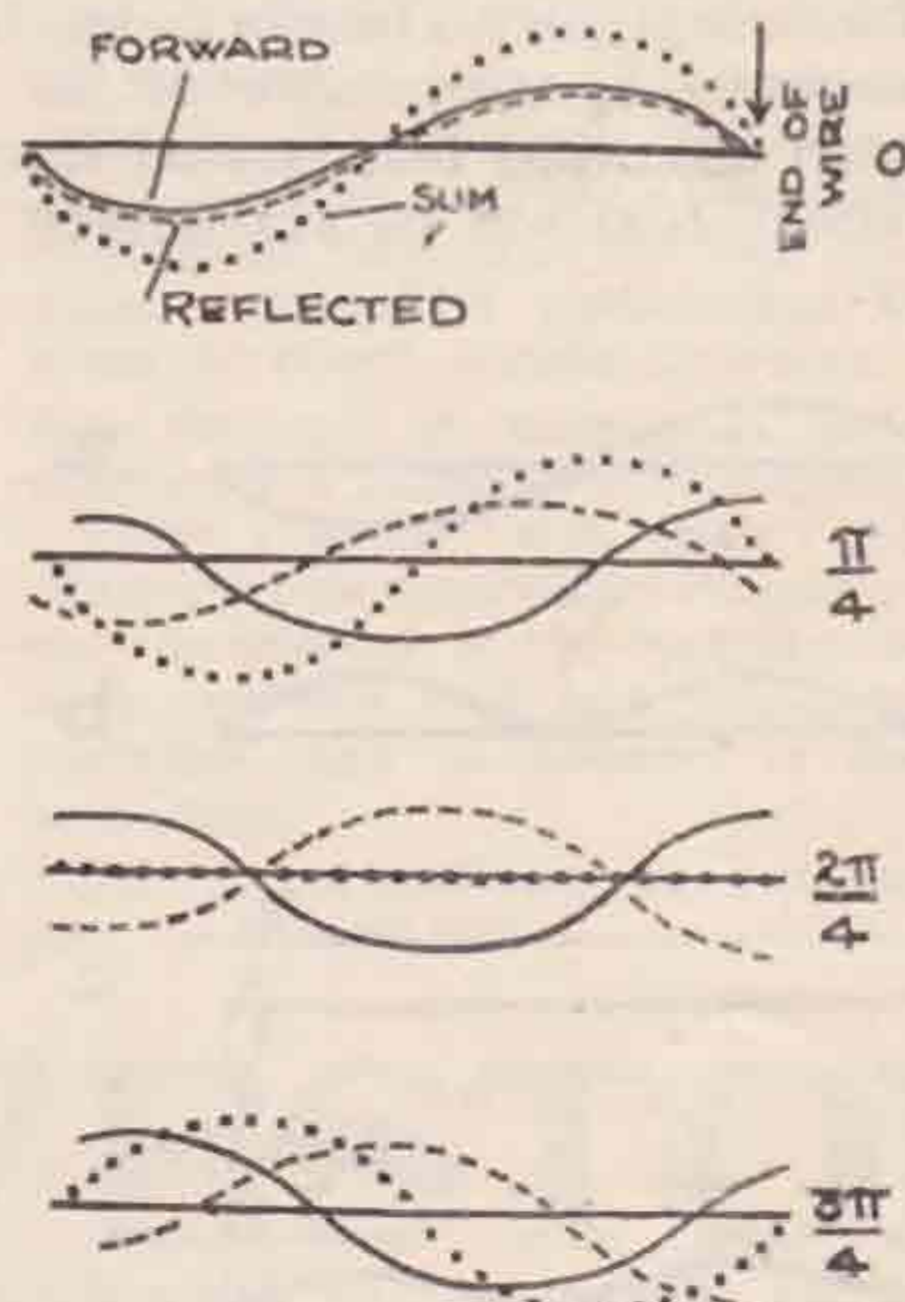


Fig 4
CURRENT WAVE

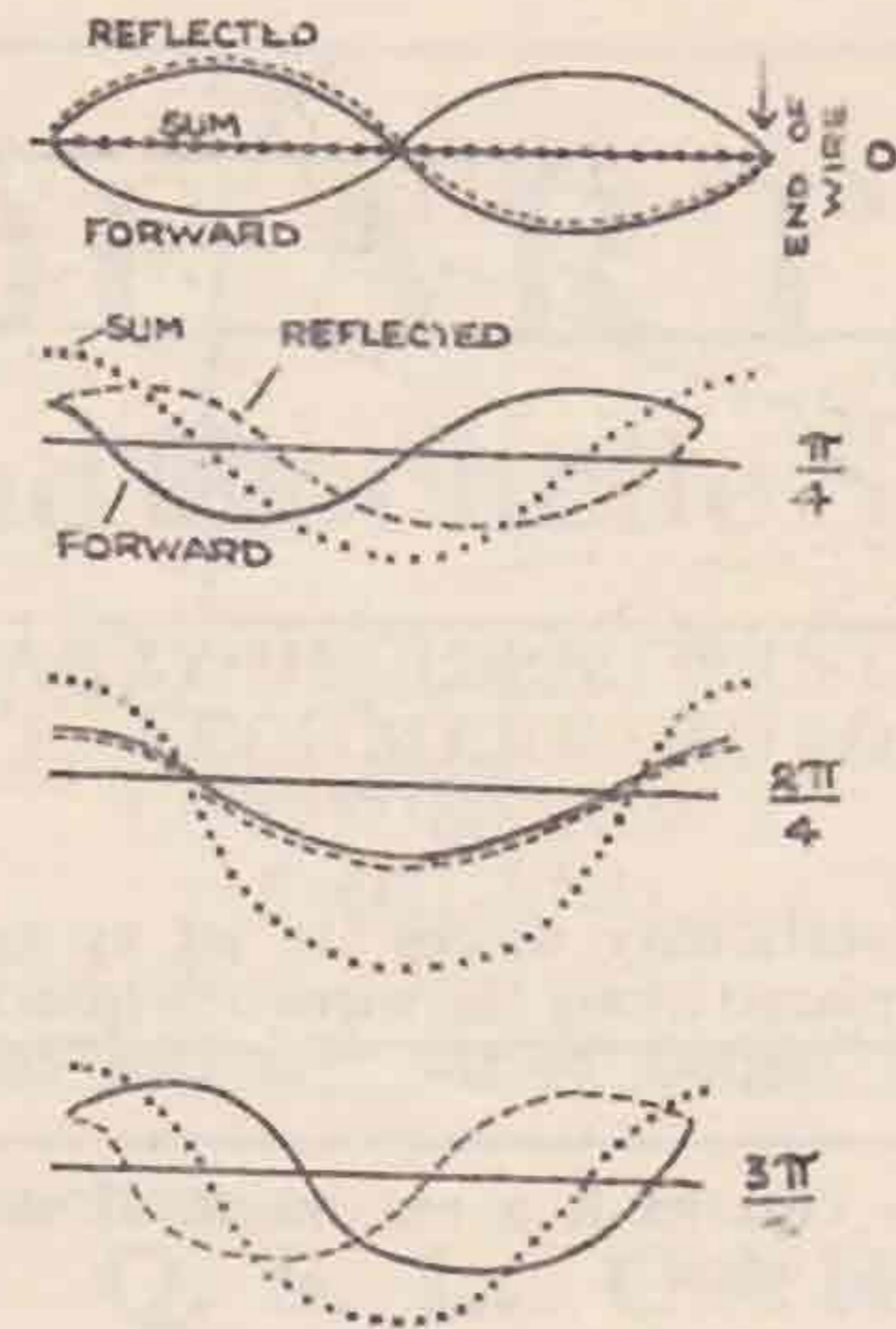
points along the wire. This is done for a number of different times, giving different positions of both waves, and, as may be seen, different total voltage distributions. In Fig. 4 the same thing is done for the current wave, the reflected wave is shown reflected with the change of phase already described, and the third curve gives their sum which is the actual current in the wire at any point. As for the voltage case the distribution is shown for different times, these being indicated in the same way on both figures.

Examination of these figures together shows several important points.

- (1) The current is always zero at the end of the wire.
- (2) The voltage is always zero at a point a quarter wave-length from the end of the wire.
- (3) The voltage is a maximum at the end of the wire.
- (4) The current is a maximum at a point a quarter wave-length from the end.
- (5) At the instant when the current is a maximum at any point in the wire the voltage everywhere is zero.
- (6) At the instant when the voltage is a maximum at any point in the wire the current everywhere is zero.



These waves on the wire, composed of forward and reflected travelling waves are called stationary waves, since they remain fixed in relation to the end of the wire. They are 90 degrees out of phase with one another, both in space and in time. It is these stationary waves which enable an aerial to radiate energy, and according to their distribution over the wire, in particular, to the number of



them on the wire, the aerial radiates in different ways.

In this treatment we have supposed the wires sufficiently removed from the earth that its effects were negligible; the effect of the earth will be the next point considered. Before proceeding farther, however, the reader is advised to re-read the preceding part, if necessary, until the difference between travelling waves and stationary waves is clearly understood.

A stationary wave is fixed in position with respect to the end of the wire, and has an amplitude varying with time. A travelling wave has a constant maximum amplitude and runs along the wire with a velocity practically equal to that of light.

A travelling wave does not radiate energy, while a stationary wave does.

