

THE T. & R.

BULLETIN

THE INC.
RADIO SOCIETY
OF GT. BRITAIN

AND THE
BRITISH EMPIRE
RADIO UNION

Vol. 8 No. 1

JULY, 1932 (Copyright)

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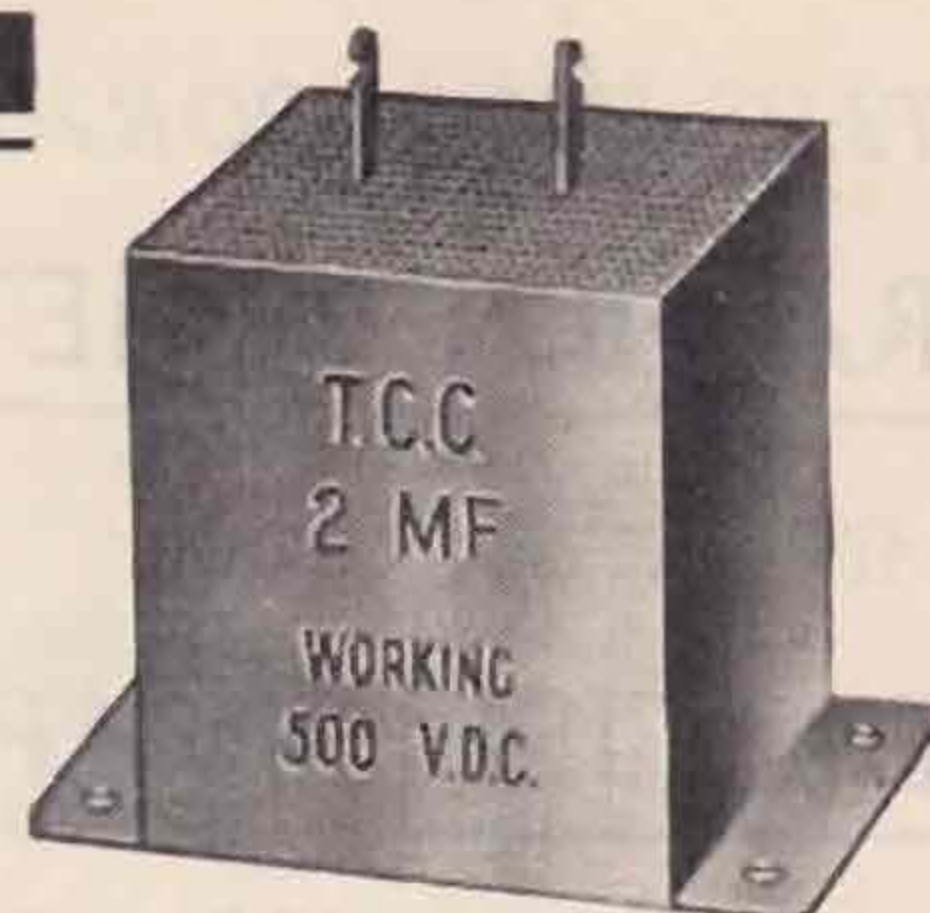
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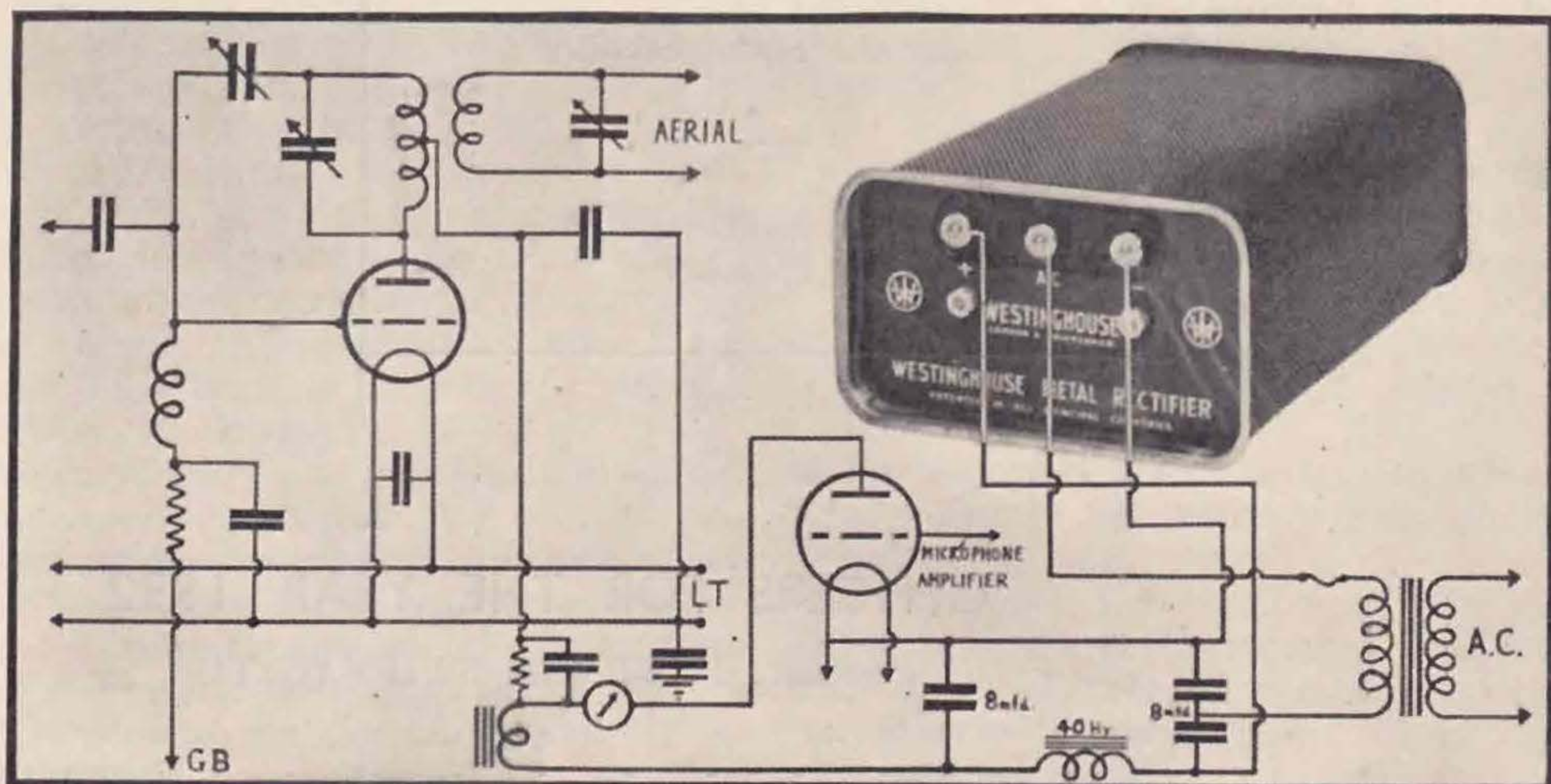
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Full details appear in this issue
 under the Social Section.

