



T. & R. Bulletin

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The Journal of the Inc. Radio Society of Great Britain

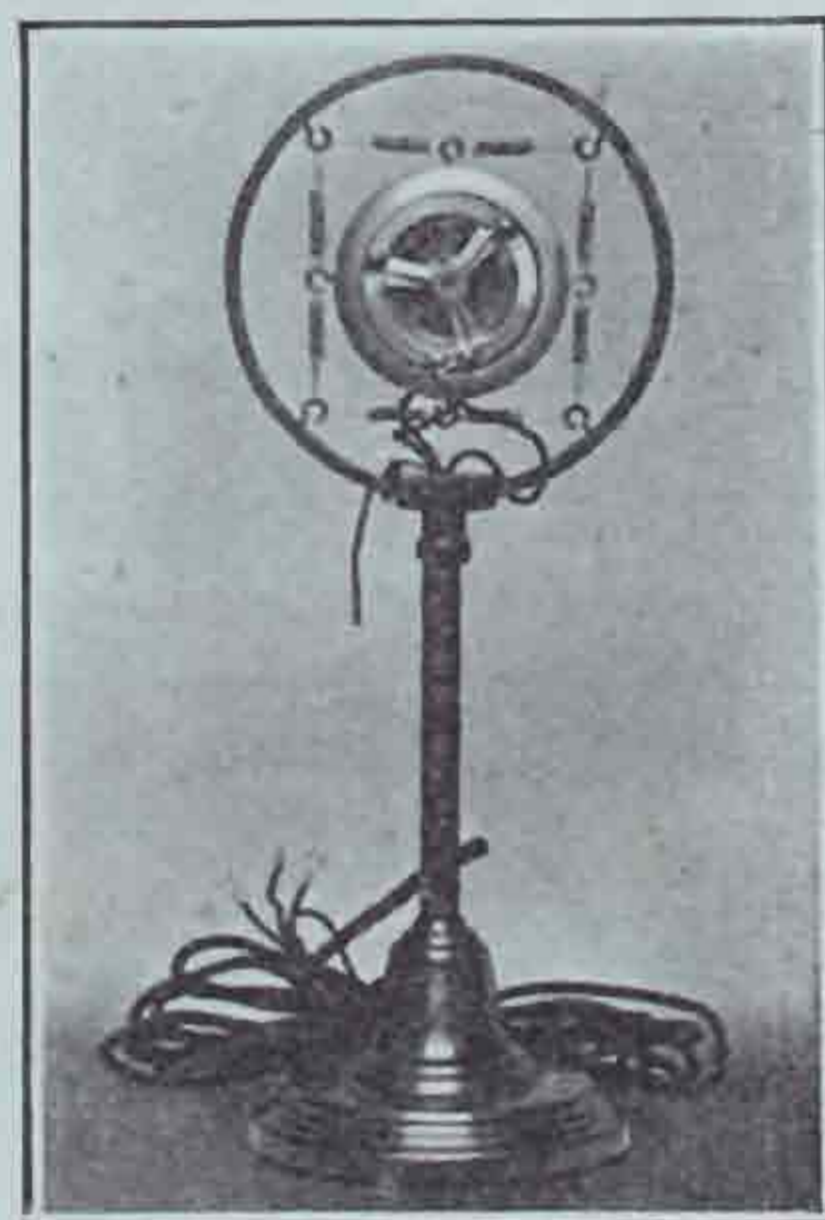
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Vol. 5. No. 4.

October, 1929 (Copyright)

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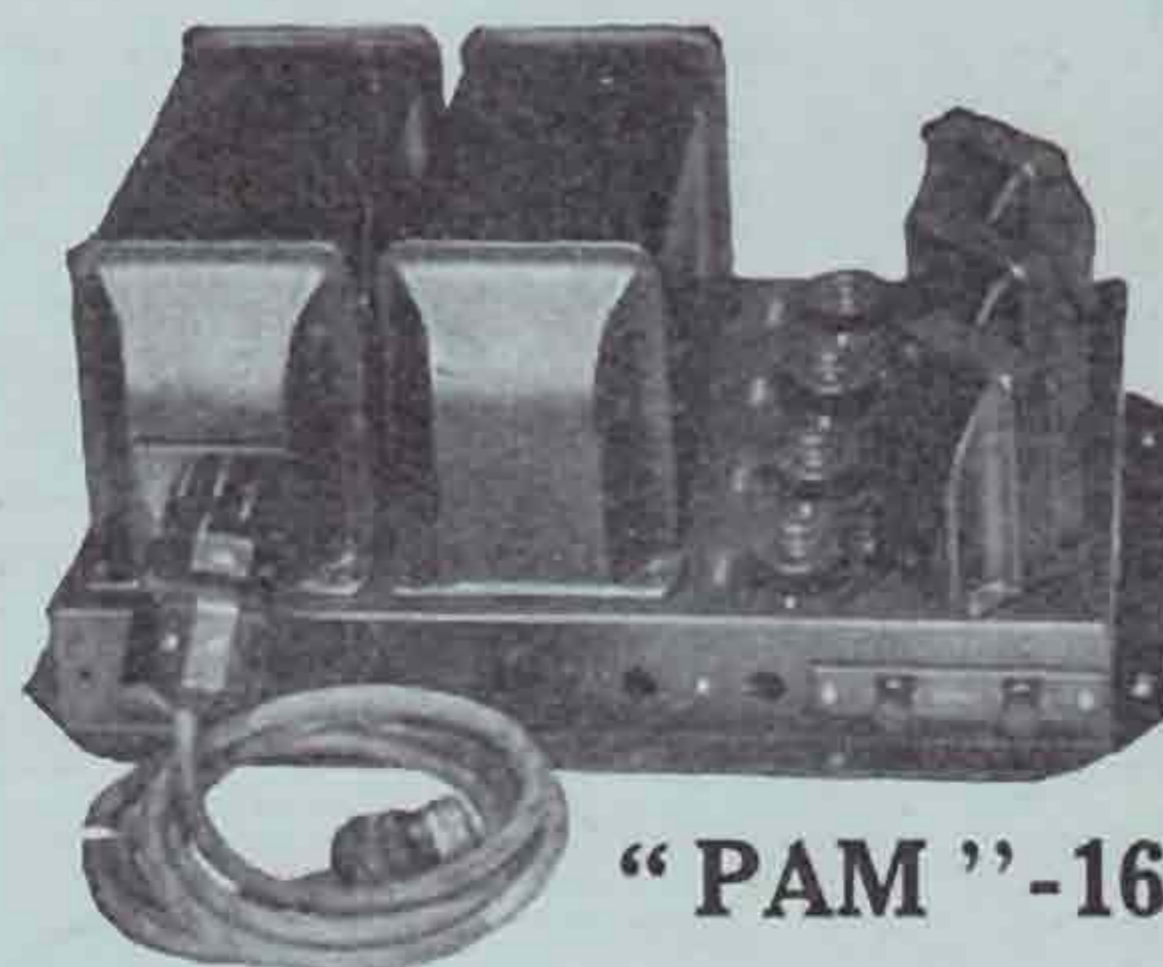
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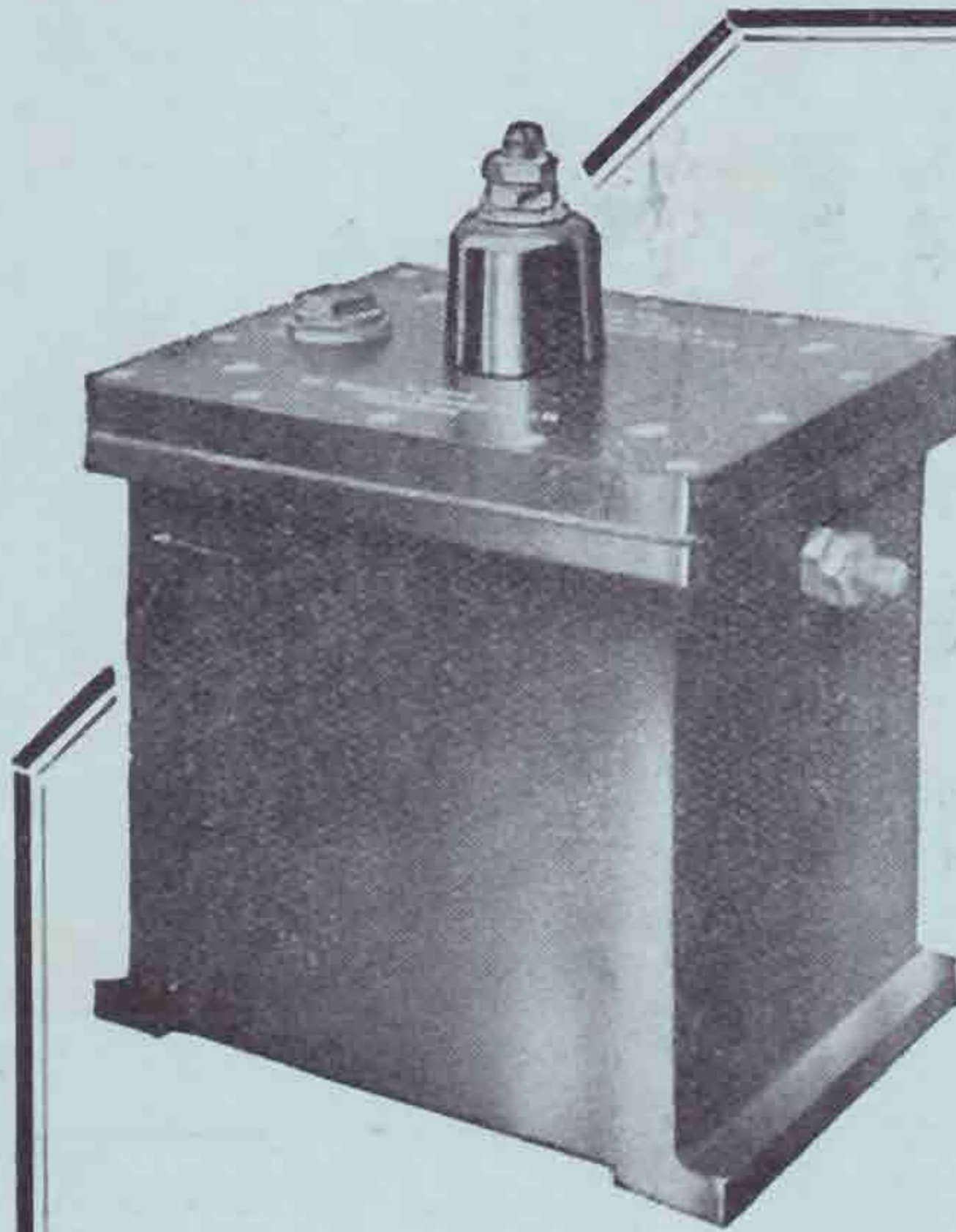
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BULLETIN.

The only British Wireless Journal Published by Amateur Radio Experimenters

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OCTOBER, 1929.

Vol. 5. No 4.

EDITORIAL.

The Coming Season.

WITH October returns our interest in Radio ; not that we have lost touch with the subject during the past few months, but there are some who regard this hobby of ours as more suited to the winter than to the summer. There is no time like the present for laying down our " new season's " resolutions, but we must not forget them in a month's time.

Amateur Radio goes through many changes in the course of a few years. In a similar way and as a result therefrom, so the membership of this Society changes. Some go and more come. The old key-punchers of 1920 are not all active transmitters at the present time ; where some have dropped out of the game, new transmitters with 1929 ideas have taken their places. Nothing stays still in the world ; amateur radio will never stop, and, hand in hand we, Amateur Radio and this Society, go forward. We have no room for grouseurs or for those full of rash promises. We want an active and satisfied membership : we have had this in the past, but we want a more solid backing this year than we have ever had before.

Now when you read this just think for a minute : what are your obligations to your Society ? They are too numerous to mention, but we are going to remind you of just one or two. Don't for one moment think that your obligations end when you have paid your subscription. You have chosen a fellow member to look after your interests on Committee ; don't fail to keep in touch with him. He asks for a line or two once a month, giving him any news of interest about your activities and asking him to pass along any grouseurs to the right quarter. You

have elected your Representative—see to it that he does not shirk his work. If he is not doing his duty to you, you are entitled to elect a new man to represent you. Most of the work in the Society is done in an honorary capacity. Don't make life too hard for those who are trying to serve you; possibly they like to turn their own condensers occasionally and listen to the world, but their duty to the Society comes first and often takes up many hours of the evening. You all know when your subscription is due. It is all very well to wait for the final demand note in other matters, but such stupid laziness or apathy is not conducive to promoting a better feeling between Headquarters and the members.

Contact Bureau needs a greater support. Probably the Honorary Organiser will say he has little time on his hands now. We do not necessarily mean greater support numerically, but rather 100 per cent. enthusiasm for all time from each individual member. If C.B. is to keep its present unique position, it must have full unmeasured support from every one of its individual members.

Another duty of every member is to adhere to the terms of his licence. The Post Office recognises the Society as the representative of the British Amateur. Any violation of the licence conditions by a British station throws discredit on the Society: our prestige goes down, and we shall not then be able to say that the technique and general operating ability of the British Amateur is unquestionable. And unless we can say this and be believed, all our cherished hopes of obtaining better conditions for the British Amateur will be as castles in the air.

Your new Committee, elected at Convention, enters its year of office this month. Upon suggestions put forward to you at Convention you elected Mr. Arthur E. Watts (G6UN) to serve on a newly created post on Committee: he has been elected as Publicity Manager to the Society. This will embrace a phase of work hitherto seemingly neglected by the Society, though Mr. Watts has been working hard on the publicity side for some time now. He will do his best in future to advertise the Society both at home and abroad, and try to get home to every active amateur in every part of the world, especially in the British Empire, that membership of R.S.G.B. is something to be proud of. We hope by this means to penetrate to the remote corners of the world, and in time we shall see all the active stations in the outlying parts of the British Empire enrolled as members of the British Empire Radio Union.

Your Committee looks forward to support from every single member of the Society. Your 1929 Committee passed away in September; its motto was Progress. There can be no more suitable motto for the 1930 Committee, but it must be clearly understood that a Progressive Policy needs the individual support of the entire membership. We are all working for a common cause—the betterment of Amateur Radio, both in England and, through the B.E.R.U., in the British Empire. Our European members, however, must not think that they are being left out: the Society is in constant touch with the other Continental Radio Societies and with the I.A.R.U. Wherever you may be situated in the world, let us have your ideas, your praises, your grouses, but, above all, your active support.

Forthcoming Events.

Friday, October 18, at the Institute of Electrical Engineers, lecture and demonstration by Mr. W. F. Floyd, G5WF. Subject: "Ions, Electrons and Ionising Radiations and their Applications to Radio." 6.15 p.m.; tea at 5.30 p.m.

Friday, November 22, at the I.E.E. Debate: subject to be announced later.

Friday, December 13.—Annual General Meeting, to be followed by a lecture and demonstration by Dr. N. W. McLachlan. Subject: "Experiments in Tone Control for Electric Gramophones."

Northern Area Conventionette.

A conventionette was held at Manchester on Saturday, August 31, and a visit paid to the Generating Station at Stalybridge. This is one of the most efficient in the country, and, with the chief engineer as guide, the party was given several interesting demonstrations and much information. Tea and a discussion took place at a local café, where aspersions were cast upon a certain member's AC note! The party consisted of G2VP, G5FC, G2CG, G2GA (ex BRS90), 2ABQ, 2AUH, BRS26 and G6BJ.

It is proposed to hold the next Northern Area Conventionette on Saturday, 26th October, to be co-incident with the Manchester Radio Exhibition. Will all interested please write without delay to G6BJ, 14, Rosehill Mount, Manchester Road, Burnley.

Committee 1929-30.

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Modern Wireless Control.

By MAURICE GIBSON (2BAA), F.T.S.

It is extremely difficult to understand why more experimental work is not done on wireless control. This subject is by no means more complex than television, but in spite of this it has never had such an impetus as the latter. Since Major Raymond Phillips commenced his experiments in 1910 the science of wireless has been revolutionised, and yet we are no nearer to practical control of machinery by wireless than we were then. The old systems using spark coils and coherers were full of limitations and difficulties.

In spite of these difficulties I do not think that any experimenter of long standing has not at some time or other worked with wireless control. But unfortunately in most cases it has been with the old coherer-spark coil system that he has been disheartened. Now, with all due respect to the first-class research performed on crystal controlled short-wave transmission, I should like to point out that it would be a pity to specialise too much on transmission and reception. If we glance through the pages of QST we shall see that this is what our American friends are apt to do. The science of wireless is not now one of mere communication, but a means of controlling and changing the destiny of the whole world. Smart handling of amateur radio relay traffic and design of super-efficient stations is very creditable, but it is not research. In the third part of my article, "D.E. Valves as Laboratory Oscillators," I have shown how the selectivity of C.W. transmission is of vital importance in selecting circuits for wireless control. By using super-selective valve receivers with a C.W. "controller" the possibility of interference can be eliminated.

enclosed relay was originally used for working a Morse inker, and it has been found that the open type is more useful for general work as one can see what is going on inside. The diagram Fig. 1 shows a good arrangement for small laboratory experiments.

Many other systems can be devised using a super-relay to light an electric lamp and using its light to operate selenium or photoelectric cells. Light mains must only be used in the second local circuit, that is to say, through the medium of a heavier relay. One of the most promising systems of control in my opinion is one suggested by Philip R. Coursey during his demonstration before this

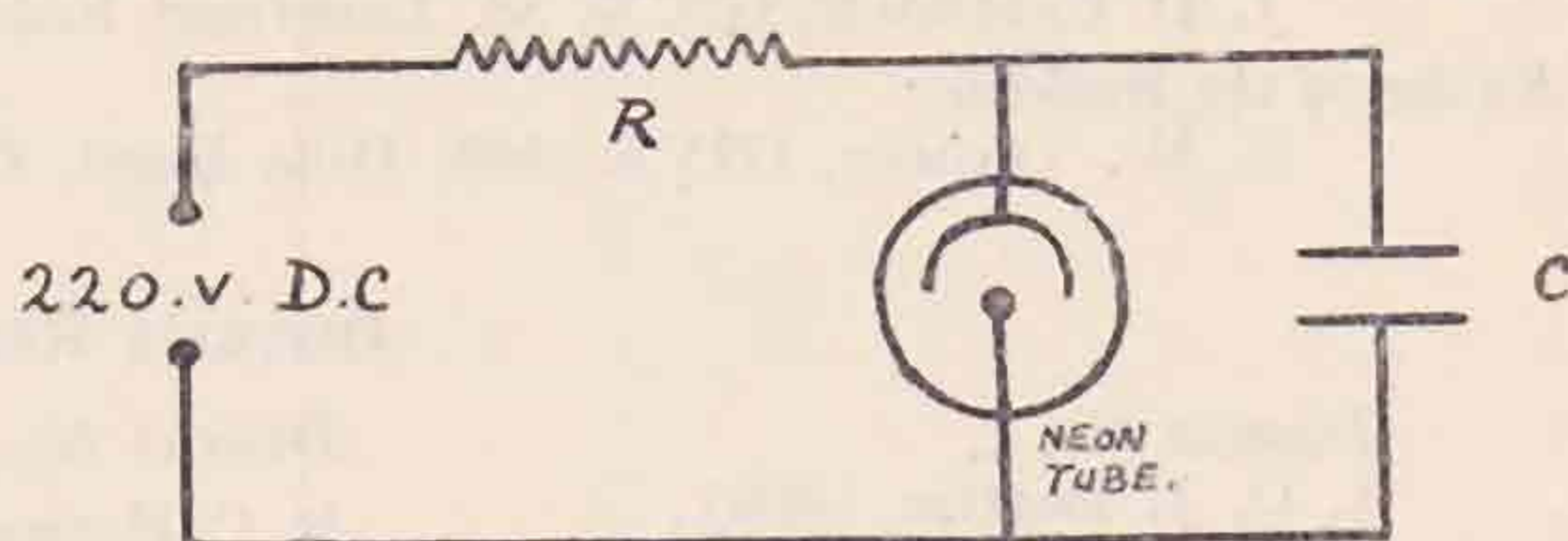


Fig. 2.

