



T. & R. Bulletin

Incorporating

The Journal of the Inc. Radio Society of Great Britain

(BRITISH EMPIRE RADIO UNION)



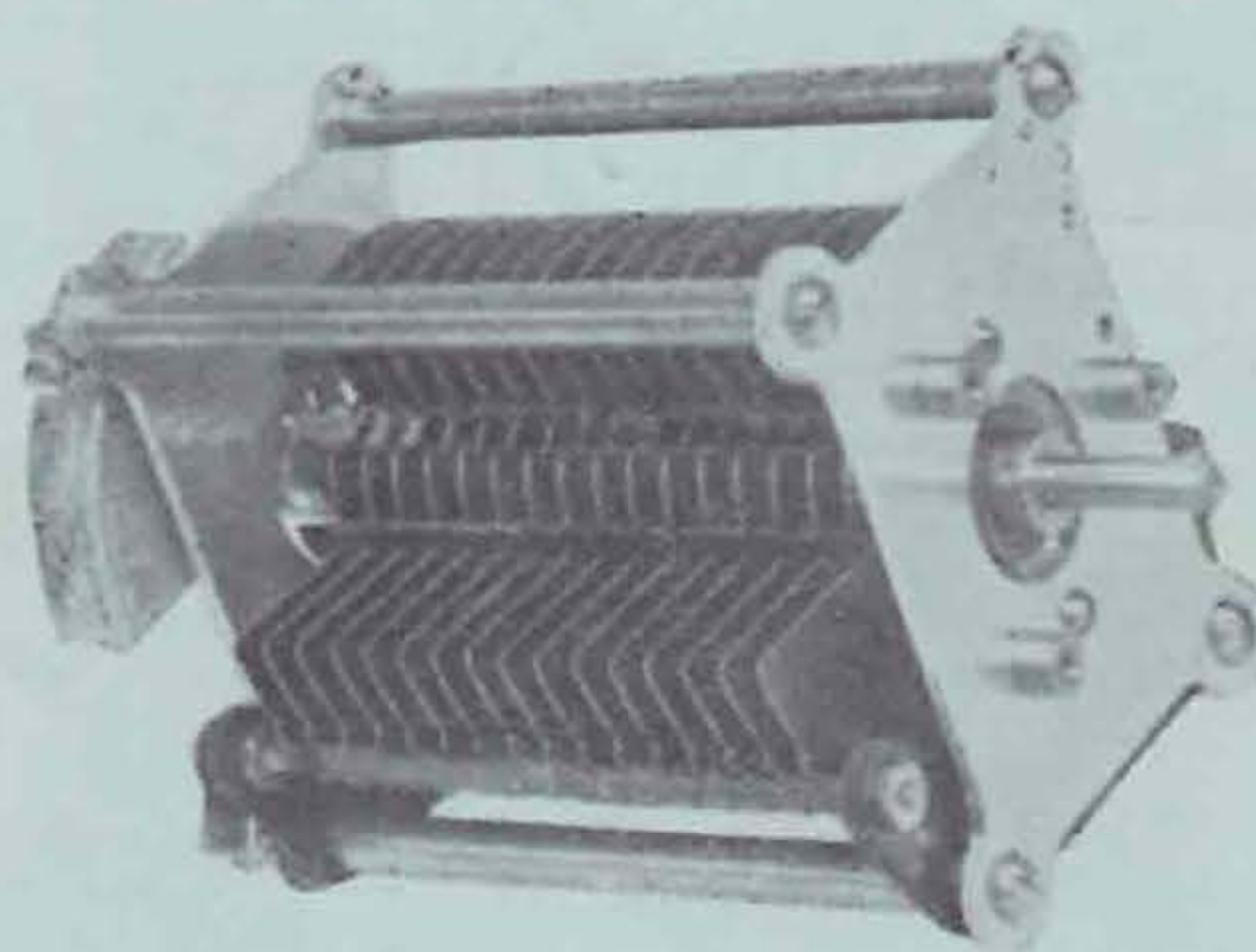
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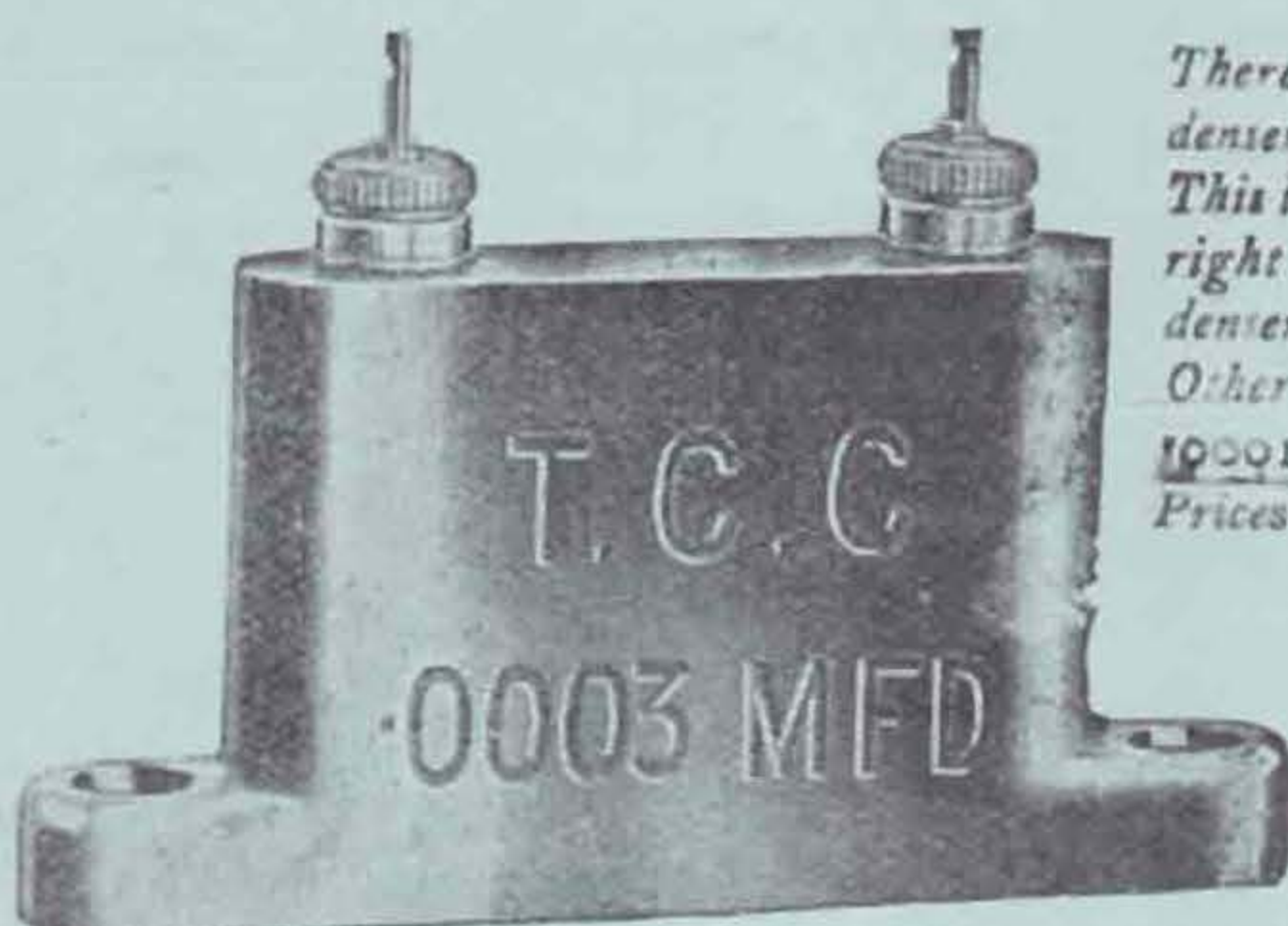
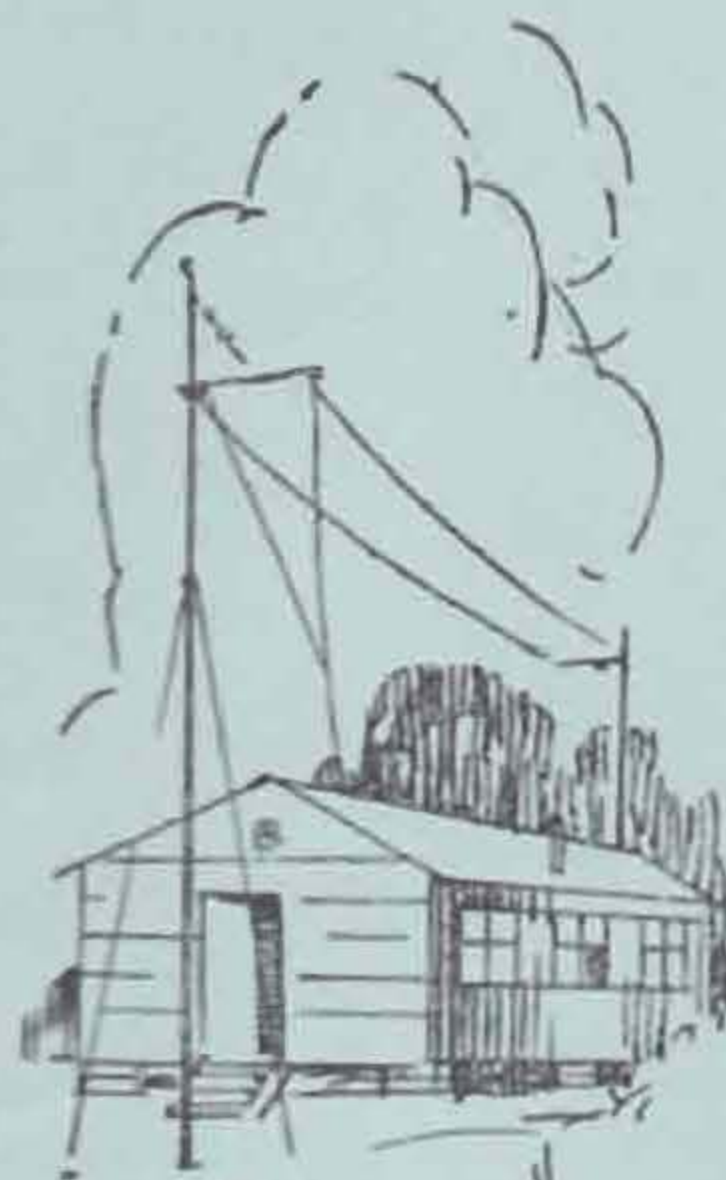
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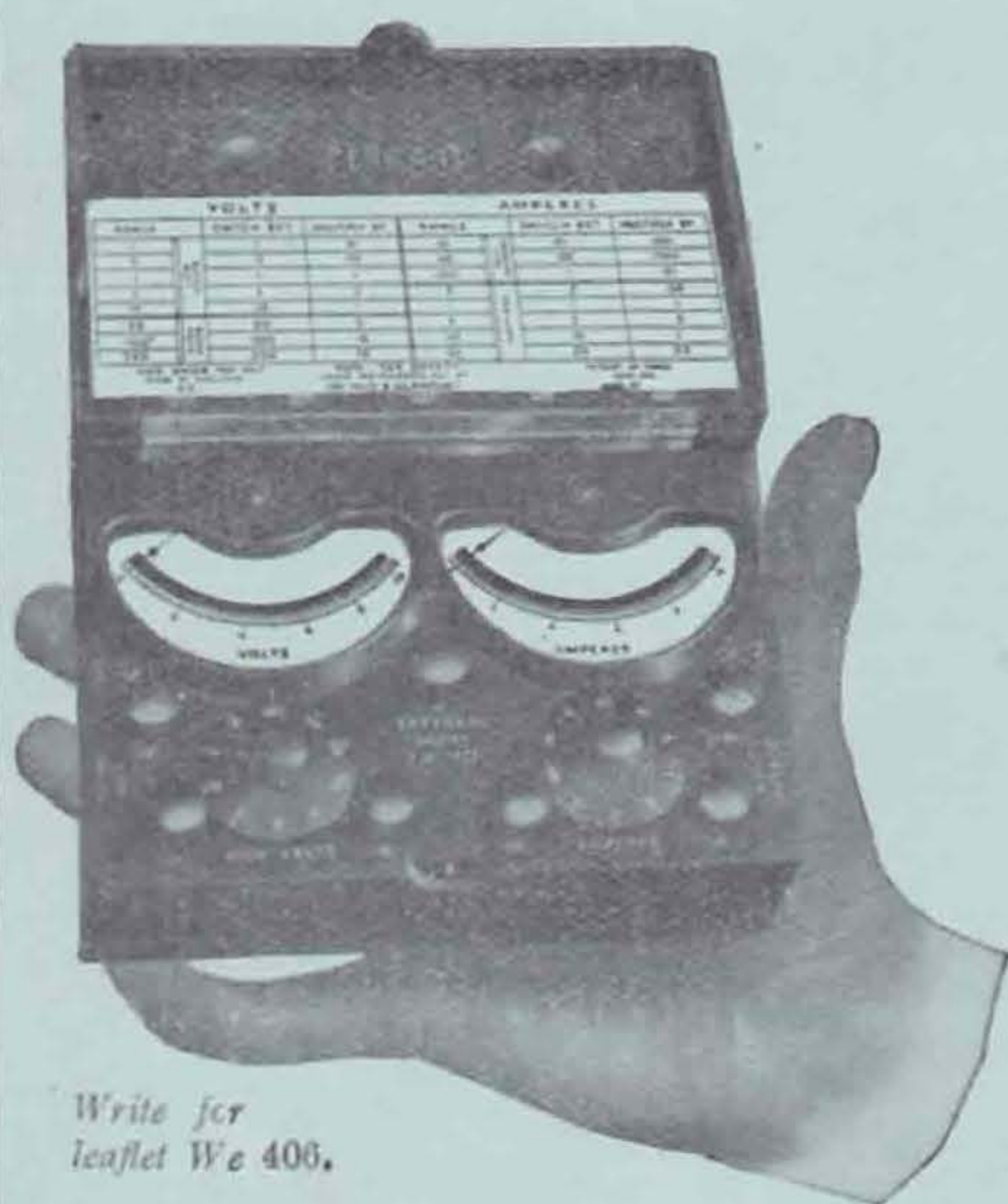
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BULLETIN.

The only British Wireless Journal Published by Amateur Radio Experimenters

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JANUARY, 1930.

Vol. 5. No. 7.

Honorary Secretary's Report.

A full year of progress has been achieved. On every hand we have evidence that our affirmed policy of progression is meeting with success. During 1929 we have seen the formation of a really live Publicity Section under the managership of Mr. Arthur Watts. Prior to his appointment he had carried on a solo campaign directed to bringing more and more Colonial members into direct association with their British confrères. Since Convention this work has gone steadily forward and we have now within our ranks many of our British Empire friends who, prior to their association with the B.E.R.U., were to us little more than overseas amateurs. To us now they are in every sense our colleagues, and we look forward to their continual support, encouragement and guidance in the future. By support we mean that they should unite with us in making the B.E.R.U. the strongest Imperial link in the world. By encouragement we mean that they should by all endeavours extend the membership of the Union. By guidance we infer that they should help us in every way possible to lead the destinies of Empire radio along lines which will make for better understanding. Early in the New Year your Council will issue a certificate which will be as unique in character as it will be an honour to hold. We refer to the British Empire certificate. This

certificate will be awarded to every member of the R.S.G.B. and B.E.R.U. who has made contact with at least one spot in each of the five Continents upon which the Union Jack flies.

The name by which this honoured certificate shall be known has yet to be decided upon, but your Secretary has himself suggested that the circle of members with this distinction shall be known as "The British Empire Fellowship."

During the past year the experimental side of the Society has made steady progress under the guiding influence of Mr. Powditch, our Contact Bureau Manager. The work of segregating reports and organising the many groups has taken much of his time, and at this stage we tender our grateful thanks for his help. Contact Bureau has come to stay, its scope is ever increasing, and we can but express the hope that 1930 will see the Section increase in members. Its present membership exceeds 300, whilst some 20 groups are in operation.

The QSL and QRA sections have continued to provide valuable assistance to the memberships, especial credit is due to the organising managers, Messrs. Chisholm and Pilpel.

The heart of the Society is undoubtedly THE BULLETIN. It is difficult at this juncture to assess the value Mr. Thomas's work means to the Society.

We who know him intimately appreciate the labour he has spent in bringing our official journal up to its present high journalistic level.

In no sphere of Society activity is a keen and enthusiastic worker more essential than in the Editorial Chair. His Editorials have been well reasoned and carefully thought out, and undoubtedly have done much good in bringing the policy of the Society prominently before the membership.

To-night, gentlemen, you have before you the Honorary Treasurer's report. In his own words he tells you we have a small credit balance. Within that sentence lies hidden from view six months of the hardest work any man has put into the Society for many years past. Mr. Ostermeyer has himself made that balance possible by voluntarily taking over the duties of Acting Honorary Secretary. Day by day, week in, week out, your Treasurer has carried on the office end of the Society's job. Without asking for reward, without hope for gain, he has worked for one end, to give us that credit balance. We owe him a debt of gratitude, and as members of the Society we look forward to his piloting of our finances through many future years.

Socially your Society has progressed. The Fourth Convention was in every way a success. Many new faces joined us round the Convention Hamfest table this year, proving very definitely that the social side of a national scientific body is essential for the continuation of a better appreciation of the other man's point of view.

Convention this year elected new district representatives. To these men we look for support in keeping alive the interest amongst our home members. It would be, perhaps, unfair to single out any one person who has done more than another to instil the Society spirit into his fellows, but we cannot refrain from recording our appreciations to Mr. Jack Wyllie (G5YG), who has held the position of Scottish representative ever since the area scheme became operative.

Of your President and Acting Vice-President we can but state that without their support, guidance and counsel the present satisfactory position would not have been possible.

Your President has shown throughout his year of office that he is ever willing to give of his best to extend the Society's activities. His work on our behalf behind the official scenes is known to many of you. Even at this stage, when the British amateur has obtained almost the maximum amount of privilege, he is working to obtain that little more which will make the Britisher the envy of the world.

Mr. Bevan Swift, through his past experience as Chairman of the T. & R. Section and Honorary Secretary of the Society, has enabled us to clear many seemingly difficult obstacles.

Your retiring Honorary Secretary, Mr. Gregory, has carried out his duties under extreme difficulties. We take this opportunity of thanking him for his work on our behalf and wish him every success in his business life.

Finally, what of 1930? We have before us, I believe, the greatest opportunity of showing that amateur radio is of supreme national importance. Your Council intend to explore every avenue through which the Society may prove of value to the nation and the Empire.

The traditions which have been built up through the past years will serve us in good stead in putting forward our claims, and we enter the New Year, therefore, with confidence that the R.S.G.B. and the B.E.R.U. will become a living testimony that amateur radio is a force to be reckoned with at all times.

I thank you, gentlemen, for the honour which you have done to me in electing me as your new Honorary Secretary, and I can but express the hope that during my term of office I may—with your help—do my best to keep up the high prestige which has been made possible by such predecessors as Philip Coursey, Gerald Marcuse and Bevan Swift.

J. C.

Obituary.

Admiral Sir Henry B. Jackson, K.C.B., F.R.S. We deeply regret to have to record the death of our past President, Admiral Sir Henry Jackson. He was President of this Society in 1922-23, and was well-known to most of the older members. He was one of the early pioneers in Radio work and was associated with Marconi in the early experiments in Trans-Atlantic messages. He was largely responsible for the introduction of radio into the Navy and up to the time of his death was President of the Radio Research Board. In spite of his many duties he found time to be keenly interested in amateur Radio work and was a regular attendant at the Society meetings, where he frequently joined in the discussions. At the last Annual General Meeting upon December 13, our President announced that Sir Henry was seriously ill and it was decided to send him a message of good wishes for his speedy recovery. Unfortunately this could not be conveyed to him for he died at 2.30 the next morning, December 14.

Forthcoming Events.

January 24.—At the I.E.E., Cinematograph film, produced by Messrs. Siemens Bros. & Co., Ltd., showing the construction of their Radio Dry Batteries, accompanied by a running commentary. Commencing at 6.15 p.m., tea at 5.30 p.m.

February 28.—Meeting. Details to be announced later.

March 28.—Meeting. Details to be announced later.

April 25.—At the I.E.E., Lecture by The Telegraph Condenser Company at 6.15 p.m., tea at 5.30 p.m.

May 23.—At the I.E.E., Lecture by the Mullard Wireless Service Company Ltd., at 6.15 p.m., tea at 5.30 p.m.

June 27. Meeting. Details to be announced later.

Station Description No. 3. G6KO.

By "SCRUTATOR."