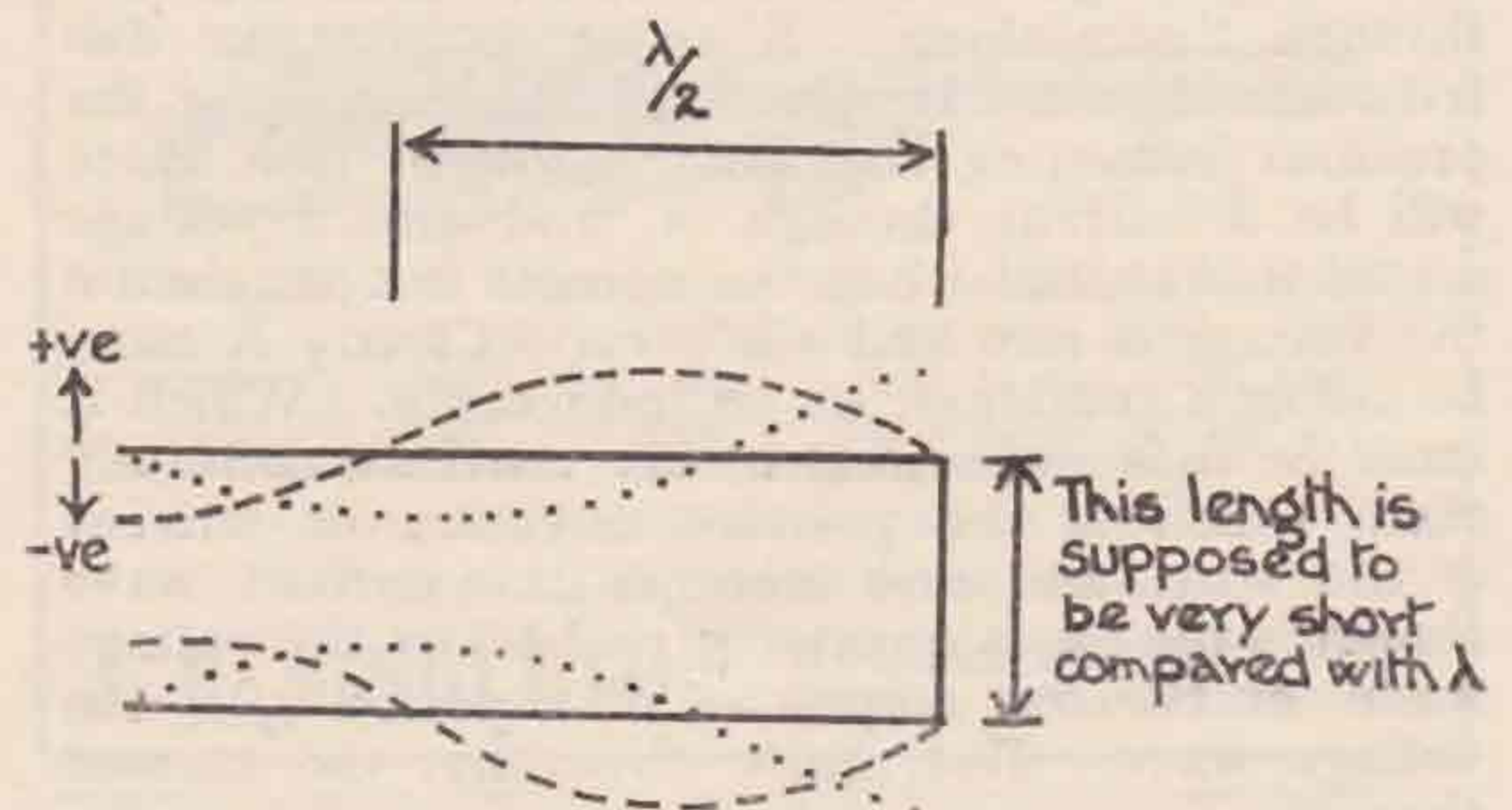


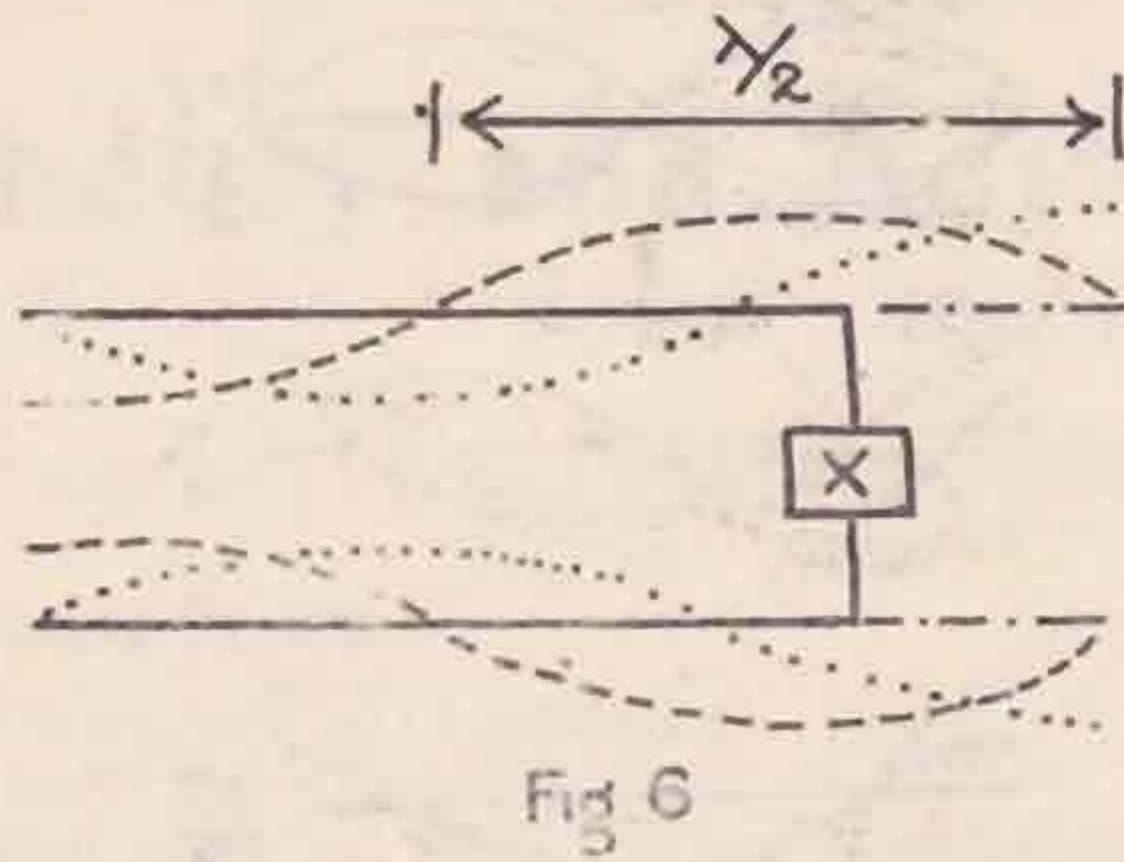
Fig 5

TRANSMISSION LINES.

(1) Terminated at a Voltage Node.

Next consider what occurs if the lines are terminated and short circuited, instead of being left open circuited.

It will be clear that when a travelling wave reaches the end of one wire, a corresponding wave reaches the end of the other, and, further, since the wires are connected to opposite poles of the generator, these two waves are of opposite sign. Where the two wires are connected the wave from wire (1) runs round the connecting link and back along wire (2), and *vice versa*. When the sign of the waves is taken into account as before, it will be



found that stationary waves are set up again, but they are displaced along the wires one-quarter wave-length with respect to the first case considered. Thus:—

- (1) The current is a maximum at the end of the wires.
- (2) The voltage between them is always zero at the end.

These conditions are reversed at a point one-quarter wave-length from the end. Fig. 5 shows the final result.

At this point let us just remember that we have in the preceding working not considered any conditions which may have to be satisfied at the home end of the line. We will continue to do this a little longer until the general problem is dealt with.

(2) Terminated at any Point.

If it is desired to terminate the lines so as to give any other distribution than the two simple cases considered, we can treat the problem in this way.

Suppose that we have terminated the lines at P and Q (Fig. 6) and connected them together through "something" X so as to give the distribution shown. It should be fairly clear, if the previous reasoning has been followed, that there will be a current through X, and also a voltage across it, but that when the current is a maximum the voltage is zero and *vice versa*. Clearly X must be either a condenser or an inductance. Which it must be it is impossible to say until we definitely state which is the positive direction or current is the wire, and also whether the current wave shown is the one a quarter period *before* the voltage wave, or the one a quarter of a period *after* the voltage wave. But, quite obviously, the current through X at some definite time will be in the reverse direction if X is situated between B and C, to what it will be if it is situated between A and B, while the sign of the voltage remains the same between A and C.

This means that if X must be a condenser between A and B it must be an inductance between B and C. As regards the size of X: The ratio of the initial voltage and current travelling waves is determined by the size and spacing of the wires. The maximum amplitude of the stationary waves will thus be in the same ratio, which is fixed by the dimensions of the line. As we move from A to B the voltage rises and the current falls, hence the value of X must increase. At B the current is zero, while the voltage has a definite value. This means that X must be infinite. This can be

realised in practice by the use of a parallel tuned circuit.

Home End Conditions.

We have shown that a high frequency transmission line can be terminated at any point with respect to the position of the stationary waves provided that the connecting link between the lines is suitably chosen. It will be fairly clear that since the stationary waves are continuous along the wires, the conditions to be satisfied at the home end are the same as are necessary at the other end.

The remaining case of the transmission line is the one most commonly occurring in practice, where the lines are joined by a resistance not equal to the characterised impedance of the line. This is the class to which the feeders of a current-fed Hertz belong. The resistance of a half wave aerial measured at the centre is about eighty ohms, while the impedance of the transmission line will invariably be greater than this. The following treatment is, however, quite general.

Lines Joined by a Resistance.

Let the characteristic impedance of the lines be R_0 .

Let the load resistance be R.

Suppose the lines to be connected to a generator whose maximum voltage is E. The maximum amplitude of the travelling voltage wave will be E and of the current wave $I = E/R_0$. Imagine this latter wave to be composed of two waves of amplitude I_1 and I_2 ; these may either be both of the same sign or of opposite signs, *i.e.*, if I is taken as positive and I_1 also positive, I_2 may be either positive or negative. Now let II be made equal to E/R , then a consideration of the facts treated in the early part of this section will show that I_1 will be completely absorbed by the resistance R. The wave I_2 will, however, be reflected as from an open circuited terminated line and will give rise to the formation of stationary waves in the usual way.

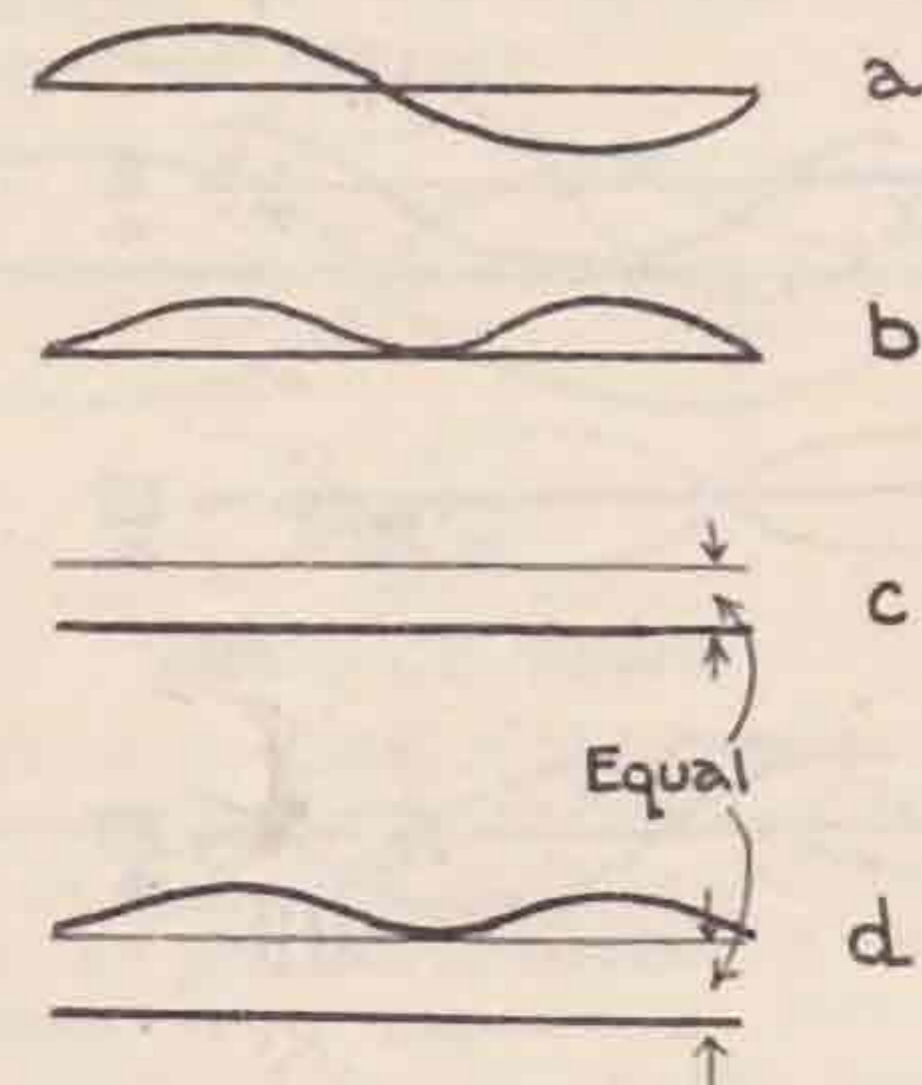


Fig 7

On this transmission line there will, therefore, be:—

- (1) A travelling wave I_1 not reflected.
- (2) A travelling wave I_2 completely reflected and giving rise the stationary waves.



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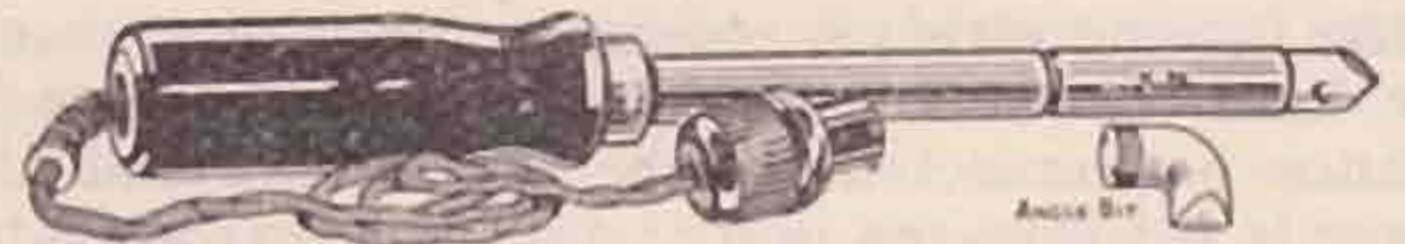
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Now we know that in the first case (1) taken alone an ammeter will read the same at any point in the line, while in case (2) the ammeter reading will vary along the line, and there will be points where the reading is zero. In the case of the two together the reading will still vary along the line, but will not fall to zero at any point.

- In Fig. 7 (a) shows a current stationary wave ;
 (b) shows the (time) R.M.S. current at different points along the wire, *i.e.*, the ammeter reading ;
 (c) shows the ammeter reading for a travelling wave ;
 (d) shows the ammeter reading for a travelling wave and a stationary wave simultaneously.

Summary.

To sum up prior to drawing conclusions :—

- (1) Lines carrying only a travelling wave can be terminated at any length without any need for tuning arrangements.
- (2) Lines having upon them only stationary waves can be terminated at any length if the reactance joining them is of the correct kind and size.
- (3) Further, that such lines can have either (or both) end(s) situated in any position with respect to the stationary wave, provided that the necessary condition is satisfied at that (or both) end(s).