Society on July 25, 1923. This was to employ the time lag of a neon tube as a selective arrangement to respond only to signals of a definite number of seconds in length. In the old days a magnetic switch was used to select a required circuit for control, but this meant going through the whole cycle before coming to the one required. A simple laboratory experiment will visibly demonstrate the time constant of a neon tube circuit. Referring to Fig. 2 the resistance R should be about 2 megohms, and the capacity C should be about

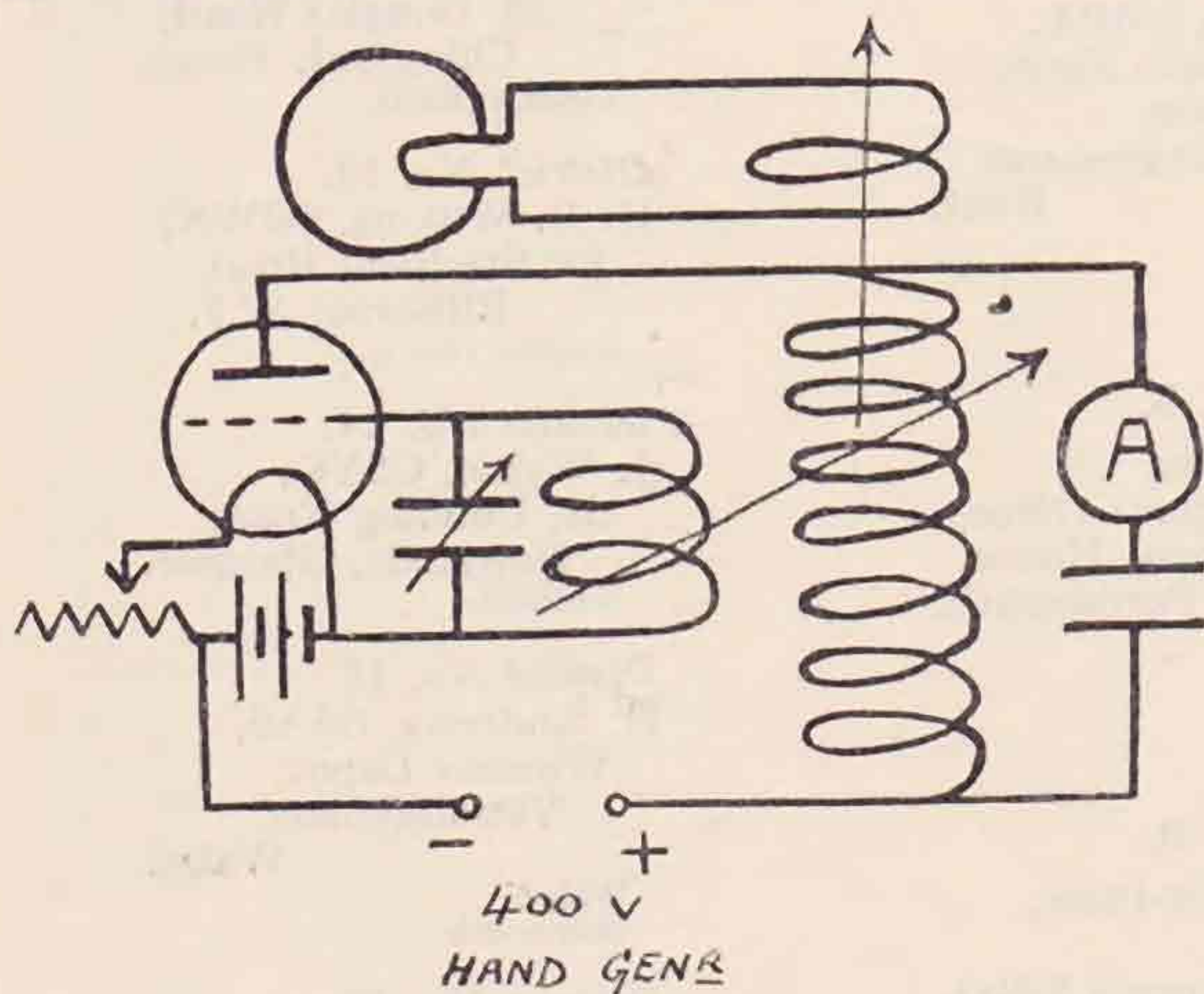


Fig. 1.

2 microfarads. The neon lamp in this circuit flickers once every few seconds. A variable condenser is often used, but one of this size is very clumsy and expensive. A better plan is to use a selection switch for capacities of .1, 1, 2 and 3 microfarads. To obtain a suitable value for R a corresponding selection of resistances of, say $\frac{1}{2}$, 1 and 2 megohms may be used.

The heart of all systems of wireless control is, of course, the connecting link between the radio and local circuits. The super-sensitive relay is probably the most favoured "link"; the Weston type will function on 40 micro-amperes. There are two of this type in the laboratory at the moment, one of the enclosed "naval" type and one of the open type, both giving equally good results. The

A Solution to Some Keying Problems.

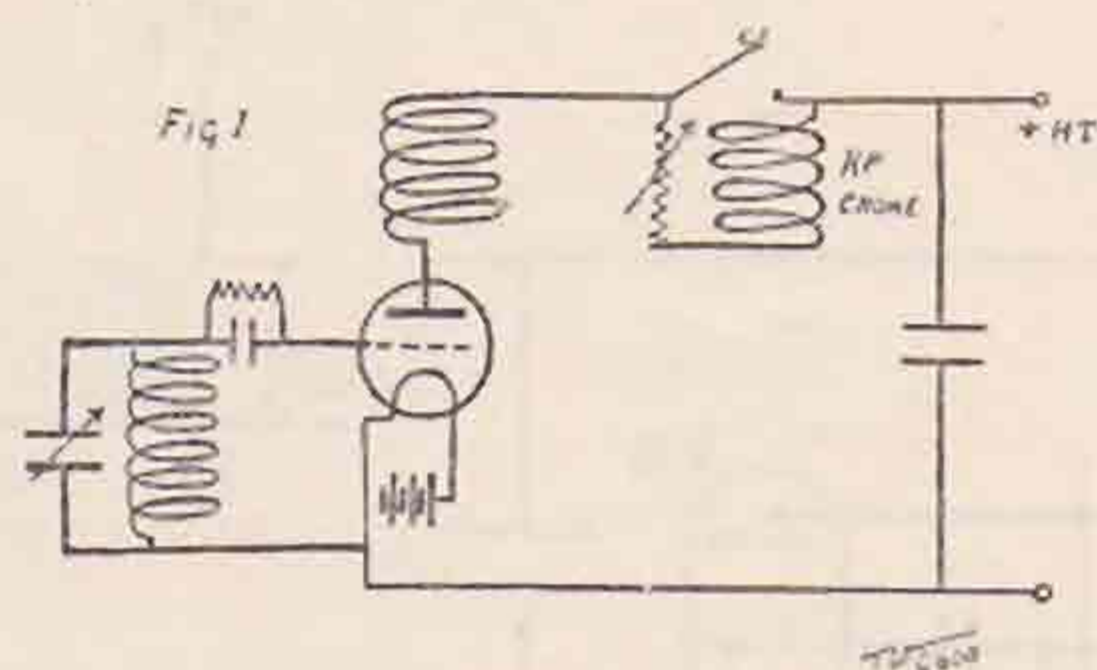
By L. A. MOXON (G6XN).

The keying of a transmitter is not always the simple problem that it sounds, even when the input is only a few watts. This is especially the case when dull-emitter valves originally meant for reception are used as self-excited oscillators (e.g., the D.E.5 and C.T. 25+).

For a long time G6XN was condemned to pollute the ether with a spacing wave, but a solution to the problems encountered was eventually found in the method to be described.

The following are some of the principal difficulties which may be encountered in keying:—

- (1) Loss of emission and "chirp," due to repeated breaking (partial or complete) of the anode circuit.
- (2) Loss of emission and "chirp," due to rapid changes of filament temperature (especially when the filament is of the low-consumption type).
- (3) Rise of anode voltage on reducing the load, caused by bad regulation of the power supply, and resulting in condenser breakdown.
- (4) If a motor generator is used, speed may vary with change of load.



The heating of a valve is proportional to the square of the current, therefore the grid excitation should be so arranged that the voltage/current ratio is the maximum obtainable for the required input power. In this way the life of the valve will be increased, and "chirp" will frequently be cured (in addition to increased efficiency and purity of note).

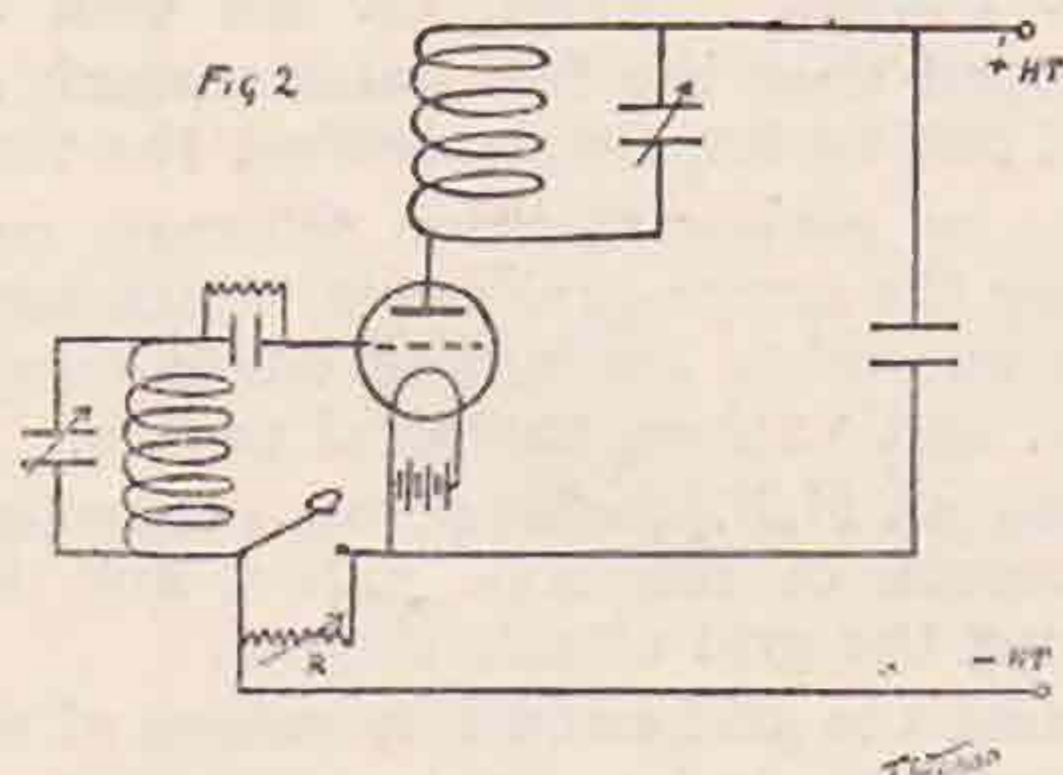
This, however, is often merely a partial cure for keying troubles, and the difficulties mentioned above still remain.

In the case of problem (2), fluctuations of anode current, or fluctuations of H.F. current passing through the valve, may result in a visible "flicker." If the trouble is due to the latter cause it may be remedied by connecting a condenser across the filament, or by placing H.F. chokes in the filament leads.

There is only one universal remedy for the remaining problems, however; the load supplied to the valve must be kept constant throughout the transmission. If the connection of the aerial does not affect the anode feed much, we can key in the aerial lead. This, however, is rarely the case in an efficiently adjusted transmitter. Absorption keying, involving the use of a spacing wave, would solve our difficulty, but only at the expense of other amateurs; it is, therefore, inadmissible. How, then, can we do it?

The following has proved a satisfactory alternative, which the writer has not seen mentioned elsewhere. We can easily arrange the key so that it

causes the valve to stop oscillating. But this would result in a rise of anode current to perhaps double the normal value. We can reduce it again, however, by increasing either the external impedance or the internal impedance of the valve. If we can arrange the key so that it performs these two functions simultaneously we have solved our problem.



Figs. 1 and 2 show methods of applying this principle to a T.G. T.P. oscillator. From this the application to other circuits will be obvious. In the case of Fig. 1, R may be a variable wire-wound resistance up to about 30,000 ohms. The exact value required to limit the anode current to the normal value may be deduced from the valve characteristic. This resistance alone may be sufficient to damp out oscillations, but the writer found the H.F. choke to be advisable. Although H.F. current has to pass through the key, there is no appreciable loss of efficiency provided the leads to the key do not exceed three or four feet.

In Fig. 2 the resistance R (which may be variable up to about 2,000 ohms) damps out oscillations, and at the same time has to carry the anode current I. This provides a negative grid bias ($=I^2R$ volts), which prevents the anode current from rising above the normal value. It is necessary in this case to use very short leads to the key contacts.

Society Strays.

The Editor regrets that a number of articles have been withheld from this issue owing to lack of space.

District Notes from Districts 2 and 12 were received too late for inclusion in this issue.

Will District Representatives please note that these reports should be at headquarters on or before the 25th of the month, as otherwise they cannot be published?

Council desire to express their thanks to Mr. H. C. Page (G6PA) and to Mr. H. D. Price (G6HP) for valuable services rendered to the Society on the stand at the Exhibition.

NORTHERN AREA CONVENTIONETTE :
SEE DETAILS ON PAGE 82.

Stray.

Old ENOBC, now PK4BO, is working again with an input of 12 watts (presumably on 14,000 KC) from 1400 to 1700 G.M.T., and is anxious for contacts with G stations. His QRA is J. H. H. van Buijsen, c/o. Adm. der Deli Mij, Medan (Sumatra), D.E.I.

Lyons, Ltd., of Liverpool. This may be useful to some of you who have these wavemeters and wish to use them below 14 metres.

Two 30-ohm rheostats are used in the + filament lead of the H.F. valve. As this is a 4-volt type, and the L.T. supply is 6 volts, the two rheostats are used in series. One (the outer) is adjusted to give 4 volts on the filament when the inner one is set to have no resistance in circuit. The inner 30 ohms is afterwards used for volume control, and the outer one remains always fixed, thus avoiding all danger of accidentally overturning the valve filament.

I have given up using home-made H.F. chokes in short-wave receivers. One had to make one's own for many years, and they were based on rather hazy ideas of the correct mathematical points in design, though they worked wonderfully well. With the advent of such a well-designed and cheap H.F. choke as the "Bulgin" S.W. model, reaction troubles are negligible.

The three variable condensers used are all fitted with ebonite extension handles. The two .0001 "Cydon" models have 7-in. extension rods, and the reaction condenser has a home-made 5-in. shaft. This makes hand-capacity troubles a thing of the past. Ormond geared dials—16:1—are used, in conjunction with capacity values of .0001 mfd. These make tuning extremely easy. The reaction condenser is a Gecophone S.L.F. .0003, geared 12:1, and all gearing wheels and the driving shaft are well oiled. It is absolutely noiseless.

Here I would like to mention that for some time past I have suspected the reaction coil is, in some unknown way, intimately concerned with threshold howl; it has been found that, by altering the degree of *magnetic* coupling between grid and reaction coils the intensity of this "Fringe Howl" can be altered, and even removed completely on certain frequencies. Has anyone else observed this phenomenon? It seems worthy of consideration. Adjustable magnetic coupling between reaction and grid coils should always be provided when capacity controlled reaction is used in an S.W. receiver. The easiest way of accomplishing this is to use coils slung on glass tubes, connections to the

inductances being made by clips of the Bulgin "Crocodile" pattern. This system is always employed here, and the glass tubes are of the type used in separating the plates in large storage cells. They are laid in square slots cut in the top of ebonite tee pieces, which in their turn are raised a little above the baseboard, according to size coils in use.

The fixed grid condenser is supported in air by its connecting wires.

Lay-out should be very carefully meditated upon by the individual constructor. It is not considered worth while describing the design used here, because all of us have our special fads. One thing only; there is no need to cramp oneself unduly as long as the leads in the actual oscillating circuits, comprising the condensers and inductances, are cut short. I do *not* consider that elaborate screening is necessary—one plain aluminium or copper transverse partition across the baseboard is ample. If some of you are exceeding rich, and sport pukka screening boxes, then use one; but what you gain in perhaps a trifle better screening you'll probably lose in eddy-current losses in the metal. A panel and baseboard of good mahogany are used. Living in the wilds, the writer can't contrive to send along an explanatory photograph of the receiver.

It has certainly proved to be an absolute marvel on both short and longer (B.C.L.) wave-lengths. Using two stages of transformer coupled L.F., short wave signals from all over the globe simply blow one's ear drums out. One stage of L.F. is normally used for everything, and for code work even this gives unbearably loud signals. The screened grid valve is the invention of the age; if there are any of you who haven't yet gone over to using one on your S.W. receivers, do so at once. You will never look back. There is no trouble whatever in operating the valve, and no hitches of any kind whatever need be anticipated. The detector + 1 or 2 L.F. is, like spark transmission, out-of-date.

Regarding valves in detector position, the Osram HL-610 is extremely good, and the Mullards PM5X and PM4D (or PM6D) likewise.

Strays.

G6WT states he worked SN1AA on September 14 and 15 from 8 to 9 p.m. and has now a nightly schedule with him. The station is owned by Mr. Ford Smith, of Ascension Island, Atlantic Ocean, and works just below the bottom of our 21-metre band with an unsteady D.C. note, watery and not easy to hold. G6WT was reported R6 and was told that he was SN1AA's first G station. G6WT, who uses 50 watts in a T.P.T.G. circuit, would like to thank G5ML for the excellent transmitter he has made, and which has certainly produced the results.