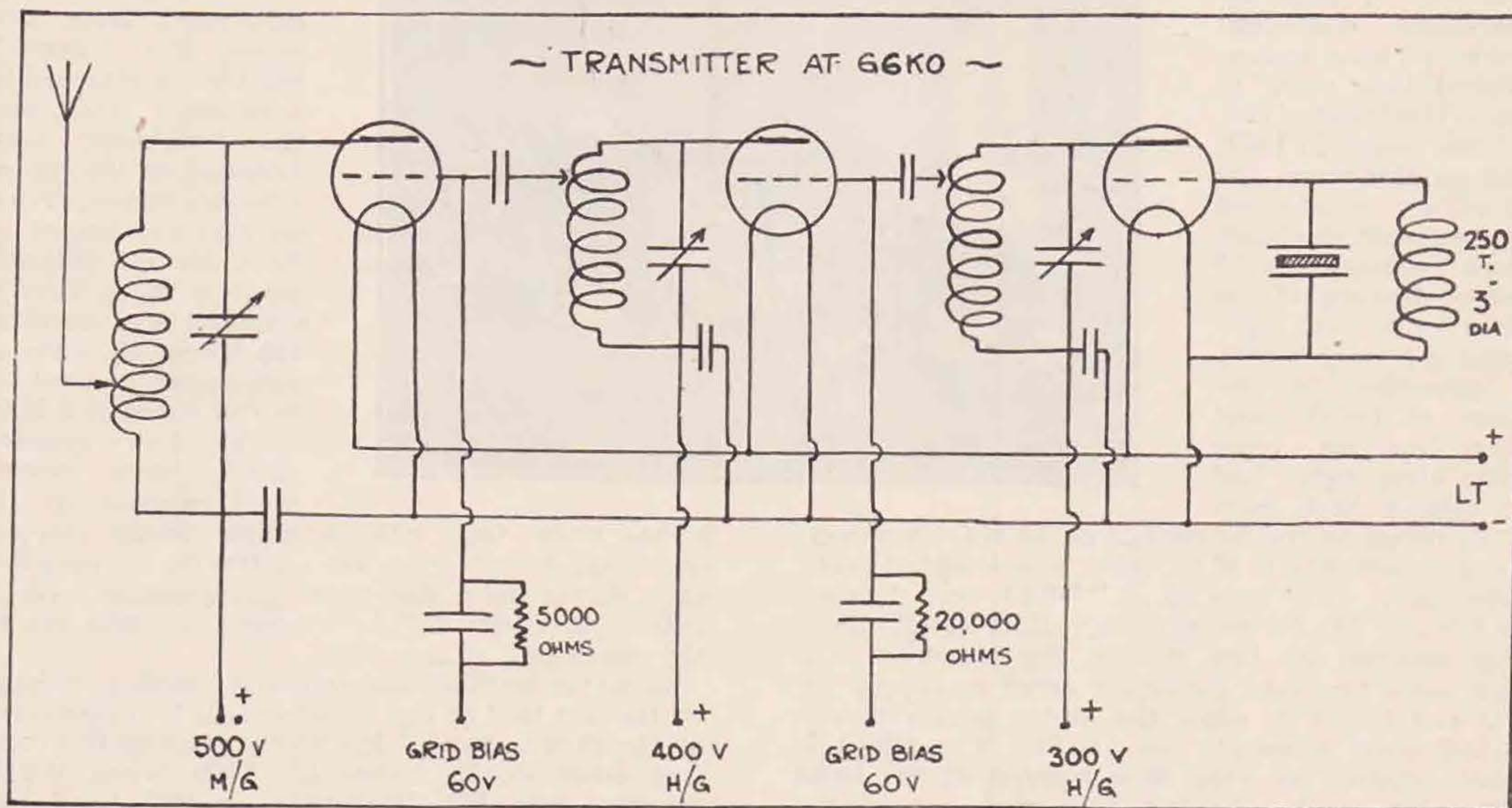
SITUATED in a remote district of Forfarshire, some five miles from Glamis Castle, the former home of our Duchess of York, Amateur Radio Station G6KO is known aurally to many, but visually to few. The station is located in the midst of pastoral country, open to the south and west, but screened by woods and hills to the north. The very remoteness from urban areas, whilst presenting certain disadvantages such as a lack of power supply, is not without its counter advantages, not the least of these being the ability to operate the station at all hours without interference to broadcast receivers.

In passing, it may be said that in the matter of power and lighting supply, rural districts in Scotland, such as Kirkbuddo, are poorly catered for in

tapped to supply the filaments of the various transmitting and receiving valves.

Great difficulty was experienced from damp, and at one time it was necessary to keep candles burning inside both receiver and transmitter to counter the effects of moisture. A large paraffin stove has now been fitted and has effected considerable improvement. The cold is still fairly intense in winter, but the effect of that is offset by plenty of exercise with the hand generator.

Early in its history the station drew its transmitter plate supply from flash lamp batteries. Ere long the disposal of "worn-outs" became a problem similar in magnitude to that of the disposal of used safety razor blades—greater, in fact, for one can always send spent blades, disguised as



comparison with corresponding English districts. The much-discussed Grampian scheme, however, if realised, will no doubt eventually change all that.

Infected with the radio fever away back in 1926, Mr. Sturrock started out on modest lines; insufficiently modest eventually, however, for his good lady, with the result that the building of a shack became imperative in order to preserve the *status quo* of the household "lares and penates." "Joe" set about the task with abundant enthusiasm, and the present roomy shack is the result. Built of wood, and situated some little way from the house proper, it accommodates, in addition to the radio gear, an electric light plant consisting of a petrol engine coupled to a 30 volt 10 amp D.C. generator, together with the customary storage batteries. This plant is, needless to say,

corn cures, etc., etc., to friends at Christmas time. However, I digress. Driven to seek another source of H.T. supply, an Evershed hand generator was procured, and with it, applied to a TPTG circuit, reports were received from all continents by the end of 1926, although the station did not qualify for the W.A.C. certificate until early 1929. Mr. Sturrock is of opinion that users of hand generators should exercise very great care in their use. This, not from the generator's point of view—although that is implied—but from a health standpoint. Human nature being what it is, there is ever present the desire to get "just a little more" out of the generator, and therein lies the "nigger in the wood pile." Operated under a heavy load, the act of cranking the generator causes the abdominal muscles to be kept at constant tension for long

periods. To this Mr. Sturrock attributes a hernia, with a subsequent serious illness and operation.

On recovering health, it was realised that another source of H.T. supply would require to be obtained, more especially in view of the fact that it was proposed to turn the station over to crystal control. An M.L. generator was purchased, and is driven from a tapping on the 25 volt lighting system. With the Washington Convention regulations in force, crystal control, as has already been stated, was decided upon. This was first essayed on 7 M.C., the hand generator being used to provide the plate supply of the oscillator, while the motor generator was called upon to oblige the FD-PA. Considerable success was achieved on this band, many distant stations being worked, including Palestine, with uniformly good reports. 7 M.C. was now getting rather "sultry," and an ascent to 14 M.C. was decided upon.

At this point it should be stated that the old 23 metre band was originally the favourite at this station, and with it some remarkably consistent work had been accomplished long prior to the crystal control era. At one period in 1927, and on this wave, the station established contact with the American Continent on 25 consecutive nights. On the twenty-sixth night came a "stork" with a passenger to the home of G6KO, and thereafter for some little time radio had to take a back seat.

To revert to crystal control on 14 M.C., however. To a Cossor 6-volt H.F. valve was assigned oscillator duty, while an LS5 and DET1 were detailed as FD and FD-PA respectively. Bias for all valves was supplied by two 60-volt dry batteries. On this wave the hand generator acted as supply for CO and first FD, while the motor generator was called upon to supply the DET1. The DET1 is easily excited by very slow turning of the hand generator crank. Keying is carried out in the anode circuit of the last valve, the power being very little more than 10 watts, and no spacer is present.

The preliminary tests with this circuit were not easy, to say the least. Picture it! No functioning of the crystal until the hand generator is cranked,

key screwed down, and various knobs and dials "twiddled" with the remaining free hand. The caudal appendage said to have been part of the equipment of our ancestors would have proved remarkably useful in the circumstances.

The circuit in use, as indicated in the accompanying diagram, is fairly orthodox, and gives absolute satisfaction. Best control is obtained by tapping the grids to the subsequent anode coils as closely as possible to the anodes of the valves (*i.e.*, the anode end of the inductance).

To enable the DET1 stage to be used as a self-excited transmitter on 14 M.C., all that is necessary is to disconnect the anode coil—filament condenser of the second stage, also its H.T. supply, reduce the grid bias, and the last stage will function as an orthodox TPTG.

Generally speaking, it is found that the self-excited circuit has more "punch" than the crystal controlled transmitter, but naturally for tone and stabilisation of frequency the latter is to be preferred.

The aerial system is suspended from two masts, the "home" mast being attached to a chimney stack, and the "distant" one fastened to the top of a Scotch fir tree, giving an effective height of 50 ft. As the "distant" mast is more than a hundred feet north of the house, all sorts of aerials can be used up to full wave on 7 M.C.

The two systems which have proved most effective are (1)

a half-wave top with a single feeder (tapped on about 8 feet from the centre) to the coupling coil, thence to a half-wave counterpoise; (2) a half-wave inverted "L" tapped straight on to the anode coil.

G6KO is certainly an up-to-date station, judging by the fact that he has already made his appearance on the 28 M.C. band. His first contact on this band was made on December 15, 1929, when W2JN reported him R7. Radiation on this band was obtained by adding another FD-PA stage after the DET1 and the valve used was a Cossor 6v., .1 amp. H.F., consuming 9 watts!

Such, then, is Amateur Station G6KO, and I am authorised to say that visitors from the south or elsewhere will always be made welcome.



Australian Amateurs Assist Again—(Continued from foot of opposite page).

bands for news from the "Wapiti." One earphone was attached to each receiver.

The first official notice of the finish of the race came from N. Turnbull, who kept his station open at Maylands Aerodrome.

The Air Board was apparently well pleased with

the speed and accuracy with which some hundreds of messages were handled, and indeed with the whole success of the radio chain.

It will be remembered that we published in the August, 1929, BULLETIN details of the part played by Amateur Radio during the Tasmanian floods, and we wish to show our appreciation of the splendid way in which the Australian amateurs are showing what can be accomplished.

Tone Compensation for Electric Gramophones.*

By N. W. McLACHLAN, D.Sc., M.I.E.E., F.Inst.P.

It must have occurred to those who have played records by aid of a pick-up, amplifier and loud-speaker that something is definitely missing. Something is lacking which would add body and balance to the reproduction. Those who are musically inclined will immediately point to a weakness in the lower musical register. The familiar tones of drums, double bass and 'cello are travestied into something anæmic which is apt to cause aural irritation.

The piano register covers a compass of about seven octaves. The fundamental pitch of the lowest note corresponds to about 27 cycles and the highest to about 4,096. Middle C on the piano has a fundamental frequency of 256 cycles. For frequencies from 5,000 to 250 cycles per second the lateral cuts on a record are the correct amount to give each note its proper intensity. But since the cuts increase inversely as the frequency falls, it is necessary to impose a restriction somewhere in order that the average piece of music can be accommodated on a record 12 inches in diameter. Moreover, the cuts below 250 cycles are constant. Thus only one-half of the piano register is faithfully recorded and a note at 50 cycles will, on reproduction,

be $\left(\frac{1}{5}\right)^2 = \frac{1}{25}$ of its natural strength.

In order to reproduce the lower register at its proper strength it is essential to incorporate in the reproducing system a device which increases this register below 250 cycles inversely as the frequency. The device can be situated between the pick-up and amplifier or between two valves. For convenience it is preferable to connect it to the pick-up.

It was shown diagrammatically that the effect of a device of the above nature, known as a Tone

Compensator connected between the pick-up and the amplifier is to cause the lower register to appear at its proper value at the grid of the power valve. In many cases it is desirable to compensate for high note loss in the pick-up, amplifier and loud-speaker, and this is also effected by the Compensator. The upper register can be controlled by means of a 50 ohm rheostat.

Another diagram showed the voltage calibration of the Compensator and also the variations in the upper register due to the rheostat. It was interesting to note that a gain of between zero and 17.5 decibels (*i.e.*, transmission units) could be obtained at will in the upper registers. Additional controls can be fitted to vary the lower register and the overall output from the loud-speaker. By suitable design the Compensator can be arranged as an intervalve coupling.

Below 250 cycles the actual and theoretical curves are in close agreement. The difference is quite imperceptible by ear, so that the compensation is substantially *perfect*. In this respect care must be exercised in choosing such devices to see that *complete compensation* is obtained and not an inadequate approximation.

The principle of compensation can be applied to radio-gramophones, domestic or otherwise sound-on-disc and sound-on-film apparatus for cinemas.

A demonstration was given at the end of the lecture when it was shown very clearly the effect produced by the Compensator on the upper and lower registers. Records of Strauss's *Weiner Blut* Waltz and selections of pianoforte were played while adjustments were made to the Compensator.

A very interesting discussion followed at which a number of members took part, and the lecturer was able to explain many points which had puzzled his hearers. At the conclusion a very hearty vote of thanks was proposed and passed with acclamation.

* Account of a lecture and demonstration given by Dr. McLachlan before the Society at their annual general meeting held at the I.E.E. on December 13, 1929.

Australian Amateurs Assist Again.

We are indebted to Mr. Bousfield for the following details of the part played by Amateur Radio in the recent Australian trans-continental flight. The main details of the radio arrangements were organised by Mr. H. K. Love, president of the W.I.A., and himself a war pilot.

The control station, or headquarters of operations, was VK3WI, situated at Essendon Aerodrome. Around this there were some ten other stations located at various aerodromes over the Continent. A portable transmitter was installed in the plane which preceded the racers, and short-wave gear was also fitted to one of the R.A.A.F. "Wapiti" planes which flew in the rear of the racers. Over and above these some sixty amateurs were standing by in readiness to handle any traffic.

Immediately the race commenced, VK3WI was informed of the departure of each plane from VK2RF at Mascot, the starting point.

The "Wapiti" apparently soon experienced some difficulty in using the 23-metre band due to skip,

fading, etc., and therefore switched over to the 39-metre band. The organisation of VK3WI was left to VK3WG, and was such that the station was in touch the whole time with the stations of the Air Board and the Civil Aviation Department: this would obviously have been of considerable advantage should one of the stations have failed to keep up with the progress of the various flyers.

Another important point in the radio chain was the station at Nhill, as this station by obtaining through VK5BM the latest reports of weather conditions in Southern Australia, made possible the continuation of the race, when otherwise it would have been postponed owing to bad local conditions.

D. Whitburn seems to have been one of the busiest "hams" at station VK5BY. Here, at times, he was using simultaneously two distinct receivers—one tuned to 42 metres from which he copied messages from VK3WI and VK3RH, whilst with the other he searched the 23 and 39-metre

(Continued at foot of previous page.)

A Crystal Control Adaptor.

By E. A. DEDMAN (G2NH).

EVERY amateur realises nowadays the value of crystal control. The rock steady signal and the wonderful note that are signs of C.C. at the transmitting end are the envy of us all, and if we are using a "self-excited" circuit, our one aim is usually to obtain T9 reports. How is it, then, that we still hear signals on the ether that we cannot class higher than T7?

Apparently, the one thing that is stopping G stations from being 100 per cent. crystal controlled is expense. Rightly or wrongly the idea has gained currency that a crystal controlled transmitter must necessarily be expensive to construct and maintain. Undoubtedly this is true in a relative sense of all the designs in use up to the present, but, as it is the object of this article to prove, it is possible to build a 7 M.C. C.C. transmitter at a cost of not greater than £2 more than a T.P.T.G. set of the same size and power. If the builder already has a 3.5 M.C. crystal and a crystal resonator, as most of us have in conformity with the P.M.G.'s regulations, the extra cost is reduced to a matter of a few shillings.

Before going further into this matter it will be as well to consider the methods of crystal control at present in use in this country. Almost without exception it will be found that an oscillator controlled directly by the crystal itself on a frequency of 3.5 M.C. is in use, followed by one or more valves acting as frequency doubling stages, the output of the last valve being coupled either direct to the radiating system or to a power amplifier, depending on the power output required and the purse of the operator!

This arrangement has become popular, because it is absolutely straightforward, and once the working of it is understood, it is practically foolproof. In fact it represents the acme of short-wave transmitters, in either amateur or commercial hands. If the space and funds are available to run a set of this kind there is no need to read this article any further.

When the writer set himself the task of developing a new type of crystal control circuit, he wrote down a list of conditions to be fulfilled. Briefly they were as follows:—

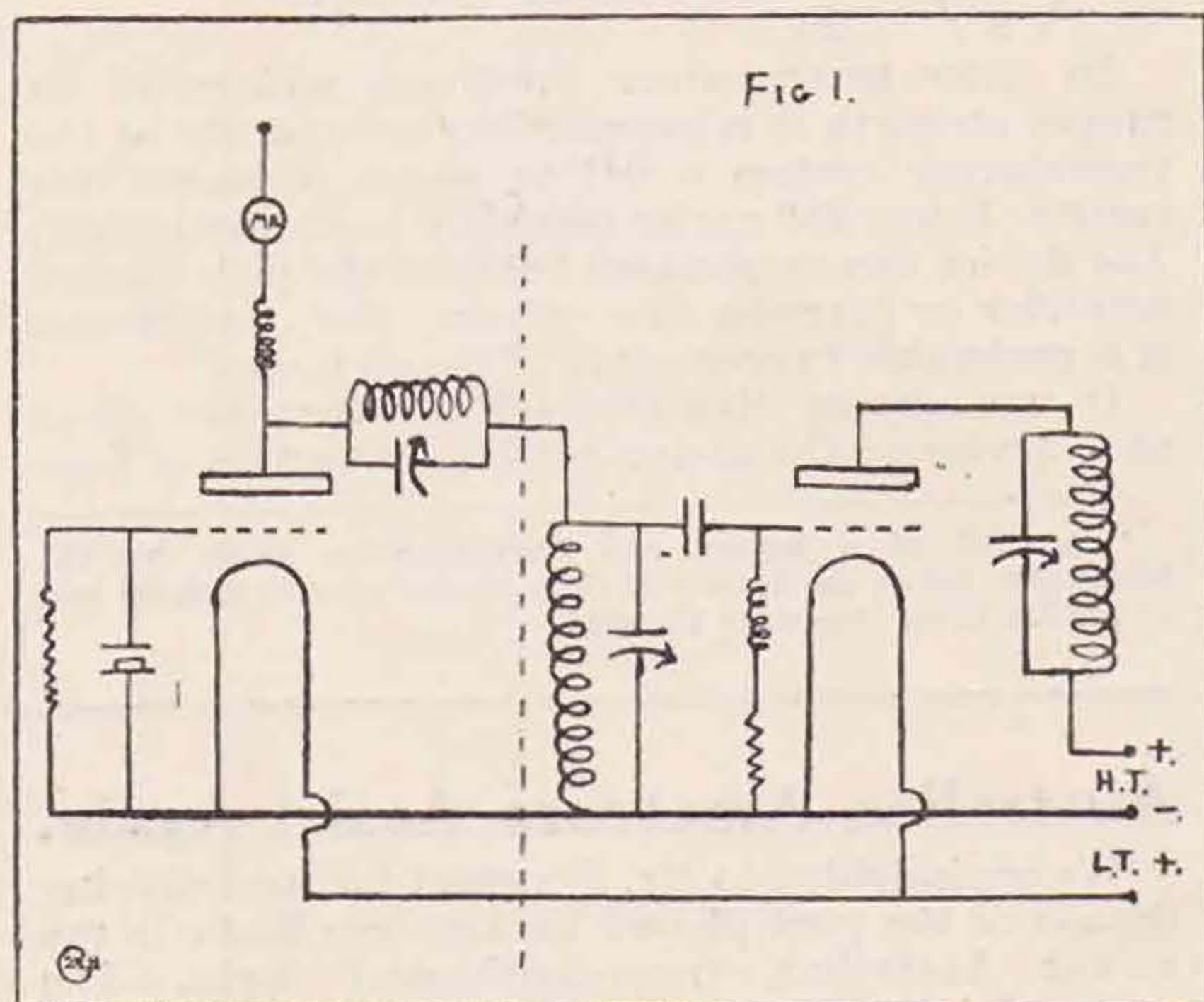
- (1) It must be simple to construct.
- (2) It must be *reasonably* reliable.
- (3) It must be low in first, and maintenance, costs.

The conditions are absolutely self-explanatory and fill the needs of most amateur transmitters. The conventional crystal oscillator plus frequency doubler circuit was put right out of mind, and other ideas were sought. Although very attractive on paper, it was soon decided to abandon all ideas of "harmonic control," as we usually understand this phrase. It was put completely out of court on account of failure to fulfil condition 2 on my list. It certainly fills the bill on the other counts, but by no stretch of imagination can even its enthusiastic supporters call it reliable. Various circuits that have appeared in the BULLETIN and QST were then tried, with varying amounts of success. The two that showed the most promise

were a set described by W1AXA in the October, 1927, issue of QST, and one described more recently in the BULLETIN by G5US (BULLETIN, January, 1929.) The W1AXA circuit was very, very tricky to adjust and was abandoned for this reason only, as when properly adjusted the output was very satisfactory. G5US's circuit was also dropped for the same reason, and also because it was found to work with some types of crystals only.

To cut a long story short, various modifications of these and other likely circuits were tried and experimented with, and quite a decent circuit was developed. Then, quite by accident, or to be strictly truthful, a QSO on the 7 M.C. band, I got into touch with G6QA, and it was found that he was using a circuit practically the same in all essentials as that I had developed. A few details were different, and a trial soon convinced me that G6QA's circuit was slightly superior to my own, that had been developed entirely by hit and miss methods.