Thus, obviously lines carrying a travelling wave and having a stationary wave superimposed upon it can have either (or both) ends situated in any position with respect to the stationary wave provided that condition (2) is satisfied.

Conclusion. General Case.

Thus the conclusion is that a high frequency transmission line can be of any length and have at the far end either a resistance or a reactance of any kind, or both, provided that a suitable reactance is connected at the home end and that power is fed into the line at this end corresponding to that dissipated in the resistance.

The writer is aware that this contradicts many statements which have been made with regard to the length of the feeders, and for this reason the matter has been dealt with as fully as space permits. Much, however, has had to be left to the reader, but it is hoped that this will clear up many doubts in the mind of serious experimenters.

Reminder.

One final reminder ; we have neglected the effect of resistance and leakage in the lines. Experiments have shown that their effect is very small for such lengths of line as are commonly employed in practice.

panel, and amply justifies the use of another valve

[It should be remembered that when one is modulating on to an intermediate amplifier in a M.O.P.A. transmitter that all following amplifiers will have to run at lower milliamps to the plate than normal, though to compensate for this the H.T. voltage may be raised or the R.F. output from the modulated valve when not being modulated must be higher than is normally used for Morse work.—TECH. ED.]

Choke Control.

By J. W. MATHEWS, 6LL.

Several articles on modulation have appeared from time to time in the "Bull," but so far there does not seem to have been any notes on the choke method of modulation. It is thought, therefore, that a few words on the subject might be of interest.

In the first place, it is generally accepted that choke modulation gives superior results to any other method. The writer is aware that this statement will probably bring forth a storm of abuse from various grid control enthusiasts, but is willing to argue it out with anyone.

It is the only method of *reliable* modulation for the short waves, unless one is using C.C. or M.O.P.A.

It would be as well, perhaps, in view of some of the speech one hears on the 45 metre band, if people would realise this.

The writer is aware of the fact that some people do get quite good speech from grid modulation, without any frequency control, but, nevertheless, such speech will spread more, and is more likely to be subject to fading due to frequency changes produced by that method of modulation.

With regard to the modulation choke, this should have a reactance equal to about four times the impedance of the modulating valve. Assuming an average valve impedance of 10,000 ohms, a reactance of 40,000 ohms at a fairly low speech frequency, say, 200 cycles, is necessary. Therefore, substituting in the formula,

$$\text{Inductance} = \frac{\text{Reactance}}{2 \pi \times \text{Frequency}}$$

We get

$$\begin{aligned} \text{Inductance} &= \frac{40,000}{2 \times 3.14 \times 200} \\ &= 30 \text{ Henries approx.} \end{aligned}$$

This can be taken as a fairly general inductance for a modulating choke.

In the case of the writer an L.S.5 is used as a modulating valve, and therefore the inductance of the choke should be about 21 henries.

It was found that by removing the primary winding of one of the ex-Government 1 in. spark coils, and filling up the space with iron wires, a choke having an inductance of 20.5 henries was obtained.

The only disadvantage of using such a coil is the high D.C. resistance. It is not very noticeable on inputs up to about 20 watts, but over this it tends to cut down the voltage on the oscillator somewhat. This can be overcome, of course, when one is using C.C. by modulating one of the intermediate amplifying stages, or by winding the choke with thicker wire.

There is not much more to be said on the subject, except that with this method of modulation it is easy to control at least 50 watts with only one stage of speech amplification using an ordinary medium resistance microphone. It is well worth any trouble involved in making up a simple modulating

(Continued in preceding column.)

My Short Wave Receiver.

By H. C. PAGE, G6PA.

Now that coils wound on valve bases are becoming very popular, perhaps a few details of a receiver employing this type of coil would be of interest to people who want a receiver of this sort.

A receiver employing such coils has been in use at this station for over a month now and has proved so satisfactory that I intend to use it for all future reception. Undoubtedly one of the chief advantages is the ease and speed with which one can change from one wave band to another. All that is necessary is to pull out the coil in use and plug in another one. Although only a very small tuning condenser is used only one coil is necessary for each band.

Owing to the very small field of these coils very little external noise is picked up, such as mains, hum and motor car magneto interference. The decrease in strength of atmospheric disturbance is truly remarkable.

Now as to the actual construction of the coils used. The 20, 30 and 45 metre coils are wound with No. 26 double silk covered wire for the grid coils and No. 40 double silk covered wire for the reaction winding. For waves above 45 metres 40 double silk covered wire is used for the grid coil as well. This, however, is only necessary when a very small tuning condenser is employed. The condenser in use here has only one moving plate and two fixed ones. The actual number of turns on the various coils depends, of course, on the size of the condenser used. With a .0001 condenser, six turns on the grid coil is about right for 23 metres, while 13 is right for 45 metres and 35 for 90 metres.

Owing to the small field of these coils it is necessary to use a very large aerial coil. At least ten turns for 45 metres and 20 or more for 90 metres. The 45 metre coil also seems to work alright on 23 metres, but this, of course, depends on the aerial system in use. The aerial coil swings across the top of the grid coil, and therefore the grid coil should be wound on the top of the valve base.

From the circuit shown it will be seen that the earth end of the aerial coil is connected to the filament end of the grid coil. This seems to have a stabilising effect on the set.

The detector valve generally in use is a UX199, which takes only 60 milliamps filament current. This is an advantage, as the receiver can be left running for hours. For work below twelve metres I use a D.E.V., which works very nicely. A grid

leak of seven megohms is used, this being connected to the slider of the potentiometer. Reaction control is very smooth on all waves. The grid condenser is an air-spaced .0001 made by a Swedish firm.

One of the most important components of a short wave receiver is, I consider, the H.F. choke. I have tried all sorts of chokes and found none of them very satisfactory, until I tried the following method. On a piece of one-inch diameter paxolin tube three inches long I wound twenty turns of 40 gauge double silk-covered wire, then left about an eighth of an inch and wound on seventeen turns, then a space of about a quarter of an inch and another 27 turns and so on, taking care that no two sections of the winding were of the same size.

This idea was suggested to me by 5YK, and it certainly works excellently for all waves from six metres upwards.

That, I think, is all there is to say about the H.F. side of the receiver.

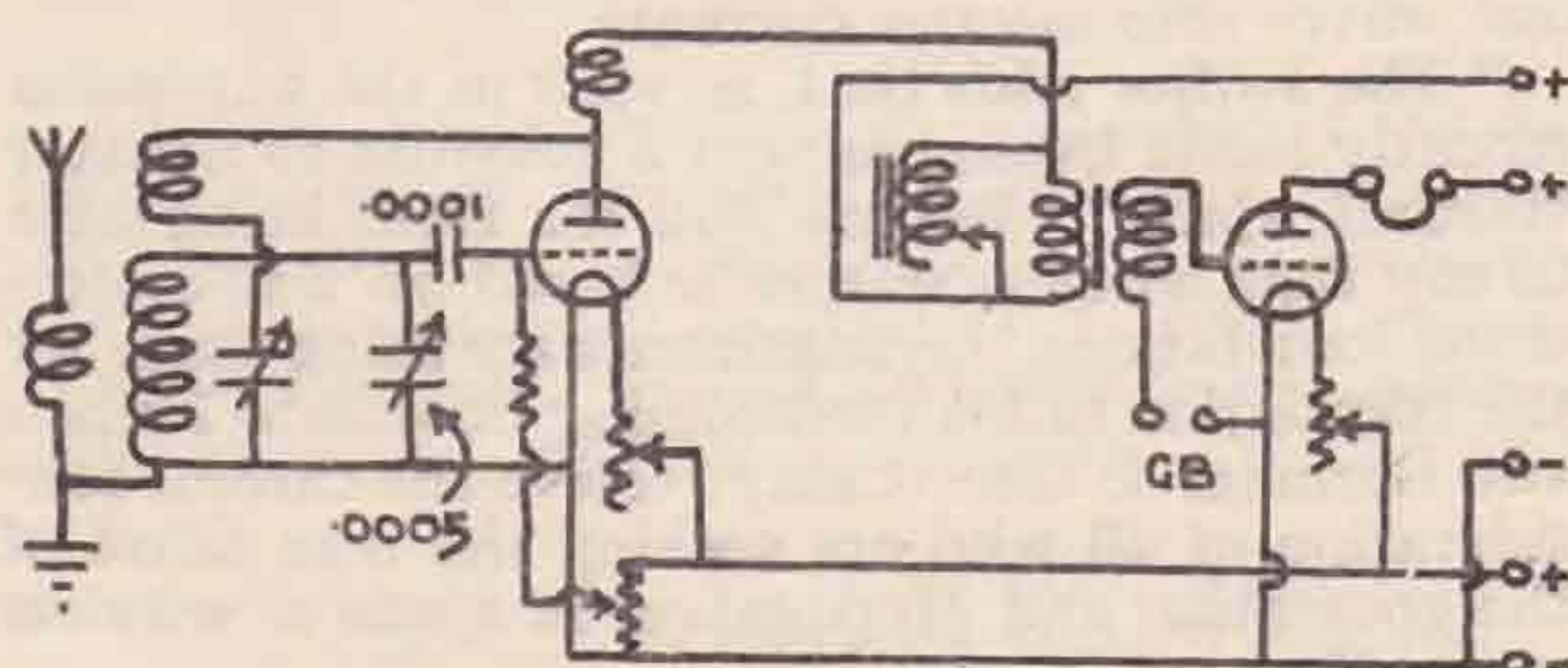
The L.F. side consists of one stage of audio frequency amplification. Before I go any further I had better say something about threshold howl. Whenever a good transformer is used threshold howl nearly always occurs; why I won't pretend to understand, but it does, as everyone knows. I have found that by peaking the primary of the transformer with an L.F. choke threshold howl can be completely cured. Now, please don't all write and tell me I am wrong; possibly I may be where your own receiver is concerned, but it certainly works all right for me. If you are troubled with threshold howl, at any rate you can give this idea a trial. This is not the only benefit to be derived from the use of a peaking device. The other advantage is that stations of the 50-cycle variety can be considerably lessened in signal strength by its use. Of course, the obvious thing to do is not to use a good transformer at all, but a good transformer gives louder signals, which is, of course, what we all want.

The transformer used in this set is a Marconi 4.1 "Ideal." Across this I have a tapped choke consisting of 2,000 turns tapped every 500 turns and wound with transformer wire or an old transformer core and bobbin.

Generally the full 2,000 turns are across the transformer, but if QRM from A.C. stations is very bad I decrease the number of turns to 1,000 by means of the tap, and this helps to get rid of the trouble quite effectively.

The valve used is of the D.E.3 type and gives very satisfactory results. The whole of the L.F. side of the set is screened off from the H.F. part by means of a zinc screen. Removal of the screen seems to make very little difference.

Perhaps a few remarks on the results obtained will be of interest. Beginning with the 45 metre band. Owing to the small condenser employed for tuning, the 44-46 metre band covers about 20 degrees of the condenser dial. As a Vernier dial is used tuning is very easy, it being possible to run up and down the very sharpest of D.C. signals. Signal strength is quite equal to that of the ordinary receiver, with the advantage that there is a very silent background enabling weak signals to be read quite easily.



On 23 metres the tuning is also very easy and signal strength is good, although not quite so loud as when using condenser coupling to the aerial. However, the background is much quieter with loose coupling, so the slight decrease in signal strength is immaterial.

Of waves above 45 metres nothing need be said except that there is a very silent background.

In conclusion, I feel sure that anyone who takes the trouble to construct a receiver of this type will be amply repaid. Should anyone wish for further particulars on any point I shall be only too pleased to give any help within my power.

Station Description to 6HP.

By H. D. PRICE.

The station first came into being with the advent of broadcasting as a purely B.C.L. concern. Then one day a local transmitter was tuned in while crystal scraping, and this sowed the seed of radio from which 6HP eventually blossomed forth!

The aerial system first used was a short antenna of about 50 ft. and operated with an earth. Not very much DX was worked with this, as can be imagined when one has to employ a 30-ft. earth lead! The best result was R5 from Leningrad. But one day by accident the earth was left off and results improved enormously!

This suggested the Hertz type of antenna, and several forms of this were tried, but results were not very satisfactory, beyond a few "NU" QSO, owing to the difficulty of feeding the aerial when the operating room is on the same level as the top of the mast. At last a brother ham suggested the "inverted L" type of Hertz, and this was used for some time with quite good results. Eventually the idea of abolishing the bend came to the writer, so the insulators were removed from the house end and the lead-in tube put at the top of the window instead of the bottom, as it had been, thereby making the aerial a dead straight line from the top of the mast to the plate coil of the TX. From that day DX steadily increased. This type of aerial is not practical unless one is situated at the top of the house, as the loss in height would counteract the "hoped for" increase in efficiency.