The South African Radio Relay League welcomes overseas members. The subscription, in this case, is 10s. which includes a free copy of their monthly magazine *QTC*. Applications should be addressed to the Honorary Organising Secretary, Mr. Raymond Coombs, P.O. Box 7028, Johannesburg.

Calibration Service.

It has been decided that from October, 1929, onwards the official R.S.G.B. Calibration Service will be transmitted during the mornings of the second and fourth Sundays in each month, *no afternoon schedules will therefore be transmitted.*

Calibrations will, for the most part, be undertaken by G5YK, or, alternatively, by another Member of Committee. Transmission will commence at 10.00 G.M.T., and consist of the call

RSGB (repeated) DE G5YK, followed by a two-minute dash and the frequency used. The second transmission will commence at 10.05 G.M.T., and the nominal frequencies used will be 7050 K.C. and 7250 K.C. respectively.

Fourth Annual Convention.

Well over a hundred London and provincial members were present when Mr. G. Marcuse opened Convention on Friday, September 27.

In thanking the provincials for their attendance, he expressed the hope that the fourth Convention would remain in their memory as the most successful yet held.

Following the presidential greetings, Mr. H. M. Dowsett delivered a most interesting and instructive lecture on the absorbing subject of "Short Wave Commercial Stations." Details of the preliminary difficulties experienced, in endeavouring to obtain maximum operating hours per day, on the various routes were mentioned, and graphical proof given of the progress made since the opening of the first

28, was the first of its kind ever held. Never before had an opportunity occurred whereby every R.S.G.B. home member had been represented at a strictly business meeting arranged to discuss the future of the Society. Not one of the sixteen British districts failed to send a representative. Many interesting matters were discussed which will prove of immense value to the H.Q. staff during the coming year.

A very carefully considered proposition regarding the Society's attitude in the matter of licence granting was passed and sent forward to the Convention Business Meeting. It was felt by all concerned that for the well-being of British amateur radio it would be advisable to state clearly



Empiradio Beam Station in 1926. The lecture was fully illustrated with lantern slides from which a rapid appreciation was gained of the gigantic problems which had been solved in making the Empire Beam Links second to none in the world. The latter part of the lecture dealt with the work being done by foreign administrations, and particular interest followed the speaker's explanation of an American spaced aerial system. Mr. Marcuse, in thanking Mr. Dowsett, asked him to convey to the Marconi Company the appreciation of the Society for permitting the lecture to have been held.

Following the lecture, a still more informal gathering in one of the fashionable hotels in the Strand took place, when some forty disciples of Eth prepared to discuss subjects weird and numerous.

The Delegates' Meeting on Saturday, September

that the R.S.G.B. has not the power to grant licences, but that its officials are at all times ready to assist in the recommending of suitable persons for such licences.

The question of providing each district representative with a complete list of the licensed stations in his district was discussed, and it was agreed to ask the Council to give the matter due consideration.

Following remarks made by Mr. Andrews (D.R. No. 15), it was unanimously agreed that owing to geographical situation it would be advisable to cede Monmouthshire into the Welsh area. Mr. Noden (D.R. No. 3) expressed his entire agreement with the suggestion, and congratulated Mr. Andrews on his fortune in having presented to him a "live county" from an R.S.G.B. point of view.

The question of recent correspondence in a contemporary journal was discussed, but it was agreed that the official R.S.G.B. attitude which had been followed had proved in every way successful and had been the means of giving wide publicity to our organisation.

Mr. Wyllie (D.R. No. 14), through Mr. Wilson, suggested that for the benefit of all provincial members it would be of interest if the BULLETIN contained a "late news" column. It was decided to give effect to the suggestion as opportunity occurred.

Mr. Donald Baker (G20Q) acted as recording minute secretary, whilst Mr. J. Clarricoats (G6CL) deputised for Mr. G. Marcuse as chairman.

The Business Meeting during the afternoon attracted a very large gathering, and judging by the amount of discussion which took place, it would appear that in future years a longer period will have to be set aside for these discussions.

Mr. Gregory (Hon. Secretary) briefly explained the work accomplished during the year and pointed out that the membership had shown a satisfactory increase. He mentioned that our relationship with the licensing body of the G.P.O. was as amicable as ever, a point which the membership would be well advised to bear in mind.

The announcement of the names of newly-elected district representatives for all British districts except No. 2 was made by the chairman. Owing to lack of nominations from District No. 2 the meeting agreed to appoint a member present, and accordingly Mr. Woodcock (G600), of Bridlington, was unanimously elected to office.

Representative members of committee were duly proposed and seconded, and the list is to be found elsewhere in this issue.

It was decided by the meeting that the Instrument Section be disbanded, but it was agreed that the Official Calibration Service be continued as hitherto.

The question of extending the scope of the Society was discussed, and Mr. A. Watts (G6UN), in explaining the work which he had recently undertaken, pointed out that the Society had great opportunities for increasing its membership providing a well-organised section could be formed to conduct the work.

Many useful suggestions were made during the discussion, including one whereby copies of the BULLETIN would be issued to certain public libraries. At the conclusion of the discussion, Mr. Clarricoats moved formally that a Publicity Section be formed, and proposed that Mr. Arthur Watts be elected Publicity Manager. The proposals were unanimously adopted.

The question of retaining our association with foreign societies was discussed, and it was unanimously decided that every endeavour should be made to continue the liaison between the R.S.G.B. and other foreign societies.

Mr. G. W. Thomas opened a discussion on the future policy of the BULLETIN and appealed to the meeting to give him suggestions which would assist him in his editorial policy.

Mr. Slough, on behalf of numerous readers, congratulated Mr. Thomas on his excellent work in connection with the 1929 BULLETINS, and asked him to accept the assurance of himself and many others that the Society's journal had now reached a very high journalistic level.

Many useful suggestions were made by members, and Mr. Thomas informed the meeting that he would make full use of every idea which had been suggested.

The very debatable matter of District Notes and News was fully discussed, and after thorough ventilation of opinions, it was resolved, on a majority vote, that for the coming year district notes and news would continue in their present form.

During the afternoon the Convention had the pleasure of welcoming Mr. Francis Legge, representing the Boy Scouts' Association. Mr. Legge had been invited by the president to explain the attitude which the B.S.A. wished to adopt in connection with the Society's offer of help to that body. In his statement, Mr. Legge explained that the B.S.A. were most sympathetic towards the Society's offer and felt that the greatest benefit would accrue if R.S.G.B. members could act as wireless badge examiners.

On a suggestion made by Mr. Clarricoats it was decided to appoint a small committee to draw up a detailed plan for submission to the B.S.A. The suggestion was adopted.

Mr. Powditch, on behalf of Mr. Houston Fergus, read a letter explaining a scheme known as "A.B.," the object of the scheme being to generally improve operating conditions. The matter was very fully discussed, but after due deliberation it was decided to reject the scheme as it was considered that the operating status of British stations was of a high order, and that no good could come by attempting to "police" the European ether.

Mr. Ponting brought forward further suggestions for improving the actual operation of amateur stations, but after discussion this was also put aside as it was felt that the Society had no right to insist on conditions which were strictly within the scope of the G.P.O. It was agreed, however, that the Society should attempt to encourage good operating, and as a means to this end it was announced that a small cup would be presented for annual competition to the station which, in the opinion of the members themselves, had shown the best operating performances during the period under review. It was agreed that the details of the scheme should be drawn up by the committee.

Considerable discussion occurred as a result of the delegates' proposition regarding licences being put to the meeting.

After a lengthy debate it was agreed that the resolution should lie on the table. Further recommendations from the delegates' meeting were approved, whilst certain modifications to Committee Rules occasioned by discussions at the Business Meeting were accepted *en bloc*.

It was agreed during the meeting that owing to the previous unwieldiness of the committee, it would be an advantage if the twelve provincial districts were represented by one member instead of by twelve sub-representatives.

The suggestion was accepted, and as a result of voting, Mr. H. B. Old (G2VQ), of Nottingham, was elected provincial representative.

Mr. H. C. Page explained a scheme for assisting H.M. Forces, but it was decided that no action could yet be taken. Captain C. Price also spoke on the subject and promised support.

The meeting ended at 6 p.m., and tracks were

made immediately to Pinolo's Restaurant, the venue of the Convention Hamfest. Just over 100 persons sat down, under the chairmanship of Mr. Marcuse. During the evening an excellent musical programme, arranged through the kindness of Mr. Marcuse, was put over on all frequencies, whilst the Convention toasts were given by Messrs. Wilberforce and Clarricoats ("The Society at Home"), and Messrs. Watts and Gee ("The Society Overseas"). The toast of "The Chairman" being given by Mr. H. Bevan Swift, (acting vice-president).

Tributes to the excellent work accomplished by Mr. E. D. Ostermeyer were paid by several speakers during the evening, whilst thanks to the Chairman for providing the musical evening were accorded by Mr. Clarricoats. Mr. C. S. Bradley (G2AX) made a successful M.C. and soloist.

The Convention continued throughout Sunday, September 29, on informal lines.

In closing this brief account, the writer wishes to apologise for the rather disjointed nature of the story, but would assure his readers that it was written under severe strain and the knowledge that a dignified Editor was awaiting copy!

Here's luck to Convention Number Five!

CHANGES TO COMMITTEE REGULATIONS AS APPROVED DURING CONVENTION. SEPTEMBER 28, 1929.

RULE 5A READS:

"To give publicity to the Society, particularly within the British Empire.

RULE 11A READS:

"To employ whatsoever means that are within the financial powers of the Society to extend the sphere of the R.S.G.B. and the B.E.R.U."

RULE 16 READS:

"The provincial district representatives shall be represented on the Committee by one member who shall be elected annually at Convention. This member will be known as the 'Provincial Representative' and will be given power to register a proxy vote on behalf of any provincial district representative, provided he is so instructed in writing beforehand. Matters which are not covered by the agenda cannot be voted upon by the Provincial Representative."

RULE 18 READS:

"The British districts shall be as decided upon at the Fourth Annual Convention held in London on September 28, 1929, and published from time to time in the Society's journal."

RULE 27 READS:

"The Committee shall meet on the second Tuesday in each month. At least seven days prior to that date the hon. secretary shall forward to each member of the Committee a copy of the agenda of business to be discussed. The agenda shall be drawn up in such a manner as to enable members to record a vote for or against a proposal."

Convention Photographs.

Copies of the Convention photograph can be obtained direct from Mr. G. SMITH, "Silverleigh," Queen's Walk, Wealdstone, Middlesex.

Price: 3s. post free. These photographs are full plate and mounted.

Erection of a Station Under Difficulties.

By G. H. WHEATLEY (G6WH).

Having seen so many appeals from O.M. Editor for more and more articles for the "BULL.," I am sending this station description in the hope that it will be interesting enough for inclusion at some future time. In the first place, the station had to be set up in a living room on a top floor flat; second, whilst not actually operating, nothing was allowed to be seen of "an ugly mass of coils and wires and things." However, for the sake of domestic peace something had to be done. The first thing was to commandeer a cupboard which was in the corner of the room, and to put therein a shelf at bench height: there was already a shelf in the top of the cupboard which has come in very useful for accumulators and other odds and ends pertaining to "The Game." The 7,000 k.c. transmitter is a balanced Colpitt's—the one described in *Wireless World* on June 29, 1927, and is housed on the left hand side of the operating bench. Immediately above it, and screwed to the top shelf, is a panel carrying the send-receive switch, the feeder tuning condensers, two flash lamps in sockets (and their shorting switches) for indicating resonance, and the necessary terminals for connecting the feeders to the transmitter and receiver. The receiving aerial is the dead-end feeder. The receiver itself, a two-valve Reinartz, is on the extreme right; the key is also on the right in front of the receiver. Between the transmitter and receiver there is just sufficient space to write comfortably, about 8 ins. on either side of an open R.S.G.B. log book. At the back of the cupboard, screwed on to the wall, is an ordinary electrician's switchboard, which carries a complete choke modulator, main on-and-off switch, and a small four-pole two-way switch, which in one position shorts the modulator choke for C.W., and in the other position closes the modulator valve filament circuit, shorts the key, and completes the microphone transformer primary, microphone, and L.T. circuit. Grid-bias for the modulator is taken from the receiver H.T. battery.

As "a little piece of sugar for the bird," I offered to run a line from the B.C.L. set to the landlord's flat on the bottom floor, and in consideration of this was allowed to erect in the garden a 42-ft. mast to make "the reception" better! The B.C.L. set runs from an indoor aerial! The 42-footer carries one end of a voltage-fed Hertz 65 ft. long. The feeders start about 18 ft. out from the house, and they come into the house jammed in between a window and its frame. Using 3/20 thick rubber-covered wire, I have found spreaders unnecessary if the wires are kept fairly taut. After entering the window the feeders are run along a passage, and they enter the transmitting room by being jammed between a disused door and its frame.

This all sounds very inefficient, but reports show that it is working well. The feeders are 42 ft. long, with a .0003 condenser in series with each. All my European reports have been QSA5 T8, except when a trickle charger to the B.C.L. set is doing its stuff. This seems strange, as the B.C.L. set is remote from the transmitter, and I am investigating it, as it apparently changes my note from PDC to RAC. I might mention that the transmitter is supplied with good honest D.C. from accumulators.

Low Power at G6CI.

The interesting article by G2ZN on low-power working, which appeared recently in the BULL., prompted me to write up a few notes on some low-power experiments which were carried out here some time ago.

These tests were commenced in January of 1926 and continued right through the year.

The circuit chosen was the familiar series-fed TPTG, with one modification to its present accepted form. That is to say, the plate coil had no tuning condenser in shunt, the tuning being accomplished by a variable tap on the coil.

The grid coil was a 12-turn helix extracted from an old R.A.F. spark transmitter, while the plate coil was a 6-in. solenoid having 16 turns. Just imagine such coils these days in a modern 7,000-kc. transmitter!

An Osram R5 receiving-type valve did the oscillating at first, but was later changed to an LS5. No grid-leak or condenser was used, but, of course, one can obtain greater efficiency by the use of them. High tension was obtained from dry batteries, the voltage being varied between 15 and 100 volts. Keying was in the H.T.—lead, and always produced a clean cut, steady signal, which factor I am sure contributed in no small way to the success of the tests. I note that G2ZN complains of a chirp in his note, which seems to me to be remarkable in view of the low power used.

The aerial used was a single wire $\frac{1}{2}$ wave V.F. Hertz tapped direct on to the plate coil, and commonly known these days as the "Gift of God aerial," a type which is favoured by many stations at the present time. Maybe that the birthplace of the G.O.G. aerial was at this station!

The results of these tests were decidedly interesting, and under normal conditions it was shown that a reliable range of 500 miles was obtained on 7,000 kc. when the input was 0.75 watt at 100 volts. Also on occasions telephony was clearly transmitted up to 150 miles. One point which seems to stand out is that work can be carried on right through B.B.C. hours without causing any interference whatever.

The first low-power contact was in January, 1926, when G6OU reported my signals R4 on 0.3 watt at 42 volts H.T. Later the input was reduced to .03 watt at 15 volts H.T., and the following were worked (I have given the strength of my signals in brackets):—G5FQ (R3), G15NJ (R5), G5HJ (R3/4), G5XD (weak, but readable). Think of it, OM's, Warwickshire to N. Ireland on 15 volts. Vive le QRP!! In all six countries were worked on $\frac{1}{4}$ watt, namely, G, ON, F, PA, EL, SM, and the best DX being KPL, situated in Koenigsburg, East Prussia, a distance of approximately 1,000 miles.

Some Crystal Hints.

BY G. RUSSELL LEE (2BHI).

Now that so many of our hams are turning their thoughts towards crystal resonators as a means of wave meter checking, perhaps a few helpful hints which will render the job of "making it perk" not quite so difficult, will not be out of place.

It has been found at this station that a crystal that will not oscillate in a resonator with a high C plate circuit, oscillates easily in a similar circuit with "more coil and less condenser." This may be a usual occurrence and well known to the initiated but to the beginner it is a point worthy of note.

Another point which is apt to be overlooked is the by-pass condenser across the H.T. supply; this is an important item, and several crystals at this station have been persuaded to oscillate solely by the addition of this little accessory.

Always keep the surface of the crystal clean and free from grease, this means keep the fingers off it as much as possible. Before placing the crystal in its holder polish it with a silk handkerchief and then hold it gently by the edges. After a time the surfaces of the crystal-holder may become oxidised; these should be cleaned with some emery paper. If the holder is of the somewhat rigid, home-made type it should be loosened so that the top plate does not rest too heavily on the crystal, in fact, if an air gap can be arranged, so much the better.

If a likely crystal fails to oscillate after all these hints have been tried, it is possible that the surface has become pitted with rouge or other polishing material; this may be removed by washing the crystal with a very gentle scourer.

I hope that some of these points may prove of use to somebody, and while I cannot give reasons for some of them, they have all been practically employed at this station.



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Photo on pages 51 and 53 of the "Bulletin" for September.

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Contact Bureau Notes.

By H. J. POWDITCH (G5VL).

I had a card recently from W3ANP which bore, amongst other information, the following potted wisdom:—“HAM + YL = —DX. HAM — YL = +DX. ∴ W3ANP = —YL.” Many other symbols can take the place of YL in this equation, but, whatever they are, they play the dickens with serious work. Now, to those members of groups who find their particular kind of interfering symbols too strong to be reduced to a minus power, please let your G.C. know that you are *not* likely to continue with your group work. Its rough on him to have to chase you without result or answer when you can save him the trouble by one “N.D.” on a card. We don't want to lose you but . . .

BRS255 has sent me more details of his circuits and the note at the end of his description asking for results from anyone trying these out is not for ornament only.

Nothing of especial interest seems to have happened during the month. A rearrangement of some groups is going on. G2NH leaves 1A and will endeavour to get a group going on some special CC. work. I venture to quote part of a letter from him; its one of the letters that cheer up one's outlook on life (*i.e.*, CB.): “I am convinced that we have not got the best out of CC. yet, and I have several circuits on hand which are considerably simpler than the usual CO. and FD. layout . . . My idea is to let you have the results of our tests in rather full detail, as naturally any simple and yet reliable form of CC. cannot fail to interest the majority of transmitters.” Exactly what we want, G2NH, CB is for the exchange of results and methods for the common good, and, furthermore, such circuits will make for better conditions on the air. Any stations who are interested please write to G2NH.

I have not given the usual list of new members for two months. Here it is up to date: BRS250, BRS164, G2VV, G5CM, G5JF, G2RT, G2OA, G6SO, G5RX, G5VN, G2AX, BRS264.