At this juncture I wish to say that any credit that may be given to anyone in the future for this circuit in its final form belongs entirely to Mr. Whitely, of G6QA.



A study of the circuit diagram shown in Fig. 1 will disclose that it consists of a valve controlled by a 3.5 M.C. crystal, the output of this valve being fed to the grid of the second or amplifier valve. This valve also has its own tuned grid circuit, and the first valve supplies only enough of the excitation to keep the second valve on twice the frequency of the crystal. It will be noticed that the circuit has been divided by a dotted line into its two component parts, to the left of the line, the crystal section, and to the right of the line, the amplifier section, which is a normal TP-TG arrangement.

From experiments carried out I have found that for a certain input to the control valve, up to five or six times that input to the amplifier can be controlled. For example, a DE5B with an input of 2 watts will control up to about 12 watts to an

LS5B amplifier. Although other valves may work all right, I have found that medium impedance valves of the Osram B class cannot be beaten for all stages of a crystal controlled transmitter. I may add that the ratio of control to amplifier power given above is on the conservative side, and I have succeeded in controlling up to as much as twelve times, but naturally as this figure is increased the adjustment of the transmitter becomes much more critical.

As most stations already have the TP-TG portion of the set for use as the power amplifier, it will not be necessary to describe the construction of that portion here. For the C.C. part, most people will find that it is easy enough to adapt the crystal resonator which they already possess, but for the benefit of anybody who may wish to build this separately, the layout of the actual oscillator in use at G2NH will be described. All the sets at G2NH are built on the "bread-board" style, and as nearly as possible are laid out on the plans of the actual circuit diagram. There is no special advantage claimed for this method of construction, except that it appeals to the writer and usually looks quite neat. For the construction of the set under discussion the following parts will be required:—

One baseboard (12" by 8").

One valve holder.

A six-inch length of Becol or Redfern 5-rib former (3" diameter).

Half-a-pound of 16 gauge tinned copper wire.

One Polar variable condenser (.00025 mf.).

One H.F. choke (see text).

One crystal holder (Quartz Crystal Co.).

One 50,000 ohm wire-wound resistance, with holder (Ferranti).

Two .001 mf. fixed condensers (T.C.C.).

Terminals, screws, etc.

Surely not a very formidable list to convert your station to crystal control!

The layout of the parts on the baseboard is shown in the second sketch.

The coil will be required to tune to 3.5 M.C., in conjunction with the variable condenser. It should consist of 25 turns of the 14 s.w.g. wire spaced approximately six turns to the inch, the former either being screwed in a lathe or notched with a file in the usual manner.

Alternatively, there is no objection to a short wave receiving coil being used in this position, especially for low power work. The Eddystone receiving coil for the 3.5 M.C. band will be found quite good for this purpose. Similarly, for most cases it will not be necessary to double space the tuning condenser used to tune the plate coil, but if any trouble is experienced from flashing over on resonance, it will be found quite easy to double space the Polar condenser specified, or, if you wish to be absolutely sure, a G.R. transmitting condenser could be used. The H.F. choke in the anode feed circuit of the valve consists of one half of a Climax B.C.L. choke. These chokes are of the binocular type, and if cut in half will be found to be suitable and very efficient for most short-wave purposes where a light duty choke is required. If you prefer to construct your own, 200 turns of 28 gauge D.C.C. on a one-inch boiling or test tube is quite in order.

The two .001 condensers are used for a filament

bypass condenser and the H.F. feed condenser respectively. The crystal holder can consist of either the open or the totally enclosed type sold by the Q.C.C. The writer has been amazed at some of the contraptions that are being used for crystal holders, and apparently most amateurs seem to think that any two plates will be quite all right for a crystal holder. Certainly a crystal will usually oscillate with a very mediocre holder, but the output obtained is greatly affected by the size and finish of the plates, especially the top plate.

Everything else about the components and layout is quite straightforward, and can be followed by studying Fig. 2.

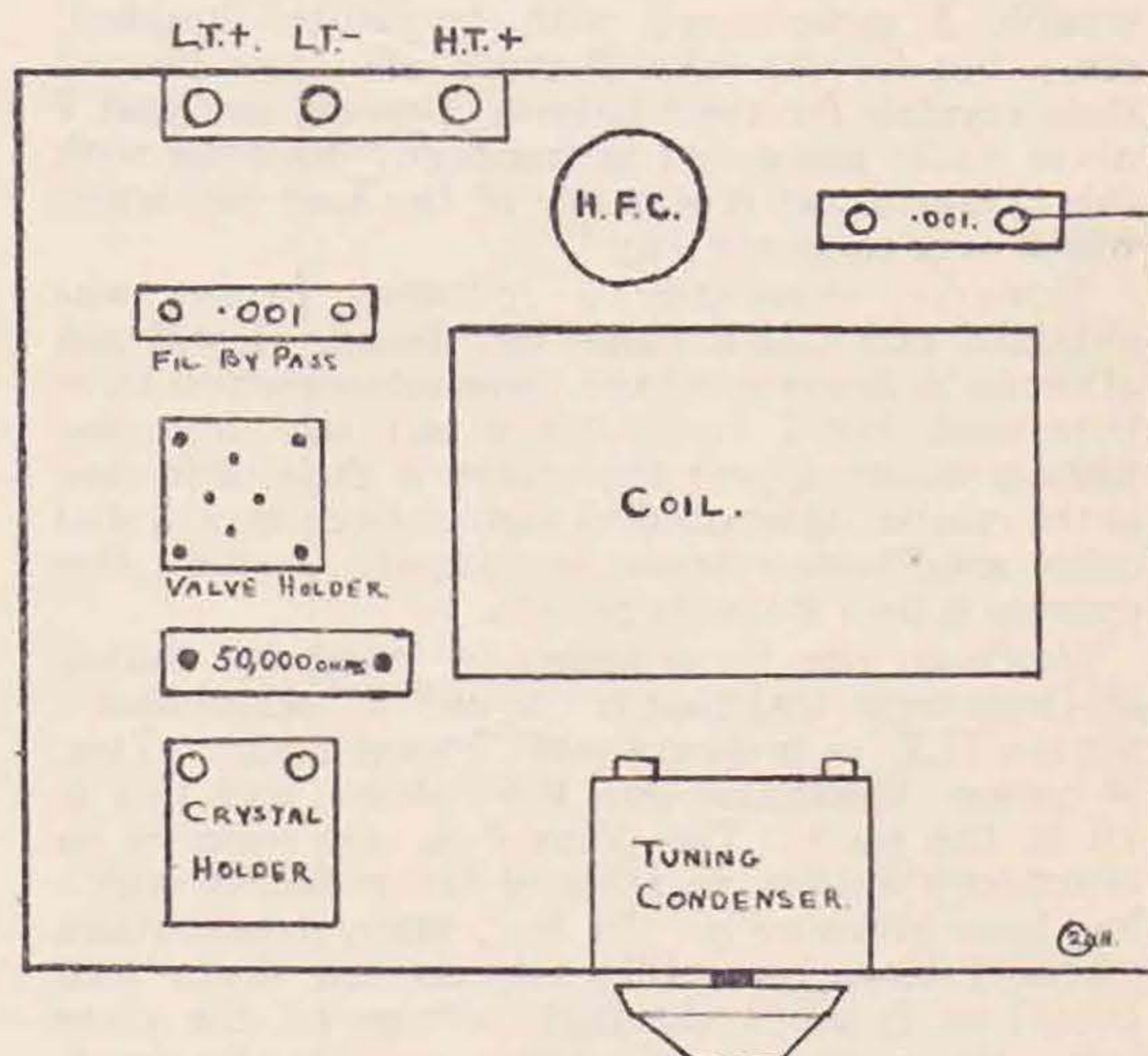


FIG. 2. PRACTICAL LAYOUT.

The tuning of the set will be described rather fully, as although it is by no means difficult, a rigid following of the instructions will save a lot of trouble in trying to find out when the crystal has taken over control.

First, switch on the crystal oscillator portion of the set only. Tune the plate coil until the feed current dips down quite considerably, showing that the crystal is oscillating. Continue to increase the capacity of the condenser until the lowest dip is obtained, this being the point giving the greatest H.F. energy. Of course, there is absolutely no objection to a grid bias battery being used instead of the resistance specified. The feed current will then rise as the crystal commences to oscillate.

This tuning process can be greatly simplified by the use of a resonance loop, consisting of a circle of wire about three inches in diameter, with a flash-lamp bulb in series. This loop is used by holding it some six or eight inches away from the tuning coil and then merely tuning for the greatest brilliance of the lamp bulb. I have found this little piece of apparatus almost invaluable for tuning purposes, and it is rather surprising that it is not more widely used.

Having got this portion tuned to your satisfaction, switch on the receiver and tune it to

(Continued on page 169.)

Station Activities at G5BR.

In response to the Editor's appeal for articles, perhaps a short description of my activities will be of interest. I became an A.A. transmitter some years ago, and being interested in quartz crystals, I commenced at once on this subject. I bought three pieces of quartz at 10s. a piece, to be returned if unsuitable, and needless to say these *were* returned!

My second effort was more successful, and I obtained a 360-metre crystal from G5IS and for a long time carried out experiments with this. In these days of c.c., it seems funny to think of all the trouble I experienced with frequency doublers, etc.; but for the sake of those who have blamed their crystals for their failures, I would say that I never really succeeded in frequency doubling with this crystal; yet it was one of the best oscillators which ever came my way!

However, eventually a radiating permit was obtained and G5BR came into being. I will not attempt to describe all the transmitters which have been used, but I would like to say that from my tests it would appear that there is little difference in the results obtained from various circuits provided other conditions remain unchanged. I think this opinion is held by most people.

However, one thing seems to stand out during all these tests, and that is the use of "series feed" for the H.T. in preference to "shunt feed." This, of course, eliminates one R.F. choke, and this is all to the good. The point does not seem to be commonly known, in spite of the publicity which has been given to it. In fact, many transmitters whom I have met still hold to the shunt feed circuit as it keeps the high voltage off the plate coil. Since, nowadays, aerials are usually loose-coupled, my personal opinion is that there is no longer any need to keep the plate coil "dead."

I suppose most transmitters have their pet circuit, and mine has always been the one shown in the diagram. Probably most transmitters will know this type of circuit, about which the only point of great moment is that the condenser C should be of large capacity compared with that of the tuning condensers.

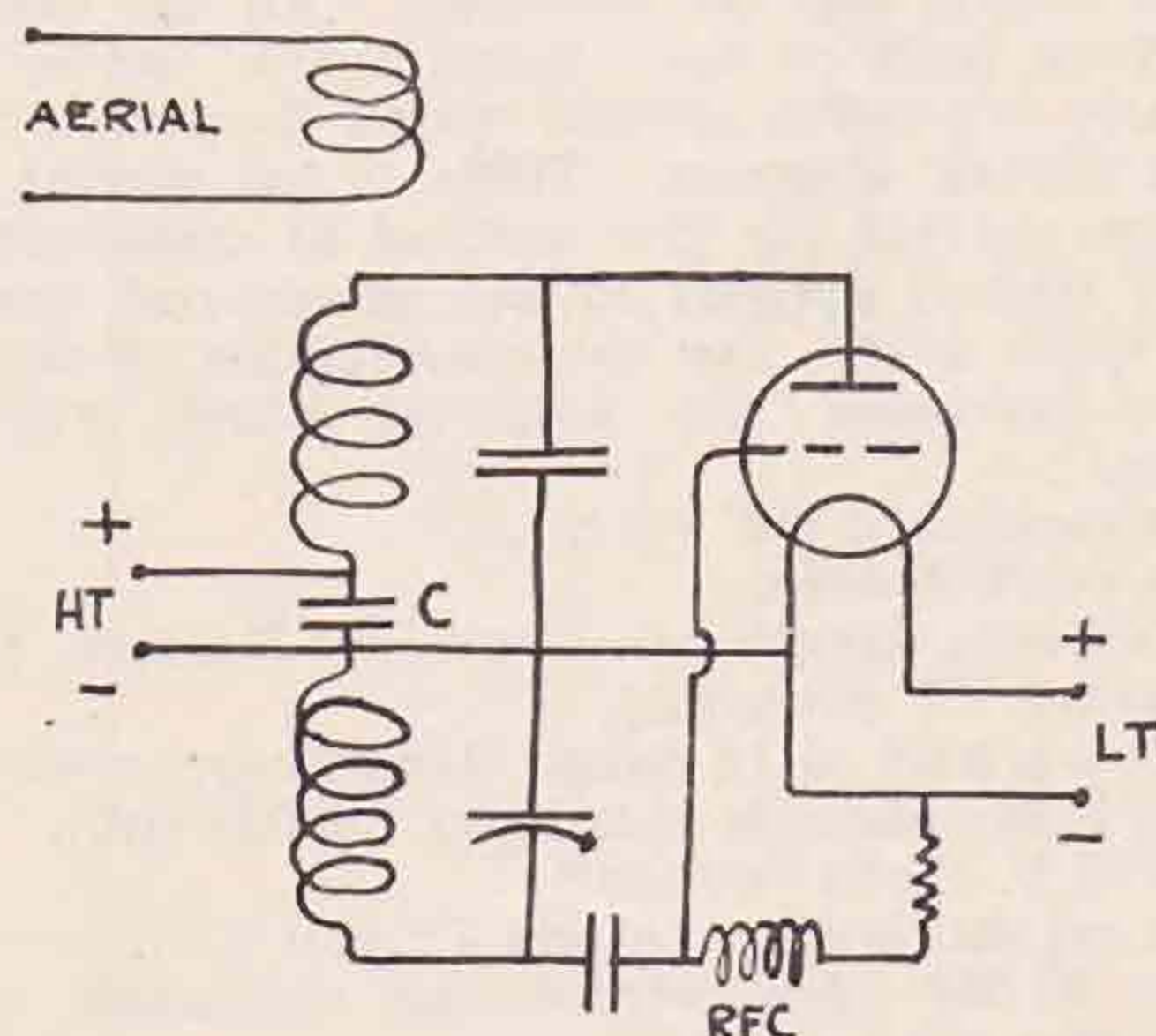
The only other transmitter of the self-excited type which has been used consistently is the well-known T.P.T.G. In connection with this circuit, can anyone give me any information as to which condenser (plate or grid) controls the frequency of the oscillations generated?

With regard to the method of keying used with self-excited transmitters, I have tried many ways, and I always found that the most satisfactory way below 90 metres was to use absorption keying, with the absorption tuned to resonance. Unfortunately, unless precautions are taken, either the valve overheats or else a spacing wave is radiated. No doubt the former could be overcome by arranging the key to bias the valve in addition to operating the absorption circuit.

About the time that the question of clickless keying arose, I became interested in 90-metre work, and using a T.P.T.G., I keyed in the H.T. leads using a key thump filter together with the usual combination of capacity and resistance across the

key. I was using a fundamental aerial (series tuned) and found that the amount of interference could be considerably changed by altering the tuning of the aerial, which was, of course, never tuned to the point of resonance.

Perhaps at this point a few remarks about aerials would not be out of place. It has often struck me recently how a new hand nearly always starts off immediately with a Zeppelin feed Hertz aerial. Quite candidly, I confess I have used hundreds of feet of good wire putting up aerials! I have even been guilty of using a twin wire aerial on 90 metres and at the moment I am contemplating another for 160 metres.



But to return to the more populated bands at 7 and 14 M.C., my experience has always been that, provided it is not screened, the ordinary fundamental series tuned aerial with counterpoise is quite equal to the Zeppelin aerial over distances up to 600 miles on 7 M.C. My original aerial consisted of two 30-foot wires, one semi-vertical and one horizontal, and this gave loud signals except in an easterly direction, where it was badly screened by the house. From results obtained from this aerial system, it would seem that it is somewhat directional, dependent on the arrangement of the counterpoise if the aerial wire itself is vertical. My counterpoise lay N. to S. and the system gave very good results to Portugal, Southern France and North Africa. I also worked G2SH in Iceland with this aerial, but unfortunately, owing to lack of space I was unable to turn the counterpoise in an E. to W. position for comparisons. Perhaps some other transmitters have some opinions on this subject.

However, the desire to use 23 metres prompted me to erect an ordinary voltage-fed Hertz ($\frac{1}{2}$ -wave, 45 metres), with a single feeder tapped on to the plate coil through a capacity. Although less directional on 45 metres than the previous aerial, more trouble was experienced in obtaining a good note, and as B.C.L. QRM increased, this aerial was soon replaced by a 45-metre $\frac{1}{2}$ -wave Zeppelin type, which is still in use.

One other point in connection with these aerial tests should be mentioned. I tried to load the old

aerial/counterpoise system to about 70 metres, and to use the third harmonic on 23 metres. No results were obtained at all, so I built a special 70-metre aerial/counterpoise with aerial and counterpoise of the same length. Whilst current was obtained in the aerial results were meagre, FMSRIT alone being worked. The only explanation that I can offer for this is that the directional effect noticed on 45 metres is increased on 23 metres (the counterpoise was again N. to S.). Perhaps some reader can enlighten me on this point also.

At my station most telephony has been done using the Heising method of control. I do not agree with the use of grid control below the 90-metre band unless there is also crystal control of the frequency. I have always found that choke control modulation is most reliable as it enables the operator to have the amount of modulation directly under his control without affecting the adjustments of the oscillator.

My early troubles with crystal control were finally overcome and after using both the Goyder method and the M.O.P.A. system, I have settled down to the latter. I have never succeeded in using the method of harmonic control so fully described by G5MU and others, and I have now given up the attempts until I have seen a practical demonstration!

Before concluding this article, I should like to thank G5MU for his kindness and good work on the 90-metre band, G2AYN for his help and for the use of much of his gear, and many other friends whom I have met on all wavebands.

A Crystal Control Adaptor—Continued from page 167.

2.1 M.C., where a sub-harmonic of the oscillator will be found. Now switch off the crystal valve, and switch on the TP-TG. You will already know your condenser and coil positions for the 7 M.C. band, and it will be but the work of a moment or so to make the necessary fine adjustments to the condensers so that the set is tuned to exactly double the frequency of the crystal, as observed by the harmonic picked up in the receiver. Finally, switch on the crystal stage again, and make a final fine adjustment of the crystal valve plate tuning condenser. The job is done! The usual signs of control will be observed, but undoubtedly the best two signs to look for are a slight fall in the feed current to the power amplifier valve and the change in note, to true T9, as the crystal takes over.

It will be noticed that no keying system is shown in the circuit diagram, as most of us will already have our own keying method in use. Any of the usual systems will work well with this set, the writer favouring keying in the grid leak lead to the power amplifier.

Strays.

G6QX will be pleased to receive reports on his 7139.2 K.C. crystal control at the following times:—

Weekdays	...	2100 to 2300 G.M.T.
Saturdays	...	1330 to 2300 G.M.T.
Sundays	...	0900 to 2300 G.M.T.
	*	*

K.C.-Metre Charts are again available to members at 6d. each, post free.

28 Megacycle Tests. March 2, 9, 16, 23.

The general objects of these tests are set out in the BULLETIN for February, 1929, p. 180. An additional object specially to be considered is that by means of a full 24 hours' test on each day we may discover further uses for the band in distant communication. As, in these tests, we are offering a trophy to the most successful station, we are endeavouring by means of special allowances of points to persuade all stations to use the times generally considered to be useless for the 28 M.C. band.

GENERAL REGULATIONS.

1. The tests will run from 00.00 G.M.T. to 24.00 G.M.T. on the above four days.

2. Licence regulations must be strictly observed.

3. Stations taking part agree to supply any details asked for and also a description of their apparatus for publication if required.

4. Schedules may be arranged if the stations concerned limit their transmission to a mere exchange of technical reports. This is necessary to ensure that one British station will not occupy the attention of a distant station to the exclusion of others. Schedule working should be mentioned on report.

5. Stations should reduce power where possible and report effect.

6. The tests are open to all members of the R.S.G.B. in the British Isles. For the award of the trophy, a point will be allowed for each authenticated QSO with a station outside England, Scotland, Ireland and Channel Isles. For receiving stations, a point for each authenticated report of stations heard outside the same limits.

7. Contacts made with one station (or reports of one station) may only count twice in any one day if the two contacts are made on separate transmissions, one of which is between the hours of 00.00 and 08.00 G.M.T. or 20.00 and 24.00 G.M.T., and the other between 08.00 and 20.00 G.M.T. This rule is made to induce stations to use the "unusual" hours and to arrange schedules where possible for these hours. Similar conditions will apply to reports by receiving stations.

8. Full logs of the tests from both receiving and transmitting stations must reach C.B. by March 30. Written confirmation from stations heard or worked must be supplied later if required. The final adjudication will be solely in the hands of C.B. and, in case of a tie, the general merit of the work will be taken into account.

Whether you think you are in the running or not, send in logs of the tests, as these constitute the most valuable part. A summary will be published. Use every effort to make the tests known to all foreign stations. We are doing this as well, but may miss some stations. Put a note on each card you send to foreign stations, giving the dates and times. Ask them to listen and report.

All reports to G5VL, Porth, St. Columb Minor, Cornwall. (Or for foreign stations, via R.S.G.B.)