The TX itself is a TP TG, and was originally of the ordinary type, but recently it has been operated with the coils coupled as closely as possible. This has been found to be a great improvement over the usual type. The bottle, of course, is a debased L.S.5, and the H.T. supply used to be obtained from a hand generator driven by a motor from the A.C. mains, but has just been replaced by R.A.C. As a result it is now possible to speak and be heard while the TX is operating!!

Regarding results obtained, the best DX QSO on 45 metres is Dallas, Texas, where several stations have been worked at about R5-6, while a report of R4 has been received from China. NU 1, 2, 3, 4, 5, 8, 9, have also been worked, and altogether about 150 "NU" QSO's have taken place on this wave.

The 23 metres band was first tried in August,

1927, and resulted in no QSO's at all for two months, when at last FMSRIT was worked there were great rejoicings. NU was first worked on January 1, 1928, and since that date communications with all districts have been established. India and South Africa have also been hooked, and four or five QSO's with New Zealand have helped to make 6HP a happy station!!

A New Theory.

We have received from Mr. H. R. Khan, Post Box 110, Delhi, India, a letter in which he mentions that he is arranging for the publication by Messrs. Thacker, Spink & Co., Simla, India, of a new treatise setting forward new theories concerning the generation and propagation of wireless waves in space. An extract from the *Civil and Military Gazette* of India is enclosed which we have pleasure in reproducing verbatim.

"What may turn out to be a valuable contribution to wireless science by offering an explanation of how wireless waves are generated and how they propagate in space is being shortly published in a book by Khan Bahadur Habib-ur-Rahman, who, after his discovery of water wireless telegraphy, has been devoting himself to wireless research work.

"He claims to have discovered a new tap-root of all magneto-electric and wireless phenomena, and has formulated this discovery into an entirely new theory of what wireless waves are, how they are generated, and how they propagate in space.

"According to this theory, there is an entity, termed by him the 'magneto-electric molecule,' an infinite number of which, acting together, constitute the field of an invisible but gigantic celestial magnet, and it is this molecule which is responsible in a very novel manner for the generation and propagation of wireless waves in space, and also for their transformation at receiving stations into electric currents.

"As a practical application of the theory and as the result of considerable research work, Khan Bahadur Habib-ur-Rahman has been able to evolve entirely new arrangements for a transmitting aerial and receiving system for wireless waves. The new transmitting aerial system, it is claimed, aims at the utilisation of the magneto-electric molecules in a manner that would generate waves possessing healthy and vigorous radiating properties in the desired direction. The new system for the reception of wireless waves is also based on the part played by magneto-electric molecules in wireless phenomena.

"Interesting features of it are that it dispenses with masts and overhead aerials and utilises in a novel, yet simple and inexpensive, manner a sheet of water to assist the molecules in the transformation in the conductors of receiving antennæ of wireless waves into electric currents.

"The author adds that, in view of the admission recently made by so eminent a scientist as Senator Marconi, that: 'We are still far from being able to say that wireless science is based on well-understood foundations,' arrangements are being made for the translation of his forthcoming book into French and German, so that it may receive the careful consideration of all who are seeking the true cause of the generation and propagation in space of wireless waves."

Q.S.T.

Ten meter DX party coming!

* * *

ARRL have announced through QST that the new 10 meter band will be opened by a test on May 19 and 20, and 26 and 27. The band is 9.99 to 10.71 metres. Everybody in the world is asked to listen and transmit if possible during that period. Full details on p. 47. May QST. Send results to ARRL HQ.

* * *

Wanted: Large letter box! Particulars to "Ack Don."

* * *

Lost: Somewhere in Europe, 20 cycle A.C. note; answers to the name of Horatio. Finder will be rewarded. Apply 6BY.

* * *

NU111 is visiting England in July with the sole object of visiting Ham stations. He has asked us to arrange some kind of programme. Who's available? Drop a line to AD or KU.

Social Notes.

One bright spot shines on this month when thinking of the social activities of the Society—we refer to the Northern Area Conventionette. We in London congratulate you on your effort and assure you that future events will be watched with even greater interest, for we realise, with you, that much of the future success of our Society depends on friendly relationship between all members. To Mr. Wright (2DR) personally we send our very hearty congrats. And now, other areas, we look to you to emulate our Northern friends.

* * *

By the time these notes appear the South-Western Area Conventionette will be upon us. Remember the date, May 19, and the venue Bristol.

* * *

The dates of the third annual Convention are now fixed. These are September 28 and 29, being, as in previous years, the last two days of the National Radio Exhibition in London.

Keep these dates booked, and if you are a provincial member and would like accommodation with a London area member write me at once.

* * *

No response has been received to the suggestion that we organise a London Area Field Day. The idea will be dropped unless some interest is shown after this reminder.

* * *

Several times recently we Londoners have had the pleasure of welcoming provincial, Colonial and foreign visitors to our city. We want all who read our BULLETIN to remember that a welcome awaits you here. Either go along to headquarters and introduce yourself or telephone Finchley 3512 (6CL).

J. CLARRICATS,
Chairman Social Committee.

First Northern Area Conventionette.

THE Memorial Hall, Albert Square, Manchester, was the Mecca of some forty odd R.S.G.B. members on March 31, the occasion being the first Northern Area Conventionette.

The meeting was honoured by the presence of the hon. secretary R.S.G.B., Mr. H. Bevan-Swift, who took the chair, and was supported by the area manager, Mr. S. R. Wright (2DR) and Mr. P. Cox (5JW).

Considerable discussion took place on the subject of whether telephony should be prohibited on 45 metres.

5JW opened the discussion and was opposed by 5JA. The members supported both sides fairly equally, and 2VG, 2SO, 2DR took active parts. The following resolution was finally passed without dissent: "That telephony should be carried out only on the 75 metre band, subject to the support of the whole R.S.G.B."

6TW then opened a discussion on the formation of rival societies to the R.S.G.B. Mr. Swift gave some illuminating remarks on this subject, and it was finally decided that the Society had little to fear from rival bodies.

The advantages of each sub-area holding local meetings, say once a month, were then put before the meeting by 2DR. Such meetings had been held in the Yorkshire sub-area with great success, and much friendship and goodwill had come out of them. 2DR asked that all sub-area managers would help in this work by organising meetings in their sub-areas and this was agreed to.

The chairman, Mr. Bevan-Swift, then addressed the meeting on the subject of "The Washington Convention," and it was easy to see that the members were appreciative of the efforts made by the R.S.G.B. in this direction.

The proposed new wave-bands were discussed and many interesting details of future work gone into.

It was pointed out with regard to raw A.C. that, although it was perfectly obvious that on the new narrow wave-bands—such H.T. supply would ruin everything, the prohibition of it would have to be international, and steps were now being taken, through the I.A.R.U., to have this done. Moreover, more accurate wave-length checking would be a necessity, and it was hoped that the N.P.L. would send out a regular service of calibrated signals for the amateurs' benefit. 5MS, 5MQ, 5UB, and 6UO took part in the ensuing discussion.

Mr. Swift, having to return to London, made a few brief concluding remarks, calling on all members to support the R.S.G.B. wholeheartedly in word, action and deed, and emphasised the absolute necessity of maintaining the amateur status of the Society.

2DR moved a very hearty vote of thanks to the chairman for attending at great personal inconvenience, and pointed out the advantages of having an official of the Society present so that he could carry back to London an idea of how things were progressing in the provinces. 5JA, in a most able speech, seconded, and the vote was carried amid loud applause.

It is hoped that the Conventionette will be held twice a year, so that all members in the Northern Area will have a chance to get together and discuss items of interest to all amateur transmitters.

Contact Bureau Notes.

By 6YW.

My hopes after last month have not been realised, and this month shows a small list of new members again; but these are very welcome, as are also the letters from people who have been assisted by the CB during the month.

Those members who had the foresight to leave stamped envelopes were informed during April of the OZ-EG tests on 23 metres, and all the Area Managers were notified. In future, no notices will be sent to the Area Managers and only members with envelopes at CB will be informed by post.

BRS88 has been doing some fine work with an underground aerial, 2 feet deep, 30 feet long and enclosed in metal tubing. The receiver is a Reinartz O-V-1, and he reports reception of all Europe, AF, AI, AP, AS, FM, FO, FE, NC, NJ, NU, NI, SA, SB, SC, SU, OA, OD.

GI5WD has fitted a key-thump filter à la March QST and has thereby not only eliminated QRM for BCL's but obtained a note which could easily be mistaken for crystal control, and this with a hand-generator. He recommends this filter to anyone interested, and I feel that many are interested in BCL QRM!

EPIBK, ex-EG6XC, tells me that Spanish stations are very seldom heard in Lisbon though they are well reported in England. On the other hand, he says that German stations come through better in Lisbon than in England, and he proposes that a series of tests be run to investigate this effect. He very kindly offers to arrange for EP and EE stations to take part in any such tests. Therefore, if you are interested, will you please notify CB and when arrangements are completed I will notify you of the times, dates and wavelengths; you will not of course forget to send an envelope with your notification. This request is directed also to any EK, EE, or EP station who may read this, and I hope that the EK men will help.

BRS119 sends me details of his receiver, and says that a switch, while new, in the H.F. side of the set has no very marked effect. He also sends me some figures which show the effect of various detector valves on the lowest QRH of his receiver.

GI6MU, GI5MO, and GI6YW recently took a receiver capable of tuning from 10 to 6,000 metres, down the Carrickfergus salt mines. An aerial 40 feet long and 50 feet high was slung across a large cavern 550 feet below the surface and about 300 feet from the bottom of the shaft, but dead silence reigned on all S/W bands.

Each time the bucket was at the bottom of the shaft we heard the carrier of 2BE at R5, but as soon as the bucket left the bottom the signals faded out. But it was an interesting day.

Due to a strike the notice regarding CB did not appear in "CQ," the paper of D.F.T.V., until recently, but I hope soon to have a large number of names from Germany.

An interesting little note from 6MU: He was asked the other day by some unkind person, what would happen if he shorted his 1500 volt generator, and this of course set him thinking! He now has a couple of 0.06 valves in the leads, and says that

they cost him 30s. some time ago and give him a rather superior feeling—fuses at 30s.!

They carry the power for a 100-watt station O.K., but I have not seen them blow yet, and I wonder if they would protect the generator or set? I think that the space is too small for the voltage and that one runs the risk of having an arc set up. If anyone tries shorting a gen. through one of these valves, will he please send particulars to CB and let us know if he is getting better!

The new members this month are:—BRS119, BRS129, 6HZ, 2HD, BRS88, 6FY, 2NH.

Late note: NU9ANQ is transmitting on the 10 metre band and desires reports and schedules with EG, EF, EI, or EK. Please write direct; his QRA is Mr. A. Herman, 653, Mill Court, Waukegan, Ill., U.S.A.

Membership.

It has been decided in future to publish the names of new members who have been elected and have paid their first subscription during the preceding month, and also resignations.

The following are the lists for April, 1928:—

NEW MEMBERS.

W. H. MATTHEWS (2BQY), 40, Woodlands, Golders Green, N.W.11; T. J. NORTON, Hazelwood, Grantham; A. S. F. BERRY (2BDP), Haute Croix, St. Johns, Jersey, C.I.; D. T. BLUNDEN (5LU), 8, Penrith Road, Basingstoke, Hants; A. J. R. JOHNSON, Emgadine, Costessey, Norwich; J. SODERBERG, Highmead, Grayshott, Hindhead; F. A. RUSSELL, Esq., 7, Step Terrace, Clifton Road, Winchester; C. STANTON (2KM), 37, Newbridge Road, Hull; Q.M.S. C. S. ROBERTS, Command Signal Office, Military Headquarters, Hong Kong; F. S. ADAMS, Wireless Station, Ismalia, Egypt; S. R. DONALDSON (6BF), 62, Woodville Road, Golders Green, N.W.11; P. L. WATERS "Jeps-home," Green End Road, Old Chesterton, Cambs.; A. E. APPS (6MO), 322, High Street, Chatham, Kent; D. GWYN-JOHN (6GJ), Caereithin, Mumbles, Swansea; C. N. AUSTIN, 20, Brownberrie Avenue, Horsforth, near Leeds; A. ARMSTRONG, Airnlee Cottage, Canonbie, Dumfriesshire; J. JOHNSON (OZ-2GA), 17, Fortunatus Street, Brooklyn, Wellington, New Zealand; E. S. ELLIOTT (5LT), 13, Marlin Way, Sheffield; H. M. COOPER (5HG), 51, Hastings Street, Glenelg, South Australia; J. R. WORTLY-TALBOT (6WT), Broadsands House, Churston Ferrars, South Devon; B. W. TURNER, 76, Brentwood Road, Romford, Essex; J. JONES, 7, James Street, Lancaster; S. F. HARRIS (5SH), 13a, Winstead Street, Battersea, S.W.11; R. J. FOX, De Gray House, Batley, Yorks; J. R. DUNLOP, Latharna, Union Street, Coleraine; H. N. WALLS, Redcliffe, Forefield Lane, Great Crosby, Liverpool; D. C. GATTIKER, Mon Desir, Boreham Wood, Elstree, Herts; J. H. FOX, 3, Spring Grove, Batley, Yorks; W. B. HENDERSON, Vantura, Pharaoh's Island, Shepperton-on-Thames; R. BRETTELL (2AYO), 3a, Hartshorn Road, Bilston, Staffs.