BRS255's says, regarding his “series” circuits:—

Some three years ago, whilst wiring a receiver for the 7 and 14 M.C. bands, a slight error produced a circuit which seemed to require almost B.C. coils for 7 M.C. Investigation of the wiring, pencil and paper, resulted in the detector circuit shown as Fig. CB1 in August CB. Notes, and subsequent use has proved it to be a really good circuit and one that can be taken up the frequency scale with ease. The real merit of the circuit is that the capacity of the valve and holder is “tuned through” by the variable and consequently produces a resultant capacity less than the least, *i.e.*:—

$$\frac{1}{C} = \frac{1}{C_1} + \frac{1}{C_2} \dots \text{or for two capacities, } C = \frac{C_1 \times C_2}{C_1 + C_2}$$

and this smaller capacity will allow of a larger inductance. In Fig. 1 is shown the simplified series tuned circuit, L being the inductance, CT a tuning condenser of 1,000 mmfds. maximum and 100 mmfds. minimum, and CV 50 mmfds. due to the capacity of the valve, holder, etc., under

working conditions. The effective tuning capacity will be approximately 48 mmfds. maximum and 33 mmfds. minimum, or a capacity range of 15 mmfds. Very useful at 14 M.C. but rather small at 7 M.C. However, if the value of CT were 100 mmfds. maximum and, say, 25 mmfds. minimum (practical values of the present day), the effective tuning capacity would still give a range of about 15-17 mmfds. with a minimum of 16 mmfds., and thus allow of a much larger inductance—very desirable at the high frequencies.

A diagram of the receiver used by BRS255 is given in Fig. 2 and has a really good performance on all the amateur bands. It is made up in a box of 12 swg. brass with a baseboard inlet. The 50 mmfds. tuning condenser is a Midget neutralising condenser fitted with an ebonite extension spindle, rotated by a 50.1 dial. (Tuning is rather tedious at 7 M.C.) If a hard tube is used as detector

a grid leak is essential, but tubes of the lower medium or low impedance type will probably function without a leak, due to the internal resistance of the tube. If it is possible to fit fixed condensers of the clip-in variety the 0.01 mfd. condenser in the feed-back

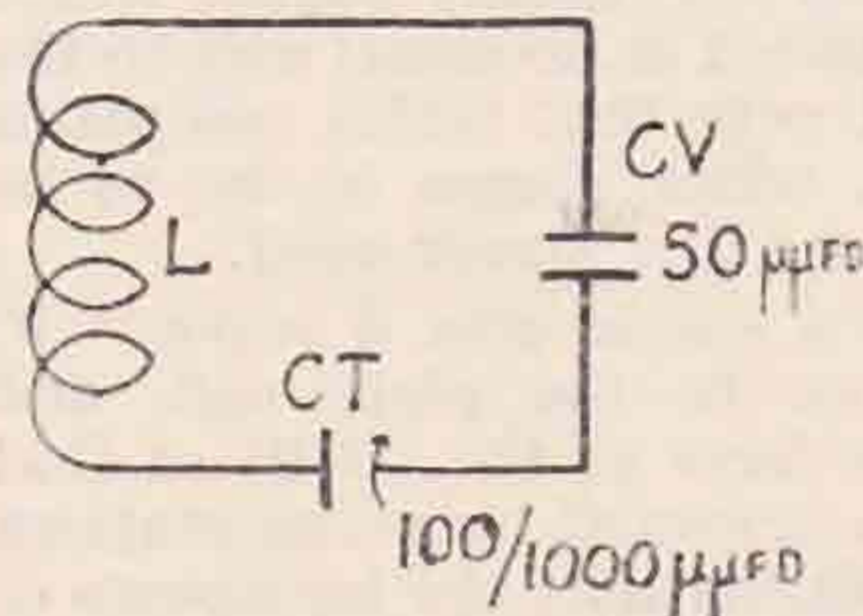


FIG 1

circuit could be replaced by one of .0002 or .0003 mfd. when working over 20 M.C. A series tuned transmitting circuit is shown in Fig. 3, and a perusal of the BULLETIN for December, 1928, pages 127 and 128, will show a write-up by W. F. Floyd of this system of obtaining oscillation at high frequencies.

If a valve of low impedance is used (say an LS5a), a better ratio of AE to feed current will result by making the H.T. plus connection as in Fig. 4, whilst an Osram T15 will work better if connected as in Fig. 5. The inductances were made of 1/8 in. burnished copper tube, whilst the variable capacity was a G.E.C. 300 mmfds. SLF cut down to half the plates and double spaced. The oscillator may work without a grid leak, but it has been found that keying is better effected by using the arrangement as shown. An alternative method of keying, fairly free from key bumps, is appended, as is also an arrangement of connecting the detector valve of the receiver when no screening box is used. In concluding, BRS255 would be glad to hear from anyone trying out these circuits and will appreciate any data, especially as to the behaviour of the oscillators.

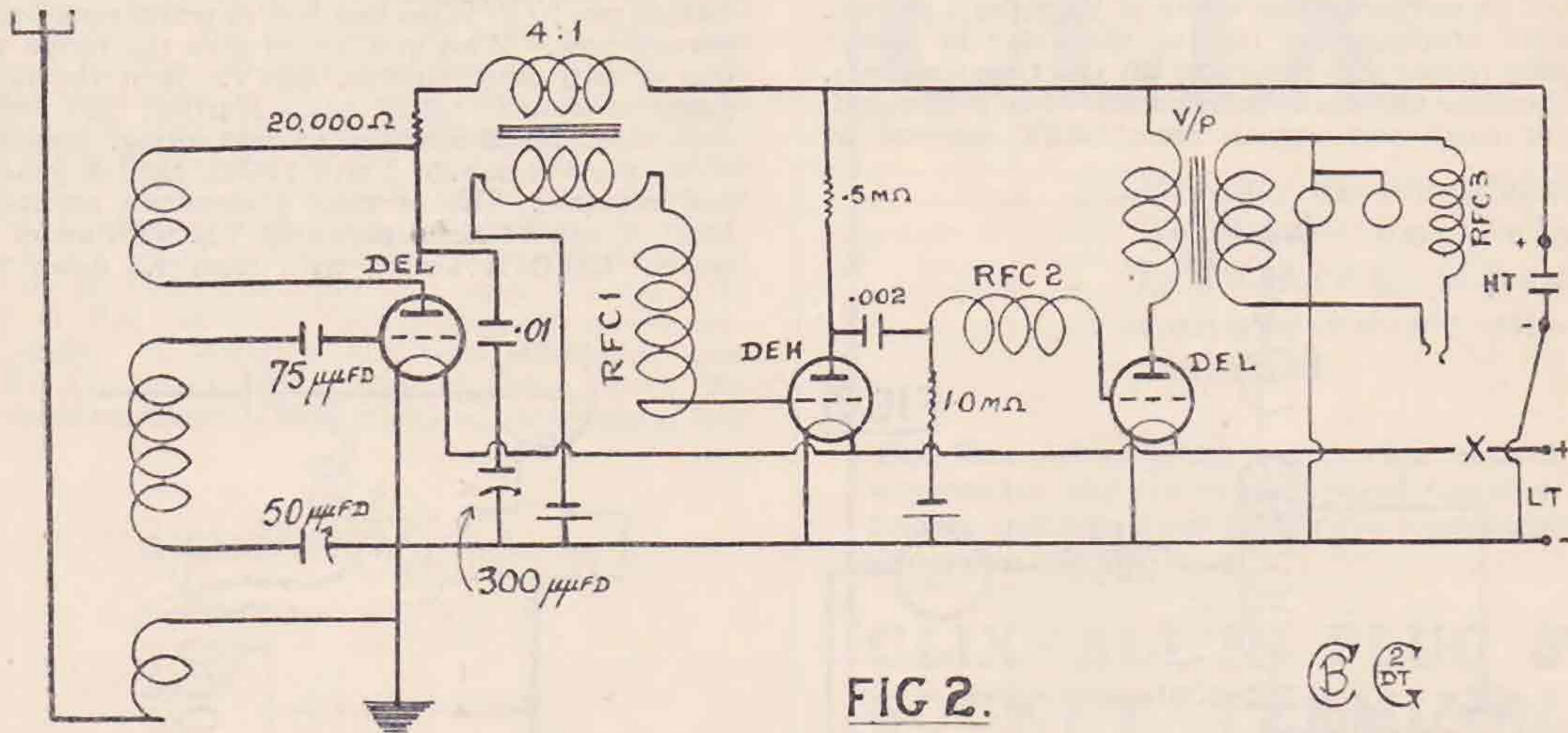
Groups reports are:—

28 M.C.

Group 1A is reforming, as G.C. G2NH goes over to CC work.

Group 1B.—G.C. G5SY has a nil report from G5LU; BRS250 has only heard G6VP; G5SY has again a nil log, though he remarks that G6VP

calling EU3CF on August 4 (? harmonic), 6VP, GKS calling HX8. BRS15 is preparing. G6VP has been on every Sunday and run successful skeds



RFC1—200 trns 44 SWG (E) on 1" tube.
RFC2—1,000-metres Choke.

RFC3—50 trns 22 SWG (E) on 1" tube.
VP—Valve to Phone Transformer.

is the only G. who is audible on 14 M.C.; G5ML is busy getting ready for his usual DX when conditions open up.

Group 1C.—G.C. G6VP finds holidays have interfered with the group. G600, who has been working with this group, now goes back as G.C. of his former group with G6UJ. The former has been "yachting and cup collecting" and in the

with G6WN. These have been picked up by BRS250. A new transmitter with DET1 valve has been built to deal with "chirp" troubles. He has a report from VU2KT and mentions that, out of the 5 G's heard by VU2KT, two are at Yiewsley, himself and G2OD. Is there anything in locality? (I understand from G2OD that he finds conditions at Yiewsley better than those at his former QRA, Gerrard's Cross, excepting the QRM trouble.)

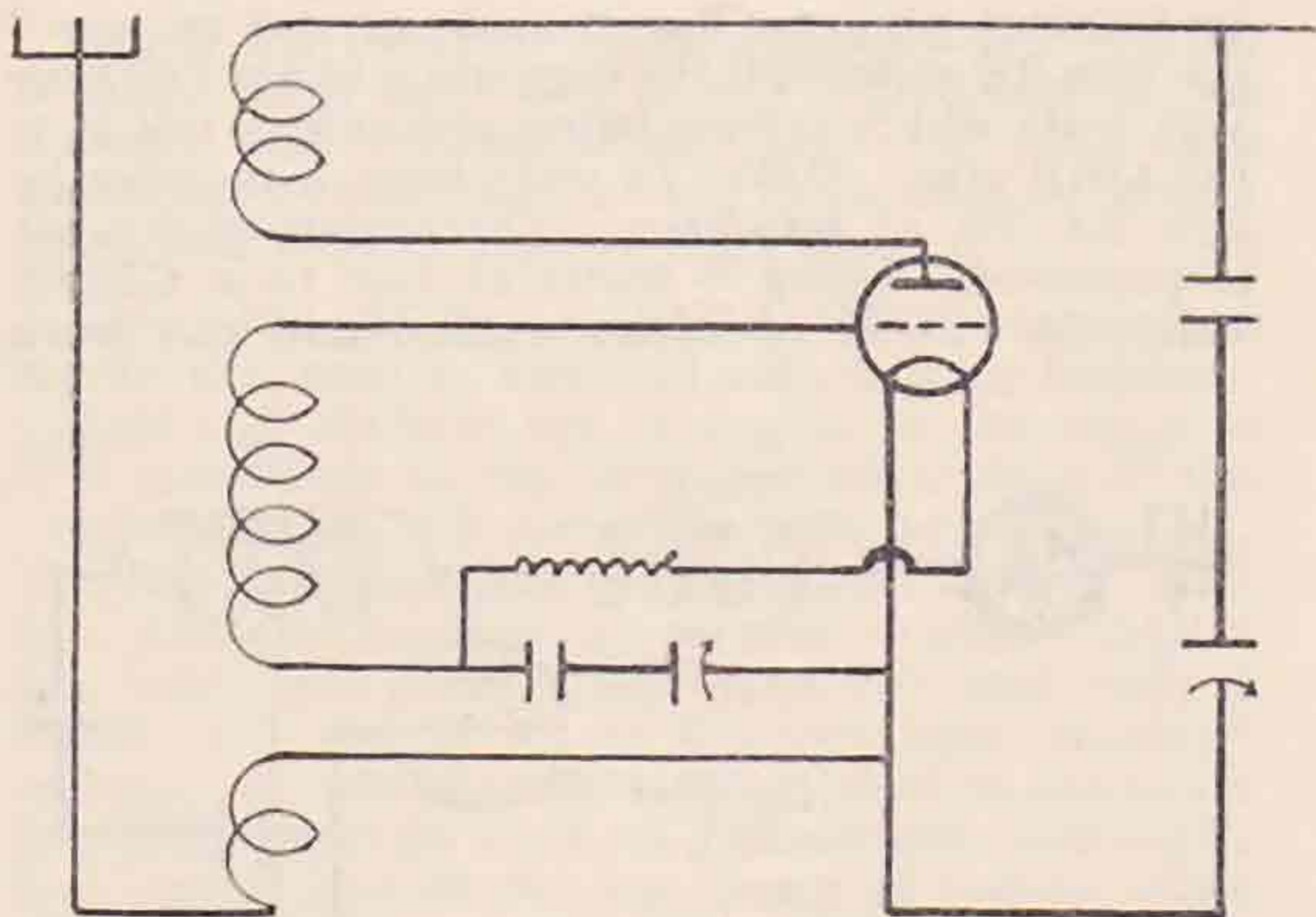
Group 1D is in abeyance *pro tem.* owing to the loss of G.C. EI7C, who has to drop radio owing to pressure of other affairs.

Group 1E.—G.C. G2OD is on holiday. G2QJ will probably join this Group. BRS72 last heard UOXY on July 13, nothing since them. He points out that as VU2KT and PK4AZ kept sked in full dark and full light, and also with intermediate conditions, these results might be duplicated from this country. Its worth a trial! G5UB suggests a watch for an hour or so by the whole of a Group in place of individual times of listening.

Group 1F.—G. C. G2CX says that the weather has a "very enervating" effect on radio. (I wish I could put things so nicely.) G5WK has Car QRM (not the usual type but a new car). G6HP, holidays, but has a report from Germany. BRS25 has been on consistently, but can only report "no sigs." G2CX mentions that BRS25 has never missed a report since the first budget, practically a year ago, and wishes to express his gratitude for this consistent help. PAOCX is getting ready for sailing, but may visit London first. G2CX is looking out for the first W.

Group 1G.—G.C. 2YU badly wants some stations within reach of his QRA (Leeds) to form a compact Group within touch of each other. Any 28 M.C. stations in the district who will come in with G2YU?

Group 1H.—G.C. G600 restarts with G6UJ,



ALTERNATIVE DET. CIRCUIT
FOR FIG 2.

intervals working with G6UJ on directional and beam aerials that can be easily rotated. (How about some dope?) G6WN has been holiday-making, but the operators have worked G6VP each week when at home. The receiver is better without an aerial; less background. Aerial tests carried out on transmitter. Calls heard have been: G2OW

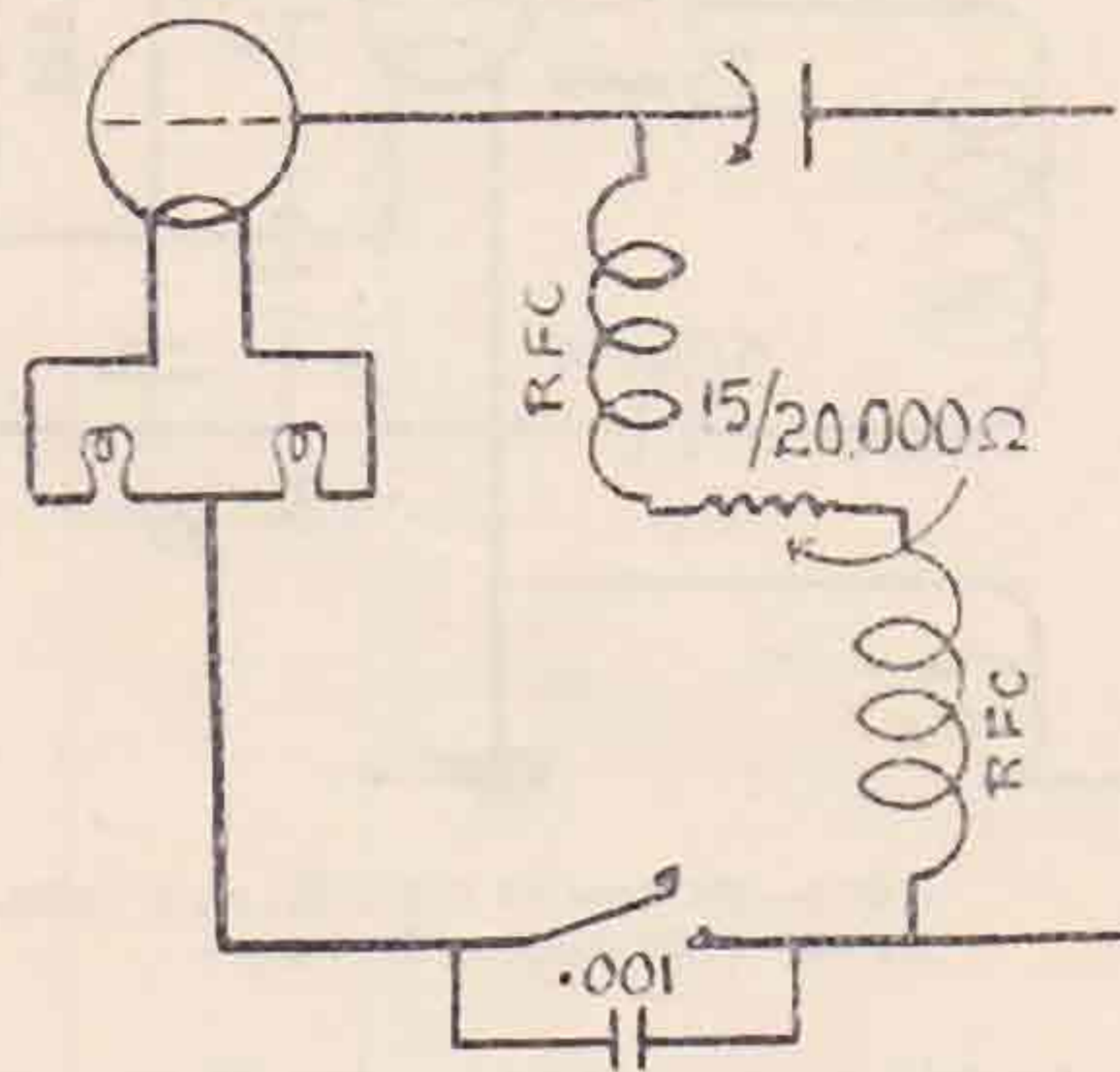
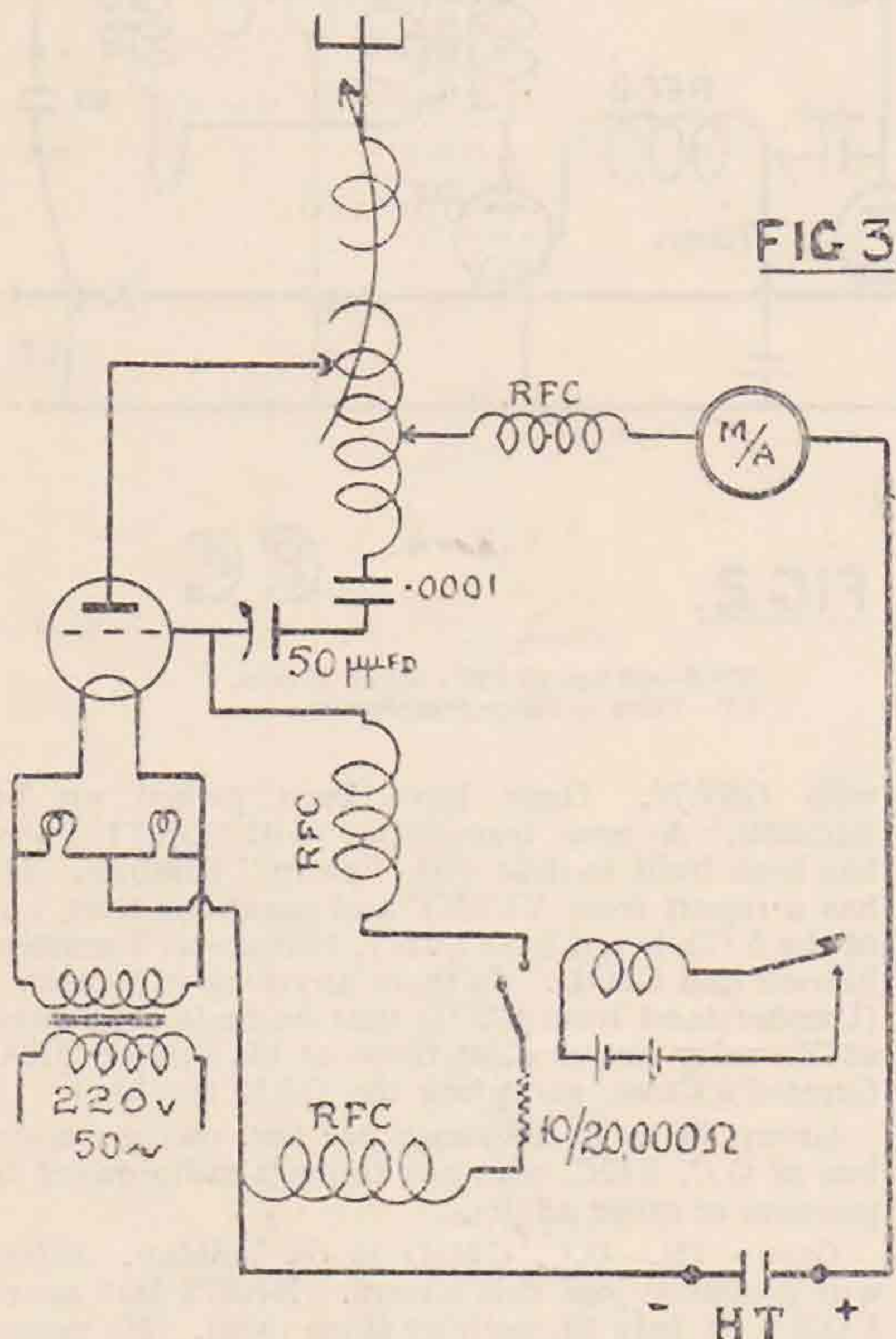
G5DR, BRS77, and probably G2VQ and a BRS station.