Contact Bureau Notes.

By H. J. POWDITCH (G5VL).

HOW AND WHY!

By T. P. ALLEN, M.Sc. (GI6YW).

RADIO technique progresses so rapidly that my good friend, Mr. Powditch, of C.B., has asked me to write the first of a series of C.B. articles and tell how and why C.B. was started—a sort of infant autobiography of the two-year-old C.B. For my successor to ask why it was started seems natural, but I question the interest to readers of the building operations. However, there are at least one or two little points which members should know, so I will do my best.

In 1926 I was loitering on a spot of research, and found great difficulty in getting information of previous work or of people similarly interested. Being an amateur transmitter, it was almost impossible to avoid thinking on parallel lines with regard to experimental radio work. I visualised many ploughing a lonely furrow and—to mix my metaphors—in much the same boat as myself.

Why was the experimental side not organised and the pooling of information possible?

I wrote to the then Secretary, Mr. J. A. J. Cooper, and told him my story; I offered to start a Bureau to act as a link between workers on similar problems, and an instrument for the collection of technical information from its members for publication each month.

Mr. Cooper gave me every encouragement and facility, and suggested the present title, "Contact Bureau." He even suggested that in future years it would become known as C.B.!!

In November, 1927, I explained my object in the pages of THE BULLETIN and asked for names.

In the following December "Contact Bureau Notes" appeared for the first time. The list of members published showed ten stations; eight of these were GI ones and were personally coerced!

Window-dressing? Maybe; but it was a case of "spread out, lads, and make a big band."

In these first "Notes" I published a list of six stations which undertook to turn a deaf ear to raw A.C. merchants. This scheme was soon dropped for lack of support, and now, two years later, they still make hay of our bands, and we still have no scheme for their ostracism.

January, 1928, saw C.B. totalling 22. February showed the grand increase of three members for the month, and the "Notes" had shrunk to a miserable half-column. I was utterly disappointed, and but for the fact that I *knew* the service was needed I should have given up. I was encouraged by a letter from D.F.T.V. asking about our scheme and suggesting co-operation, so I knew it would be a case of "sticking it out" till C.B. was noticed.

In March, 1928, we were still only 34. At this time I published the first details of work from a member—the valve-base coils of GI6MU. Whether that attracted the necessary attention I cannot say,

but in the next month we enrolled 29 new members! The postman began to nod to me again.

C.B. never looked back from that time.

The "passing-on" of a letter containing technical information, and written to a friend of mine, was the birth of the group idea. Why not get the members into groups for tests, pooling of ideas and information, and institute the "letter-budget"? I think this name "letter-budget" was due to G2NH.

I decided on the title "Group Centre" to imply a point of concentration and to avoid the impression that a G.C. was a superior, technically or otherwise.

Groups grew up quickly, and soon an enthusiastic crowd of 28 M.C. experimenters were "grouped." Special tests were organised for them, but conditions were against success. C.B. became a recognised section of the Society.

The splendid work of the 28 M.C. pioneers is well-known, and British amateurs have every reason to be proud of their success. They raised the prestige of G experimenters, and last year's 28 M.C. work is, to my mind, one of the brightest phases of our amateur history.

Groups grew in number, and every month saw information from many sources in "C.B. Notes." I believe that a great number of our members found these details of immense value; I know that I found the material sent to me of great interest and direct utility.

Shortly after this, circumstances were such that I had to resign. The work was becoming too heavy for one who already works three nights per week, and the usual hours of 00.00-02.00 G.M.T. for C.B. correspondence were leaving their mark.

The luckiest thing which ever happened to C.B. was getting G5VL as manager. He took over my amateurish filing system without "flashing-over," and kept C.B. running smoothly during the change. He is doing great work and deserves all the support we can give him.

What of the future? Television is the probable line of the next big development in radio; will we be there? Not on our present showing! Where are the television groups?

Where are our experimenters on 2 metres? German experimenters are hard at work in this field as reference to recent copies of "C.Q." will prove.

Many other fields await exploration and C.B. needs pioneers to keep British amateurs among the leaders.

I suggest that each group member should get a different foreign amateur journal, as far as possible, to enable the whole group to keep in touch with developments. The language difficulty is not insuperable.

New fields are waiting for exploration, and I suggest that C.B.'s greatest need at the moment is pioneers.

Thank you, GI6YW. As was the case in the old days, you place your finger exactly upon the tender spot. We do want more pioneers to uphold the prestige of the British Amateur and especially those in C.B. All praise to many of our members who are steadily pushing along on their jobs, and let us hope that many more will take up the same sort of work.

Next month I hope to publish a short article by G5SY on the work of Group 1B, and follow with other groups as space permits.

28 M.C. TESTS. March 2, 9 16, and 23.

The 1929 tests were unfortunate in that a patch of "dud weather" was encountered. This year we are extending the tests over four Sundays, and hope this will prove more successful. Details have gone out to almost every European country already and to most of the further off amateur organisations. Will everyone please help us on by putting a note on every QSL card sent outside the British Isles: "Please stand by for British 28 M.C. tests, March 2, 9, 16 and 23 from 00 to 24 hours G.M.T."

As to the details: We want to run a continuous test for the full 24 hours on each day. It may prove to be a waste of juice, but it is quite possible that, with the wide publicity that is being given, countries not yet heard on 28 M.C. may be brought in at unexpected times. G.C.'s of 28 M.C. groups will have full details before these notes appear. To other stations, outside C.B., please use both receiver and transmitter at every possible minute on the above days, and let us know your results, even if these are nil.

In order to give additional interest to the tests, G5VL will put up a challenge trophy for yearly competition. This will be of an original design, and, "though I says it as shouldn't," will be an ornament for anyone's sideboard or wherever such things are kept. We will also put up a small memento for the most successful receiving station.

From the conditions for these tests, printed separately, you will notice that a station can be worked twice and count twice in one day if the two contacts are in different parts of the day. We hope this will encourage our stations to use the "unusual" hours on the chance of fresh districts and countries coming in. The same rule will apply to the receiving stations for stations heard in the two time periods on one day. And—a word to the transmitters. Don't forget that if you cannot get QSO's, there is nothing in the rules to prevent your putting it over the receiving stations on their own ground!

2 M.C. TESTS. April 6, 13, 20 and 27.

We want to have a "2 M.C. month" in April. The members of Group 10A issue a general invitation to all sufferers from QRM on 7 M.C. to join them and become converts to the lower frequency bands. Tentative suggestions for the conditions of the tests are being considered between C.B. and others, and full details will be published next month. In the meantime, I can say that power will not exceed 10 watts, so all will have a chance. G5UM is supplying a BULL. article giving his suggestions of the gear required and the methods of converting a station ready for the tests. To give the tests a sporting flavour a cup or other trophy will be awarded. So make up your minds to have a cut at these tests and combine business with pleasure!

I referred last month to a water leak used by the QRP people. G2HJ writes saying that the "well-known" leak I mentioned was attributable to G6LJ and not G2SH. He also adds that the suggested use of copper wire will necessitate frequent cleaning, and advises platinum at 1s. per inch (obtainable from Griffins, of Kingsway, amongst others). Three inches should do the trick. And he asks if the 56 M.C. stations have forgotten the Super Regenerative circuits used by G2VW, G2SH and G6LJ. How about this, 7A?

Will any BRS or AA stations having accurately calibrated gear and a fair amount of time and enthusiasm please write C.B., as there may be a spot of work offering for such in the near future.

QRP groups are reminded that the "Blank" trophy starts on a fresh year's competition as from January 1, 1930. Claims for 1929 must reach C.B. by February 20, as set out in rules sent to G.C.'s.

There have been a lot of bouquets falling around just lately, some of which have descended in the vicinity of myself. It's only fair to pass on some of the floral offerings to my very good friends GI6YW, BRS250 and G6LL who act as C.B. Committee. G6LL also represents C.B. on the main Committee, and deserves our special thanks for that work.

GROUP REPORTS.

28 M.C. WORK.

Group 1B.—A late report has just arrived from G.C. G5SY, who seems to take a cheerful view of the band. G6WY joins up "to learn something about 28 M.C." G.C.'s reply is that we are all in the same boat. Now that there is some material to work on, the G.C. is preparing the weekly charts plotted against reception. G5SY is still not satisfied regarding the aerial question. G5ML upsets his conclusions by reporting that a half-wave vertical is the most satisfactory. (As will be noted, G2OD and W2JN take the opposite view and back it up by consistent work. G5ML's report, given later, seems to show that a vertical is OK for the reception, and this station had excellent DX last season.—G5VL.) G5SY goes on to say: "The two halves of a full-wave aerial will have opposite magnetic fields acting in opposite directions, and therefore having opposite effects. They should, to some extent, cancel providing that radiation is equal from both halves, a condition probably never attained, in view of height difference and the drive at one end." He therefore puts the question, If the extra height of a full-wave vertical make up for the neutralising effect of the radiation from the lower half? (I know that BRS255 has some interesting data on this point. Will he step into the limelight?—G5VL.) G6LL has worked W2JN for three weeks running and also W2NM. He suffered from QSS each time. Has also heard W2AQB. G5ML has also worked W2JN, and his reception log is a fine one; W2NM, W8OY, W2ACN, W9BYC, W2AQB, W1BFI. G2OD was heard at 100 miles, and (G6HP reported G5VL at 230 miles. Increasing power to 50 watts, but it seems a pity that we lose our record breaking 20-watt station. G5LU is trying out low voltages of 10 to 12 on L.F. side of receiver to stop noise on O.V.2 set. G5VL reports only W2JN and W3NM (tests QRM). G6WY reports W2ACN and W2JN. He is now busy with 40 watts BRS250 has heard W1AGD, W2NM and W2JN.

and some commercials. G5SY heard ZT6C on both November 10 and 17 at R3. No other stations were heard on either day. December 1 gave W2JN, W9BYC and some commercials. The group has certainly been busy.

Group 1C.—G.C. G6VP reports that DX reception has been good, but no QSO's. G6WN has power trouble, but secured 20 mile DX with a F.D. C.C. set, H.T. 150 volts. The ops. give QRP a boost by adding that this QRP work enabled them to secure better efficiency from the set. They report four G. QSO's and from three to seven stations heard each Sunday, W2JN being the only foreigner. G6VP reports local QSO's, and the usual successful schedule with BRS250. He finds a considerable improvement of note and efficiency by a reduction of grid excitation. On the 10th, ZT6C called G6VP and came back to him, but local QRM "gummed up the works." (Hard luck, very, OM.) On the 24th, W1AZE heard this call, but apparently there was no contact. Other stations heard were:—W2JN, W1AQD, W2NM, W2ACN, several of these on one or more days. 2BIV sends in some notes on weather observations, and also has been experimenting in regard to the internal capacities of various valves and the effects on tuning when used as rectifier on 28 M.C. (In the sense of detector, I take it.) He reports reception of W2AQB (?D), W2JN, W1COS, WKU, KKZ and KLL. With him, November 17 was a complete blank. G2DH uses a "push-pull" Ultra-Audion feeding a horizontal $4/2$ waves aerial. He raises a discussion as to why summer is not better than winter for 28 M.C., in view of the band's apparent preference for daylight. Stations logged include W2NM, W2JN, W2ACN, and various commercials to the number of 20.

Group 1E.—G.C. G2OD continues with his notes on sunset effect on QSO's with W2JN. To recapitulate, on November 10, signals both ways dropped from R7 to R1 at sunset, recovering to R7 after dusk. On November 17, signals were again R7 up to dusk, when they faded and did not reappear. November 24 gave sudden and great variations of strength at sunset (16.15). After 16.25 there was again a quick increase of strength, and, at 16.30, W2JN was reading on L.S. These conditions persisted until 17.02, when a rapid fade out took place. G2OD is not attempting to QSO until the sunset period specially to note these happenings. December 9 was a day of gales and thanks to C.C. on transmitter and super het. receiver contact was maintained and no effect noticed from the swaying aerial. Again signals started at R5, increasing to R7 at 16.45, but then W2JN had to close down. The fact that these G2OD/W2JN contacts take place each week after practically all other stations have faded out points to aerial efficiency. In each case a long aerial is used. G5PL is rebuilding.

Group 1F.—The new G.C. of this group is BRS25. G2CX relinquishes after carrying through since the start, but remains a member of the group. QSL duties leave little time for other work. The new G.C. states that he is asking for "not just a resumé of the stations heard or worked, but observations or theories on any of the phenomena encountered"—(which is the thing we want). He notices that W stations often fade out at about 14.00 and return at good strength about 16.00 or even 17.00 G.M.T.,

and thinks that some G's pack up on the first fade when they might get results by staying on the air for a time. (This late reception compares with G2OD's report above, and seems to point to signal variations in various localities. I personally was listening at the times G2OD mentions here in Cornwall and got no trace of W2JN's signals.—G5VL.) The members of the group wish to place on record their great appreciation of G2CX's work as G.C. G2CX himself has been able to do little on transmitter, but has managed a good deal of listening. He is busy with alterations to both transmitter and aerial with a view to note improvement. G2DZ is a welcome newcomer. He obtained his first 28 M.C. QSO with G5VB using an LS5 with a full-wave C.F. Hertz, but is now trying out a 16-ft. vertical. G6HP and G5WK are both defaulters in reporting. (Back up the G.C., OM's.—G5VL.) BRS25 in a FB log—the usual three or four W2's on the last five consecutive Sundays, a VE4 (rest of call missed) on November 24 at 17.00 G.M.T. and W9BYC (? Colorado) at 16.15 and again at 17.00 G.M.T. on December 8. Can anyone say who of the VE4's is working on 28 M.C.?

Group 1H.—G.C. G6OO reports that his group have been unlucky and have not heard a signal. In view of the last report above they may take a more hopeful view of affairs. And, if its any comfort to the G.C., my personal conviction is that 28 M.C. signals are purely local at times, and may vary from a feast to a famine in any district, according to local conditions.

As a footnote to the 28 M.C. reports I would explain that the reports of stations logged are given rather more fully than usual as "bait" for waverers who may think 28 M.C. is still dead.

FADING AND SKIP WORK.

Group 2B.—G.C. G2ZC reports a full group. He reproves me for calling his group a "skip" one, and I apologise. It should be "Fading plus blind-spotting and blanketing." Anyhow, G2ZC, we welcome you all and hope you were fit again to enjoy Christmas. As G.C. had illness QRM, G5VL has the job of extracting a summary of the budget, and if this is not to standard the blame rests with him. G2ZC notes particularly various dates on which blanket effects were noticed with varying conditions on the same transmissions at other station. These notes relate to 7 M.C. It has been noted at G2ZC that in the spring there is often a blanket with fading in the mornings followed by normal afternoon conditions, and in the autumn a normal morning is often followed by a blanket in the afternoon, the season having a directional path for signals. It was noted in the spring that G6HZ worked SM daily when G2ZC heard only one, and the position regarding Italian stations was exactly reversed. In the autumn, SM reached G2ZC and I's reached G6HZ. G.C. wants a discussion opened on these effects and, if he will let me, I would suggest that he watches the direction of the high pressure systems as, with me, high pressure to North and East brings in the stations from these directions and wipes out those in the opposite. G6PP mentions a QSO with GI5WD when the latter's sigs. dropped to zero, while G6PP's remained steady R7 throughout. This was on October 24. November 4 gave pronounced wave effects on sigs. between G6PP and G2ZC. G6YL notes that conditions have been generally

bad on 7 M.C., particularly in mornings, and that November 25 was an exception to her usual observation that QSB is bad on foggy days. Blanketing effects were unusually noticeable on November 18 and 19 on 7 M.C. On November 28 sigs. between G2QT and G6YL were weak and sked was abandoned, yet shortly after, YI2GQ replied to G6YL's test call. The sked between the two stations at 25 miles was therefore not reliable, yet Iraq at 2,700 miles was OK. BRS272 also complains of bad fading on 7 M.C. with no fading but few stations on 14 M.C. Blind spotting he finds general. He is troubled by a mysterious intermittent QRM, apparently of local origin. CT1BK and CT1BL will complete the group.

CRYSTAL CONTROL WORK.

Group 3A.—Another new group for the New Year. But there are vacancies in it for more stations. G.C. G2NH also sends in the whole budget of letters, and while C.B. usually kicks when this happens owing to time limitations, yet this collection is really interesting. The G.C. comments specially on a circuit of G6PA which "seems to provide a C.C. transmitter at a fraction above the cost of the self-excited variety." As G2NH is writing an article for the BULL. on this, I will leave all details in better hands. The G.C. gives full details of his own set, and emphasises the advantages of loose coupling to PA., up to 9 in. for M.C. and 6 in. for 14 M.C. being permissible. Also that with untuned coupling coil and single wire feed for I.F. stages the possibility of spacing to almost any extent. G6XB, one of the old 3A Group, supplies details of his set using two LS5B's followed by DET1. He recommends high L/C for CO, with a considerably less ratio for FD, as he finds the tapping point for drive then less critical. G6QA supplies sketches of the C.C. circuit mentioned above.

56 M.C. WORK.

Group 7A.—G.C. G2DT has heard the fifth harmonic of DHA, so the new receiver seems to function. The G.C. welcomes G6XN to the group, and notes that he is proceeding along differing lines from the G2DT/G6TW receiver, which is all to the advantage of the group's work. G6XN received a report from Vienna on his sigs., but—although the time is correct—there seems some doubt about the rest of the report. G6TW keeps up half hour skeds from 11.00, 14.00 and 18.30 G.M.T. each Sunday. G2DT is endeavouring to secure a specimen of the new Phillips TC 04/10 valve, which has separate prongs for P and G leads on opposite sides. Also trying out Isolantite valve holders to prevent heating and frequency shift. G6TW notes that a porcelain holder gets too hot to touch. He also prophesies some new physiological discoveries in connection with this frequency.

QRP WORK.

Group 8A.—G.C. G2ZN laments a budget gone astray. Bad conditions on 14 and 7 M.C. have curtailed work. While admitting virtues to QRO for DX, he queries if there is any benefit for daylight in British Isles for 10 as against 1 or 2 watts. Dusk gives him R6 to R8 across England on 1.3 watts. The 14 M.C. band has proved of little help. A receiver-transmitter, as mentioned by G5CM, has been tried for 1,750 K.C., and covers London well. 2AUT is said to be getting ready for an open aerial ticket, and BRS245 has similar aspirations. G2ZN wants to discuss whether (a) a low grid leak

value with high tank current and the aerial tapped on to tank circuit slightly away from high potential end, or (b) a high value grid leak with low tank current and the aerial tapped to high potential end is preferable. (I think the answer is that nothing is good when carried to extremes.)

Group 8B.—The exchange system of budgets with other QRP groups now works. G.C. is asking for replies to specific queries from each member. G2RT has the best QSO, YI2GQ. Now four continents up. G2OA has two successes with U.S.A., and inquires if an aerial bent at a sharp angle affects results (obviously it depends on angle). G6SO finds things the worst ever, and has started pulling the set to pieces with the usual bad results. Using CO. PA outfit. G5CM prefers his single wire fed Hertz to V.F. variety. No DX. G5JF has now three transmitters in his collection plus a full wave indoor aerial for tests. He reports AU7AA regularly R7 about 23.00 on 7 M.C. G2VV has "bad condition-itis," also, but reports Azores on 3 watts. An August report from VK cheers him somewhat. Transmitter and receiver alterations in progress.

Group 8C.—G.C. G5PH reports most of Europe on 4 watts. A new full-wave rectifier with home-made transformer feeding two U5's seems to be FB, and C.C. reports arrive. G2AV has also a new transformer with valve full-wave rectifier, and is busy with aerial. G5QA wants to meet the rest of the group on the air. He is using T.P.T.G. coupled to inverted L with 3 to 4 watt input. DX covers VE 1 to 4 and W 1 to 9. G5AQ also suffers from the fruits of rebuilding (it never seems so good), FM and OH being best results. He complains of too much QRM from W's after 20.00 G.M.T., a change from the general run of this month's reports. We are all sorry to learn that G6PS is laid up.

Group 8D.—G.C. 2AUH reports all under way. The group has G2YU, G6HK, G2SA, G2GA, and 2BHI as members. First month's reports are station descriptions. G6HK has European QSO's with .4 to .8 watt. G2SA has worked Finland and Russia on 7 M.C. and U.S.A. on 14 M.C. with under 6 watts. G2GA has all Europe in two months with 3 watts. G2YU is WAC with maximum input of 9 watts. 2BHI works with 1.2 watts on 7 M.C. and C.C. on 2 M.C. 2AUH hopes for full ticket shortly. At present 1 to 4 watts on 7 M.C. So that is the new group, and it appears that we have another hot team for the QRP stakes.

1.75 M.C. WORK.

Group 10A.—G. C. G6OT reports that all work has been suspended owing to "a domestic upheaval" caused by the arrival of G6CJ to share the shelter of G6OT's roof. A re-design of gear has been undertaken, and the new "dual station" will soon be on the air. In these circumstances it is a rumour that G6OT will be able to work G6CJ at last! G5UM sends in a comprehensive report of some tests with G2ZN, the latter station maintaining QSO with input of 5 milli. watts! This on 1,750 K.C. In WX tests with BRS164 he seems to find the effect of the moon to be definitely observable. G5VN has also tests with BRS164 and BRS105, both live wire stations. G6QC is a welcome newcomer, and G.C. looks forward to his reports. There is again a paucity of reports this month. Please make special efforts to get going and keep in touch with G.C., in view of the coming tests.