RESIGNATIONS.

G. E. CLOTHIER, 5, Fenwood, Long Ashton, Bristol; R. HART, Hartsdale, New York, U.S.A.; L. J. MISHIN, 2, West Hill, Dartford, Kent.

BRS NUMBERS ISSUED.

No. 158, G. M. THOMSON, 3, Viewforth Square, Leven, Fife; No. 159, A. Armstrong, Airnlee Cottage, Canonbie, Dumfries; No. 160, C. N. AUSTIN, 20, Brownberrie Avenue, Horsforth, Leeds; No. 161, P. L. WATERS, "Jepshone," Green End Road, Old Chesterton; No. 162, R. J. FOX, De Gray House, Batley, Yorks; No. 163, D. C. GATTIKER, Mon Desir, Boreham Wood, Elstree, Herts; No. 164, J. H. FOX, 3, Spring Grove, Batley, Yorks; No. 165, R. J. T. SMITH, Kingston Lodge, Egerton Road, Woodthorpe, Nottingham.

BRS NUMBERS RELINQUISHED.

No. 5, G. E. CLOTHIER, 5, Fenwood, Long Ashton, Bristol; No. 150 K. C. RADBURN (now 2ABA).

Notes and News from the British Isles.

NOTICE TO AREA MANAGERS.

Commencing immediately reports revert to the old style. Area Managers are asked to use their discretion when sending in reports, and are asked to draw them up on the lines adopted in this issue.

Area Managers may appoint an independent representative in the London Area to attend meetings of the Committee and to vote on their behalf. A letter appointing a member to the purpose mentioned shall be addressed to the Hon. Secretary informing him of the appointment.

Members appointed by Area Managers for this purpose shall not already be serving on the Committee as Representative Members.

The Editor regrets that, with the exception of the Northern Division Notes, the London Area Notes had not been received at the time of going to press.

London Area.

Northern Division.

By 6CL.

Several active stations in the area are not reporting. Now that reports can be written in the old style, see to it you fellows, and let me have a postcard by the 16th.

6PP reports patchy conditions on 45 metres; fade out occurred later and on most evenings local Europe could be raised easily. Using 4.7 watts, three NU QSO's were made and a new country EH added. A remarkable QSO was made at midday, March 29, with EUINN (Nijni Novgorod—R6).

5GU has changed his $\frac{1}{2}$ -wave Hertz from horizontal to vertical plane.

6SC is working on 168 metres, using 3.5 watts to 0/20 or D.F.A.I., and will be c.c. as soon as he has taken 0.3 mm. off his crystal.

5UM has been busy but has found time to build a new O-V-2 all-wave receiver.

5QF has begun his career well, using about 4 watts on 45. Fourteen countries have been worked, with Nijni Novgorod as DX. Schedules with several stations are being kept and others are wanted.

5CD has been experimenting with receivers and has for the first time heard "threshold home"!

5HJ has not reported, but as we have visited his station and also heard his signals we must assume he is QRW.

6UN is collecting "dope" on Hertz aeriels and is preparing a questionnaire which he proposes to send to certain stations asking

for an expression of their opinions, the whole to be co-related at a later date. (Good scheme, OM.)

5AD and 5KU have disappeared and are now becoming keen BCL's. Their "flashlamp" batteries have not arrived.

6XN is a new member; send me report next month, OM, please.

6CL has been on business to Glasgow and had the pleasure of meeting, 5YG5XO and 6NX.

Daventry was also visited and 5IV and 2QM "looked up." An interesting evening was spent at 5XX and 5GB thanks to the courtesy of Mr. Hotine (2 QM).

On 45 several NU's were worked during early mornings in March, but April proved unfruitful. Indoor aerial tests are being made with 5 watts on 45.

OZ3AX was a welcomed visitor to 6CL and other London stations.

2AX has continued tests with his "bargain counter" valves, one in particular proving very efficient on both 45 and 23. This is a C.T. .25 x.

NU and NC have been worked, the latter at 01.00 GMT. Input 5 watts. BRS92.

Northern Area

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

The new method of sending in reports has not made any difference so far, and I hope the Conventionette spirit will survive, making for better co-operation among all the members in the Area. A full report of the Conventionette appears elsewhere in this issue. I must congratulate the Nottingham sub-area on their reporting. They easily beat all the other sub-areas. Northumberland, Durham, Cumberland and Westmorland don't seem to have a transmitter in the four counties. Where have you got to, you fellows? Bear a hand, please.

Yorkshire.

By 2DR.

6DR has had an excellent month, working the following new countries: EH, FE, AG, NU (4th district) and OZ. Considering this has been done on 9.6 watts, it would appear some careful working has been carried out. Twelve NU's were worked on one night. W.A.C. in sight here.

6IG is now using 300 volts of Columbia batteries from which he takes 18 m.a. The following countries have been worked: OA NP, SC, NU, 1, 2, 3, 4, 8 and 9th districts, also a QSO with WNP was effected. This tells of more good work.

6VJ has worked NU 1, 2, 3 and 5th districts, NC and ME. His signals were reported from NX. The 23 metre set has been rebuilt and a licence granted for 90 metres.

5CX. Here the 23 metre set has been rebuilt, using a half-wave Hertz aerial indoors. BRS reports on signals will be welcome. The set has only just been put into work and no results of note are available yet.

BRS26 reports remarkable conditions on 20, 40 and 80 metre bands. Some work has also been done on 10 metres, but there is little to hear there.

BRS107 receives an apology. His report was missed from the last issue, and his call appears in the list of "also rans." Sorry, OM. That old friend NU2CVJ wishes schedules on 21.4, 37.5, 39, 41 and 75 metres. Hams please note. Power, 50 watts R.A.C.

6OO appears to have been busy receiving visits from hams at Easter. Schedules are being kept with 2VQ, 6QB, 6UJ, 5UY and 6VJ. Preliminary indoor aerial experiments are being tried here.

2DR has not been on the air this month, partly because his QRA has had to be temporarily removed, but chiefly owing to girth and fading experiments. Some remarkable results are being obtained, but the work takes up a considerable amount of time.

6BR has been doing a little on 45 and 23 metres, but is occupied with aerial experiments.

Failed to report:—6TY, 5SZ, 6XL, 5KZ, 5JA, 2XY.

Lancashire and Isle of Man.

By 5XY.

5MS seems to have had a lively month, having worked all NU districts bar the 7th, and has also been heard off the West Coast of Mexico.

5XY has been very QRW, and beyond working a few NU's has little to report.

5JW on 23 metres with 50 watts and a D.O. 40 valve has worked WNP twice and dozens of NU's. This station is nearly always to be found on 23 metres at present.

6UQ sends his first report and I hope it will not be the last. Having no juice in the house has only dry batteries. However, good work is being done on 8 watts from this source.

Cheshire and North Wales.

By 6TW.

2SO having acquired an engine, four wheels and a body, has a nil report! Don't let it take you from the only game, OM.

BRS98 has a bad report for 20 metres, and has built a new receiver for 6 metres. AGA on 12 metres is the only one heard yet. Here a schedule with 6LN.

BRS126 is busy with Morse. He has logged most of Europe, also FE, FM, NU, NC, AS and SB.

BRS127 also busy with Morse, and is helping D7RL with tests by schedule.

BRS90 sends his first report. Let 'em all come, OM. Has logged F. Indo China. Tests on a portable S.W. set, and logged 27 European stations on it.

6TW is now testing on a 45-metre Hartley instead of T.P.T.G., and can switch from one to the other. T.P.T.G. holds the fort at present. A Zepp. half-wave is used which seems to have a favourite place for signals (about 300 miles) when using 8 watts.

Glad so many Cheshire people turned up at the Conventionette. I hope 6TW will arrange some local meetings.

Notts, Derby and Lincs.

By 6MN.

BRS103 reports better reception from PCJJ since the QRA was moved.

2ACC (ex BRS45) is now building a transmitter T.P.T.G. Finds smaller diameter coils in the receiver better than the large ones used hitherto.

5BD has found the T.P.T.G. circuit better from a QSB point of view. He is at present rebuilding both transmitter and receiver before removing into a shack. He has introduced a new member, 2BOW.

BRS137 is a new member. So welcome, OM. He is giving useful reports to stations working phone.

5QT has at last got an aerial system which is satisfactory after much trial and tribulation, but has had to close down until June.

2BOW is welcome to the area. Morse cramming here and a Hartley transmitter and hand generator.

6LI has had to forsake matters radio for some little time. It may be August or September before he is on the air again, but we are promised some real C.C. work when he does manage to get back to the ether.

6LN schedules have been commenced with BRS98 to investigate skip distance and fading. Four new countries have been worked, and directional effects are being tested.

6MN has managed to work NU after about three months of heavy key work. He has also been heard in Nigeria and on phone in Berlin. In company with 6AS and 5QT he went to see things done at 5XX and 5GB.

6UO is testing a half-wave V.F. aerial with a quarter wave feeder. He has worked NU3ASY with 7 watts and got R5 and NU2KR with 4 watts. Russia and Madeira have also been connected with on this power. The note is akin to C.C.

Several reports are missing this month, says the sub-area manager.

Mid-Britain (East).

Manager: H. J. B. HAMPSON (6JV).

Cambridge (reports to 2XV).

5YX is now on crystal control. He has worked New Zealand and Australia on 23 and 32 metres, also 6th and 7th districts U.S.A. on 23 metres.

Experiments have been carried out with the Igranic system of H.F. amplification in the receiver and 5YX is quite convinced that it is well worth while.

6CR has also been experimenting with H.F. amplification in the receiver, using a screened grid valve. Results are claimed to be even better than with the 5YX arrangement. Several U.S.A. stations have been worked on 23 metres using 10 watts input.

5JO has now obtained reliable QSO with U.S.A. on 45 metres and has regularly worked as many as 6 "Yanks" at a sitting.

2XY is still on QRP. He has worked 39 U.S.A. stations on 23 metres during March.

He has also raised and maintained reliable communication with OA7CW, being reported R4 with 10.8 watts input. The transmitter is now being rebuilt to M.O.P.A.

Huntingdon.

Mr. Maddox is building a short-wave receiver and will be pleased to forward reports to anyone interested in receiving such from this district.

Norfolk.

Nothing has been heard of 2BWB this month, and fears are entertained lest he may be suffering from a bee sting!

6JV has been playing with a coil driven cone loud speaker, and was fortunate in having the assistance of 2XV on the evening that this was first tested.

5UF reports investigations of weather conditions and effects upon local transmissions. He is running daily schedules with 6YL and 5WQ for weather reports. NU has been worked during the month with input of 8.5 watts.

No reports have been received from Leicester or Rutland.

Northampton (reports to 6TR).

6TR and BRS89 have been experimenting with series Hartley, but this has not been satisfactory. Power has been increased to 7 watts, using T.G.T.P. circuit.

Mid-Britain (West).

Manager: D. P. BAKER (2OQ).

In writing these, my first notes, for the BULLETIN, may I at the outset acknowledge the honour done to me in my election as manager of the West Mid-Britain Area?

This area consists of the counties of Shropshire, Warwick, Worcester, Hereford, and Stafford. Will all members in these counties whom I am not yet already in touch with please communicate with me (address Crescent House, Newbridge Crescent, Wolverhampton)?

Having come into existence, we must give proof of the life that is in us, evidence of the capacity to be up and doing and giving of our best.

Knowing the area as I do, and having experience of its keenness and capability, I face the future with every confidence. It is my privilege personally to direct matters as far as possible to the best interests and advantage, and I should like to assure you that I shall do my utmost to bring out the best that is in us.

Please remember that I am here to be made use of and that the more I get to do the better I shall be pleased.

Now to get to the reports for this month—I have only been able to include two counties, which of course is rather disappointing, but considering the comparatively short time I have had, I think may be deemed satisfactory, but we must have more next month.