Group 5A (3,500 K.C. fading).—G.C. G6FY has had to reorganise the whole of his reports system. After arranging for reports, the delay in licence issue caused the failure of all the Group's skeds. Therefore the whole business has to be rearranged. For local work signals from G6FY received at

the frequency change happening on reflection—mentioned last month.

Group 8B (QRP).—G.C. G2VV mentions that the budget ran to 30 pages and had to travel round per parcels post. Wish you would give the recipe to one or two other Groups, G2VV. Is it the ink, paper or what? G2OA has a Hartley, QST 1929 type, with special attention to rigid wiring. Result: "CC, very steady." Valve LS5B, aged 5 years, and repaired. Has worked 8 countries on each band, 7 and 14 M.C., including YM with under 5 watts. G6SO is testing with from 4.8 down to

FIG 3.



ALTERNATIVE KEYING CCT

.75 watt. Chemical rectifier for H.T. and raw A.C. to filament plus an "unground crystal or lens" get him T9 reports. He suggests a chain QSO for WX tests which is now being arranged. G5CM is the QRP star. With .75 watt from a receiver he gets R4, T9, at 400 miles. The circuit of this set is promised. Using 5 watts or less to a CT25X valve, he has 11 countries worked and can work

G2HH are usually affected by a fairly regular fading effect, but this effect does not manifest itself on signals in the reverse direction unless conditions are very disturbed when it is noticed on all bands. Tests for the building up of the effect after sunset have had to be discontinued owing to the new licence conditions. Very peculiar conditions have been noticed by G6FY and G2BI working together, and it appears that there may sometimes be an extensive skip zone on the band. G6PA notices violent fading on signals from G6PA when other stations do not find this trouble.

Group 7A (56 M.C.).—G.C. G2DT is still busy getting his transmitting gear in order. G6TW has been trying out all sorts of aerials and finds the "Pawnbroker" type with a 4in. ball (pinched from local cistern) balanced on the end of a 3.75m. 1/2in. copper tube FB. W8DHW has found great difficulty in getting feeders correct length for his Beam aerial. He is now running full skeds: Saturdays 17.00 to 21.00 E.S.T. and Sundays 13.00 to 22.00 E.S.T. W2AIU is working on the band and is the author of the theory regarding

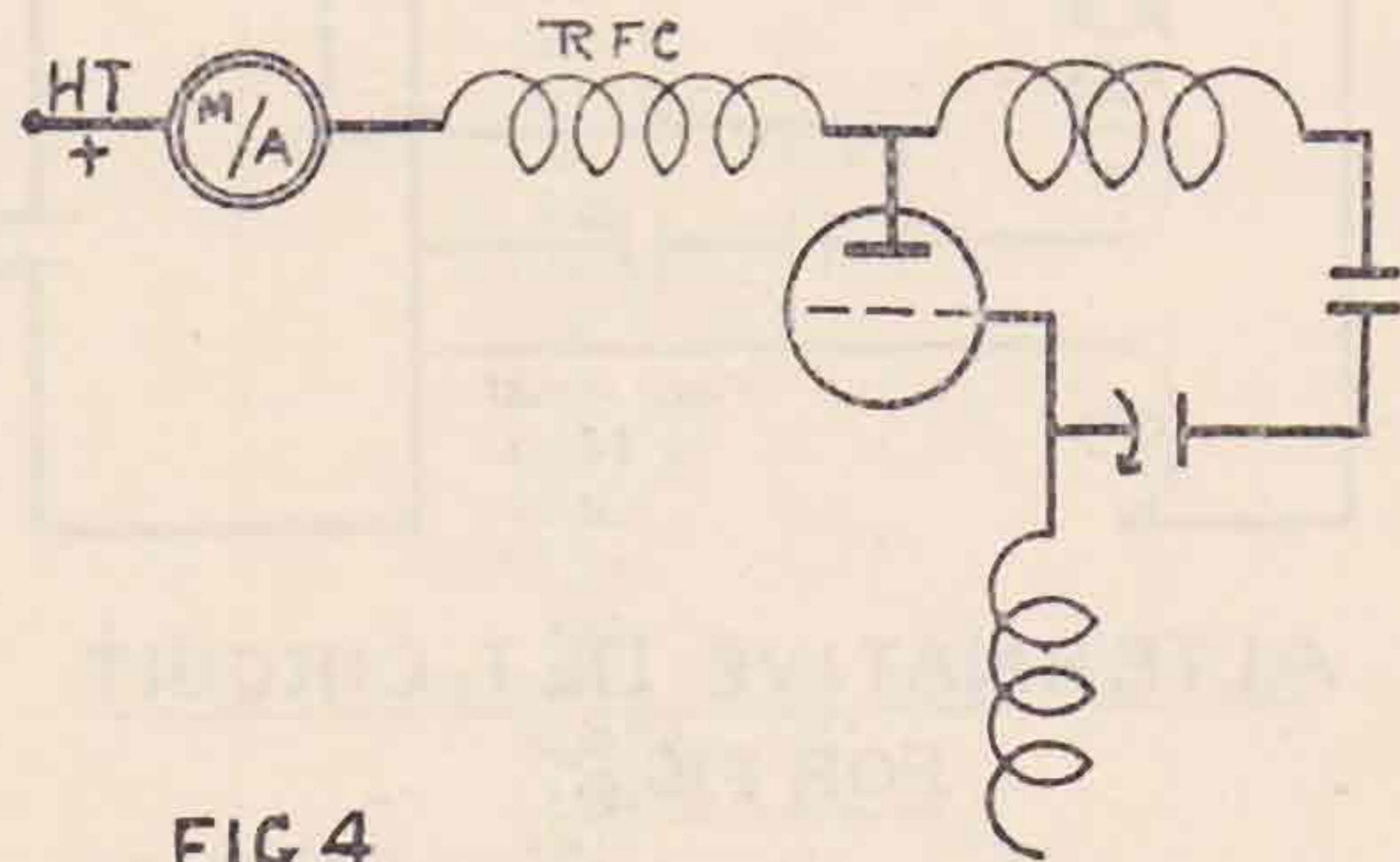


FIG 4.

FM any time but not EAR. Thinks this is due to screening as CT is OK. G5JF looks after the fone end and gets more DX than on key. SM, EU, OH, fone on 4.5 watts. A TPTG set with aerial direct to plate coil, aerial V.F. Hertz, 60ft. high. C.C.

now being fitted for all bands plus a QST Monitor. G2RT has QSO'd PY1AX with 5 watts, R4, T8!! Other QSO's: EAR, OH, EU and OK, all on 7 M.C. Gets .35 on 7 and .25 on 14 M.C. in aerial (? feeders). He considers after 21.00 BST best time for Europe, especially Russia. G2VV finds plenty of work on the Group's affairs, but seems to have struck a run of DX concurrently. On 14 M.C., VK 4th district and W 2nd district with 5 and 3.5 watts. TPTG set, CT25X valve and aerial as G5JF above. Grid condenser reduced to .0001. G2VV's record to date is worth reproducing: All done on 3 to 5 watts, dry cells; fone, CT, OZ, ON, F, G, PA, and UO. Key 24 countries and 5 continents; S. America will, when it comes, give W.A.C.; a CC set is coming along. And, the report concludes, "May we, as a Group, extend our

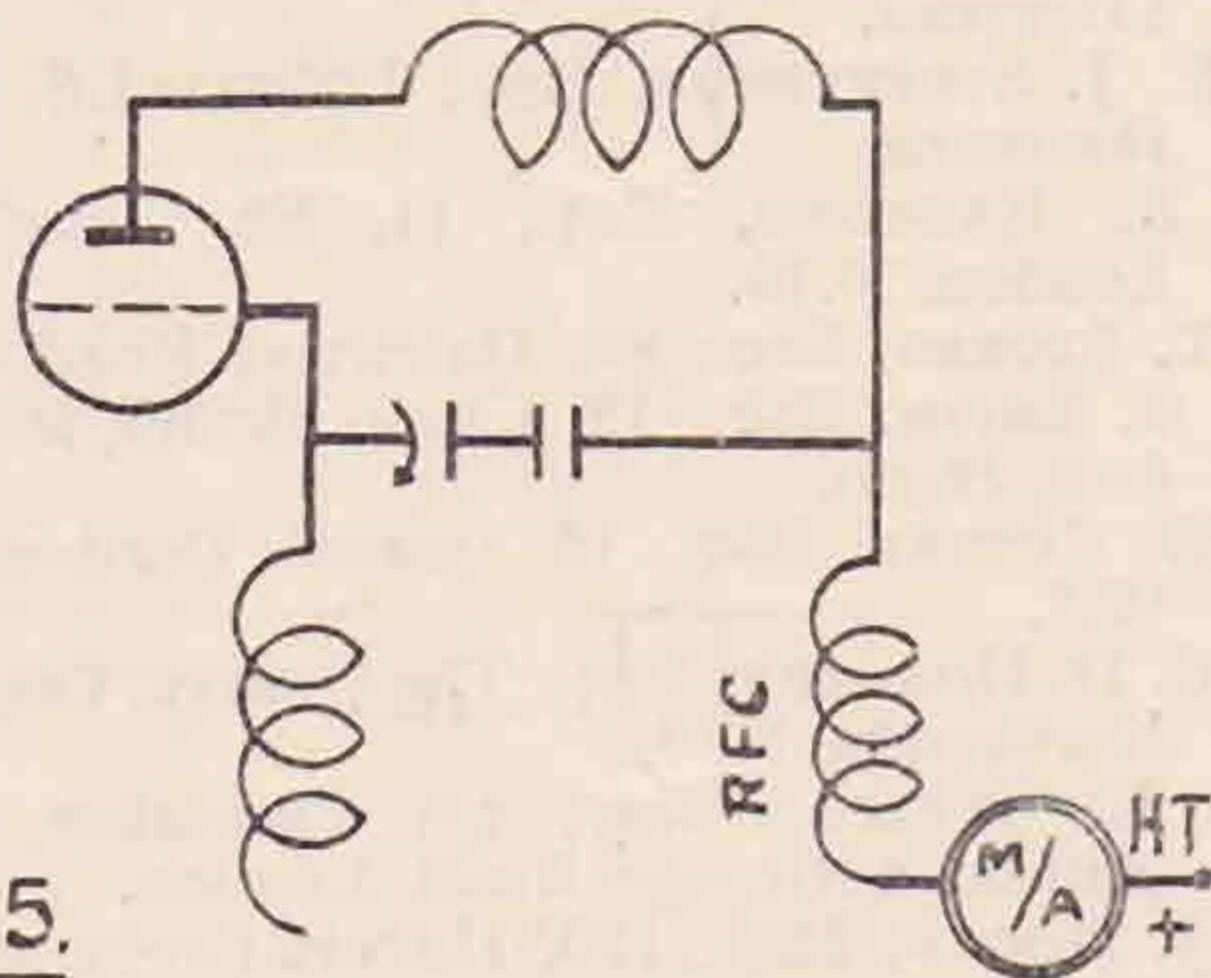


FIG 5.

best wishes and good luck to all other members of CB taking part in this test."

Group 9A (weather investigation).—G.C. G5UQ is now sitting tight and hoping for reports on his Group's test transmissions. May we again ask everyone to boost the times of these tests to foreign hams and request reports from them.

Group 10A (1,770 K.C.).—G.C. G6OT has more to report this month, but still suffers from holidays. G5UM and BRS164 are interested in the effect of WX conditions on the band and are coming to the conclusion that WX has little to do with reception. The former station has been troubled by QRN and G.C. has also experienced similar trouble. G5RX has been busy with QRP oscillators and finds a PM6D will handle up to 6 watts with excellent results. He has been giving assistance to Rochdale Fire Brigade (who work on 142 metres), call GTR. G.C. would like to see his Group of use to other similar brigades. Skeds are kept with G6AX, G6QA, G5VN and one with G.C. G5VN has been busy with chemical rectifiers and gets good results. He is reported R4/6 by Belgian 4GN, quite good going for the band, on 8.5 watts. 2AZQ has been holiday-making, as has BRS164. G2NU joins up and has worked U.S.A. on 1,770 K.C. We look forward to something interesting next month on the subject. G6OT has been working on microphones and modulation side of the transmitter. DX has been interfered with after dark by bad QRN, and a very powerful source of mush during the day has not yet been tracked to its lair.