28 M.C. Notes.

Another milestone in the ever-advancing passage of Amateur Radio has been passed with the working of ZS5C by G5WK on December 22. This is the first authentic contact between Great Britain and South Africa, and our congratulations go to the two stations concerned.

The month, as a whole, has been good, many British stations being successful in getting over "the pond." G5ML, as usual, tops the list, with a large number of calls heard, and several contacts.

The one really peculiar fact concerning the reports this month, is the number of stations that have heard transmissions in the neighbourhood of 100 miles distant.

We used to be under the impression that about 25 miles was the limit for the ground wave to be heard, until all our theories were broken up by this news. G5YK has heard G5ML and G6LL on several occasions. G5ML has heard G2OD, G6LL, G5YK on several occasions, and both G5ML and G5YK have been heard in London, by several stations.

Also, a receiving station in Gloucester has heard G2OD, G5ML, G6LL, and G6KO, the latter using only 9 watts input. G6KO also was successful in raising W2JN with this input, and getting a report of R7. It is a significant fact that all these stations are using horizontal aerials.

It is interesting to note, also, the number of stations who heard CT1AA. This signal is believed to be a harmonic, although in every case he is reported as being at least R6.

Canadian VE4BQ has been logged on several occasions, as a perusal of the "calls heard" column.

will show. W9BYC, also, has been received frequently, always at good strength, and G5ML reports him as R9!

Apparently there are two South African stations coming through at present, ZS5C and ZS4M.

We hear that Chilian CE7AA is on 28 M.C. every Sunday at 14.00-17.00 G.M.T.

Appended is a list of calls heard during the month. An asterisk denotes a contact:—

G5ML.—W2JN, * W2NM, * W1BJD, * W2AOB, * W2ACN, W2BON, W4AQ, W8OY, W8CVI, W9BYC, CT1BX, CT1AA, G6LL, G2OD, G5YK.

G6WN.—W2JN, W2ACN, CT1AA, ZS5C, EAR65, G5ML.

G5YK.—W2JN, G5ML, G6LL, G2OD, OH1NT, SU8RS.

G5WK.—W2JN, * W2ACN, W2NM, W2AOB, W9QYC, ZS5C, W8AXA, W1BJD *

G6LL.—W2JN, * W1BJD, * W2NM, * W2AOB, W2ACN, * W8AXA, * CT1AA. 25HM.

BRS190.—W2JN, W2NM, W2AOB, W1BJD, W2ACN, W9BYC, VE4BQ, ZS5C, ZS4M, CT1BX, CT1AA, W8AXA, W9FAX, G5ML, G5YK.

BRS25.—W2JN, W2NM, W2ACN, W2AOB, W9BYC, VE4BQ, W1BJD, G5ML.

BRS271.—W2JN, G5ML.

G2GM.—W2JN, ZS5C.

As these notes are invariably written up by G6LL, on or about the 27th of the month, it will be of assistance if reports are sent to him direct. In this way last minute items of interest stand a better chance of being included. The number of reports this month are much more promising, so keep it up OM's.

Annual General Meeting.

Minutes of the annual general meeting of members held on December 13, 1929, at the Institution of Electrical Engineers, London.

In the chair, Mr. Gerald Marcuse (G2NM), supported by Mr. H. Bevan Swift (G2TI), acting vice-president.

Mr. Marcuse, in opening the meeting, mentioned the grave illness of Admiral Sir Henry Jackson—a late president of the Society—and on a unanimous vote it was agreed that Mr. Marcuse should convey the sympathies of the Society to Admiral Jackson's family.

The minutes of the previous annual general meeting (as published in the January issue of the BULLETIN), were approved. The Honorary Treasurer's report was unanimously adopted. Mr. Eric Megaw paid tribute to the untiring energy of Mr. E. Dawson Ostermeyer who had, since accepting office, enabled the Society once again to become financially sound.

The Honorary Secretary's report was read by Mr. John Clarricoats and adopted. (This report appears as an Editorial in this issue.)

Mr. H. Bevan Swift proposed a vote of thanks to Mr. Marcuse, and mentioned that we were to have the honour of Mr. Marcuse's leadership for a

further year. Mr. Swift stated that our President has by his guidance and counsel done much to place the R.S.G.B. on to the present high pinnacle of success.

Mr. P. Griffiths (G2GF) moved a vote of thanks to the retiring council.

The presentation of the Society trophies followed. Mr. Marcuse, in handing the "Rotab" Cup to Mr. Maurice Pilpel, explained the origin of the cup and heartily congratulated the winner on his success.

The Wortley-Talbot Cup was then presented to Messrs. Noden and Somerset in recognition of their pioneer work on 56 M.C.

The President mentioned that the Parry and Dedman trophies were still to be won, and stated that, in addition, Mr. Somerset had recently presented a silver cup and two silver goblets to the Society to be competed for by its members. As soon as the necessary details, he stated, had been arranged, an announcement would appear in the BULLETIN.

Mr. Marcuse formally thanked Mr. Somerset for his offers.

The business meeting concluded at 6.50 p.m., and was followed by a lecture and demonstration, given by Dr. McLachlan.



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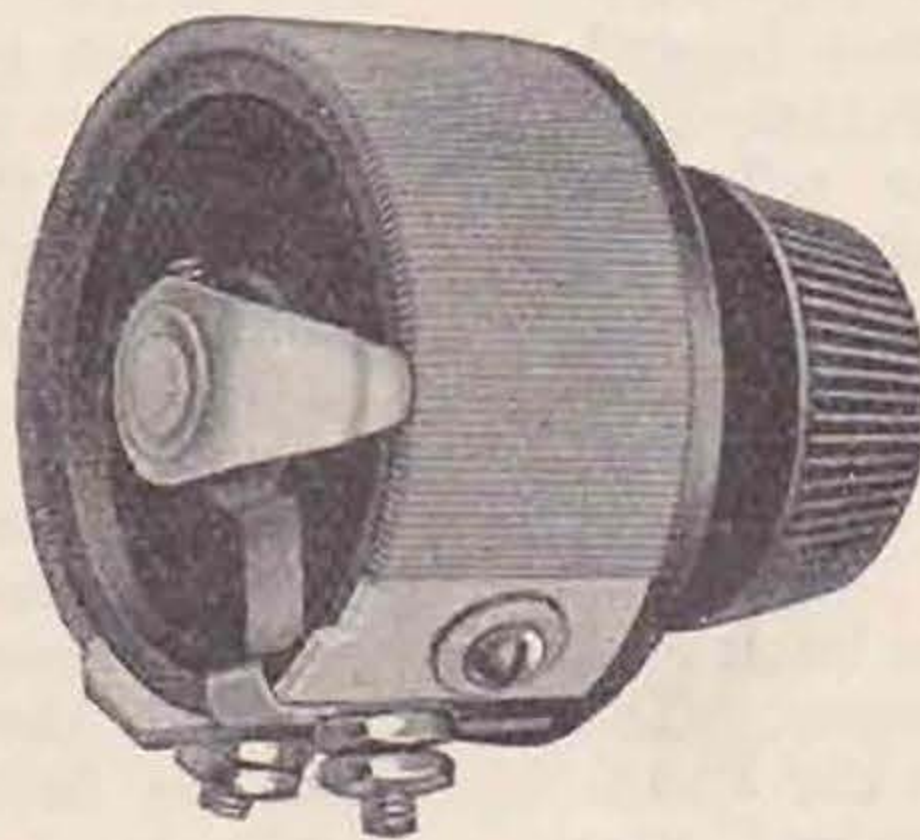
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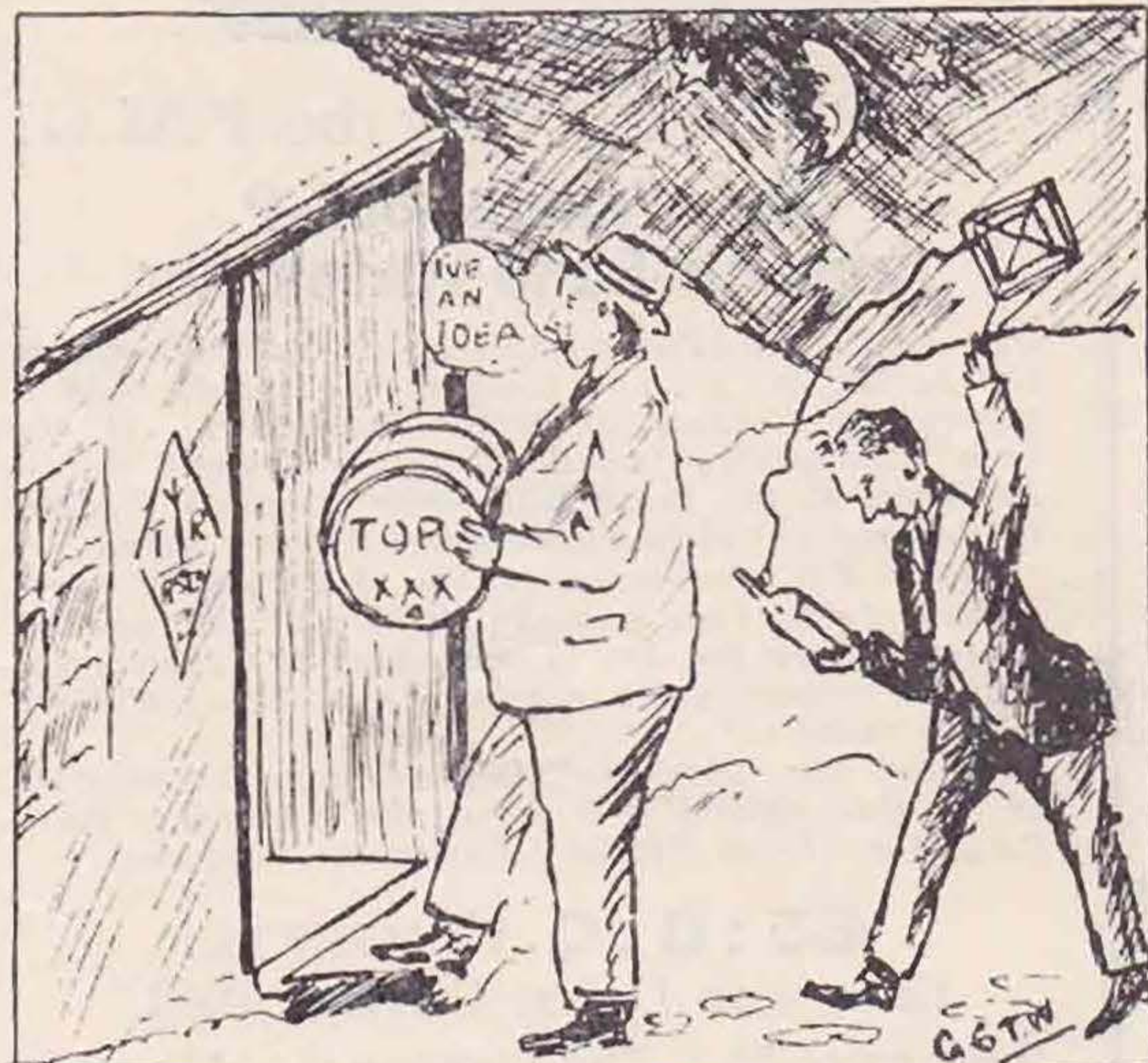
"DUD."

IT was Christmas day in the workhouse, the day for health and cheer—sri oms, pen slipped—what I mean to say is it was Christmas Eve in the workshop, the workshop of 5FB. It was snowing outside, snowing hard, saucers as big as snowflakes were piling down, causing considerable QRM. I mention this not because it has any bearing on the story, but because it struck me as peculiar that it should be snowing at this time of the year. The wind howled. On the floor in the midst of the shack was a mysterious looking contraption of wood and wire and Chatterton's compound. It was, in fact, the new combined transmitter-receiver of 5FB and 5BF, arranged for directional experiments. Each transmitter consisted of an oscillator feeding a half-wave copper rod, the rod being horizontal and forming the axle about which a parabolic reflector could be rotated at will or otherwise. Oscillators were crystal driven with special 2-metre crystals, ground for them at enormous cost by one of the Cambridge gang. The two crystals were 1,000 cycles apart, so that all one had to do to receive was to stick a pair of fones on one transmitter QRP off 50 volts, and put about 1,000 volts on the other.

FB and BF were walking round their new babe, admiring it. Their hearts were full of gladness and—no, but they were just off to the "Coil and Gridleak" to celebrate matters with a few oscillating quarts. So they went out into the bitter, bitter, wild and bitter night. By this time the wind was threshold howling and the snow was 100 megacycles (9 ft.) deep, but this didn't worry them, for are they not the heroes of this story. The celebration lasted till 22.00 G.M.T., after which the e.m.f. of the "Coil and Gridleak" produced a rejector effect. And so back they came, staggering under the weight of a furkin (9 gallon) barrel of "Top," for they had a night's work in front of them, and nourishment was required. "Great stuff, this Top," said B F as they lugged the body over the threshold of oscillation, and lowered it gently into an old parabolic reflector where it lay in ease and comfort as though the thing were made to fit it. Having measured the potential of the hootch, they resumed work on the machine, and, as I've already said it was finished, I would seem to have made a bloomer; but then, remember who's writing the story.

And now, having got started, we'll go back and show how all this 2-metre business began. The Editor had asked me to write a yarn for the BULL. Why, I don't know, but I weakly promised, and in due course found myself due to write and no idea of how to start. However, it seemed I had better write about hams, and so I got a call book out and tried to find some disused call signs, for I hate things like "9XYZ," they look so artificial. On the other hand, if I pinched people's calls, they might get annoyed. However, after a long search, I found 5BF was missing from the list. That was peculiar, because I know 5BF, and he and 5FB had an experience which would make a good story—so here it is.

5BF and 5FB, Jasper and Kasper, are two hams of the more scientific type. They were neither of them particularly clever, but they were scientifically minded, and their results were attained more by reason of their latent potentialities as physicists than by years of training. They were similar in this respect, and not different as their calls would suggest. No, gentle reader, the calls mean something quite different from what you have probably imagined, for Jasper of 5BF was big and fat, whilst Kasper was frail and bony, so that Jasper gained on the swings what Kasper lost on the roundabouts.



OUR HEROES OF THE STORY

The whole of this remarkable business started at a R.S.G.B. meeting. There had been a lecture on "High Power Transmitters," with a discussion following. But the subject is one which has never interested the ham, and the discussion drifted to an argument as to why 50 watts produced so little louder a signal than 5 watts. Murmurs of Heaviside Layer were heard in the background, and before long there was a vigorous argument going on between the scientists and the diehards as to whether there was such a thing. The latter didn't believe there was such an animal, like the farmer who saw the giraffe at the Zoo, whilst the scientists had to talk about something the others didn't understand, so as to look clever. The argument became heated, resistance went up, and even Jerry and the poor old chairman could not reduce them to their original subject. It was 8.30 before the meeting closed, an unheard of crime, for the chairman was late for dinner. Our two heroes came away from the meeting full of enthusiasm and ionisation, and by the time they had reached home, they had discovered a simple means of measuring the height of the Heaviside Layer, a useful job.

The idea was to send signals vertically upwards, bounce them off the roof, and receive them. By

adjusting the air-gap of the crystal already described it would be possible to find a frequency at which they could set up standing waves between the earth and the lid of the atmosphere. Varying the frequency over a band would produce a number of sharp maxima and minima, and by measuring the frequency difference between these with the aid of a calibrated audio source they could determine H. I don't know how, but I think it's in the trig book, or is that the parallax method?

Now to return to our sheep (French for muttons). They got the machine going, and after some difficulty they got QSO each other. At first they were troubled with leakage of sigs. from the reflectors, but this was overcome by keying via a QSR, instead of direct. Then their aerials were so directional that they couldn't hear anything in the receiver till the transmitter was pointed at it. After this the key seized up, but a slight lubrication with "Top" overcame this.

Having got going, they first of all tried projecting horizontally and, to their delight, found that when the receiver was pointed the other way they got R5 sigs. Their 50 watts was doing its stuff OK, anyhow, going round the world like that. This was distinctly promising, and after a slight pause for refreshment, they started pointing upwards and trying to squirt their sigs. up to the roof and back. Jasper sent "Test de G5BF" in the approved style and Kasper wobbled the parabola (believe that's correct), and listened hard. It was nearly an hour before they had any luck, and then Kasper was amazed to receive the reply "G5BF de Mars." It gave him such a start that he nearly fell into the cesspool rectifier. When he had made himself clear to Jasper, the latter replied with a long call—"Mars de G5BF r. QSA4 ar." and then they both listened hard, as Jasper still didn't believe Kasper.

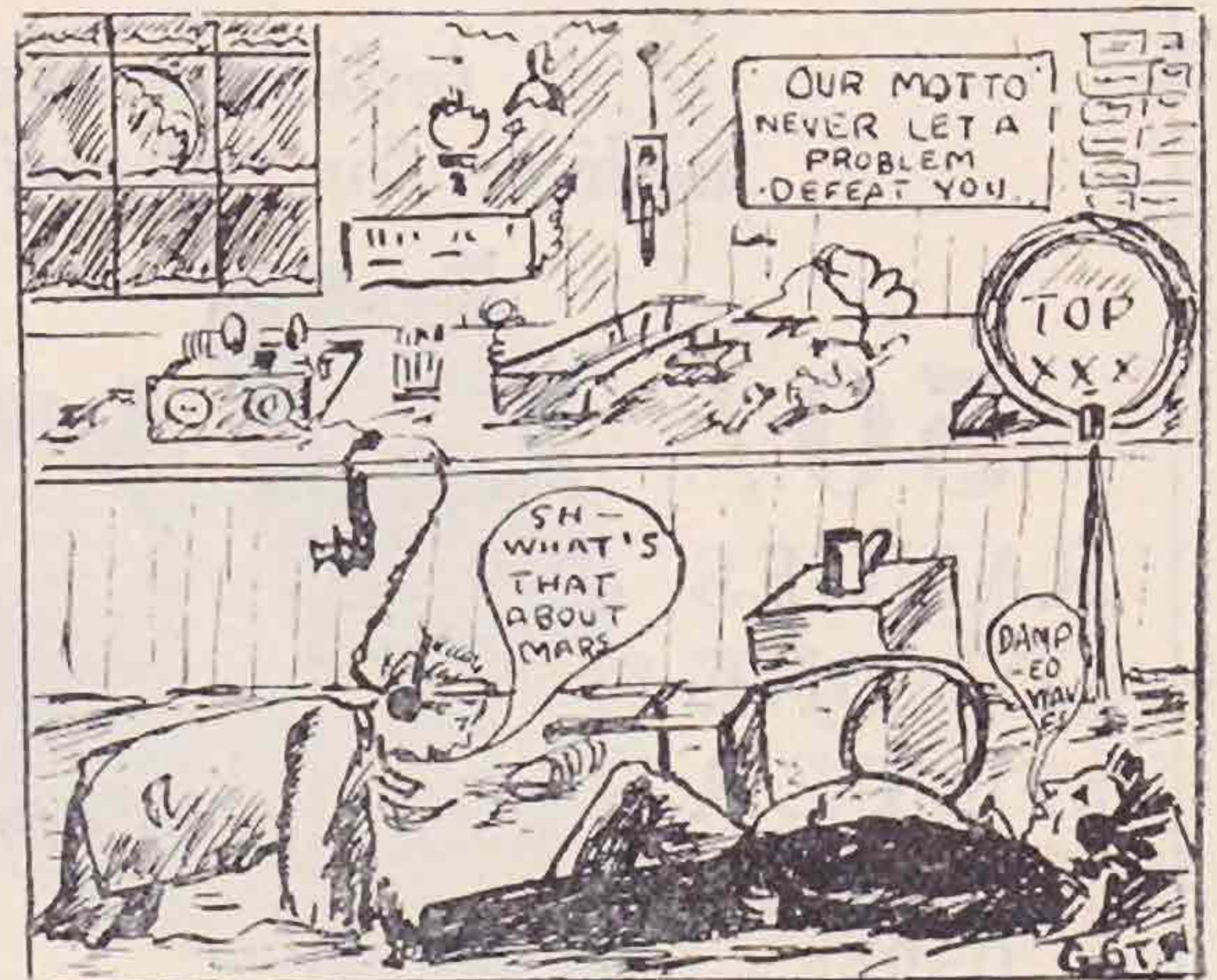
One minute. No sigs.
 "You're dreaming," says Jasper. "Gimme a chance," says Kasper, "I might be right."
 Two minutes. N.D. still. . . . Three minutes. Still less doing. Jasper gives it up and goes over to the barrel switch. Still no reply; only a noise like continental R.A.C. from the corner. Atmosphere tense. . . . Five minutes.
 "HERE HE IS!" shouts Kasper, loud like that. QRM ceases and Jasper grabs his earcans, and there, sure enough, was a steady R6 T9 sig. coming through FB. "G5BF de Mars. r. ge om ur QSA3, tnx vy fr call. Ur sigs nw gg so wl cul tmw 02.00 G.M.T. gn ar SK." They gave the r-SK, and after five more weary minutes they heard the R1 to R2 "gn SK" and nothing else. "Don't believe it," says Jasper, "somebody's practical joking." "Don't see how it can be spoofing, they'd have to be vertically above us, and there's only snow on the roof, anyway. I say! Won't the chaps at the R.S.G.B. look green when we tell them about this?" "No, course they won't; they'll laugh at you. They're not interested in real DX up there. Besides, there's a catch in it. How's he going to send you a QSL card?" "P'raps they don't have them there; p'raps they believe each other there. Its like old C.J. when he QSO'd a yank with 5 watts in the middle of a bright June day; they wouldn't believe him when he did produce the card; well, all we can do is try next time. Its now 03.00, so we'd better turn in if we are going to."