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Bulletin

*The only Wireless Journal Published by Amateur Radio Experimenters
in Great Britain*

Hon. Editor: G. W. Thomas (G5YK).

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JULY, 1932.

Vol. 8. No. 1.

VOLUME 8, NUMBER 1.

VOLUME 8, Number 1. It seems a long time ago when the T. & R. Section, as it was in those days, decided to have a Bulletin, which should be a four-page affair giving accounts of Society activities: it was going to save a lot of time and labour at Headquarters sending out notices of meetings to all members. Somebody, we can't remember who, thought we might be able to get some advertisements, and then the Bulletin might have more than four pages.

July, 1925, it made its appearance with 12 pages and the Editorial was written by Mr. H. Bevan Swift, in which he outlined the idea of the T. & R. BULLETIN. Praise was heaped on his shoulders and on those of his helper, (Mr. J. A. J. Cooper, G5TR). Somebody said he wanted to see the BULLETIN appear weekly. Then in December, 1926, a special Crystal Control number appeared (which does not mean to say that the intervening numbers had appeared dull—far from it) when the pioneers of Crystal Control, Simmonds, Goyder, Samuels and others, contributed.

We could carry on for pages talking like this, but such was not our intention when commencing these paragraphs. We want to switch straight on to Vol. 7 and talk about the last twelve months—and incidentally the next twelve months as well.