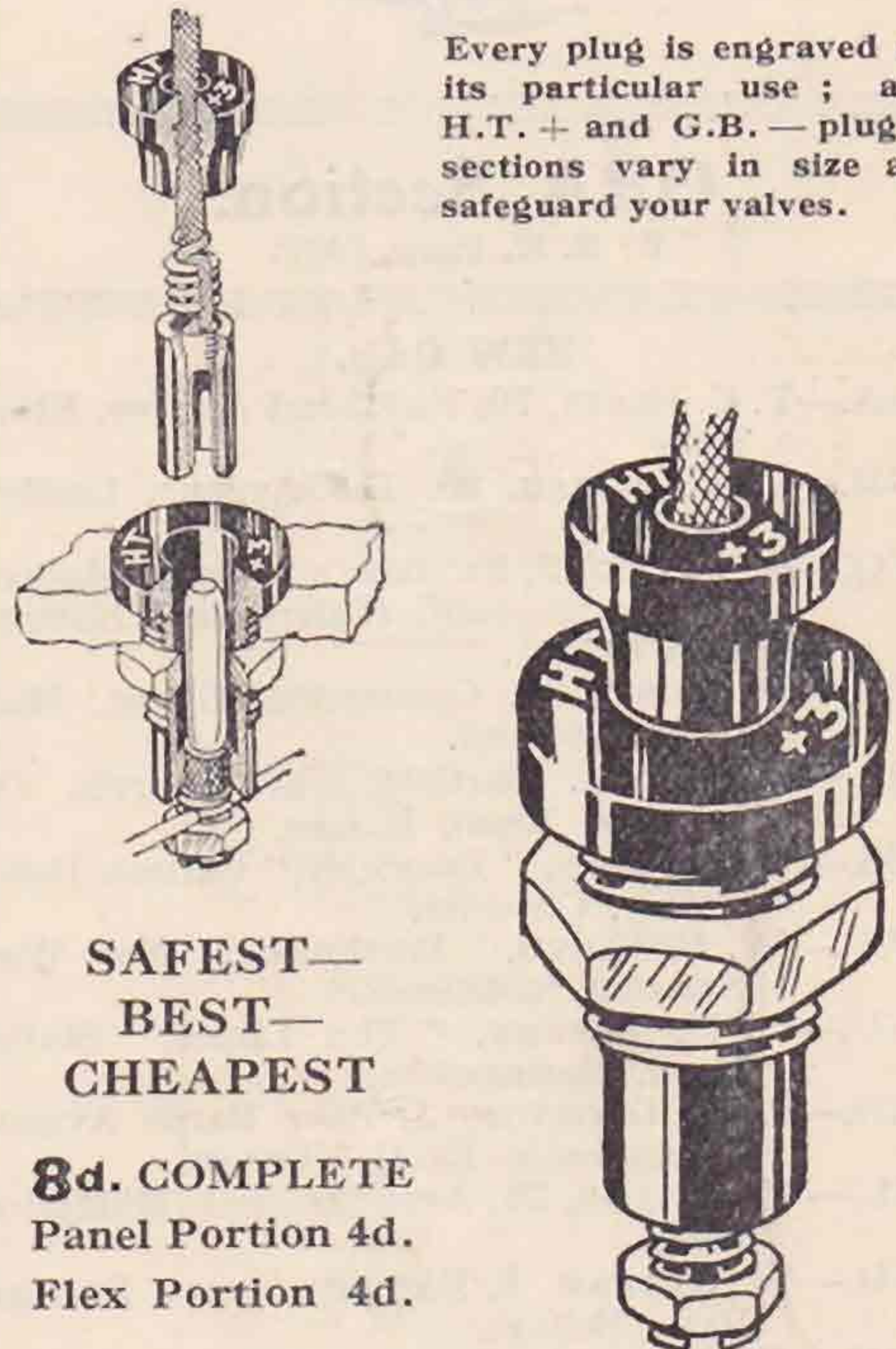
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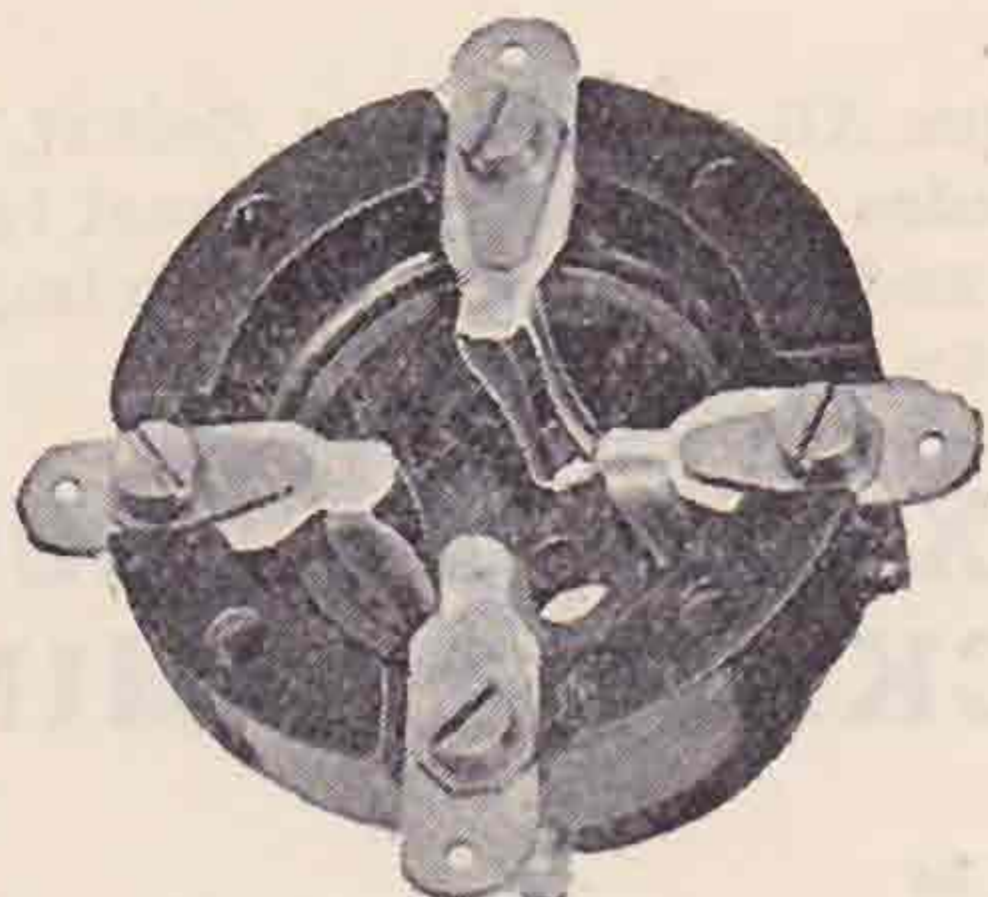
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QRA Section.

BY M. W. PILPEL G6PP.

NEW QA's.

- G2GA.—T. C. PLATT, 70, Fieldhead Avenue, Elton, Bury.
 G2GM.—G. O. MARSH, 26, The Avenue, London, S.E.19.
 G2VQ.—H. B. OLD, 3, St. Jude's Avenue, Mapperley, Nottingham. (Telephone: Nottingham 64166).
 G5GK.—W. GIBB, 30, Commercial Street, Mach Inch, Scotland.
 G5QA.—Herbert A. Bartlett, The Laurels, Old Tiverton Road, Exeter.
 G5US.—J. Croysdale, "Beamsley," Carlton Drive, Gatley, Cheshire.
 G5WF.—W. F. FLOYD, "Porthmeor," West Way, Neasden, Middlesex.
 G5YU.—C. F. SCRUBY, "The Limes," Station Road, Basingstoke.
 G6GD.—S. H. GOODWIN, 8, New Barns Avenue, Commonsides East, Mitcham.
 2AZL.—W. PAYLOR, 25, Acre Crescent, Middleton, Leeds.
 2BFH.—W. GRAHAM, 5, Ratcliffe Street, Donegall Pass, Belfast.
 2BHK.—R. BARR, 4, Dunkeld Gardens, Oldpark Road, Belfast.

The following are cancelled:—GI6MU, 2AJC.

I should like to say how much I appreciate having been re-elected to fill this capacity for the year 1930, and can assure members that the QRA sub-committee and I will continue to do our utmost to keep this section at tip-top efficiency. I think

this the right time to make mention of the wonderful help afforded me by Miss Dunn of G6YL. Without her admirable assistance in the matter of collecting and sending me new QRA's the task of running the section would have been an almost impossible one. She more than justifies her place on the sub-committee.

News has just come to hand from YIILM that he is leaving Iraq for India, and will be unable to handle cards for YI stations in the future. He has promised, however, to try and find another station which is willing to undertake the work.

NEW MEMBERS.

- W. HOSIE, Esq., 165, Woodgrove Road, Burnley, Lancs.
 A. DOWD, Esq., 1,014, Union Avenue, Hillside, N.J., U.S.A.
 F. H. JACKSON, Esq., 24, Snowdrop Street, Kirkdale, Liverpool.
 J. F. J. STEFFENSON, Esq., Ehlersvej 8, Hellerup, Denmark.
 E. R. RADFORD, Esq., 11, St. John's Villas, London, N.19.
 C. T. STOBBS, Esq., 83, Dalewood Road, Sheffield.
 W. R. SMITH, Esq., 19, Cassio Bridge Road, Watford, Herts.
 S. W. CUTLER, Esq., 15, Queen's Gardens, Ealing, W.5.
 H. C. D. HORNSBY, Esq., The Quarry, Cramlington, Northumberland.
 W. E. WHITE, Esq., c/o Caretaker, Waights Buildings, Grange Road, London.
 D. J. HOGAN, Esq., 110, Hubert Grove, Stockwell, S.W.9.

B.R.S. NUMBERS ISSUED.

271. F. H. JACKSON, Esq.
 272. E. R. RADFORD, Esq.
 273. P. D. WALTERS, Esq.
 274. W. HOSIE, Esq.
 275. W. R. SMITH, Esq.
 276. C. T. STOBBS, Esq.

B.R.S. NUMBERS RELINQUISHED.

225. L. R. SEAL, Esq. (now 2BIC).
 257. E. J. ARMSTRONG, Esq. (now G2RM).

QSL Section.

BY J. D. CHISHOLM, G2CX.

It has been the practice of some London members in the past to hand the QSL section a sum of money to cover the cost of a supply of stamped addressed envelopes instead of sending envelopes to the section themselves, and it is thought that other members may like to avail themselves of this convenience.

The QSL section will in future, therefore, be able to supply stamped (to the value of 1½d.) and addressed envelopes at the price of 2d. per envelope. The envelopes are of the regulation size—6½" × 4½", and will take all but the very big cards without bending being necessary. Extra stamps for those who desire to have their cards in batches weighing more than 2 oz. will be supplied at the extra cost of the stamps.

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Owing to the lack of space in the BULLETIN these days it has been decided to discontinue the monthly lists of unclaimed cards and to insert in their place a quarterly list as it is thought that the poor response does not warrant a more frequent list.

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The R.E.F. Abroad.

The R.E.F. has now more than 950 members, of which a certain number are distributed in the French colonies, and these are not the least active. Several make regular contact with French stations, which proves the possibility of short-wave communication between France and her Colonies. On this point only the R.E.F. would show its usefulness.

The Northern Africa section, which includes Algeria, Tunis and Morocco, is one of the most active of the Colonial divisions. In Algeria FM8EV, FM8JO and FM8IP are very active, as well as Artigue, who has just made the first contact (Algeria-Finland) on 28 M.C., and who has been heard on this frequency in U.S.A., whilst the oldest member of the section, FM8AY, makes each day interesting contacts, whilst FM8KR transmits wonderful phone of a type which one very rarely hears an equal in France. In Morocco CN8MA and CN8MB represent the R.E.F., working frequently the whole world.

Central Africa has few amateurs, except in the Cameroons. Some amateurs do their military service in the Sahara and transmit on short waves, but they have to surmount numerous difficulties because of the transport of material, etc. In the Cameroons FQ0CYA, FQ8HPG, FQPM, FQ8WB hold regular schedules with the Metropolis (Paris), above all with F8JC. FQPM principally works with U.S.A., where he is received well.

Madagascar last year possessed FB8HL and FB8AA. They communicated easily with France, but FB8AA seems to transmit no longer, and FB8HL has left for Comores, where he will start up again without a doubt; this will be an interesting DX to work.

In the Island of Réunion (RYC ?) the commercial station occasionally works with amateurs. In a more southerly direction in the Kerguelen Isles we have the French ships FBBC and FPCA. This last, we believe, has sometimes been heard in France, but contact has not been made, in spite of the numerous attempts, and the interest that it presents.

In Oceania OOBAM of Papeete (Tahiti) works successfully with the amateurs in the Pacific, but contact with France is most difficult. 8XZ in New Caledonia was QSO with France in 1926, but we have no more news of him now.

Indo-China is certainly the most active section, but it is very difficult to hold regular traffic with this colony.

Lastly, at Tonkin several Frenchmen and HVA communicate with France.

Syria is well represented in R.E.F. by AR8UFM, AR8LMA, AR2GB, stations which are received very well in France. In China several French stations are active, but contact with France is one of the most difficult, and these stations are rarely heard. They work principally with Pacific Coast of U.S.A. and Oceania.

Erratum.

"Alternating Currents and the Magnetic Circuit," page 69, of the September issue, for 2π read $2\pi f$, where f is the frequency.

NOTES & NEWS FROM THE BRITISH ISLES.

DISTRICT No. 1.

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

G6CA is using 10 watts in COFDPA circuit, and on 7 and 14 M.C. has worked most of Europe. G5DC is carrying on the usual fone and television tests. Power supply is now from A.C. mains instead of accumulators. G2GA is in the act of getting on the air at his new QRA, and should be doing some good work soon. G5KL has been QRT since March, but is now getting ready for the dark nights. 2AUH is swotting Morse in preparation for the usual ordeal. (Best of luck OM—G6BJ.) G5JF is at present re-erecting his aerial through its collapse in the recent gales. Has worked 24 countries on key with 3-4 watts input, best DX Nijni-Novgorod and Azores, also 10 countries on fone on 7 watts, best DX EU5. BRS269 and BRS274 are new members, who are at present building receivers and swotting Morse. We expect some FB reports from them soon. G6BJ has been on the air for two months and has worked 22 countries, including Canary Islands, using 10 watts series fed to a BTH PX650 in TPTG circuit. Now starting up on 14 M.C. Will be on C.C. shortly, and would be glad of reports from BRS stations. Station visits include BRS269 and G6BJ to G6CA, G5DC, G5JF and G5MS, 2AUH to G2GA, and BRS 269 and 274 to G6BJ.

No reports have been received from the Isle of Man, and I shall be glad to have an offer from someone who will act as sub-representative for the Island. All grouses and suggestions welcomed, but don't all speak at once! We hope to hold a Conventionette during the Manchester Radio Show, probably with a visit to Ferranti's or some other works. The date is not yet fixed, so will all who may be able to come write me immediately for details.

DISTRICT No. 3.

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

Cheshire.

G5BR—a fair amount of work is being done on the 14 M.C. band C.C. with 16 watts input, also the 1.75 M.C. band has attracted attention for local working. He would be pleased to see any fellow hams who will pay him a call. (The 'phone number is Altrincham 1342.) G2VP—little done here except local fone and duplex telephony with G2CG. G2CG now using an L.S.5 with 220 volts chem. rec. A.C. G5FC—DX now 16 countries, but not got out of Europe yet. Also getting ready for 500 volts rec. A.C. 2BHI—QRN has been very bad on 14 M.C., but reception is improving. The 1.75 M.C. is OK, best DX reception being 200 miles. Crystals are occupying much of his time. BRS234 has found DX conditions very bad on all bands, but states that he is interested in skip and fading, and asks if it would be worth joining C.B. for he is only home three months of the year. (Why not, if you are interested?) He has also passed on nine very interesting points *re* the ultra short waves, which I intend to put through to the BULLETIN later

on. G2OA—the usual 14 M.C. working done, the greatest DX being Pozen and Vienna with under 3 watts. A new half-wave Zepp antenna is contemplated. G6TW—the usual 56 M.C. tests have taken place. Until any real success can take place on this frequency there must be a radical change in receiver design, viz., very short band to be covered by condenser with about 100 to 1 motion.

Monmouth.

By G2HH.

Now that holidays, etc., are over, work has recommenced here. G6TH and G6MT were heard on 1.75 M.C. band and appeared to be engrossed in some intricate microphone tests. Say, OM's, you give reports to each other and other amateurs, why not send one to 2HH for the R.S.G.B. Notes and News? G6PF is now free from all labours for a while and is on his R.X. again. As he goes to London for college work soon, he tells me that he hopes to keep in touch with radio via the R.S.G.B. meetings, etc. Now, you fellows in town, see to it that G6PF does not lose interest. I will give his QRA later. G2BG has now steadied down and will be transmitting by the time these notes are in print. Some of G2BG's friends on 7 M.C. will welcome his return to the ether. 2AWT has been QRX on S.W., but reports conditions are not very good. He looks forward to the activities of 2BG and G2HH, now reopening on 1.75 M.C. band, which was the local atmosphere and is interesting. BRS239 has hitherto worked on indoor aerial, but this station is now being fitted with an outdoor aerial and wet H.T. BRS237 has been working hard with G2HH in the rebuilding of G2HH for 1.75 M.C. G2HH has, in addition, done a little 3.5 M.C. work, but conditions and QRN have been bad. That's all, OM, next month should be interesting, as G2BG, G6PF, 2AWT and myself will be in London at various times. I shall be visiting a bit and information exchanged should liven things up.

DISTRICT No. 4.

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

I am very pleased to have received eight reports this month. Conditions have been extremely bad since August, but surely there are more than three active transmitters in the district. I hope more of you will report next month. G5CY bought motor cycle a month ago and now a car, so has not done much radio except for a few QSO's on 7 M.C. at week-ends. Is still trying to raise DX on 14 M.C. and hopes to W.A.C. (S.A. and Aus. required) by Christmas. G5BD worked five Continents on 14 M.C. Finds U.S.A. almost too easy (when conditions good). Found 14 M.C. almost dead from September 6 to 19. Is still waiting to hear first signal on 28 M.C. Comparing Zepp. readings—maximum aerial reading, or maximum aerial resonance. G6HK experimenting with S.F. Ultraudion CKT and finds radiation better. Different antennas tried but gone back to the Zepp., the best ever for QRP. Reported heard in Madagascar when using 4½ watts input. 2BDG ex BRS112,

has just concluded weekly sked with OK4HL, latter now being ship's operator. 2BIC, ex BRS225, is hearing all Europe on 7 M.C. and some on 14 M.C. Building T.P.T.G. for QRP. G6UO reports from Cape Town. Has applied for licence there, and has 25 watts ready to be put out on 14 M.C. as soon as this is granted. G6MN corrects my QRA list, but sends no report. BRS245 after eight weeks QRT (at B.T.H. Rugby) heard all Continents except Asia on 7 M.C., also super QRN. Entirely rebuilt his receiver and erected new aerial, but has included threshold howl in RX!

DISTRICT No. 5.

Representative: D. P. BAKER, Crescent House, Newbridge Crescent, Wolverhampton.

Staffordshire.

G5UW reports several contacts with VK, and most South America, while conditions have been generally fair. G2OQ has been busy building a new transmitter which he has just got working at the time of writing, but has not had time to carry out any definite tests. He has had the kind assistance of G5UW during the work.

Warwickshire.

By G6CC.

G5BJ has been very busy preparing for the Show. He reports DX on 14 M.C. very bad. G5ML is using a new $\frac{1}{2}$ -wave Zepp. on 14 M.C., and during bad conditions has made many contacts. Best are WFA (base of the Byrd South Pole Expedition) reported QSA4, SN1AA, ZP2WS, Peru, India and South Africa. G6CC has put in all available time erecting a new mast. He has found 14 M.C. band very poor and 7 M.C. very crowded. G6CI has been on 7 M.C. band CT2AA (Azores) reported R8 signals. Most European countries have been worked. G6XJ has been very busy preparing for the Show. DX on 14 M.C. band hopeless this month.

DISTRICT No. 6.

Representative: G. W. THOMAS (G5YK), 169, Hills Road, Cambridge.

The Cambridge gang have been very inactive lately. G5YX, G6CR and G5YK have done a little work, but the rest have, presumably, been taking holidays. BRS204 has had good results with the receiver; he complains of QRN, and is experimenting with a wavemeter. G2HJ has been station visiting and regrets he will have to miss Convention. G6DG has commenced operations, again using harmonic control from a crystal; he finds the other C.C. system too expensive. Has worked YK2XX on the 7,000 K.C. band. Next month 2ABK, as your new representative, will be pleased to receive your reports. It has been a pleasure to me to collect these reports during the past year, but the pressure of other Society work has forced me to give up the work. 73 to all the district.

Essex.

By 2ABK, "Hepani," Wickford, Essex.

I am afraid notes are very scarce again this month, but as I have heard very little of Essex stations working on any frequencies, it is not unexpected.

G5RV has got new M.O.P.A. going and gets T9 each time! Trying hard on 14 M.C., but dud so far. G2SA has worked local Europe on 7 M.C., and raised WIBFT on his second test call on 14 M.C. BRS77 has a nil report; he paid a visit to

2ABK and BRS191. G6DH has been working a Q.R.P. transmitter XG6DH with 1 watt in camp; he was heard here, but I do not know what DX he has done. BRS191 and BRS233 are both active with the receiver, and the latter is now suffering from business QRM. 2ABK has heard nothing on 28 M.C. and is trying 56 M.C., but so far only heard harmonics of his own 7 M.C. closed circuit oscillator.

DISTRICT No. 7.

Representative: H. C. PAGE, Newgardens Farm, Teynham, Kent.

Surrey.

By G2VV.

G5CM working with harmonic C.C. on 7,099 K.C. is using .84 of a watt. G2DZ finds conditions very poor on 14 M.C. Good DX contacts are being maintained. G2RT has erected new aerial and is reconstructing his receiving apparatus. G6LK is preparing apparatus for 56 M.C. work. G6GS is active on 7 and 14 M.C. bands. G2VV is working good DX on 14 M.C. with low power. G5WP is active on 14 M.C.