So they screwed up the aerial adjustment to

prevent accidents, and curled up for the night—yes, readers, they slept in that shack—lived in it in fact and fried their sossidge and rashers over the same fire that warmed the room when the T250 was not doing that service.

The next day they talked it over and over, but they couldn't come to any satisfaction, and so we find them again at 02.00 listening hard. Right on the hour they heard him: "G5BF de Mars" only R 2-3 till 02.05, when they replied, after which pause. . . . "Wonder why he takes so long to come back, Jasper?" "Dunno, ask him. I expect his crystal won't start up. He ought to get an oscillating crystal," 02.10. "G5BF de Mars (Now R5 r. ge om ur R4 fb. gld QSO agn. Ur sigs. last till 02.50, but if u get equatorial mounting will last hours. Hr tried long time to QSO Earth. U hv honor of 1st QSO. Tell G6LL his 30 M.C. sigs. hr R7 also G2OD R6, G6CJ R9. Hw? ar." Gee, Kasper, look how he spelt Honor. I believe he's a Yank! Mars de G5BF. r tnx nw R6, wl tell the boys. Sa om, why do u QRX 5 mins.? Who are you? What is equatorial mounting? Ar—5 minutes—tense—high potential ones—02.25. G5BF de Mars. r. tnx. ur nw gg QRZ. cu tmrw get equatorial mounting R.A.3h 5m, Dec. 5° 30'. 73 gn. ar SK. Sigs: faded out towards the end.

They were very puzzled about that equatorial mounting, and next morning went round to the Radio shop, but he'd never heard of it either; he'd only got the ordinary 6 pin type. So they went and asked Mr. Ward, and he told them where to get one and how to set it up so that it was at the angle represented by the mysterious figures they had received, and how to make it keep their aerials pointed at Mars for hours at a stretch. And so they came home with a heavy bundle of machinery and very empty pockets, and worked feverishly all the evening setting it up to the prescription



THE MORNING AFTER -

At 02.00 the clock on the machine was ticking gently and "5BF de Mars" for three minutes, and off they went. This time they were QSO for hours, with colossal sigs. and they found out all about this chappie in Mars. He had been listening to the earth for years, but had never raised anybody.

It appeared that the five minute interval was the time taken for the sigs. to make the journey!

They kept QSO for hours, till they absolutely fell asleep where they sat. (Shame.) Kasper woke up to a loud buzzer in his 'phones, and the more he woke the louder it got. Also, somebody, probably Kasper, was hitting him regularly over the head with what felt like a large steel equatorial mounting. He opened his eyes. The transmitter was on the floor where it had stood three nights ago, and the equatorial was now permanently on his head. The valves were cold but the buzzing continued, mixed with the stertorous breathing of Jasper. There was a sickly odour, which turned out to be the remainder of the 9 gallons working round in one corner of the room. Then he tried to speak to Jasper, and found his tongue cracked in about three places. He crawled over and laid out on the floor, groaned and went to sleep again. It was still snowing. But, although they thought that this business was merely a top resonance, the fact remains that it was all dated and recorded correctly, and investigation proved that it was December 28 when they came to. I don't know. It's all very mysterious. Perhaps once again Mr. Ward can solve the puzzle for us.

Stray.

The Editor regrets that the list of new members and B.R.S. numbers issued has been unavoidably held over from this issue. B.R.S. 149 was erroneously included in the list of B.R.S. numbers relinquished in last month's issue.

R.S.G.B. Sales Department

The following can be obtained from Headquarters on application:—

A.R.R.L. Handbook, by Handy ...	4/-
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(4/- to Members)	
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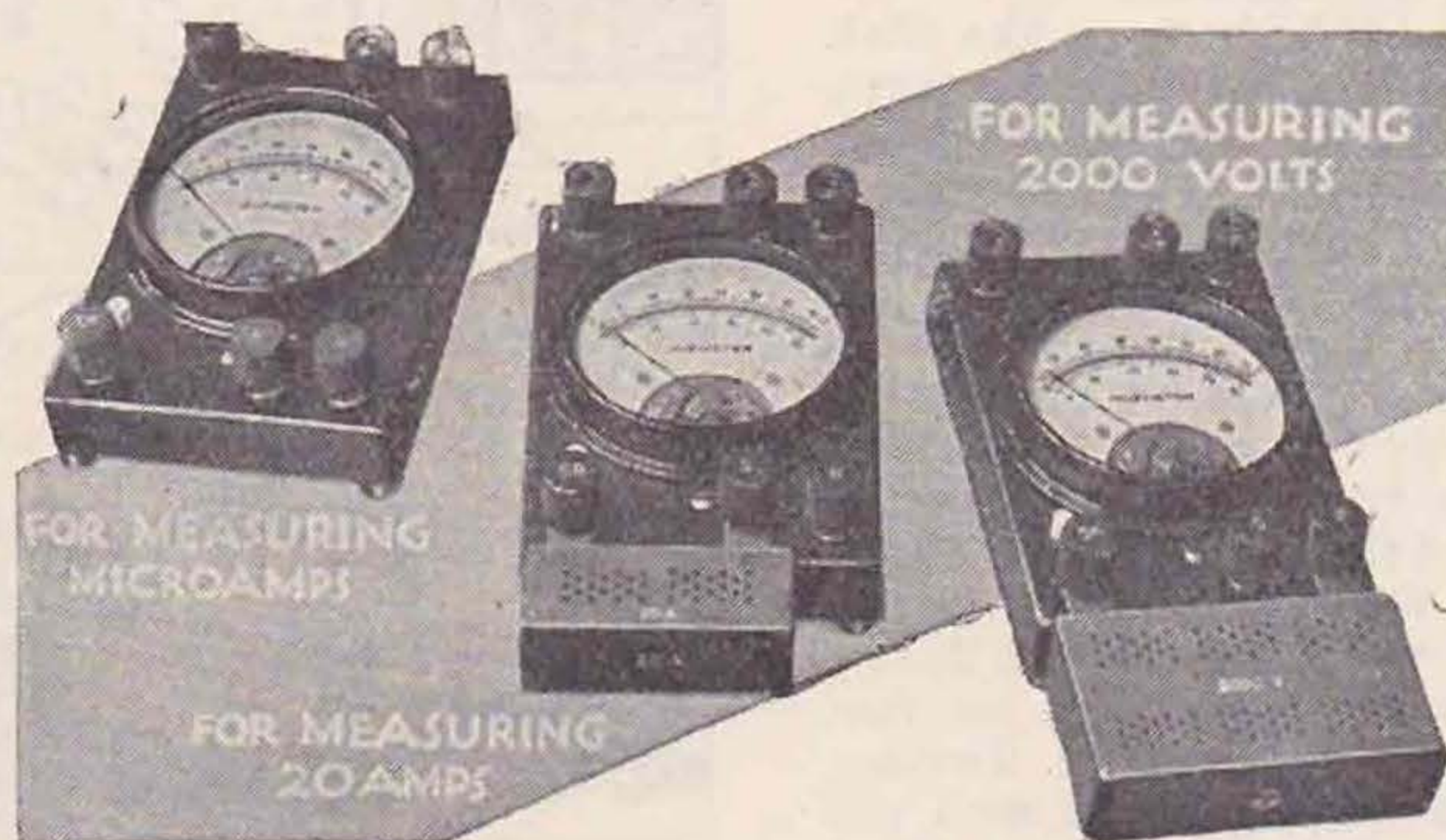
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HIC et UBIQUE.

We are pleased to be able to draw the attention of members to a very kind offer made by Capt. K. Hartridge (G5CB) and Mr. W. K. Alford (G2DX). The offer consists of a prize of two guineas for the best paper, lecture, or demonstration given during 1930 before the Society at one of its ordinary meetings. Provincial members are eligible to enter for this, and when difficulty is found regarding attendance in London, they will be entitled to ask a London member to read the paper for them; alternatively, they (the provincial members) may send in their paper in the form of an article for publication in the BULLETIN. The Society reserve to themselves the right to publish in the BULLETIN any paper submitted in accordance with the above-mentioned offer. Council's decision must be taken as final.

We hope that this offer will result in more members showing their ability to read papers or give demonstrations before the Society, and would like to express our thanks to the donors for their kind offer.

* * *

As announced elsewhere in this issue, Mr. E. T. Somerset (G2DT) has very kindly offered one cup and two goblets to be competed for by members of the Society.

One of the two goblets is to be won outright by the member residing in the British Isles who makes the first two-way contact between this country and South Africa on either the 28,000 K.C. or the 56,000 K.C. band.

The second goblet is to be won outright by the first R.S.G.B. or B.E.R.U. member, wherever in the world he is situated, who is the first to make two-way contact on 28,000 K.C. with a British Possession in each of the other four continents of the world.

The cup, to be known as "The R.S.G.B. Cup," is to be competed for annually, and is to be on view at the Society's stand at the Annual Radio Exhibition with the winner's name engraved thereon. This cup is to be awarded this year for work on the 28 M.C. Contact Bureau tests taking place in March of this year; mention is made in the C.B. notes and further reference will be made in next issue.

In the case of the award of the two goblets, proof is to be offered to the Council, whose decision will be final. The decision regarding the cup will be left in the hands of the Contact Bureau Subcommittee.

We should like to express our appreciation to Mr. Somerset for his generous offer, which should go far to keep alive the spirit of Amateur Radio in this country and to inspire our members to explore the still untrodden paths of radio communication.

* * *

To B.R. Stations and A.A. Members.—We are endeavouring to arrange a great reception contest during the latter part of February of this year. It is regretted that details are not available at the present time, but we sincerely hope that arrange-

ments can be made and that full details will be announced on this page in the next issue. See to it, therefore, that your receivers are in working order, as we shall not be able to give you more than a few hours' notice.

QRA Section.

The prefix used by Phillippine Islands stations has been modified, and is now KA. Another new prefix is that of Sacre, stations using TS instead of D.

NEW QRA'S.

- G2DT.—E. T. SOMERSET, "The Brackens," Deepdene Park, Dorking, Surrey. (From January 21, 1930.)
- G2FS.—L. K. WINSOR, 375, Hessle Road, Hull, Yorks.
- GI2KN.—B. M'CANN, 104A, Divis Street, Belfast, N. Ireland.
- G2XS.—H. W. SADLER, "St. Raphael," Anston Avenue, Worksop, Notts.
- G5CB.—CAPT. K. HARTRIDGE, 2, Westbourne Crescent Mews, London, W.2.
- G5DK.—J. S. DYKES, Thorncliff, Skelmorlie, Ayrshire.
- G5QY.—H. C. D. HORNSBY, 7, Lansdowne Terrace, Gosforth, Newcastle.
- G5VA.—J. WRIGHT, 13, New Street, Ball Green, Stoke-on-Trent.
- G5ZN (ex BRS269).—P. NICOLL, "Oak Hill," 167, Todmorden Road, Burnley.
- G6IO.—T. WOODHOUSE-RAYNER, 25, The Gardens, London, S.E.22.
- G6NM.—North Middlesex Radio Society. Hon. Secretary: E. H. LAISTER, "Windflowers," Church Hill, London, N.21.
- G6RG.—B. GROOM, 157, Wood Street, Galashiels.
- 2BVN.—A. M. HUTCHINSON, "Beechlands," Brooklyn Road, Woking.

M. W. P.

QSL Section.

Some complaints have reached H.Q. recently from various parts of the world regarding the small number of British cards received. On further enquiry it appears that the QSL agencies of the countries concerned are not distributing efficiently the cards sent to them by R.S.G.B., and members are therefore asked to assist the Section in determining which of the foreign agencies are reliable and which are not.

Next time you get into touch with a station from one of the lesser known countries just ask him if he gets his G cards regularly, and if not, why not. It is only by co-operation such as this from members that the Section's list of agencies can be kept up-to-date and effective. I am already indebted to G5RM for his efforts in this direction.

Another small point, but one which sometimes leads to confusion, and might be worthy of atten-

(Continued on page 181.)

Which is it?

AN excellent and easy method of determining which station it is that you are receiving is provided by the McLachlan Station Finder.

THIS instrument is designed on an entirely new principle from other types of wavemeter.

IT is a Modulated C.W. Wavemeter with a high degree of accuracy and is quite simple to operate.

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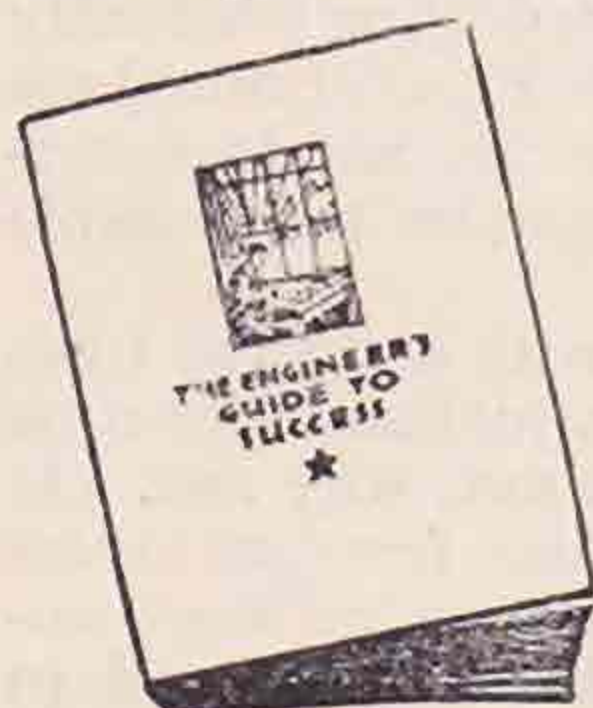


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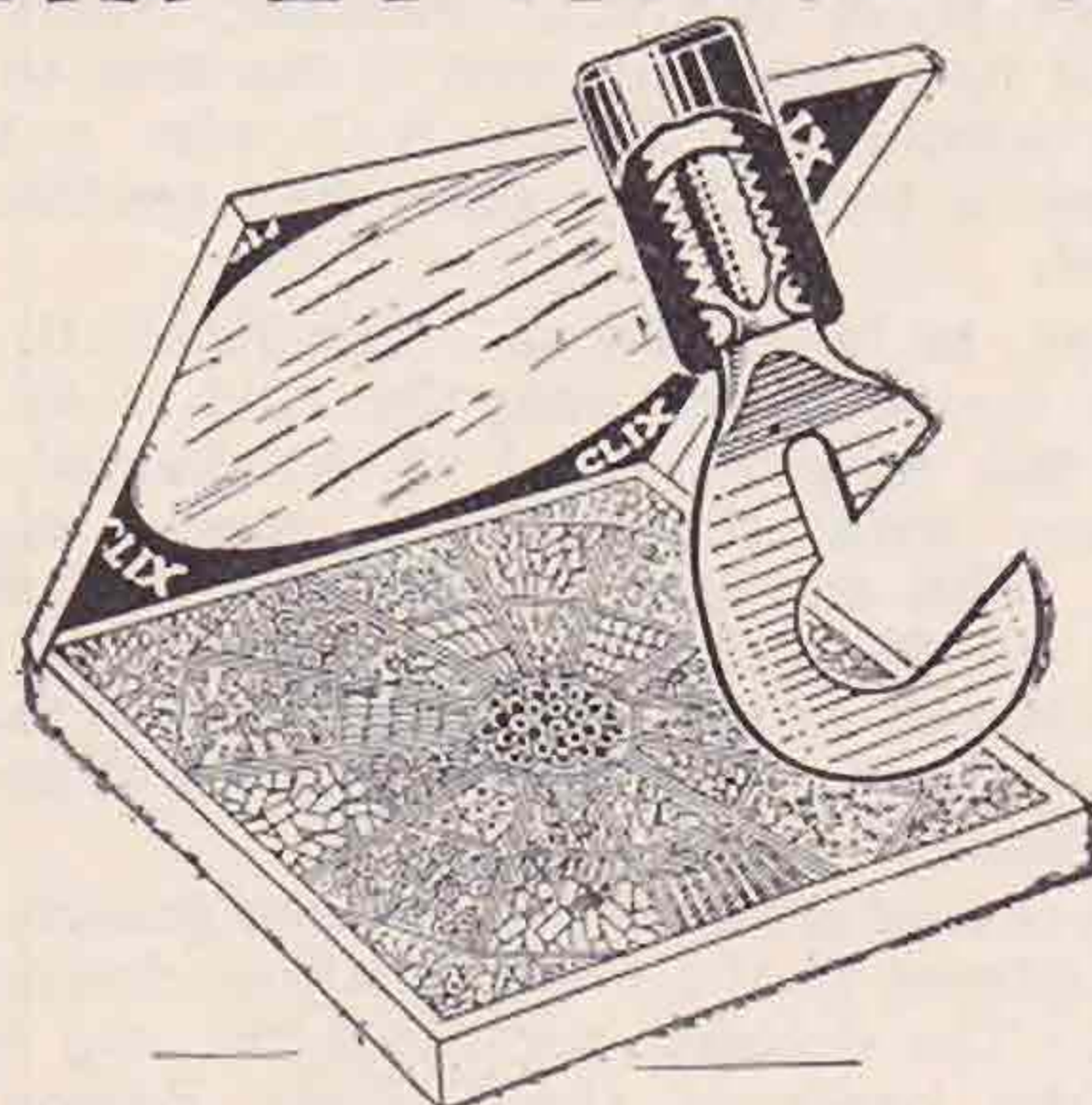
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QSL Section—(Continued from page 179).

tion. If your call appears in the "envelope defaulters" list and you send us some envelopes to collect the cards waiting for you, please do not forget to mention that you want your cards from the unclaimed file as these cards are kept separately and it is impossible to remember the calls in this file or to check all incoming envelopes to the list.

The list of calls for which the section holds cards but no envelopes, is as follows:—

2—aiz, aoi, bhw, ao, av, ax, az, bd, bo, ca, cb, ci, cm, cs, dq, du, dx, fr, gc, gf, gz, iz, js, kf, km, lw, na, nf, nz, nu, od, oq, ov, rk, rm, sn, to, uj, ul, un, us, vq, vz, vx, wn, wp, xg, zv, zm.

5—aa, ad, bo, by, bz, cj, cs, cx, da, dk, fo, fs, gp, gq, gs, gx, ir, jb, kj, kk, lf, ma, ms, nz, ps, py, rj, ru, sh, tj, tr, uf, ug, uw, va, vf, vz, wy, xm, ya, yu.

6—af, bc, br, bu, da, dz, fa, fs, gc, gl, gs, gx, hj, ho, hw, ia, io, jf, kk, kl, ko, lg, lk, lr, ly, ma, mt, nc, nk, nt, nu, nx, oa, oh, oi, pa, ps, qh, rm, rw, sy, ta,

td, tx, tz, uh, vo, vp, wh, wl, wo, xp, yc, yk, yq, yr, yu, za, zj, zr, zz.

BRS.—38, 120, 127, 186.

J. D. C.

Calls Heard.

By CT2AA, c/o. Western Union Cable Station, Horta, Fayal, Azores, October and November, 1929:—7mc, G-2ao, 2dt, 2gy, 2pp, 2px, 2ux, 5by, 5fs, 5is, 5qa, 6bj, 6cl, 6ms, 6wo, 6wy, 6xq, gi5hn, ei3x, ei8b. 14 mc. G-2ao, 2az, 2bm, 2dz, 2hp, 2lz, 2ma, 2nh, 2np, 2oa, 2ol, 2op, 2un, 2ux, 2vv, 5bj, 5br, 5by, 5bz, 5fs, 5kl, 5ma, 5ms, 5mu, 5pj, 5qa, 5rm, 5rs, 5rv, 5sn, 5ub, 5uq, 5wk, 5wp, 5yg, 5yk, 5za. 6bj, 6bx, 6cl, 6da, 6dg, 6dh, 6dr, 6fy, 6gc, 6gs, 6hp, 6ia, 6ll, 6mc, 6ms, 6nf, 6nt, 6nx, 6pa, 6pp, 6qc, 6un, 6vp, 6wn, 6wo, 6wt, 6wy, 6xc, 6xn, 6xq, 6yc, 6yk. gi6wg, gi6yw, ei2d, ei7c, ei8b, ei8c, gbvj.

Correspondence.**A Reply to G2GF.**

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

DEAR SIR,—I was very pleased to have the opportunity of meeting a number of English "hams" at the meeting on November 22 and to hear the first part of the discussion on G2GF's remarks. As I was leaving for Denmark early that evening, I had to leave the meeting early and was unable to partake in the discussion. I therefore permit myself to encroach on your valuable space with a few remarks regarding G2GF's experiences.