Staffordshire (Reports to 5UW).

Reports from this sub-area have fallen off considerably, possibly through the confusion arising out of the recent Referendum. However, as that is now passed, will all OM's in Staffordshire please resume their reports to 5UW by the 10th of each month, and report in the old style?

There are at least 30 R.S.G.B. members in this county, so we ought to make a good showing in the BULLETIN. Mr. Baker, 2OQ, whom you all know, has been returned as our Area Manager, and it is up to us to back him solidly.

A good muster of the Wolverhampton and District Society were present to welcome Mr. Marcuse, 2NM, when he accompanied Mr. Valentine, of the Mullard Company, on the recent occasion on his lecture on Transmitting Valves to this Society. Our cordial thanks are due to Mr. Valentine, and the Mullard Co., for their kindness in arranging this lecture, which was thoroughly appreciated by the 40 members who attended.

The following are a few of the reports for this month:—

2WN has been investigating his theory of "Thought" radiation, but found that his OW was a "Detector" too perfect, and he has eased off his investigation in this direction.

2NV wants to try a half-wave Levy aerial, but has insufficient room to accommodate the length required for 45 metres.

2BOC has received his full licence, and is testing on 45 under his new call of 6SO. Best of luck, OM.

2YV is off the air for a time, and 5NU, who has been silent owing to QRM for business, intends starting up again shortly.

2RR is perking away on 150 metres with 6XF, and testing fone on that band. How about a monthly report, 6XF?

2AAD has been out of town for a considerable period, and has been inactive. The same applies to his brother, 5AF.

5LK has built up a television set, but says he has come up against the usual brick wall, namely, "Speed."

6OH has not reported, but 5UW visited his shack, and had an interesting time, while several NU QSO's were effected on 20 metre band during the visit.

6HT has been entirely rebuilt, both transmitter and receiver, and a really fine station is the result. A good report from this station is expected for next month.

6UZ has put up a Zepp after the remarks about this aerial made by 2NM during his recent visit to this town, but although 6UZ says the aerial is FB, he does not state in what respect. Has it cured his generator hum? enquired 6OH.

6BH has been having considerable amount of trouble with his bottles, but we expect that this is now settled, due to the Mullard lecture.

5UW has been busy building the H.T. transformer for 6HT's new station, and helping him to get it perking, but in between whiles, has WAC twice in a month, and QSO's have been effected with NU 1, 2, 3, 4, 5, 8 and 9 districts, NC 1, 2 and 3, and a report received from NC 5AW of Yukon, AI2KT has been worked twice, and SB 1, 2, 3 and 6 districts, SA, SB, and SC 2BD, 3AC, OZ2BG, and a meteorological schedule has been run with the French Meteorological station OCRB in Maroc. Most of the above were on the 20 metre band, which has been very fine during the past month. All efforts to raise an FO QSO have been futile. Aerial used is 23 metre Levy with feeders whole wavelength long. Transmitter, Mesny.

2OQ has now succeeded in qualifying for the WAC, having had to wait about twelve months for Asia; best DX for month has been AI, FO, and the usual NU, etc.

Warwickshire (Reports to 6CC).

6CI reports aerial tests in progress on 23 metres, with half-wave-Hertz, having feeders one wave long. Transmitter TPTG 10 watts. Best QSO's, OA5HG, OZ4AM, SB1AH. All Continents now worked.

6CC has not worked his Yank yet. Can anyone say that steel masts absorb power?

South-Western Area.

Manager: G. COURTENAY PRICE (2OP).

The Conventionette having been arranged to take place at Bristol on May 19, I hope to see a good attendance.

Reports are very few, but March has been a good DX month, especially for NU. There have been some particularly good DX days.

5VL has found conditions generally good on 23 metres. Trying slight modulation of pure D.C. for DX. The sixth aerial tried seems O.K. and was QSO AI, FO, NU9, and NC3 this month.

2YX has been carrying out a schedule with 2OP.

6UG has nothing of interest to report.

6ZR has raised EU on 2.7 watts at R6. F.B. schedules running with GW17C, EG60Q, EG5UB, and EG5QF. Now starting on 23 metres. Very interesting experiments being carried out on indoor antenna.

2OP has been carrying out tests with new antenna systems.

I have to report with pleasure visits from GW 12C, 6UG and 2YX.

Southern Area

Manager: L. MEYER (2LZ).

6FT continues with telephony tests on 164 metres, using 9 watts, and gets good reports. WX reports still collected on 45 metres and testing transmitter for 23 metres.

2HJ has been practically inactive except for skeds, but hopes to liven up things soon.

6WI has received an R4 report from Melbourne on 45 metres. Going strong with screened grid H.F. short waver described by 6NR in March BULLETIN.

5UY worked his first NU last month R4-5 with 6 watts. Now licensed for, and working on 90 metres. Also trying 23 metres without success. Wants a schedule for 90 metres at 22.00 B.S.T.

2LZ is putting out some good music on 150-200 on Sundays. Other stations on this wave are many, and none have reported this month. Come on, 5OK, 5SN, 5DT, 2MI, 5QV, etc., let's hear from you.

2ABK has been on the air with the Southend Radio Society's portable transmitter on 180 metres. Several QSO's have been obtained with good reports. Transmitter and receiver are both in the portable case. Fone is used.

BRS 114 has been carrying out observations on folding during daylight. Wants dope on underground aerials. (Write 6PG, OM.—6CL.)

Scottish Area.

By J. WYLIE (5YG).

According to the reports received relating to March, there are only five transmitters active in Scotland, namely, 2AP, 5XQ, 6IZ, 6NX, and 5YG. Candidly, this state of affairs beats my comprehension, and leaves me more or less incredulous, especially in view of the fact that I have heard several stations not included in the above list, called by Americans.

Now, whatever is the matter? Here am I voluntarily burdening myself with no small amount of work on your behalf, and you will not raise a finger to help yourselves, or show the slightest interest in Section affairs. You practise a most masterly inactivity month after month, accepting your BULLETIN with its interesting contents in a matter-of-fact way, which is positively galling to those responsible for the production of the paper. Ask yourselves what YOU contribute towards making the paper interesting, and you will find no difficulty in supplying an answer which, if it is in accordance with facts, should make you thoroughly ashamed of yourselves.

Now, OM's, this is straight talk, and it may well be 5YG's "Swan Song" in this connection, for I do not propose to appeal to you again.

When I undertook the organisation of the Scottish Area some three years ago, I was full of enthusiasm, and I must say that I received most encouraging support both moral and practical. Now, I must confess to being utterly discouraged and disheartened, and unless there is a very appreciable change of spirit in the Area in the next few months, I shall not permit my name to go forward for re-election in November.

I do not exempt my district managers from what I have already said, for, candidly, I have not received the support from them which I was entitled to expect. Expense and lack of time prevent me from keeping in personal touch with each member in the Area, but in certain cases where I did attempt to establish a more intimate connection, my efforts were not reciprocated; indeed, in one or two cases I was not even vouchsafed the courtesy of a reply to my overtures.

Herein lay the reason for the appointment of district managers, whose first duty was to keep in monthly contact with all members in their districts. This would have incurred no heavy expenditure either of time or cash, yet it was not conscientiously carried out in most cases.

Further, in my whole term of office, only one application for membership outside of the district in which 5YG is located has reached me through the district officers. I think further comment is superfluous.

I was very pleased to receive a visit from Mr. Clarricoats, and also from Mr. Halden (ex-6BJ). Several evenings were spent at

5YG, and I hope Messrs. Clarricoats and Halden extracted as much interest from the visit as 5YG did. The same two gentlemen along with 5XQ and 5YG, also paid a visit to 6NX, and were much interested in his gear, which is excellently constructed under difficulties impossible for the average amateur to appreciate, as 6NX is totally blind. 5XQ also paid two visits to 5YG.

Now for the reports—such as they are.

No. 1 District.

By 2WL.

2WL.—QRW. (Methinks there's a YL mixed up in this.—5YG). 2FV was not transmitting in March, but expects to be "on the air" in April.

5XQ has been visited by the P.M.G. people (the bold, bad desperado is accused of being HALF a metre off his licensed wavelength!!!—5YG), but has satisfied them that his radio morals are lily-white. Tests with $\frac{1}{2}$ and $\frac{1}{4}$ -wave aerials are being continued, and NU stations are being worked regularly.

5YG is continuing skeds with NU and NC on 45 and 23 metres. A new aluminium shielded RX is now in use, and gives a very quiet background. He QSY's from 23 to 45 metres and vice versa in three seconds, using the same TX. Ask 6CL how it is done!!!

6WL.—Pressure of business has prevented much radio work of late.

6NX has at last got things to his liking on 23 metres, and can raise NU's any old time. He is still troubled of course by tram-car and sparking commutator QRM.

No. 2 District.

By 6IZ.

2AP has been rearranging his aerial system, and has worked a number of Europeans. April will see the rebuilding of the TX and further experiments with C.F. Hertz aerials.

6IZ is now using a Zepp type aerial for 45 and 23 metres, but has not yet had sufficient in the way of results to form any conclusions. (Since the above came to hand, 6IZ has worked the Pacific Coast.—5YG.) A new TX for 23 metres has been built, and will shortly be tested out.

No. 3 District.

By 6KO.

6KO has had a bad time in hospital, but expects to be discharged on April 26.

No. 4 District.

5JB is busy moving his gear from his business to his private QRA.

Northern Ireland

By E. MEGAW (GI6MU).

I have to announce that Mr. L. H. Thomas (6QB) has kindly consented to act as London representative of the Northern Ireland Area. Mr. Thomas is probably well known to many of the GI's already, and they may all rest assured that their interests will be well looked after. It is hoped that this scheme may result in better co-operation and more rapid exchange of information between the N.I. Area and H.Q.

Some very interesting tests on underground reception were recently made in the Carrickfergus (near Belfast) Salt Mines by 5MO, 6YW, 6MU and a B.C.L. assistant; the results, although mainly negative, were extremely interesting. I understand 6YW is saying more about this in the C.B. notes.

Conditions have been quite good during the past month, particularly for 20 metre Transatlantic work.

A surprisingly large number of G.I's forgot to report this month, but I hope this is just an unfortunate coincidence and that all GI's who are on the air at all will make an effort to report before the 15th of next month. The situation has rather been saved by several reports reaching me indirectly.

2WK is "still struggling for P.D.C." and is mourning the loss of an L.S.5 and a wire-wound grid leak. He has a schedule with G6WY.

5HV is to be congratulated on his first American QSO—NU2AVQ. He has been trying "valve-base" receiver coils and intends to try a Mesny transmitter instead of his present Hartley. His station was recently visited for the first time by 6MU, who was greatly interested in the "mechanical remote control" methods employed!

6JA has had a report from NX1XL in N.W. Greenland but finds 45 metre work impossible on low power at the week-ends owing to QRM. His input is now 2 watts from accumulators.

6YW has added yet another DX achievement to his already well-filled "bag" in the form of a report of R4-5 in Australia (with 6 watts on 32 metres). This is evidently the first time a GI has been heard in Australia with really low power. (Congrats., OM)! Other QSO's on 23, 32 and 45 metres include, NC3CS, and several East Coast NU's, Morocco and Nijni-Novgorod.

6WG has worked a few more NU's on 45 metres.

5WD has been too busy to get on the air.

5MO has worked Morocco and a few East Coast NU's on 23 metres. 6TB has been testing an amplifier for his condenser microphone.

6MU's two-year schedule with AI2KX concluded a few weeks ago and 2KX will be in England before these notes are in print; more will be said about this schedule in a later issue of the BULLETIN.

6MU is now practically QRT until the end of June but a couple of nights on the air at Easter indicated that the NU West Coast was surprisingly easy to work on 20 metres.

Notes and News from British Dominions.

India.

By R. J. DRUDGE-COATES (AI2KX).

In spite of continuous QRN, an all-round improvement in conditions for India-Europe working prevailed during February, on the 30-metre band. Owing to QRN and late hours very few AI's report on the 45-metre band. Signals on this latter band are subject to very bad QRN and do not commence to come through until 1800 G.M.T., which means a midnight sitting for the AI gang, whereas the 30-metre sigs. begin to come in as early as 1430 G.M.T. Bad QSS on 30 metres AI sigs. after 1800 G.M.T. are consistently reported by GI6MU. G sigs. on this band remain steady until 2000 G.M.T. (Later observations not made.)

2KT reports good conditions prevailing for Central India—OA, FO, QSO, but practically N.D. with European stations. QRN has beaten all records for consistency during the month. Twenty metre QSO with FO and OA is reliable, as long as daylight covers some portion of the distance.