Sussex.

By G5UY.

G5AQ and G2DT are still building, but hope to be on the air soon. G5UY is suffering from battery trouble, but hopes to be on again soon. He would like to get into touch with one or two of the BRS stations in Sussex.

Kent.

G6PA has been busy designing a new 28 M.C. transmitter, has also been getting ready for the Show, so has had little time for radio.

DISTRICT No. 9.

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

Conditions during September on the 7 M.C. band have been patchy, and thoroughly bad on the 14 M.C. band, with further trouble from atmospherics. At the moment of writing (September 24) there is a very great improvement in conditions. The holidays are now at an end and many are preparing for the winter season. I hope, therefore, for many more reports during the coming months.

G5FS has been on holidays and has sent no report. G5QA has been using 3 watts only, and has worked W1234 and daylight QSO with SU and OH. Is working a regular schedule with WIOM and is making a start on 28 M.C. G6RR has been on the 14 M.C. band and worked W12348, YI1MDZ, AU1AK, PK4AZ, YA3PC and now wants South America for W.A.C. Will now be QRT until December. Reports visits from G2DZ and G6HP, and has himself visited G6WT. G6UG has been on holidays, and is shortly opening up on the 7 M.C. band. G6XB has been on holidays, too, and has visited G6RB and G6ZR. Has rebuilt his transmitter with very much greater efficiency. Is using a P.A. on the 7 M.C. band. G2YX has started the winter programme, but has decided to rearrange the whole station, which will involve much work and time. Has been carrying on the usual sked with G2OP. G2OP has been troubled by the bad conditions but managed to work W on QRP. Has spent much time on a new screened three for the 14 and 28 M.C. bands with 100 per cent. improvement on the usual three. BRS212 has now returned from Rugby and has logged a new country, SN1AA.

Has constructed a new tube base receiver. BRS242 reports excellent reception of K4KD and ZL4AM, but generally bad conditions. BRS254 has also logged SNIAA, has also been troubled by the bad conditions. Found the best time for 14 M.C. was about sunset, and the early evening best for 7 M.C.

DISTRICT No. 10.

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

In introducing the first Tenth District Notes under the 1929-30 regime, I wish to emphasise that if the notes are to prove a successful feature of your journal, it is up to each and all to do his best to provide subject matter. The tenth district possesses well over 50 licensed stations, besides a number of A.A. men and B.R. stations. Surely, out of this number we can provide more than a mere half-dozen reports? From personal observation I am satisfied that quite a number of stations are still active, whilst I am equally convinced that several A.A. and B.R.S. men are doing active work preparatory to becoming full-fledged operators. Let me therefore have a few lines or a call by land line on or about the 25th of each month.

G5UM has little to report except to compliment G5RV on the excellence of his station, which was visited during the month. G6XN has also been inactive, but on the few occasions he touched the key he worked the usual Yanks around the East Coast. Schedules on 56 M.C. have been kept, but no luck has attended his efforts. G5HJ has made a start on 14 M.C. and reports two contacts with Cairo. He will soon be at a new house where the mains will solve his supply problems. G6PP is very fed up with 14 M.C. He can do nothing on that frequency, although he reports that VS7AP has again heard his signals. He has fixed a schedule with him and hopes to very soon get a contact. G5QF and G6UN have had little time for radio, but will, I hope, have some news soon to report. G5QF has been testing an Ultraudion and thinks it will prove in when he starts in earnest. G6CL has continued testing on 14 M.C. and during the early part of the month had numerous American contacts. Conditions seemed to go bad (except for PY) after the coming of the new moon. One or two tests without an aerial on the transmitter show that stations up to 500 miles can be worked with inputs as low as 2 watts. To properly test this condition out, it is realised that the normal antenna should be disconnected. This will be done at an early date. Meanwhile, G6CL will be glad to hear if anyone else has experimented in this direction.

DISTRICT No. 11.

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

As I have only received about seven reports from an area containing some sixty active stations, I do not think it worth while including them in the Area Notes this month. In future months I shall not write the reports up unless there are more than a dozen, as I suggested in last month's notes.

DISTRICT No. 13.

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

As no nominations have been received by headquarters for a new D.R., I have accepted their invitation to carry on during the coming year. I

am only too glad to do all I can for the area, but you yourselves must do your part in sending me reports. This month has produced the least number of reports since I have had the privilege of writing them up, and it is hoped that in the future you will all do what you can to assist me in this respect. G6WN has been on 28 and 14 M.C. half the month, with little DX. G6VP has W.A.C. several times and has found things very erratic. Is still trying hard to cure his chirp, with very little success. Has spent more time on the set than the ether. BRS72 reports that owing to holidays he forgot last month's report. Has applied for full ticket and awaits reply. (Good luck, OM.—D.R.)

DISTRICT No. 14.

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

This month there is very little of note on which to comment. Conditions on the whole have not been good in Scotland, and during practically the whole period under review the ratio of static to signal strength has been much too high for comfortable working. 56 M.C. does not appear to be so much troubled by this as the other bands. 28 M.C. has been practically dead. 14 M.C. very patchy indeed, with very rapid fade-out. 7 M.C. has been the customary babel, with the added annoyance of the ever prevalent "X."

None of the Scottish stations, apart from G6MS, appear to have touched the 1 M.C. band. What about it for the local work, OM's?

During the month I had the pleasure of a further visit from Dr. Curt Lamm, and he has promised to endeavour to have his next visit coincide with the "A" District monthly "rag-chew" in order to meet with some more of the "hams."

I am sorry to have to record that our old friend G6VO has found it necessary to give up radio entirely for the time being, and can only assure him of a welcome if at any time he should find it possible to return to the fold.

I shall be obliged for information as to the whereabouts of BRS87 and BRS218, who appear to have changed their addresses. A further change of address is that of G5GK, whose new QRA is 30, Commercial Street, Markinch, Fife.

An interesting afternoon was recently spent by 5YG and 2MA at 6WL. The aerial system snapped in a high gale, and as it is a "four-point suspension" system to trees approximating 100 ft. high, the afternoon was spent in proving that old Darwin wasn't so very far out with his theory. Eventually all was OK, and 6WL treated us to an interesting demonstration of 56 M.C. phone.

"A" DISTRICT.

Representative: DAVID D. MARSHALL (G2MA), 41, Kelvinside Gardens, Glasgow, N.W.

2IA has not been able to get going, owing to exams. and sickness at home. 2MA found conditions on 14 M.C. poor, but nevertheless managed to QSO Australia. A little has also been done on 7 M.C. 5CL has done a little on 7 M.C. Is having trouble with his M.O.P.A., and proposes to try T.P.T.G. for a change. 5YG and 5XQ are on holiday. 6MS has been very active on 7 M.C., and has again "worked" all Europe on 7 watts to an M.O.P.A. TX. A little was done on 14 M.C., but apart from a few European contacts did not do much. 6NX on the 14 M.C. band all month, and reports conditions hopeless. He intends going

down to 7 M.C., but on that band he has much more trouble from tramcar and motor QRM. 6WL has been doing work on the 56 M.C., 28 M.C. and 14 M.C. bands. On 56 M.C. he has "shot" his fone three miles, and possibly further. 28 M.C. he found dead, but had some good results on 14 M.C., working WFA the base station of the Byrd Antarctic Expedition (750 miles from South Pole); also a QSO with a Chilean "7" way down in Magellan. 6WZ business has once again prevented a start.

[D.R. please note in future call signs should be prefixed with letter "G."—ED.]

"C" DISTRICT.

Representative: J. B. STURROCK (G6KO), Kirkbuddo, Forfarshire.

G6KO laments no reports from his district. He himself has been active on 14 M.C. with a little 7 M.C. work on Sundays. He has listened a lot on 28 M.C. but reports only hearing one station, W1AZE R7, on September 9, 1929, at 20.50 G.M.T., who was on 12.5 metres. WQA and NKF were also heard, also harmonic of I.S.D.

DISTRICT No. 16.

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

It is with regret I learn that Mr. E. Megaw (GI6MU) has given up his licence in consequence of his having gone more or less permanently to London. He was one of the first licensed GI transmitters, and has a wonderful record of "good work" done, and in addition to being one of our most active stations, he was always ready with a helping hand to any of the other transmitters. On behalf of all the GI's I express our appreciation of his services and wish him every success and the best of good luck.

The following stations are still inactive:—GI5WD, GI5HN, GI2CN, GI5MO. GI6WG is working on 7,000 K.C. and 14,000 K.C., mostly at week-ends, and reports fairly good conditions on both bands. GI6YM is the Belfast Y.M.C.A., and the transmitter is worked by GI5HN. A little work has been done on 7,000 K.C. GI6YW has been working on 14,000 K.C., and made contact with the Argentine, using a hand generator. GI2WK is rebuilding for C.C. and greater efficiency, and hopes to get going again in October.

IRISH FREE STATE.

Representative: COL. DENNIS (EI2B).

Just at present most of our stations appear to be in a state of suspended animation, and I have only one report this month! EI7C was active in the earlier part of the month, and reports that 14 M.C. conditions were then good, and he worked VE, W, and PY twice, but he has since been able to do very little on account of hospital and other work. EI2B was away during the first half of the month. Since his return he has found conditions on 14 M.C. hopelessly bad at his station, and has therefore devoted any available time to modifications of his feeder system with a view to facilitating changes from one band to another. Recently an all too short visit was paid to EI7C, and he was much interested in all he saw at this up-to-date station. He, and no doubt, also, the other stations who applied for it, has just received the long deferred extension of his licence to cover the use of the 28,000 and 56,000 K.C. bands. All the EI stations on 14 M.C. band, with one exception, are now C.C.

Notes and News from Europe.

GERMANY.

By W. RACH.

During the month of August DX conditions on 7 M.C. were very bad. Although the American stations came in at good strength, up to R9, it was impossible to QSO them, and they only worked each other.

On 14 M.C., however, the conditions were fairly satisfactory. D4AN had a large number of DX QSO's, mostly in the late afternoons. Also D4BY reports that he was able to work LU, VK, ZL and PY one Sunday morning with 8 watts.

There is nothing to report at the moment about 28 M.C.

The most important event was the Great German Radio Exhibition from August 30 to September 8. The D.A.S.D. had a stand there and exhibited a complete amateur station. A meeting was held coincident with the exhibition on September 7, and the attendance was good. Among others, FR, EARB and RY1C were present, in addition to large numbers of our own amateurs.

Hams who visit Berlin are asked to report to the H.Q. of the D.A.S.D., Berlin W57, Blumenthalstrasse 19. (Telephone: Lützow 9148.) We are always very pleased to welcome every OM who visits our city.

CZECHOSLOVAKIA.

By L. VYDRA (OK2YD).

Since these notes were last published, the old

Short-Wave Section of the "Radioclub Czechoslovak" have formed an entirely new society, officially known as the Czechoslovak Shortwave Amateurs' Club, or, abbreviated, as KVAC. This Society will follow the aims of the old R.K.C.S., and we hope for the same co-operation as before with our friends in England and the Dominions.

This Society will now be the official organisation for amateurs in this country, and among its many activities, will undertake the distribution and dispatch of QSL cards.

The activity of our members has fallen off of late owing to the calls of summer and to bad atmospheric conditions.

Conditions on the 7 M.C. band have been hopeless on most evenings, owing to bad interference and heavy static.

On the 14 M.C. band, conditions were a little better, but the reception of distant stations was very irregular, and not at all as consistent as in previous years.

HOLLAND.

By J. H. KOEN, M.Sc. (PA0CX).

Due to summer-time conditions, all radio activities were only minor ones during July. The 7 M.C. band was rendered useless by static and bad phone. European contacts on that wave-length were far from being a pleasure. The 14 M.C. band on some occasions was good for DX. Our East Indian Colonies were worked on occasions. The

28 M.C. band was completely dead. Transmission, as well as reception, on this latter frequency gave no results. Up to now no official licences have been given by the authorities, the reason being that only a few of us made applications for transmitting permits. The majority of the pirates think the theoretical part of the exams. were of too difficult a nature, and therefore are waiting for the results of the first exams., which have been passed by the small contingent of amateurs who asked for permits.

Strays.

The Philips Amateur Shortwave Transmitter welcomes reports on their transmissions, whether C.W. or otherwise, including time (G.M.T.), frequency, signal strength, tone, and any other data likely to be of service. The wave-length is approximately 41.3 metres, and the call PBF5.

ZU6N should be in this country by this time for a long stay, and G6NT will be pleased to put anybody in touch with him.

Manchester Exhibition

Messrs. Claude Lyons, Ltd.'s Stand, No. 95, will be the headquarters of R.S.G.B. at the forthcoming Manchester Exhibition.

Correspondence.

On C.C. and C.R.A.C.

To the Editor of T. & R. BULLETIN.

DEAR SIR,—I feel I may be able to assist G6ZA in a few of the points raised in his article appearing in the August issue of the T. & R. BULLETIN, and that is my excuse for writing this. First, regarding the LS5b which takes 60 milliamps. at 400 volts and 80 volts negative grid bias when driven hard and used as a frequency doubler, yet when used as an amplifier takes 7 milliamps. with only 10 volts negative grid bias. Now, an amplifier can be run at an efficiency of 78.5 per cent.; I don't mean all our amplifiers do run at that efficiency, but it is the theoretical maximum, and then only possible when all the various constants are correctly adjusted. Frequency doublers are, at the best, inefficient; I think I am correct in saying that the efficiency of a frequency doubler is good to be as high as 25 per cent., whereas under ordinary practical conditions an amplifier would be about 60 per cent. This may in some manner help to explain the heavy feed current to the frequency doubler. It is presumed that G6ZA has measured these currents when the plate circuit has been tuned to resonance, either to the fundamental or to the half wave, and without being loaded. In these circumstances the LS5b, as a frequency doubler, might have been expected to consume 25 milliamps. and, as an amplifier, about 10 milliamps., or less, but with the same grid bias, *i.e.*, 80 volts. LS5b valves will stand up to heavy treatment for a certain time as long as the filament temperature is correctly adjusted, but will not stand up to 60 milliamps. in a R.F. circuit indefinitely.

Now, regarding the use of "separators" after the crystal oscillator; a separator is a neutralised amplifier, carefully shielded and arranged so that no grid current is taken. This calls for the use of a low impedance valve, heavily biased and under driven. Such a stage is hardly within the scope of amateur transmitters in general. If, as asked by G6ZA, the valve following the crystal stage is a frequency doubler, the plate circuit of that valve, or any circuits following the plate circuit, could be modulated without appreciably affecting

the frequency of the crystal oscillations. Frequency doubler circuits rarely require neutralising, excepting when oscillation occurs between the stages; in this case a slight rearrangement of the components, or the addition of a little screening, would meet the case.

At the present time I should like to say a few words concerning the correspondence published on page 37 on the subject of chemical rectifiers. I don't think Mr. Gibson is quite correct in stating that large electrodes should be used. This is true for the lead ones, but not, I think, for the aluminium ones. I have not the figures with me at present, but about five years ago the result of some interesting experimental work by Mr. E. H. Robinson was published in *Experimental Wireless*. In this he showed that the surface of aluminium exposed to the electrolyte should be smaller than that commonly used, and that for the rectification of 50 cycle A.C. an area of only 1 sq. cm. per 5 milliamps. was the most satisfactory from the efficiency point of view. For higher frequencies a smaller area was required. Mr. Robinson rectified some 500 cycle A.C. with only very small aluminium electrodes, and obtained efficiencies considerably higher than those previously obtained. I think it is generally thought that the chemical rectifier is useless for the rectification of anything except the lowest frequencies. I have found that a ratio of 9 milliamps. per sq. cm. for 90 cycle A.C. has proved effective; the solution should not be saturated and should preferably be kept alkaline by the addition of .88 ammonia if there is any chance of it going acid. I have always used ammonium phosphate. A little medicinal paraffin on the top of the electrolyte will prevent excessive evaporation.

As the greatest rectification takes place at the point where the aluminium enters the electrolyte, and as the rectification should not take place in hot solutions it is advisable to slip a piece of thin rubber tubing over the aluminium so that the top-most point of the aluminium exposed to the solution will be about $\frac{1}{2}$ in. below the surface. (If aluminium wire is used, 2 mms. diameter, bicycle valve tubing

is suitable. Pure aluminium wire can be obtained from Messrs. Griffins, of Kingsway, W.C.2.) The solution is slightly warmed when rectification takes place, and this warm solution will then rise to the surface and the corrosive effect on the aluminium at the point where it enters the solution will be considerably lessened.

Both the aluminium and the electrolyte should be as pure as possible.

I fail to see how the use of a rectifier without a transformer can possibly interfere without the frequency of the supply company's alternators! From some aspects, however, it is dangerous to use such apparatus without a transformer on account of accidental short circuits to earth.

Yours faithfully,
"GAMATEUR."

A Protest,—

To the Editor of T. & R. BULLETIN.

DEAR SIR,—During the calibration service to-day (August 25) the 7059 KC. transmission was badly jammed by a British station, namely, G5BZ, who was using a T6 note, and calling a British station, of whom I have no record, namely, G2EL.

As a member of your QRA sub-committee, I should like to be able to trace this station G2EL, and as one of the regular takers of the calibration services, I would like to protest at the service being jammed at all, much less by a British station, who was using such a type of note.

Perhaps you can do something in the above matter against future similar happenings.—Yours faithfully,

A. M. HOUSTON FERGUS.
G2ZC (TBA),
Signal Officer, R.M.I.J.

La Cotte,
La Moye, Jersey, C.I.

—and an Appreciation.

To the Editor of T. & R. BULLETIN.

DEAR SIR,—May I congratulate you, and all connected with the publication of the "BULL.," on the very fine issue of September. This, I think, is the best copy I have ever read. I quite agree with G5JF that the "BULL." is getting bigger and bigger every month. This in itself must surely prove that the R.S.G.B. is, without a doubt, the only society for the real amateur. I, among many others, consider it an honour to be a member of the R.S.G.B. I feel sure that if the "BULL." improves at its present rate the time is not far ahead when it will equal, if not surpass, the A.R.R.L.'s Official Journal QST.

Whilst writing, may I make one suggestion? Isn't it possible to start a review of Members' Stations?

We all want to know a little about the other fellow's gear, and I see that QST has again made this a feature.

Come on, some of you OM's; it wouldn't take long to write a few pages to the Editor about your station, complete with a few photos. I've personally seen a few stations that would interest all readers. Won't somebody start the ball rolling and write up a few pages about his gear and the results obtained with same?

I'm pretty QRL here just now, but I hope before long to let the Editor have a description of my "stuff," although its not very "high power." Let's hear more about this subject OM's.

In closing, may I wish the Society and the "BULL." continued success?—Very best wishes and luck.—Yours sincerely,

JAMES N. ROE (G2VV).

"Minydon," Ridgway Road,
Farnham, Surrey.