First, regarding transmission without having the aerial connected to the transmitter or even anywhere near it. In case a counterpoise is used, everything is clear: the cp. acts as aerial, and the aerial coil is coupled capacitively to earth. In case the disconnected actual aerial has a horizontal top in tune with the transmitter free oscillations will be produced in it, and a certain proportion of the power will be re-radiated from the disconnected aerial.

An even moderately long earth connection (say, over 15 feet) will have more or less the same effect as a counterpoise.

If one wants to be certain that transmission without the aerial is really possible the only certain method is to lower and roll up the aerial wire! I doubt if G2GF will get the same reports before and after doing this, even if his aerial is the worst in London!

With regard to the antics of the anode milliammeter when the aerial tuning or coupling is altered, the correct explanation was given by a speaker (whose name I'm afraid I have forgotten); I should merely like to add that it is possible by suitable (or, for amateur purposes, most unsuitable) adjustments to make the anode current rise on increasing the aerial coupling or bringing the aerial in tune. In fact, on account of the

double curvature of valve characteristics it is nearly always possible to get either a rise or a fall in anode current when a certain manipulation is effected in the circuits.

I would like to point out that it is generally possible to get two different aerial resonance wavelengths by simply reversing either the aerial coil or else the connections to it. This is caused by the fact that the actual coupling between tank circuit and aerial circuit is a combination of magnetic and electrostatic coupling, and these may either assist or retard each other. Both the above-mentioned methods result only in the reversal of the electrostatic coupling; in order to reverse the magnetic coupling one would have to introduce an aerial coil wound in the opposite direction of the first. (I have not tried this, but it is possible that this would give different results from those caused by reversing the electrostatic coupling).

The phenomenon mentioned may be (and, in my case, has been) of use in getting an aerial-counterpoise system to tune within the amateur bands.

Owners of long-wave receivers with loose-coupled tuned aerial circuits can test the effect of reversing the connections to the aerial coil. In the one position the selectivity can be greatly increased by loosening the aerial coupling; in fact, there will be one position of the aerial coil where the station under observation disappears entirely. In this position the two couplings are equal and of opposite sign. If the connections to the aerial coil are now reversed, it will be observed that the signal strength only varies slightly with the aerial coupling and that the selectivity has decreased enormously. The first-mentioned connection is, naturally, the correct one.

Wishing the R.S.G.B. and the "Bull" every success, I remain,

Yours,

JAMES STEFFENSEN, OZ2Q.
Ehlersvej 8, Hellerup, Denmark.

(Continued on page 183).

The Yacht "Carnegie."

Many of our readers will have noted from recent Press information that the yacht *Carnegie* has been destroyed by an explosion in Apid Harbour, Samoa. In reading of this disaster we cannot refrain from mentioning the loss which this untimely accident has rendered to radio science.

Carnegie was a specially designed boat in every way; she was made as non-magnetic as possible and belonged to the Department of Terrestrial Magnetism, Carnegie Institute of Washington; no iron or steel was used in her construction. The rigging was of hemp instead of steel wire, the anchors were of bronze, and alloys without iron were used for masts and fastenings.

Constructed in 1909, she did not enter in the sphere of amateur radio until May, 1928, when she sailed for a 3½-year world cruise with the call sign WSBS allotted.

Lawrence A. Jones ("LJ") was her operator and many of our members will recall the pleasant chats they had with him during the journey to England from Virginia. In August of last year LJ had to give up his radio work on *Carnegie*, and Stuart L. Seaton (W3BWL) succeeded him.

During 1928 and 1929 she touched many of our outlying ports of Empire and kept in touch with the world *via* WSBS.

The disaster occurred on November 29; Captain Ault, the master, was hurled overboard and succumbed to his injuries, whilst four of his crew were badly injured.

In recording the passing of *Carnegie*, we wish to express our sympathy with the sufferers and desire to convey our deep regrets to the Carnegie Institute in the loss of scientific data which had been collected under difficulties.

J. C.

Trade Notices.

In order to satisfy the demand for larger rectifying valves for all-mains sets which require a liberal amount of power for operation, the Mullard Wireless Service Co., Ltd., have recently modified their DU2 and DU10 rectifying valves, which are now rated to give a maximum output of 75 millamps. The filament consumption and price remain unchanged. The new characteristics are shown below:—

	DU2	DU10
	Full-wave.	Half-wave.
Filament volts ...	4	4
" current ...	1.1	1.1
Anode volts (R.M.S.) ...	250/250	250
Maximum output (mA) ...	75	75
Price ...	20s.	15s.
	*	*

From Lectro Linx, Ltd., we have recently received samples of their engraved insulators. Suitable engraving can now be obtained on their pin, spade, hook and ring terminals, and also on their wander plugs. This system should be very useful where a number of plugs make contact into one battery. Full details are to be found in the latest copy of "A Matter of Connection."

1930

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ENGLAND.



Correspondence (Continued from page 177).

Appreciation.

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

DEAR SIR,—May I be allowed to express an appreciation of the meeting held on November 22?

As one of the "mugs," to use Mr. Griffiths' expression, I was able to understand, and found very instructive, all that was said during the evening. Whether one man's experiences or a technical man's theories, both were very acceptable.

I should like to suggest that, if others are of the same opinion, and I gathered that many were, a meeting might be held, say, during the first week of the month, or as convenient, and not necessarily on a Friday.

In conclusion, I should like to thank G2GF for bringing about discussion on so many different points. I look forward to hearing his account of the proposed "two-volter" hook-up, QRP, or otherwise.

Yours,

R. BECKTON.

Clearing it up.

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

DEAR SIR,—May I take this opportunity of thanking Mr. Connerton (YIILM) for pointing out the unfortunate error which crept into my article as "Curing Interference" in the September "Bull"?

The confusion arose through unwittingly substituting the characteristics of a series resonance case for a parallel one, and also through uncertainty in the points of voltage application.

I would also express my appreciation of GI6YW's kindness in communicating with me direct on this subject, in the shape of a very comprehensive explanation of the two cases.

It has occurred to me that it might be strange that this form of trap should be effective in view of the following:—

Mr. Connerton states that on initial application of the resonant frequency voltage the condenser is charged up. Thus a small current is taken from

the source. I assume that this would be of no importance if the trap were designed to reject an uninterrupted signal. However, during the pauses between keying, the natural losses in the trap circuit would reduce the circulatory currents to zero. Now, this being so, one would expect the condenser to charge up each time the key is depressed, and, furthermore, take a small current from the supply source. This is quite apart from the small current which is taken to make good the losses in the trap. In that case, would one expect a trap of this nature to be effective in eliminating key-clicks?

Speaking for myself, I was surprised to find that it was *completely* effective.

Admittedly I am a low-power man, and should not, therefore, cause much interference, but I would point out that key-clicks were not only very severe in a neighbouring receiver, but also a "swamping" effect was quite apparent.

Yours faithfully,

J. ERIC JOHNSON (G2ZN).

7, Chestnut Avenue, Walthamstow, E.17.

An Honoured Worker.

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

DEAR SIR,—I should like to express, through the columns of the BULLETIN, my very great pleasure and appreciation of the honour that was bestowed upon me at the annual general meeting by the presentation of the Rotab Cup for 1930.

What little services I have rendered the Society in the past, and which I hope to continue in the future, are surely out of proportion with the honour accorded me.

May I express the hope that I shall succeed in living up to the records of previous holders of the trophy.

Believe me to remain,

Sincerely yours,

MAURICE PILPEL.

54, Purley Avenue, London, N.W.2.

NOTES & NEWS FROM THE BRITISH ISLES.

DISTRICT No. 1.

Representative: D. J. BEATTIE (G6BJ), 14, Rosehill Mount, Manchester Road, Burnley. (Tel. 3659.)

G2DH has a portable receiver in Manchester, but has had little time for radio. G6CA has worked his first outside European station—Morocco. 2ABQ has changed over to A.C. His application for full licence is pending. 2AUH is awaiting his Morse test and hopes to be on the air with 2 watts shortly as GC of CB Group 8D (not 2AUT, as in last month's C.B. notes). BRS269—QRA "Oak Hill," 167, Todmorden Road, Burnley—is now G5ZN. Is using a Mazda PX650 in TPTG circuit and would welcome reports. His first QSO's resulted in contacts with HAF, UO and UN. BRS271 has been listening on 28 M.C., but has only heard commercial harmonics. BRS299 and 274 have nothing to report. G6BJ suffered the loss of

three valves, but is using a temporary 0-v-1 receiver. He will be rebuilding the receiver shortly, using indirectly-heated valves.

The next informal conventionette will be held on January 18, at 2.30 p.m., at Ridgway's Café, St. Ann's Square, Manchester. Let me know that you are coming.

DISTRICT No. 2.

Representative: T. WOODCOCK, "Santos," 8, George Street, Bridlington, Yorks.

G5LT has rebuilt TX for QRP on 7 M.C. band, using C.C. testing new RX using valve base coils. Built complete radio gramophone and amplifier, also pick-up ready for QRP experiments with microphone. A new Hertz Zepp has been put up. G5QY in new QRA, but poor aerial. On 14 M.C. Europe was worked. New countries QSO'd, LA on 7 M.C.; EAR, EU, CT, UO and UN all on

14 M.C., using 4 to 10 watts. Separate TX each band, both series fed TPTG. Would like to QSO W and FM. Keen to get going on 28 and 56 M.C. bands. G2FS is active, but has nothing to report this time. G5CX and BRS298 send joint report, which is comprised of station visiting details. Fone is being tried on 7 M.C. by G5CX, and reports wanted from any distance. BRS298 is applying for full licence. G5DR has worked QRP fone 4 watts on 7 M.C. with Germany and various Europeans, getting good reports of quality, etc., after rebuilding. No QSO's on 14 M.C. band. Says conditions greatly improved this month. G6PS is ultra-QRP on 7 and 14 M.C. bands. Best DX being SP3WR, using .2 watt and getting an R6 report. OK on .4; R4 to 5 report LA on .3; R4 report. H.T. is 40 volts H.T. accumulators and CT25X valve. Aerial Hertz $\frac{1}{2}$ VF on 14 M.C. Notices improved conditions for DX. Heard F8DT on 28 M.C. at R6. Now moved into new shack with mains laid on. G6XC has been busy with commercial crystal and various frequency doubling systems for last two months, including the Goyder lock method, but returns to a new TX still self-excited, with DET1SW valve on 14 M.C. Changed aerial to $\frac{1}{2}$ wave Zepp. No VK or ZL QSO's, but W and YI were worked earlier this month. An outstanding QSO was one with AP7AX on 7 M.C. (R7) on a very poor aerial system. G6DR is busy on QRP with H.T. accumulators; on 14 and 7 M.C., and finds conditions good (since the Zepp. R100 left his QRA (Howden)). Hi! G6UJ has done some good work, having QSO's with three ZL's, using 8 to 12 watts on 14 M.C. and current-fed aerial system. Most of Europe has been QSO'd on 7 M.C. also; a QSO with Asia will qualify him for W.A.C. certificate. BRS290 has little to report. 28 M.C. receiver not yet completed, but on 14 M.C. heard VE1BR (R5) and VE5AW; also ZS4M, ZS2N, VQ2BH, VU2BR, PY1AH and 2AK. G2UG has had an interesting 7 M.C. QSO with CN on QRP. BRS270 has now arrived and settled down at his new QRA (Doncaster) from Scarborough, but RX is not fixed up yet. Proposes sending application for TX licence (as he is quite an old hand as a BRS). G6NG has his mast down and is not sorry, as the recent gales have not caused the anxiety to him which most others will have felt. G6OO has received W.A.C. certificate from U.S.A. after qualifying early this year. Finds DX conditions good early mornings. QSO'd two ZL and one VK on 14 M.C., one QSO using 8 watts. Is on the air daily on 7, 14 and 28 M.C., and finds great absence of G sigs on 7 M.C. Wishes all in District No. 2 a very happy New Year and thanks all for their support, which he hopes will be amplified in 1930.

DISTRICT No. 3.

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

First, many thanks to all that have sent me congratulations *re* the Wortley-Talbot Cup. Now we are embarking on another year's work, I hope it will be a successful one for all, but do not forget to drop your District Representative a note each month advising him of your work, please.

G5FC is now only active at week-ends. He worked AU8AT (Turkestan), and has now three continents and 24 countries, still on 7 M.C. 2BHI. —Very little done during the month, W's only

having been logged. G5US.—Has found 14 M.C. very quiet. The usual 7 M.C. work done, and has now got over his rectifier troubles. G2OA now has 200-volt H.T. accumulators, and finds them better than dry batteries. With less than 5 watts he has worked 1st and 2nd W districts and most of Europe. He is trying fone on 1.75 M.C. with grid modulation, also changed from the Hartley to the Ultraudion circuit as he finds that it oscillates much stronger. G6TW is going strong on the 56 M.C. work, but has found time for the usual 7 M.C. phone work. Had much trouble of late with valves running soft.

DISTRICT No. 4.

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

All the best wishes for 1930 to all old and new friends. Conditions in the evenings are still moderate, although early morning and late afternoons are exceptional for DX. G2AT is back at old QRA, and owing to shortness of ground has fallen back to his old aerial. Nothing outstanding to report. G5CY reports very little radio done owing to business QRM and overhauling; again rebuilding receiver. G5BD not satisfied with 1.05 metre Zepp, although VE5AW (Yukon) on 14 M.C. and Iraq on 7 M.C. have been worked. Exceptional DX logged at all times, South America only being reliable. 2BIC has heard all continents on both 7 and 14 M.C. bands, but reports bad fade out after dusk. G6HK has at last found a crystal to give harmonic control in the 7 M.C. band, and is on the air again.

DISTRICT No. 6.

Representative: R. C. HORSNELL (2ABK), "He-pani," Guernsey Gardens, Wickford, Essex.

I expect the Christmas rush is to blame for the scarcity of reports this month. Only three are to hand. G2SA has been mostly on 14 M.C. and worked VE5AW on 7 watts; some aerial tests also made, but $\frac{1}{2}$ -wave Hertz has been re-erected. G5RV has only been on the air once or twice. Contemplating a complete rebuild after Christmas, he still wants and welcomes BRS reports; all are acknowledged. G2XV has been re-designing his station for all frequencies, and has scrapped all high-power valves, and has nothing larger than the LS5 class in use now. BRS233 and BRS191 both are active, but no special reports are to hand. 2ABK has been busy on 28 and 56 M.C. Conditions good on 28 M.C. all the month, both local and DX.

DISTRICT No. 7.

Representative: H. C. PAGE (G6PA), Newgardens Farm, Teynham, Kent.

Reports are rather scanty this month, but I think this is partly due to the poor operating conditions which have been experienced lately. G2RM is now working on 14 M.C. He has a high-C Hartley set with 260 volts of H.T. from mains and accumulators. Despite the poor conditions, he has worked YI. G2DT has been having trouble with his aerials. They all came down as a result of the little breezes we have had recently! He is going to rebuild his receiver. At least, one of them! G5UY is building a valve base receiver, and is getting on well with the rebuilding of his transmitter. He has worked a few European DX stations on 7 M.C. A new aerial is to be erected shortly. G2AX has been having more trouble with his note. However, he has overcome that now, and hopes to do some DX soon. He has

confined his activities to the 1.7 M.C. band, but says the mush after dark is simply appalling. G2RT is now working with a RAC supply, and hopes to be able to get a T8 note out of it soon. He reports conditions poor, but has been able to raise Y1 on 7 M.C. He has got a G.P.O. Duplex key and finds it very fine. G2DZ has found conditions very poor on 14 M.C., but says 7 M.C. is getting better. G5CM has been working Europe on 7 and 14 M.C. Has been trying G2VV's V.F. Hertz, but has gone back to his original aerial. With 2 watts to his receiver-transmitter he has worked a French ship in the Channel. He thinks of rebuilding soon. G2VV has only been working on 7 M.C. He reports conditions improving on this frequency. Has been busy constructing a "BCL QRM eliminator," and hopes it will prove efficient. BRS287 is busy building a screen grid S.W. receiver. He has only been able to listen to a few local stations working on 1.7 M.C. G6PA has entirely rebuilt his three transmitters in the last fortnight. Has been getting some good reports on his fone work on the 1.7 M.C. band. A microphone amplifier has been installed, and has proved very efficient. Has found conditions on 14 M.C. hopeless, but 7 M.C. quite useful.

DISTRICT No. 9.

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

Conditions during the month have been very patchy. During the fog on December 22 a large number of G stations were heard on 14 M.C. I have to acknowledge with pleasure visits from G2CJ and G6XN.

G2CJ has been on 14 and 28 M.C. and worked W2JN at 15.00 G.M.T. on December 22 on the latter band. Is leaving for London early in January and will therefore be heard only occasionally during the coming year. G2LV best DX on 7 M.C. SU8RS is also on 1.75 M.C. weekends. G2OP is on 14 M.C. and has been testing out a Byrne Brooke aerial. Best DX during month VQ4. G2OZ has again lost his mast in the recent gale, but with temporary aerial 9 ft. high worked 200 miles phone at R5 on 7 M.C. at 4 watts. G5QA has found conditions very bad. Best DX during month, four W stations. G6RB has W.A.C. again this month in spite of bad conditions. Best DX was VK, ZL, CE, VE4, on 14 M.C., and W9UM and VK3PP on 7 M.C. Reports unusual QSO with CE2AB on 14 M.C. at 09.35 hours. G6XB is doing much rebuilding and hopes to be on 1.75 M.C. on Sundays. Is looking for better conditions on 14 M.C. The B.R.S. stations have apparently heard nothing of interest as none have reported.

DISTRICT No. 10.

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

Congrats. to G6UN on raising India, Canada and Newfoundland during November and December, when conditions were generally poor. G5UM has little to report; he considers that a new or small moon denotes favourable conditions on 1.7 M.C. Comparative tests with mains and battery supply to the C.O. showed that 0.5 watt gets out R.6 at five miles using batteries, but on mains using 6 watts the strength increases to R7 and radiation increases tenfold. G6PP has had a new aerial erected by G6XN. It is 34 feet long half-wave Hertz, with a

single wire feeder tapped 5-36th from one end. European reports are better, but no DX has been worked, so a true comparison is not yet possible. The new aerial is more directional than the old cage. G6CL has had little time for experimental work, but fone has been tried with fair success on 14 M.C. DX is elusive on the new transmitter.

BRS272 has been rather inactive owing to illness, but is now waiting his full call sign. His receiver has been recently flooded.

DISTRICT No. 11.

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

Reports are very scarce again this month, and I have had to do a fair amount of "inventing" in cases where I know that people have been active.

BRS25 has logged W9BYC (Colorado) and VE4BQ on 28 M.C. He also reports hearing the first U.S.A.-Scotland QSO on that band, between W2JN and G6KO. BRS190 has also been going well on 28 M.C. He, too, has logged VE4BQ, and, I believe, since writing his report, ZS4M. He is very keen on 56 M.C., although he has not yet had an opportunity to do any daylight listening on that frequency. BRS250 is trying to fix some 28 M.C. skeds with W7 stations at 16.00 G.M.T. or so. Good luck to them, O.M.! It will be a feather in your cap if they come off. G5SH apologises for lack of material from which to write reports, but hopes to be on again occasionally in spite of lack of spare time. G6KM has a new half-wave Zepp for 14 M.C. and has worked SU8WY. He says conditions are terrible on that frequency and nothing like we used to get two years ago. How's this, G6KM? I thought they had been exceptionally good all the year! G6QB has got C.C. going on 14 M.C. and the best QSO so far is W6BAX in the afternoon, giving R7 with echo like WIK! G6HP and G5WK are also on C.C., all three stations using "Goyder lock" systems in some form or other, still in the experimental stage and varying daily. G6WY, on the other hand, has pushed up his power and made the note decidedly *worse*! When are we going to hear a T9 signal from Forest Hill? G6NF is also active with C.C. on 14 M.C. and seems to work everything he hears.

DISTRICT No. 12.

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

G6LL on 28 M.C. is working W2JN every Sunday on regular schedule. They are out to find out how long signals are audible on both sides of the Atlantic, also to study fade-out periods. G2NU reports conditions on 7 M.C. as bad, on this wave, however, he is working on schedule with a Swedish ship which is now in mid-Atlantic. G6UT has only European contacts to report. G5PD is still inactive as a transmitter, but can show super-reproduction of broadcast. G6TX is to be congratulated for having passed out as operator (W/T) to the Auxiliary Air Force; he is also busy fixing up power supply at new QRA, where the mains are A.C. G6LB has had all his gear waterlogged and is consequently drying out and rebuilding.

DISTRICT No. 13.

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

May I take this opportunity to wish everyone the best of success in 1930.

There will be another "get together" at my address on Sunday evening, February 2, so make a note of the date.