2KW reports QRN bad; QSO with OA and FO still obtained regularly, but a total blank with NU. EG and FO worked on the 20 band.

2KX reports schedule with GI6MU in full swing and now that conditions are improving, high speed working obtainable. GI6YW has been heard several times on his QRP transmitter. G2NM has been received at L.S. strength on O-V-1; congrats. to 2NM. NU 1, 5, 6, and 9 districts have been worked with max. input 60 watts. 2KX sails for EG in April and hopes to meet old friends.

2BG has not reported, but he is doing well and will have most likely obtained the most points in the recent ARRL tests.

2AJ is occasionally on the air with good DC and hopes to settle soon to real DX work.

2OC is a new AI, just home from China, and we welcome him with open arms. If you are not a member of the R.S.G.B. and you see this, OM, hurry up and rectify your mistake.

Irish Free State.

By GWIIB.

The improvement in the number of reports which I hoped for last month has unfortunately not been maintained, and this month I have only received two direct reports although I have held over the writing of these notes until the last minute in the hope of others coming in. If we are to justify our existence as an Area at all, the gang must wake up and do better than this.

The C.B. notified me that OZ's would be carrying out attempts to connect with home stations from April 8 to 15, between 0700 and 0800 G.M.T. on 23 metres, and I passed on this information to as many of the gang as possible.

Now for reports.

18B has put up a new full wave C.F. Hertz aerial and has worked a number of NU's, 1, 2, 3 and 8th districts, on 45 metres, mostly in the early morning. On 23 metres, after experimenting with various aeriels, he has worked NC, 2AX, OA5BW (R4), and OZ's 3AJ and 3AU, using, again, a full wave C.F. Hertz.

17C, after rebuilding his transmitter and experimenting with various types of aerial, has decided on a Zeppelin with which he has had most excellent results, both on 45 metres and on 23 metres. On the shorter wave, with an input of about 10 watts, he has worked about a dozen NU's, 1, 2, 3, 4 and 8th districts, as well as NC 2 and 3 districts. Also OZ3AU (R4).

11B has been too busy for wireless since March 20, and has consequently little to report. His only DX has been NU 2 and 3 districts, and NL GREN (Grenada Is., West Indies), on 45 metres. He has a report from OA 2nd district (Sydney), of reception R2 on February 22, "long after sunrise" there.

South Africa and Rhodesia.

By G. G. LIVESSEY (FO3SRB).

(DIVISIONS 1 TO 6).

UNION OF S. AFRICA.

A3W is still experimenting with crystal-control, but he is meeting with much difficulty.

A9E is also trying crystal-control.

A4X.—This station will be concentrating on telephony by the time these notes appear in the BULLETIN.

A7A.—Through him we learn that OA5CN is working every Saturday—1600 G.M.T.—QRH=32 metres.

A3C has been QSO England on 20 metres; has now succeeded in working SB, and thus qualifies for his W.A.C. certificate. During February he was QSO thirty NU stations.

A6J is using a power supply for H.T. of 200 volts at 100 cycles; his local work is very successful.

A7D has worked 11 OA stations—9 SB, one SA, 2 SC, one OH, one EF, one EG, two AL, and AI2KT on 20 metres.

A6R is doing good, and genuinely progressive, transmission work on 5 metres; still co-operating with A4M. Question of reaction control on receiver, 4.75 to 5.5 metres, causes a lot of trouble.

A4M on February 16, worked, with a T.V.T. unit, NU8GZ; his sigs. were, R6, QSO at 4.45 G.M.T.

A6W.—This station has been doing outstanding work; it uses a low-power "Baby Burgess" transmitting circuit and layout—a voltage-doubling H.T. supply from mains, 500 volts—two Cunningham "201"-A tubes in parallel—OH6AVL has been worked four times; also EF1HH, AI2KT, and AI2KW.

Also a card has just been received from 3 SRB's brother, who is EG6LI, at present at Pau, France, reporting reception of A6W there. This qualifies A6W for the W.A.C. He has also been QSO Siam.

A9A is now transmitting with higher power, using a new Mullard.

A4O is using an indoor antenna for transmission, and 5 watts input; he has been QSO AI2KT, who reported him R3-4.

A9M.—Listen for him any evening 7.30 p.m. (African time). He uses a L.S.5 valve with 220 volts mains.

A3Q is using for H.T. supply a Bosch magneto-generator, with a treader, and this gives him 6 watts to a L.S.5 valve. He has been heard by an OA DX listener at R6.

A3V has been conducting daily schedules with NU6HM. Unbroken contact has been maintained from January 15 up to now (February 20).

SUMMARISING THE RESULTS.—Daily QSO's were maintained for 21 consecutive days. During five of these QSO's were by the direct route only, at 0400 G.M.T., and during 13 consecutive days twice daily, i.e., both ways round; until four days ago communication was easy and reliable both ways, permitting exchange of lengthy messages intact. But from February 9 to February 12 conditions were very bad, allowing only bare contact. On February 13 contact was held from 0330 to 0500 (G.M.T.). 127 other DX QSO's have been held this season. All NU districts except "7" have been worked; a "7" has not been even heard. (This should be very instructive to our English stations.) NU6HM explains that all transmitters on NU 7th district use low-power, except NU7EK, who won't come off 20 metres.

BRITISH EAST AFRICA.

(DIVISION 8).

Licensees here are allowed 40 watts.

VQG is working on 28 and 18 metres. On March 17 it called "All amateurs," on 36 metres, but got no QSO. The note is pure D.C., with a spacing wave. We think the broadcast transmitter was being tested on low-power.

5CR is on 20-25 metres, 20 watts input (will G stations look out for him?—3SRB.) On February 7 G5SW was still coming splendidly, but this is what IMS says, at least during "Big Ben" and the talk on Butterflies or Foreign Labour Conditions; after that he fades out. It is most elevating, if not interesting! Anyway, we rarely listen in to him."

IMS can listen in on any wave—generally during forenoons and evenings, or after 0530 (G.M.T.). All times, G.M.T., please, and give good notice.

We welcome a new member here—J. Dow, Katera, P.O. Marsaka, Uganda. (He was 5WV and 2IV in England, so must be known to many of us!!)

Will use 1200 D.C. generator, turned by natives. Is also "in the blue."

2MS has had good reception on 20 metres from NU, EG, FO, So has 4MS, between 1730 and 1830 (G.M.T.). This is exceptional.

NU stations only heard here, on 40 metre band, between 0400 and 0500 (G.M.T.).

3MS.—Listen for him on 20 metres, please.

FO 80 metre sigs. not heard up here; 37 metre sigs. good during evenings.

If anyone hears VMS or VPQ on 36 metres, between 1300 and 1600 (G.M.T.), please report to FKIMS.

A message was sent by IMS, from Mombassa, on March 14, at 7.15 p.m. It was relayed by XenOCP, A7N, A5N, and A6W. Was received by Hon. Secretary S.A.R.R.L. in Johannesburg at 10 p.m. Good work? ?

GENERAL NEWS.

A conference is being held at Durban on April 7; about 60 members will be there. The show lasts four days.

The Divisions of the League, it is anticipated, are to be extended. Division 8 to include Egypt, Division 9 to include N.W. Africa and Gold Coast.

A Chevrolet car is making a "Cape to Cairo" run, and is equipped with a transmitter and receiver. A7S will be the operator, using call sign CTC (during March-April, etc.). The S.A. Government has appointed stations A4E, A4M and CVPE to keep contact with the car.

We have not had much more news about the progress of the Government Emergency Communications Scheme; the numerous tests which have been, and are being, made have proved definitely that in Africa stations operating on one waveband only will be unable to handle traffic all through the day; such stations, therefore, as would be suitable for appointment to Official Emergency

Communication stations will have to be capable of being easily operated on all of the three wavebands, according as conditions demand.

3SRB has made strong attempts to provide the BULLETIN with some notes referring to the leading FO stations, and a note was inserted in a recent copy of our fortnightly "Notes," asking for details to be sent to him of various outfits. Circuits in use, type of antenna, valves used, type of power supply, times of transmission, etc.

Not one reply has been received. It is very disappointing, and to most of us would indicate complete lack of interest or keenness on the part of FO operators. As 3SRB is 1,000 miles from the centre of "ham" activities more drastic action is impossible.

SOUTHERN RHODESIA.

(Division 7) (3SRB).

As usual, not a report from any of our 23 licensed transmitters. I do not know what is up with the chaps in the towns—Buluwayo and Salisbury. They have electric mains, and all facilities for work. We in the out-districts find things impossible. I am at present about 13 miles from a railway, 20 miles from a small "store," and 50 miles by road from Gwelo, the nearest town. Under these conditions it is utterly impossible to erect anything. If one could get L.T. charged matters would be easy. I am more than pleased to have enrolled a new member for the society (FO6SRA, F. C. Whitman, P.O. Box 163, Buluwayo). Whitmore has a highly efficient station, is the fortunate possessor of a splendidly fitted workshop, and is in addition an engineer by profession. I think we all welcome him. He is now experimenting with crystal-control and will later, I hope, supply the BULLETIN with details of his transmitter.

Notes and News from Europe.

DENMARK.

By ED7MT.

The interest in short-wave work on Denmark is increasing rapidly and a number of new and active stations are to be heard every day. Our receiving stations (DR) now number 12 and these fellows are always QRV for tests from EG stations. Monthly meetings to discuss technical subjects are being held by E.D.R., and a scheme is in preparation whereby all amateurs may pass an official Morse test and receive if satisfactory a certificate.

Reception conditions during March were much better than earlier months and most of our stations have reported some sort of DX.

QRN has been increasing recently, but so far has not interfered badly with DX work.

Several Danish stations have gone down to the 20 metre band and report good conditions.

Our Y.L. station, 7AO (why not 7YL?—6CL), has again started operations using 20 watts D.C.

7FR is to be congratulated on very good low power work, his latest achievement being a QSO with OZ2AE when using 15 watts. This was the first ED—OZ contact. His aerial is 80 feet high!

7MT has done much interesting work with his 50-watt set, and has been QSO many NU stations and one SB. The latter on 30. This makes 5 continents worked and OZ remains before he can claim to be the first Danish W.A.C. member.

The weekly radio paper—"Radio Posten"—have opened a new short-wave broadcast station and will be glad to have reports from any listeners. The wave used is 39.2 metres and transmissions take place on Tuesdays and Fridays from 2300 to 0100 G.M.T. All reports will be QSL'd and should be sent via E.D.R., 1e Snaregade, Copenhagen.

GERMANY.

By EK4CL.

There is very little to report this month. On 20 metres traffic conditions changed very suddenly, whilst on 30 metres one could get in touch quite regularly with the States, Brazil, and India. Two newcomers using crystal control are 4UH, of Munich, and 4HF, of Leipzig. Several German stations are doing good fone work and most of them are using crystal control too, amongst them 4YAE, Mars and UHU, also 4DBA, whom many foreign stations will know, does some fone work and carries out several tests using the absorption system for modulation.

HOLLAND.

By ENOCX.

March has brought us a fine period of DX nights. Several Dutch stations established trans-Atlantic communications beginning from 23.00 G.M.T. As far as we know, most of these stations were using powers of about 10 watts input.

ENOWIM when using an input of 0.8 watts, his sigs. were copied R2 by NU3ACU.

ENOPRS, exploring 30 metres in daylight, found conditions very bad this month.

ENOCX reached Tomsk, Siberia, at R5 strength with 3½ watts, this distance being 5800 KM.

Correspondence.

To the Editor of T. & R. BULLETIN.

DEAR SIR,—May I express my appreciation of the article by 2BFA and 5MU in the current issue of the BULLETIN? After reading it through I went round all the leading opticians in this part of the world and eventually succeeded in obtaining six "pebbles," all of which manifested piezo-electric properties when tested in the manner 2BFA has described.

One, in particular, gave marked indication of resonance at 167.3 metres, and this was connected across the grid and filament of a TPTG oscillator, the grid coil and condenser being removed. A Mullard T30 valve was used with 655 volts on the plate. You can imagine my surprise and delight when the crystal took control as soon as the plate coil was tuned within about 15 per cent. of the crystal fundamental. (Later, after grinding, the plate tuning became very critical.) The transmitter was left running for one and a half hours, working into an A.A. system. At no time during the test was there any sign of blue glow, air current or heating up of the crystal, although it was controlling over 14 watts. The next morning the crystal started up immediately the power was switched on, and it was found possible to use a small air gap.

After a little grinding, all these good properties of the "pebble" disappeared, and it was found necessary to use reaction. (No self-oscillation, of course!) Also the crystal had to be reversed in the holder sometimes before it would begin oscillating. A sharp flick of the plate condenser through the resonant point of the crystal often set things going when all else had failed.