[See important announcement in the next issue of the BULLETIN on the subject.—ED.]

A Day in Dublin.

To the Editor of T. & R. BULLETIN.

DEAR SIR,—I should like to thank through the columns of the T. & R. BULLETIN the various transmitters in Dublin whom I had the pleasure of meeting on my first visit to their city. They are the most hospitable bunch I ever met and I was given a very enthusiastic welcome wherever I went.

On arriving at Dublin I was met by R. D. Scott, of Scott Bros., EI7C, who, owing to the tram strike, had cycled to the station and brought a spare byke with him. (Lucky, I ride one!) We proceeded then to EI7C, and I was quite pleased to see the fine outlay which was there. (Very, very neat, O.B.'s). I had the pleasure of a chat with SB from EI7C, who extended the hand of welcome also. After dinner we went to SB, the O'Dyer Bros., and here again another fine outlay was before me, not as neat, but it lacked nothing in efficiency. I was quite interested in their "tape puncher" and "automatic sender," quite a useful thing to have about the place! After some time here we got along to "8C," Mr. Benson, and here again the "Dublin neatness" struck me. Mr. Benson has sure a great station. I saw the last thing in crystal control here, and the neatest arrangement of double transmitter in one frame with a switching affair to cut out the 40 metre set to 20 metre. I was very much interested in the whole thing. I had a nice talk on fone from 8C to 4D, who also asked me to come over to his shack: = (more cycling). On arrival at 4D the same neatness of outlay was noticeable. (I don't know how these Dublin fellows do it; my station is generally ankle deep in brass filings, ebonite dust and shavings!!) After a little discussion we had tea, and as the time was drawing short I very reluctantly had to say good-bye to these kind people. 7C and myself again mounted the iron horses and made for the station. (No doubt I should term this a cycling tour of Dublin, but I saw really nothing of Dublin!! Radio was what I went for.)

I bid farewell and dashed into the station just in time to get a seat in the train, after one of the most interesting days I ever spent. If anyone wants to know anything about how to design a station on crystal control let them write to Dublin; they will get to know all they want there!! And now let me thank you Dublin chaps for the kind way in which you received me amongst you, especially EI7C and 4D. The ham spirit still lives up to its traditions! = 73+.

ROBERT S. HOLDEN,
GI5HN.

The Chair Warmer's Club.

To the Editor of T. & R. BULLETIN.

DEAR SIR,—This morning I received a card from Radio W8BRS, of Pontiac, Michigan, U.S.A. He says that he has organised a club for "shut-in" radio operators, called the "Chair Warmers' Club," and would like to get in touch with some of the "shut-ins" of this country.

Not knowing any "shut-ins" myself I should be much obliged if you could find space in the columns of the BULLETIN to let the British hams know of the existence of the above club.

Yours faithfully,

W. G. P. BRIGSTOCKE,

Member R.S.G.B., Radio G2AOL.

36, Lincoln's Inn Fields,
London, W.C.2.

A Word from South Africa.

To the Editor of T. & R. BULLETIN.

DEAR SIR,—I received the BULLETIN to-day, and was at once reminded that the Convention is nearly here, although I am too far away to attend this time. However, although I cannot be with you in the flesh I will be with you in spirit, and I take this opportunity of wishing the old society continued success and also of wishing all old acquaintances a very 73. I have been impressed by the spirit of radio brotherhood which has always been in evidence wherever British hams congregate, and now I find that the spirit is truly international. I have been made very welcome by the various African hams whom I have visited, and I know they will join with me in sending best wishes to those who are keeping radio alive by social, as well as radio, intercourse.

I am awaiting a licence from the African P.M.G., and meanwhile am making new acquaintances here in Africa by transmitting under call-sign ZSXG. I will be glad of reports on my signals, and am hoping to QSO the gang when 20 metres becomes useful again. I am using 15 watts of T8 R.A.C., so look out for me, please. The BULLETIN is now the only thing which informs me how you boys are faring, so you guess I really appreciate it nowadays. I hope to be among you again next year, but meantime I can only repeat myself by saying 73, DX, and best of luck to all the boys at home. Cheerio, and may the Convention be the best ever.

Yours very sincerely,

EDWARD R. COOK (G6UO).

Cape Town, South Africa.

September, 9, 1929.

Calls Heard.

G—2bm, 2qh, 2zc, 2hd, 2gf, 2dx, 2rk, 2yu, 2nh, 2xv, 2av, 2sc, 2so, 2ax, 2cx, 2cu, 2sw, 2bi, 2qm, 2dn, 2dl, 5lw, 5yu, 5da, 5pl, 5jo, 5wk, 5bz, 5by, 5dr, 5bd, 5os, 5yn, 5sn, 5rm, 5mq, 5us, 5ad, 5ub, 5aq, 5bj, 5yc, 5ak, 5rs, 5wd, 6pa, 6sc, 6rw, 6rb, 6nt, 6iz, 6mc, 6co, 6wy, 6rd, 6xg, 6xj, 6gc, 6oh, 6no, 6ql, 6pf, 6dr, 6at, 6nh, 6nz, 6nx, 6hp, 6oo, 6mn, 6cl, 6xc, 6yq, 6vp, 6ch, 6fd, 6ll, 6lk, 6cr, 6wg. —ZLIGC, 1, Lisnow Avenue, Auckland, New Zealand.

By F. Noether (ex-D4ABN), Rio de Janeiro PY, c/o Syndicate Cond., Caixa Postal 356 :—d4ku, f8jc, f8ix, f8wb, g5az, g5gq, g5ms, g5ub, g6nt, g6wt, g6xq, on4bm, on4bz, on4fp, on4jj, on4oj, on4rs, oh2nag, sm4uk, ilcoc.

A. M. Ralim (VS7AP), Wellawatte, Colombo, Ceylon : g2nh, g2bm, g2ax, g5by, g5bz, g5da, g5lw, g5ml, g5qf, g5uq, g5ux, g5vl, g5wk, g5wp, g5yk, g5yx, g6hp, g6ll, g6nt, g6pp, g6qb, g6rb, g6vp, g6wt, g6wy, g6xc, gi5nj, gbj.

M. S. Killen, W.U. Radio Club, Horta, Fayal, Azores ; July and August :

7 M.C.—2ug, 2ak, 5fc, 5gs, 5is, 5lw, 5ml, 5qy, 5rv, 6ci, 6da, 6gx, 6hk, 6nx, 6rr, 6so, 6zs, gi6mk, gi5ot, ei8b.

14 M.C.—2az, 2bm, 2dv, 2kf, 2nf, 2oa (QRP), 2rk, 2xv, 2xy, 2yu, 5ad, 5bd, 5bj, 5bz, 5fs, 5ly, 5ml, 5mq, 5ms, 5pl, 5qa, 5rm, 5ub, 5uf, 5uq, 5ux, 5vm, 5wp, 5yk, 5za, 6ci, 6cl, 6dh, 6gc, 6hp, 6ko, 6lk, 6ll, 6mc, 6nt, 6pa, 6qb, 6qc, 6rb, 6sm, 6uh, 6uj, 6vp, 6wl, 6wn, 6wo, 6wy, 6xc, 6xj, 6xn, 6xq, 6za, gi5nj, gi6hi, gi6wg, ei2b, ei8b, ei7c, ei2d, ei2x, gbj.

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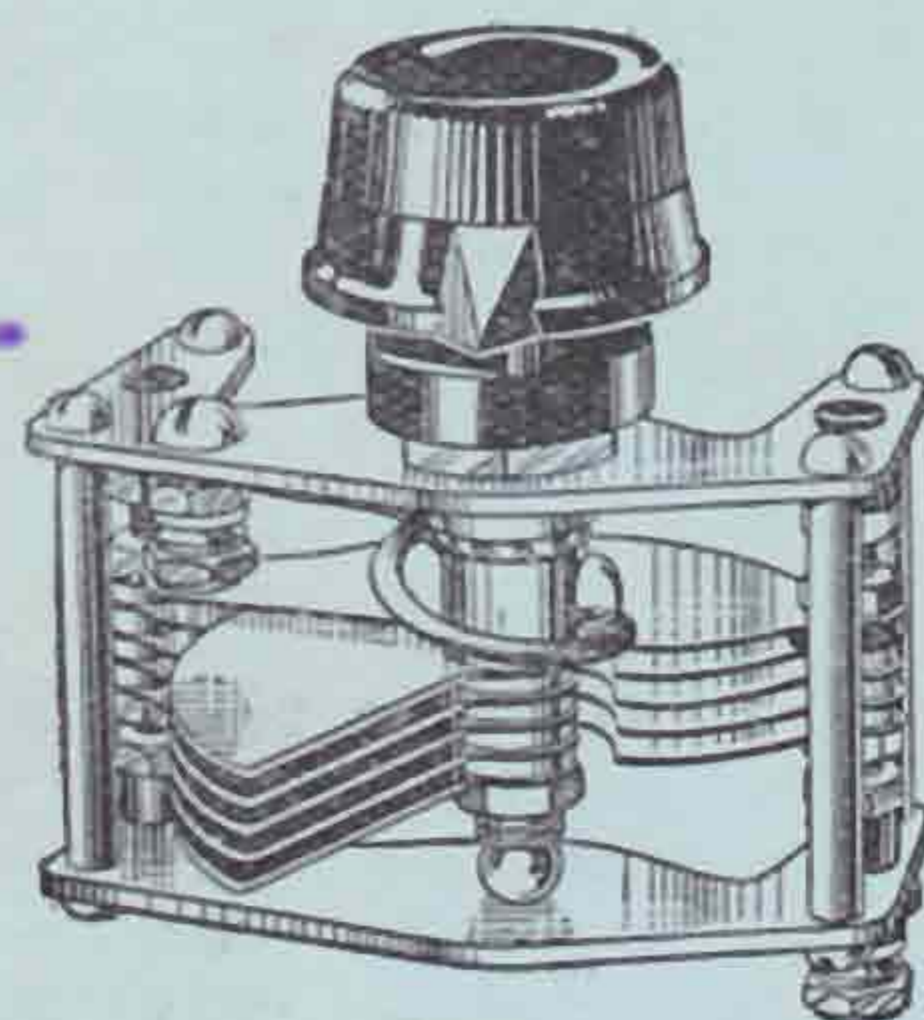
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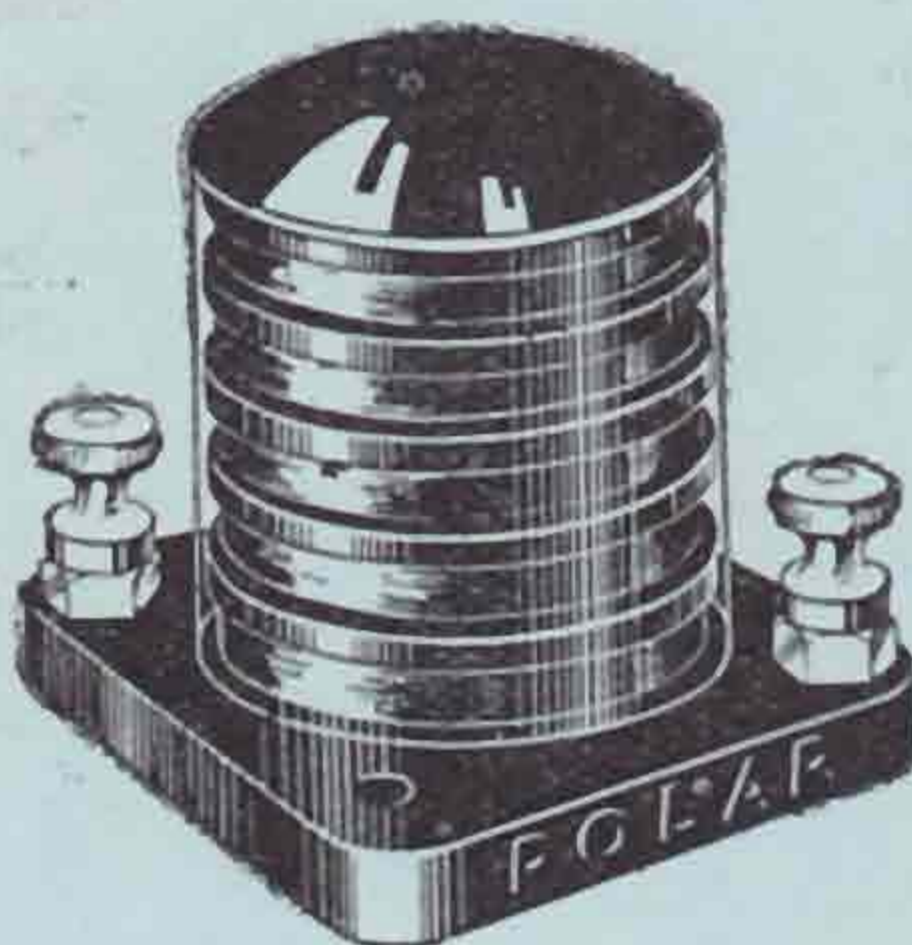
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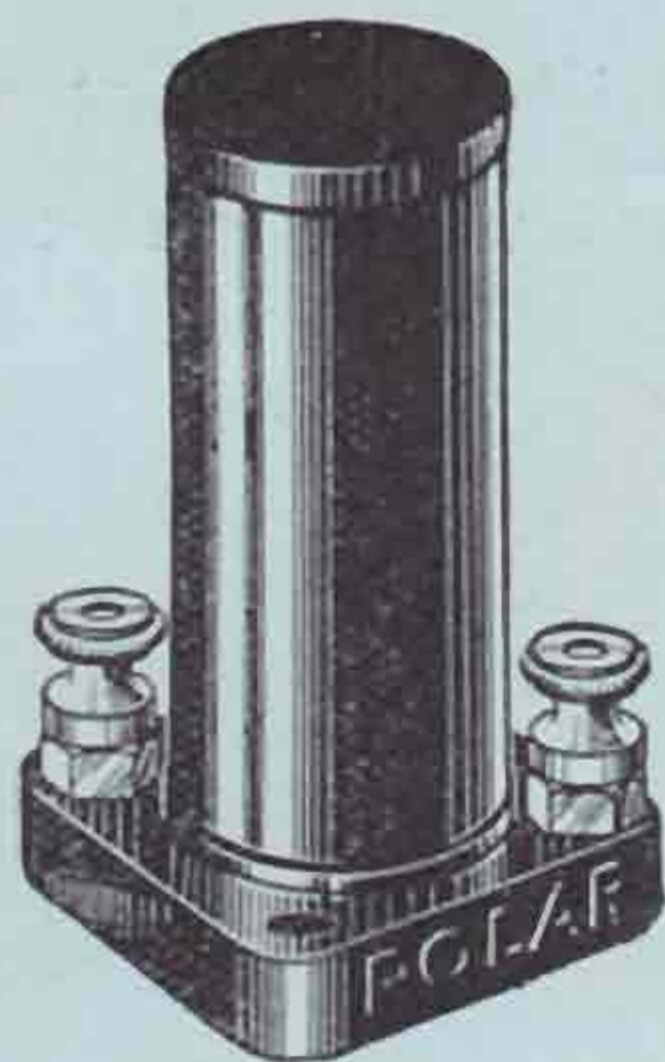
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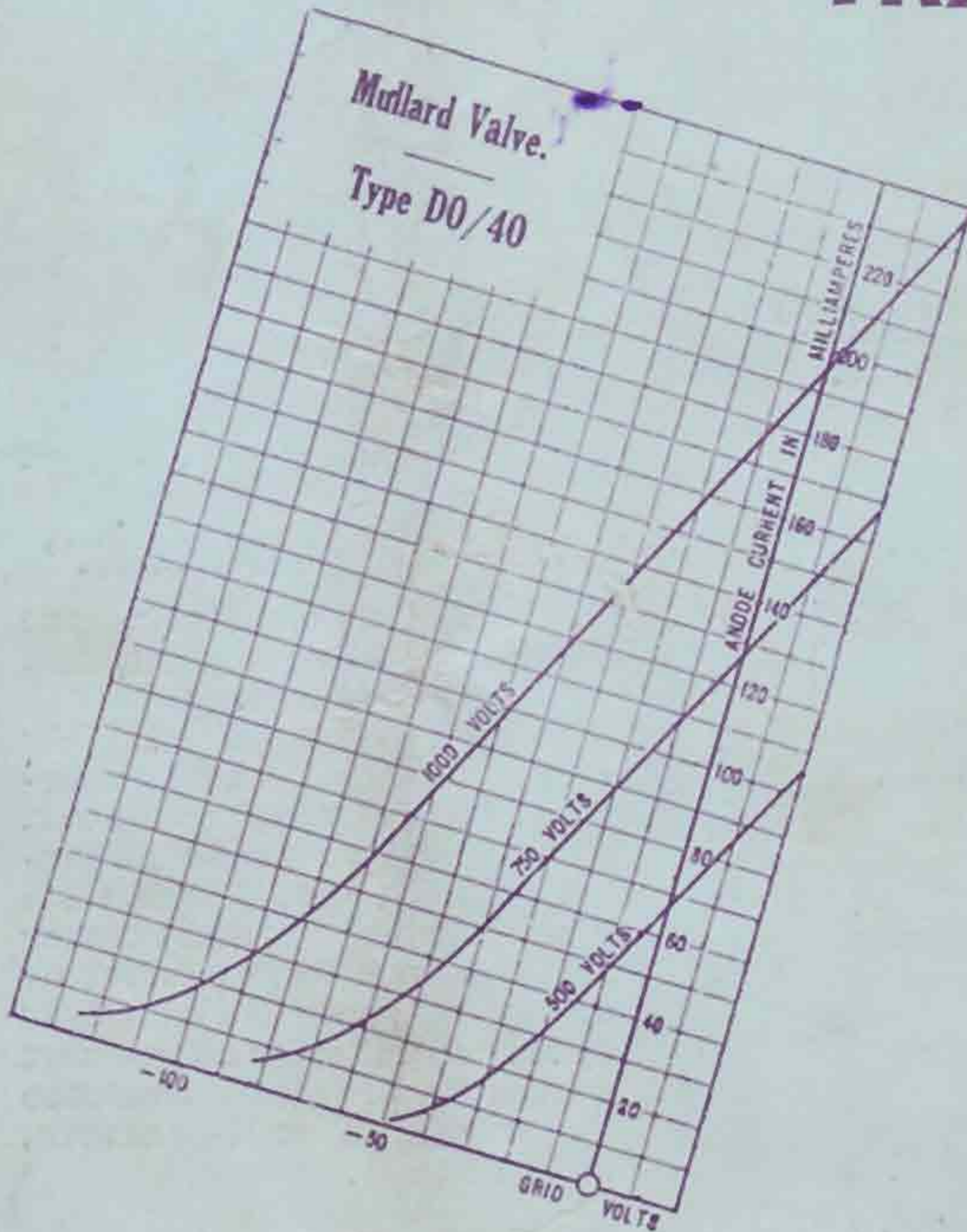
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