G2BY, a new reporter, has done a little DX and is experimenting with aërials. Found 14 M.C. dead and has been doing 'phone work on 7 M.C. G6CO has been testing harmonic crystal control with only T8 reports; finds it difficult to work stations on 7 M.C. G6VP, after being flooded and having to find new mast, raised LU at 08.30 G.M.T. His aerial is 52 ft. high, east end dropping to 35 ft. west (home) end, with top span of 70.2 ft., and his signals are now reported much louder to the west. G2OL has had two QSO's on 28 M.C.; has been experimenting with ultra QRP; worked G6WN with 4 volts at $\frac{1}{2}$ M.A.; is testing on 56 M.C. G6WN has power back again and is spending Sundays on 28 M.C.; a little is being done on 7 M.C., but 14 M.C. is nearly dead.

DISTRICT No. 14.

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

On this occasion the reports submitted, with one exception, contain nothing of general interest, and I do not therefore propose to take up valuable space by particularising.

The November-December period, in the matter of general conditions in Scotland, has been almost uniformly bad on practically all the bands. With one exception nothing notable has been achieved. This notable exception is the case of G6KO, who, after spending many fruitless hours on 28 M.C., has at length succeeded in making contact with W2JN, also getting an R7 report from him. This constitutes the first 28 M.C. QSO from Scotland, and on behalf of the area I offer G6KO our congratulations. Further congratulations are also due to him on the occasion of another addition to his family—a YL this time.

G6WL leaves on December 27 for a trip to America and Canada. He is taking a S.W. RX with him, and has arranged listening schedules with several Scottish stations.

There has been a good deal of talk lately in "A" District regarding the efficacy of an aperiodic screened grid H.F. stage to the RX as a means of obtaining silent "background" and stability. This system is strongly advocated by Mr. F. Dearlove, late of VO8AE. G6WL, who suffered badly from body capacity in connection with his RX, has tried it out and is loud in its praises. Amplification, of course, was not sought, but the H.F. stage used in this way does amplify to a certain extent, and is invaluable for cutting out "mush."

G2MA's aerial came down in one of the recent storms. It fell across a roadway, and apparently had an argument with a motor vehicle during the night, much to the detriment of the said aerial.

Our two new stations, G6RG and G5DK, are reported "going strong" on the 7 M.C. band. "RG" is on 'phone and is getting glowing reports.

G6IZ, after remaining silent for many months, writes to say that he is entering the bonds of wedlock in a few days and that after December 28 his address will be: Tullos House, Nigg, by Aberdeen. (QRA Department, please note—G5YG). We wish you prosperity and happiness.—"IZ." (H.Q. unite in wishing him every success.)

G5YG, in company with Mr. F. Dearlove, has

been investigating the problem of QRM to badly-designed broadcast receivers, and expect to have something interesting to say on the subject shortly.

At the moment of writing I learn with regret that Jack Wilkie (G6WZ) is lying in hospital gravely ill with pneumonia. I am sure we all extend to him our heartfelt sympathy and hopes for an early return to health and strength.

DISTRICT No. 16.

Representative: C. MORTON (GI5MO), "Simla," Glastonbury Avenue, Belfast.

There has been very little activity in this area during the present month, and little or nothing of interest in the reports received. GI2CN is working on 7 M.C. with hand generator and still awaiting the A.C. mains. GI5HN reports good conditions on 14 M.C. during the afternoons. He has completed a new screened receiver and says the results are well worth the trouble. GI2WK is inactive, but hopes to be on again soon. GI2KN has been working for about a month now and reports contact on 14 M.C. with most European countries. GI6HI is still working on 28 M.C., but sends no report, although I have heard his signals. GI5MO has been on low power on 14 M.C., and during the day on December 22 was able to work several G stations on this band. The A.C. transformer broke down and a good deal of time has been spent winding new coils. GI6YW has done a little 14 M.C. work. GI6WG, GI5WD, GI6MG, GI6SQ and BRS251 are all inactive.

B.E.R.U. News. CANADA.

Ex-G2WR, now living in Toronto, Ontario, has built a 30 watt transmitter, employing a UX210, and is now waiting for the word from the authorities to go ahead. He is anxious to get in touch with G amateurs and hopes to take part in the A.R.R.L. tests in February next.

IRISH FREE STATE.

Representative: COL. DENNIS, Fortgranite, Baltinglass.

Although during the early part of the month conditions were still bad, especially on 14 M.C., they seem to have improved gradually, and although the writer still finds them very "patchy," some good contacts have been made by EI stations, notably by EI8B with ZL; EI8C with ZS; and EI2D with Rhodesia, the last two being the first contacts of EI with the countries named. We have lost EI5C (temporarily, we hope), who has given up his licence, but, on the other hand, EI2C is again active after a long period of inactivity, and EI3B, the W.S.I. operator, has got the new transmitter going, and we hope for great things from it. EI7C, to whom I am indebted for much of the material for these Notes, has been listening on 28 M.C. at such times as could be spared from hospital work, but beyond hearing a couple of W stations has nothing to report on that band.

A happy New Year and the best of DX to all.

NEW MEMBERS ARE WANTED

SOUTHERN RHODESIA.

By E. G. LIVESEY (FO3SRB).

The following stations are active in South Rhodesia: 3SR, 6SR, 9SR, 5SRA, 3SRA, 2SRA, and 4SRB. All the above are using comparatively low power transmitters. FO3SRB is on QRP (about 10 watts), but a high power set is under construction. Special transmissions to British stations will be made on 21 metres at the under-mentioned times:—

Week-days: 17.30 to 19.00 G.M.T.

Sundays: 05.00 to 06.00; 07.00 to 08.00;
09.30 to 10.00; 15.00 to 16.00; 18.00 to 18.45 G.M.T.

Our main 7 M.C. work is done between 04.00 and 05.30 G.M.T. and from 16.00 to 18.00 G.M.T. For European contacts 17.00-20.00 G.M.T. is the best time at this time of the year.

Plenty of North Americans are heard on 14 M.C., but no contacts are reported.

INDIA.

By R. N. Fox (VU2DR).

Up to the end of October all DX stations on 14 M.C. were conspicuous by their absence. At the beginning of November England, South and Central Africa, Asia and Australasia were heard in the evenings up to about 19.00 G.M.T. Chile and Argentine were heard in the early mornings, but conditions were bad and stations were few. All the same, VU2DR managed to work three Chileans, which lie almost at his Antipodes. VU2KT has left India for Shanghai, and is supposed to be in operation there with the call XU2UU. G2NH is the best G station received, with G6NF a close runner-up. VU2DR is still after his W.A.C. certificate, but W is a bad stumbling block. Members abroad would be very pleased if some of the G crystal experts would write a very comprehensive article on C.C. for the BULLETIN. No details should be omitted, as the majority of us are quite without experience in this subject.

SOUTH AFRICA

By W. HEATHCOTE (ZT6X).

Reports from all Divisions indicated that DX conditions had to a great extent improved during November, although my personal experience has been that European stations have been as scarce as 3d. pieces in a Scotsman's Christmas pudding. Hi! The other continents have been worked with ease.

The 7 M.C. band is particularly active, being mainly used for inter-divisional use. Several members report having worked DX during the past month. ZS6D has his crystal working well, whilst a number of others intend installing crystals at an early date. The 14 M.C. band is mainly used for DX; ZS1T has also gone over to C.C. ZS4M, ZU1D, ZU6N, ZU6X, and ZU6W are very active just at present, and all report good results. ZT5X has worked VS7AP with an input of under 3 watts; this is a fine performance, as ZT5X, being a bridge builder, and having to shift camp occasionally

cannot always manage to find a suitable spot to erect his aerial.

On 28 M.C., ZT6C, ZT6K, ZS5U, ZS2N, ZS4A, and several others have been actively engaged in carrying out experiments. ZS5C reports having heard W2JN at R5, KZZ at R4 (C.C.), ZT6K heard VE4BQ, working W2AQB (these sigs, he says, were the best heard so far), G2OD was heard up to R7 at times, but his note was rather wobbly. W2NM was also heard calling "test." ZT6K mentions that he has rewound the coils on his Pilot Wasp (what's that, OM?—ED.) and that the set is working very satisfactorily on 28 M.C. The usual plug-in coil was wound with 1—3—2 turns and covers from 9.5 to 12.5 metres. ZS5U has received a report from the States on his 28 M.C. transmission and ZT6C has been heard in "G." Under the capable guidance of ZT6C and ZT6K we hope to obtain some useful data on 28 M.C. operation in the near future. O. M. Owen (ZT6C) has offered a prize for 'phone transmission on this band, and quite a number of members have intimated their intention of participating.

Any members of R.S.G.B. or B.E.R.U. wishing to carry out tests on the 28 M.C. band should get into touch with ZT6C, Mr. H. R. Owen, 4, Osprey Street, Kensington, Johannesburg.

QRN on all bands has been very bad, more especially so on the high veld.

A number of members have managed to QSO all continents recently and have thus qualified for their W.A.C.

NEW MEMBERS OF B.E.R.U.

ZU6W. N. H. Auret, 30, Newport Road, Parkwood, Johannesburg.

ZS6M. W. Gray, Box 4,020, Johannesburg.

ZT6S. W. Todd, Box 5,439, Johannesburg.

ZT6F. Raymond Coombs (Hon. Organising Secretary of the S.A.R.R.L.), Box 7,028, Johannesburg).

(Congrats to Mr. Heathcote on his energies to further the cause of the B.E.R.U.—H.Q. Staff, London.)

Notes and News from Europe.

BELGIUM

By PAUL DE NECK.

During November and December many of our amateurs left 14 M.C. and returned to 7 M.C. as conditions were bad, but some who remained had very good results.

ON4UU has now completed his 'phone W.A.C. by putting good speech into New Zealand.

ON4JA made the first Belgium contact with the Ascension Islands, whilst ON4RE worked the New Hebrides; ON4FP has raised Japan with 80 watts. Real DX on this band was only possible at about 07.30 G.M.T. except W6 and 7, which have been heard at about 15.00 G.M.T. We are now placing on record the list of our men who have worked the most countries; ON4FP is expected to lead with a total of 66 countries. Our greatest difficulty is to know how to count up!! We shall be glad to hear what our R.S.G.B. friends think about this

task. Who has worked the most countries in the world?

We suggest that I.A.R.U. publish yearly a list of top-notchers and also guide us as to what countries shall be counted.

We feel, too, that the time has come when each national section of I.A.R.U. should be given power to issue W.A.C. certificates.

(Mr. Paul de Neck's remarks will be considered by the R.S.G.B. Committee, as we feel that the time has come when action should be taken to make use of our I.A.R.U. status.—Ed.)

SPAIN.

By A. C. WILBERFORCE (ex EARW).

The Short Wave Convention held at Barcelona last November was the greatest event in the history of the E.A.R.

During the Convention, which was presided over by the Governor of Barcelona (representing General Primo de Rivera), and in the presence of the city authorities, both military and civil, lectures were delivered by Monsieur René Mesny and Senor Moya, as well as by other well-known radio experts.

I dare say that many amateurs have been puzzled by the call-signs used by Spanish amateurs. EAR and a number is an officially licensed amateur transmitter. EAR and a letter, such as EARW, is an amateur transmitter who has not yet received his official licence, but is registered by the EAR for the time being.

EAR94 has again succeeded in making a 'phone QSO with ZL2AB, and reports from New Zealand show that EAR sigs are among the best European ones received there.

A growing interest is being shown by Spanish amateurs in television and telephotography transmissions. The Spanish amateur receiving station EO57 is making regular reports to the British G.P.O. on the special atmospheric investigation tests from 5GB.

DENMARK.

By H. PETERSON (OZ7S).

During November little DX was heard on 7 M.C., except between 00.00 and 04.00 G.M.T., and then only QRO Americans; on 14 M.C. Australasia was weak during the mornings, but VK at about 14.00 G.M.T. was very good. After 18.00 G.M.T. the band became "dead." Local stations were, on the whole, stronger than usual. No reports are to hand regarding 28 M.C. contacts from Denmark.

NORWAY.

By G. H. PETERSEN (LA1D).

During November many Norwegian amateurs changed to the 14 M.C. band, and almost unanimously stated that conditions on this band were good. LA1G reported working New Zealand every Sunday morning 07.00-09.00 G.M.T., but nothing was heard from VK during this period. He mentioned that some W stations were generally heard between 13.00-16.00 G.M.T., but no stations were worked. There were few reports on the 7 M.C. band as conditions have been bad. News has come from Hartford that the N.R.R.L. has been elected as the Norwegian National Section of the I.A.R.U.

At headquarters we have been discussing and studying the results of the Hague Conference and preparing to meet our authorities in December, as our licence conditions will have to be revised. In view of the position of several European Governments towards amateurs, we cannot under-estimate the importance of the A.R.R.L. representation at this conference and their work for the amateurs.

CZECHO-SLOVAKIA.

By L. VYDRA (OK2YD).

We take this opportunity of congratulating our Czechoslovakian friends on obtaining official authority to transmit, and hope that the removal of restrictions will result in a steady influx of serious experimenters into the ranks of the amateurs of that country.—(Ed.)

We have the pleasure to announce that our authorities have decided to issue licences for all amateurs over 21 who satisfy the Posts and Telegraphs Department that they are suitable persons to be granted such facilities. The new licences will probably be issued as from January 1, 1930. Owing to many of our leading amateurs being high school students the general activity has fallen off, especially in our second district. The 7 M.C. band is still overwhelmed with badly-operated stations and rendering the reception of low-power British stations difficult. Occasionally VK and ZL stations were received in the early morning. The 14 M.C. band continues to provide a little DX. Low power was not so effective as in previous months, but our high-power stations report that VK and ZL were easily workable, but K1 was inaudible and PK very weak. China and Japan were worked regularly, but nearer Asia was almost "dead." We found that 12.00-15.00 G.M.T. was the best period for Australian contacts. Fade-out occurred at the later hour, after which only very weak South Africans were audible. This is still our most difficult QSO, only two or three contacts having been made during the past four years.

North American stations were again absent, the only station being heard one morning being VE5AW.

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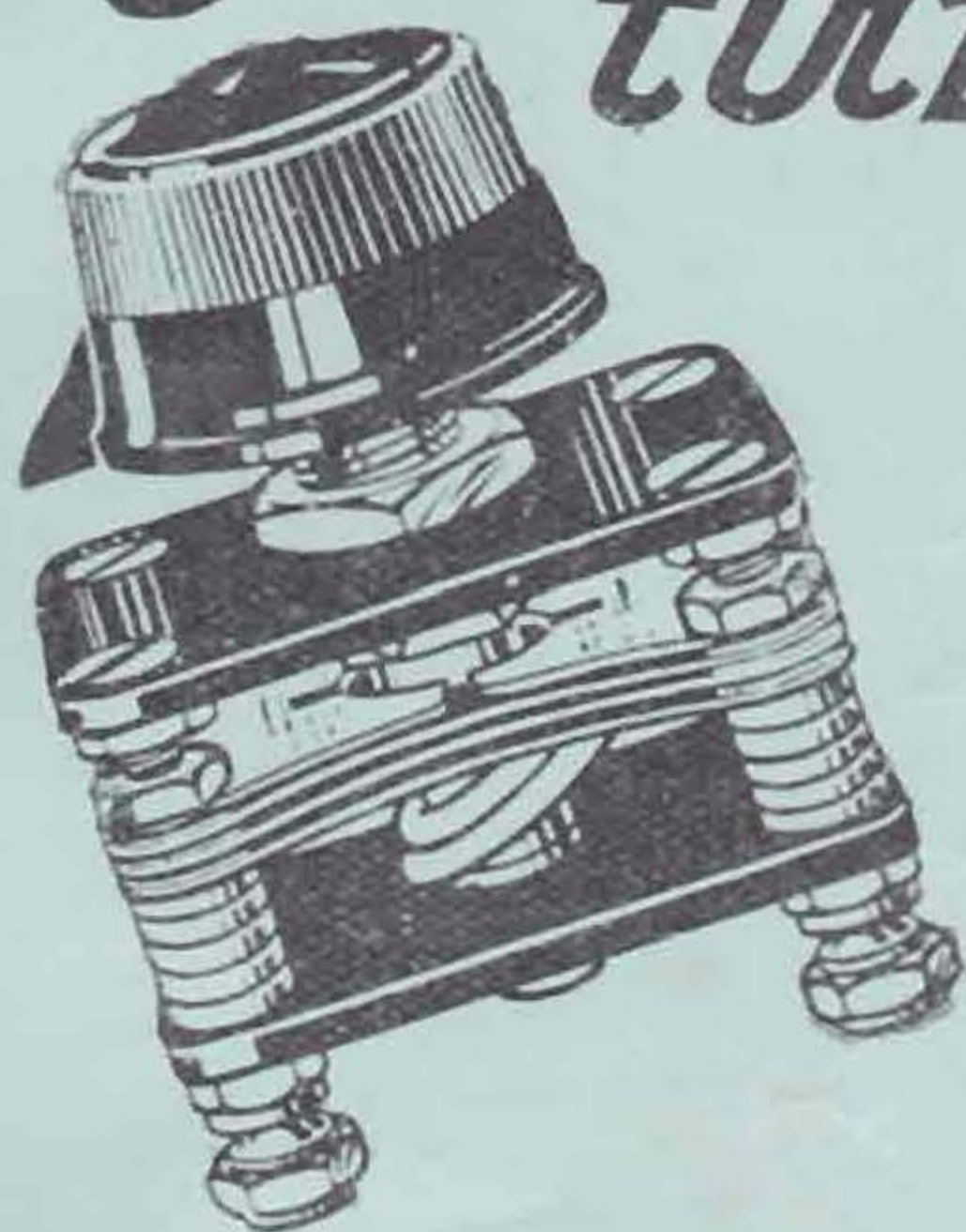
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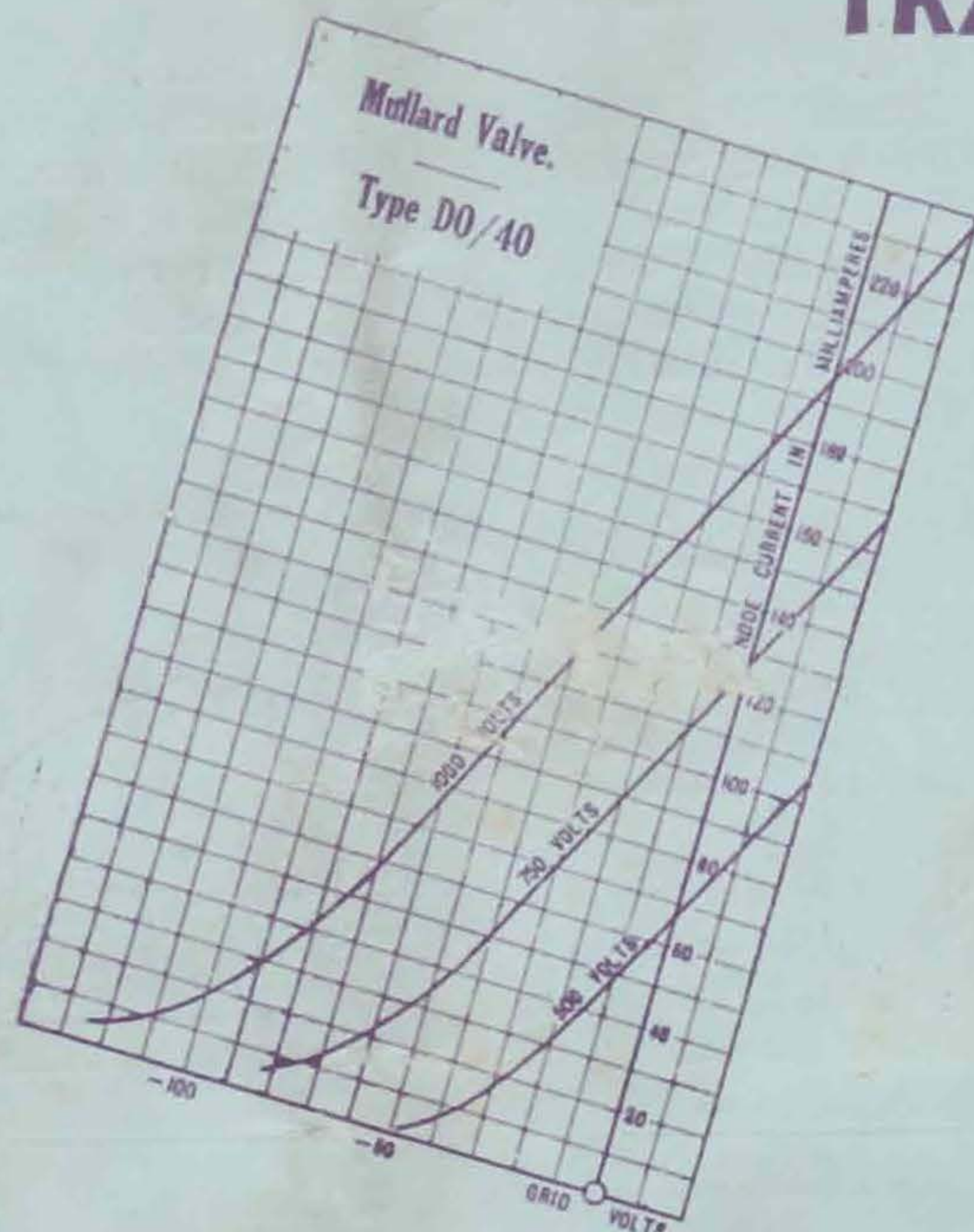
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