For abrasive I use ordinary knife polishing powder and water, finishing off with rouge. But I cannot get the quartz transparent again, and I shall be glad if someone will tell me how it's done.

G. H. RAMSDEN (6BR).

To the Editor of T. & R. BULLETIN.

DEAR SIR,—Might I draw your attention to a misprint on page 7 of the April issue of the BULLETIN. G.M.T. begins at midnight—0 hours 0 minutes. Noon is 12.00. There is no such thing as G.C.T. recognised in official circles. I have only seen the expression used in QST, and by American amateurs. There is, however, a "Greenwich Astronomical Time," in which noon is 00.00 and midnight 12.00, but this is not used except by observatories. The ordinary time kept in England is G.M.T.

Yours sincerely D. GROVE-WHITE (G5GW).

To the Editor of T. & R. BULLETIN.

DEAR SIR,—There is a possibility of the manufacture of "American 'S' Tubes" in England, which were originally made by the Radio Corporation of America, which firm have ceased manufacture.

Will all amateurs, both in this country and abroad, interested in this possibility and who are contemplating the purchase of such H.T. rectifiers, be good enough to write to EG5KL, 11, Allerton Road, Southport, Lancashire, as he wishes to inform the future manufacturers of a possible demand.

I may add here that this is not an advertisement on my behalf, as I am not connected with the radio trade in any way, but I have been merely trying to obtain for the radio amateur generally what is very badly needed, particularly in the United States.

Thanking you in anticipation, and trusting that this will be of interest to the readers of the most excellent paper, the "BULL."

Wishing it every success,

Yours faithfully, OSWALD B. KELLETT (G5KL).

To the Editor of T. & R. BULLETIN.

DEAR 6BT,—I have been in receipt of a number of cards forwarded by your section to the Radio News of Canada for distribution to various Canadian amateurs. Might I suggest that you cease sending cards for Canadian amateurs to this company, as they have no means of getting the latest QRA's, but that, instead, you forward me all your cards and I will attend to the distribution of the same, in my capacity as Canadian General Manager of the American Radio Relay League.

Wishing you the best of luck, I am,

Yours very sincerely, A. H. KEITH RUSSELL,
Canadian General Manager.

5, Mail Building,
Toronto, Ontario, Canada.

To the Editor of T. & R. BULLETIN.

DEAR SIR,—Recently I have been paying special attention to the 20-metre band. On Sunday, January 22, at 13.50 G.M.T., I was listening on 23 metres and heard numerous G's working on this band, the strongest stations, 5YX, 5JW and 2NH, were a good R7. I called every station heard, on 21.3 metres, but could not QSO.

I am using 20 watts input to a single UX210 tube, and get .4 amp. in the antenna, which is a full wave voltage fed Hertz. I would be pleased to keep a regular schedule on 21 metres with any English stations.

Thanking them in anticipation,

I am, D. Y. TAYLOR (OA5DX).

Forestville, South Australia.

To the Editor of T. & R. BULLETIN.

DEAR SIR,—I should like to say a few words through your correspondence columns about my calibration waves.

I have received numerous reports, criticisms and suggestions, and while it is not intended to reply to such reports individually, unless specially requested, the reports being regarded as an acknowledgment of the service, I should like to say that I do appreciate such suggestions as I have received, and look forward to receiving more. Where possible, such improvements will be incorporated in the service.

It must be understood that the service is primarily for the benefit of transmitting amateurs, who, by reason of the narrow wavelength limitations allowed by the P.M.G., must be in a position to tune their transmitter accurately to their licensed wavelengths. It was for this reason that the upper and lower limits and centre of our 45-metre band were marked. No calibration waves are given on the 32-metre band, as this is not generally licensed for use by British stations. Calibration waves on 23 metres would be of little or no use to British transmitters. The possibility of calibration waves in the 80-metre band will be considered, although it should be quite sufficient to provide a service in one short wave-band when the other bands are in harmonic relation. A milliwatt oscillator is a very easy thing to construct, and if made for a wave range of around 100-150 metres, a very good calibration can be effected for all the short-wave band from the points given in the 45-metre band.

It might be mentioned that the R.S.G.B. are now in a position to give a prompt calibration to amateur's wave-meters, and members are advised to inquire as to the suitability of their instruments for calibration before sending them.

The calibration waves are now being given on a crystal-controlled transmitter, and the schedules will be announced in every BULLETIN

Yours faithfully,
G. W. THOMAS (5YK).

Q.R.A. Section.

Owing to the resignation of Mr. Jamblin it has been necessary to appoint a successor to carry on until the next annual general meeting. After very careful consideration the General Committee have appointed Mr. Maurice Pilpel (6PP) to the position of QRA manager.

The Committee desire to express their appreciations to Mr. Jamblin for all his past efforts and express the hope that he will still assist us where possible in keeping our QRA lists up to date.

With the publication of the official Log Book the Committee have decided to issue quarterly a supplemental QRA list to be filed into the log. The publication of QRA's in the BULLETIN will be discontinued.

Arrangements are being made for the first supplemental list to be published with the June issue of the BULLETIN.

Manufacturers' Apparatus Review.

Clix-Lex. Every Radio experimenter knows that if he wants perfect results, he must have perfect connections. To this end he solders all joints and keeps all contacts clean. But frequently he overlooks such items as plug connections, especially those of the H.T. or grid bias batteries. And what trouble and noise these can cause! We have been sent some samples of the Clix-Lex plugs which we proceeded to substitute for some very common or garden wander plugs on the grid bias battery of our B.C.L. set. You cannot imagine what a difference they made. Those occasional clicks and sizzles so well known to us all became prominent by their absence. The Clix-Lex operates upon a locking principle which tightens up after inserting in the socket. Further, you can adjust it to fit the socket perfectly. Half a turn upon the insulator locks the plug and maintains perfect contact at all times. Having continually suffered from bad contact with ordinary split wanderplugs, we fully appreciate the advantages derived. The plugs only cost 2½d. each and can be obtained from Messrs. Lectro-Linx, Ltd., 254, Vauxhall Bridge Road, London, S.W.1

Calls Heard.

By AI2KT, Jubblepore, India, during March:—

2BM, 2KF, 2NH, 5BY, 5JW, 5ML, 5MS, 5MA, 5KU, 5YK, 5YX, 5VL, 6HP.

FEIES at Cairo from February 20 to March 18, on 20 and 40 wave-bands.

5ML, 6VJ, 5KL, 5BQ, 2NA, 2RG, 6VP, 5UW, 6CI, 6WY, 6FA, 5GQ, 2MS, 2QM, 6PA, 6YR, 5TZ, 5LW, 5DC, 6WO, 2AY, 2HP, 6DR, 2XY, 6BB, 2CC, 6SM, 5YZ, 6CO, 5WQ, GW17C, 14B.

Particulars as to strength and wavelength, etc., may be obtained from G5BQ.

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Rates ½d. per word, minimum charge 1s. 6d.

KELVIN'S Multicellular Electrostatic Voltmeter, 35s.; Zenith Transformer, P.220 volts, S. 3×3, 3×3, 170-60-0-60-170 mid tappings, 30s.; Zenith Transformer, P.440 volts, S. 8, 30, 50 and 110 volts, 1-1 K.A.V., 40s.; Elliott Bros. Relay, 10s. 6d.; Marconi Four Electrode Valve, 6 volt (type V.24), 30s.; Everyman Four Receiver, DE-5, DE-5B, DE-5A valves and Det. 2-volt Valve, £16; Galvanometer (Schweigger,) 12s.; Ammeter, 5 amps., 7s. 6d.; Ammeter, 10 amps., 4s.; Ammeter, 25 amps., 4s.; Voltmeter, 10 volts, 4s.; 6-in. Spark Coil, 30s.; 1-in. Spark Coil, Transmitter and Receiver Branly Coherer, bell relay, Geissler Tube and Antennas, 25s.—Write 2MY, c/o PARRS, 121, Kingsway, London, W.C.2.

TANTALUM AND LONIUM.—Make your own battery chargers for alternating current. Simple, reliable. Lionium Rectifying Electrodes, 2-4 amps., 12s.; 6-10 amps., 16s. Also Transformers, Blue Prints and complete chargers.—BLACKWELL'S METALLURGICAL WORKS, LTD.—Liverpool.

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MULLARD VO/250, used ten hours, £5; Transformer, 110 volts, 50 cycles, to 12 volts, 10 amps. and 2,500 volts, 300 milliamps., £3.—6FG.

WANTED.—Osram T250, or any similar type Valve in good condition; cheap for cash.—JEAPES (2XV), 117, Victoria Road, Cambridge.

FOR Sale—Receiving and transmitting gear, including voltmeters, ammeters, microphones, inductances, valves, accumulator charger, six-inch spark coil, transformers, Harmsworth's Wireless Encyclopedia (three vols.).—Salcombe Lodge, Reigate Road, Ewell, Surrey.

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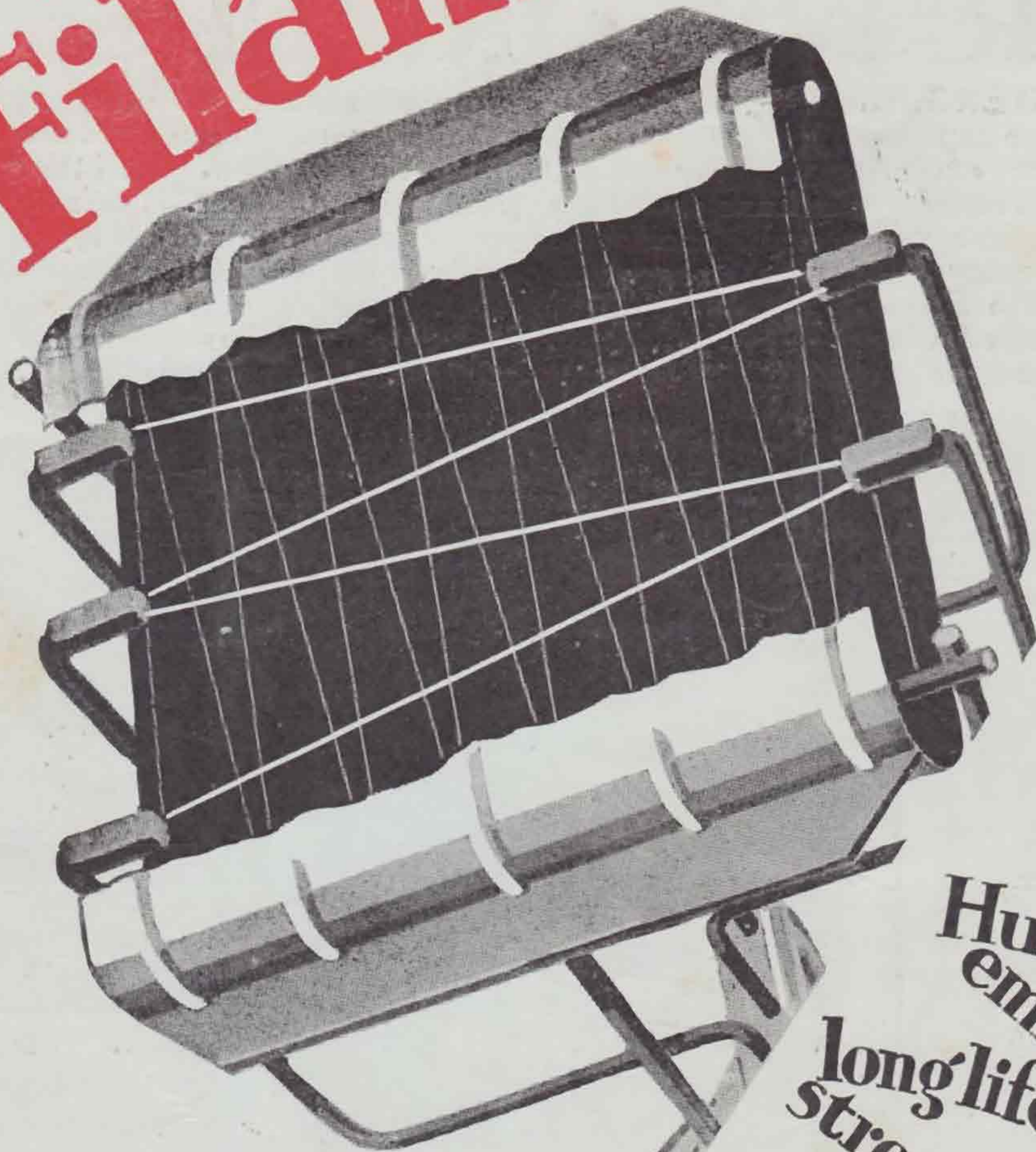
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