In the autumn of last year we were determined to produce, for description in the T. & R. BULLETIN, more receivers and transmitters designed for easy construction and efficient working. Through lack of time we were not able to do all that we had planned in this direction, but we shall continue, and try to enlarge upon, this programme throughout the coming year.

Quite frankly we have done a little experimenting with the T. & R. BULLETIN this year. Calls Heard reached a prodigious size, so we said we'd publish Empire Calls Heard Lists only. Objections were raised and we bowed to the wishes of members, reverting to the old system, requesting members at the same time to use care and discretion in keeping their lists as short as possible. Except in very few cases we have not noticed that lists were compiled with care, that is to say, they were unnecessarily long and listed calls of many high-power stations that are to be heard at great strength every day or night. In future, therefore, we

(Continued on page 19.)

MEASUREMENT OF SPEECH AND MUSIC QUALITY.

A PAPER READ BEFORE THE SOCIETY AT A RECENT MEETING BY D. N. CORFIELD, D.L.C.HONS, GRAD.I.E.E. (G5CD).

WHEN I was first approached on the subject of a lecture on "Quality Measurement," I was not at all clear as to how I could best tackle such a wide subject in a limited time, but when subsequently asked to condense it by half in order that it might be published in the "Bull," the difficulty was intensified.

I will try and make it clear how the measurements are taken and with what results, but first we must decide in what units we are going to measure quality. The generally accepted unit is the "Decibel," (db); this unit is fairly generally known nowadays and space will not permit an explanation here.

Let us now decide what apparatus we require and what types we have to choose from in order to measure the amplification and quality characteristic of a piece of apparatus. I will enumerate the apparatus required and deal briefly with each in turn:—

- (A) Source of variable frequency.
- (B) Attenuator.
- (C) Indicating instrument.
- (D) Measuring circuit.

(A) Source of Variable Frequency.

There are three methods of obtaining this supply, viz.:—

- (1) A constant frequency record and a pick-up.
- (2) A thermionic valve oscillator.
- (3) A generator.

I think we can rule out the generator for obvious reasons, and that leaves us to choose between (1) or (2). Let us compare these methods:—

(1) A C.F. record and pick-up, with a small amplifier to follow if required, is by far the cheapest method, but suffers from disadvantages such as wear and price of records, limited range of frequencies available and constant adjustment of output due to recording amplitude varying and the fact that the pick-up is not perfect.

(2) Thermionic valve oscillators. These can be divided into three classes:—

- (a) Beat Frequency; (b) Fundamental Frequency, and (c) Dynatron.

(a) Beat Frequency.

If you look at Fig. 1, you will see the circuit. There are two oscillating valves "O" and "P"; one has a fixed frequency of 30 K.C. and the other variable in frequency from 20 to 30 K.C. The output of each oscillator is applied to an anode bend detector "Q." The output of the detector will contain the two frequencies and their sum and difference. If "O" is 30 K.C. and "P" 25 K.C., then there is 30, 25, 55, and 5 K.C. present. The low pass filter following has a cut-off above 15 K.C., so that all we get out is 5 K.C. You will see that if "P" is varied from 30 to 20 K.C. we shall get every frequency from 0—10 K.C. out as we vary the tuning of C_1 . A well designed oscillator of this type will give a closely constant output at all frequencies, its waveform is quite good, and its frequency stable to 5 per cent. over the range except for the very low frequencies, where the error may be greater unless special methods of checking are taken.

(b) Fundamental Frequency.

Figure 2 shows the essential circuit. The valve V_1 being the oscillatory valve, T_1 is the oscillating coil and has two windings, one across the grid circuit (the resistance R_1 carrying the grid current and the condenser C_1 preventing this current traversing the winding) and one fed from the anode circuit via a condenser C_2 and a variable resistance (or feed back resistance) R_2 ; the purpose of this resistance is to adjust the strength of oscillation so that the valve is operating on a linear portion of its curve. The choke L_1 prevents the A.C. going into the H.T. circuit. The anode circuit winding of T_1 is tuned and this tuning controls the frequency of oscillation. The valve V_2 is an ampli-

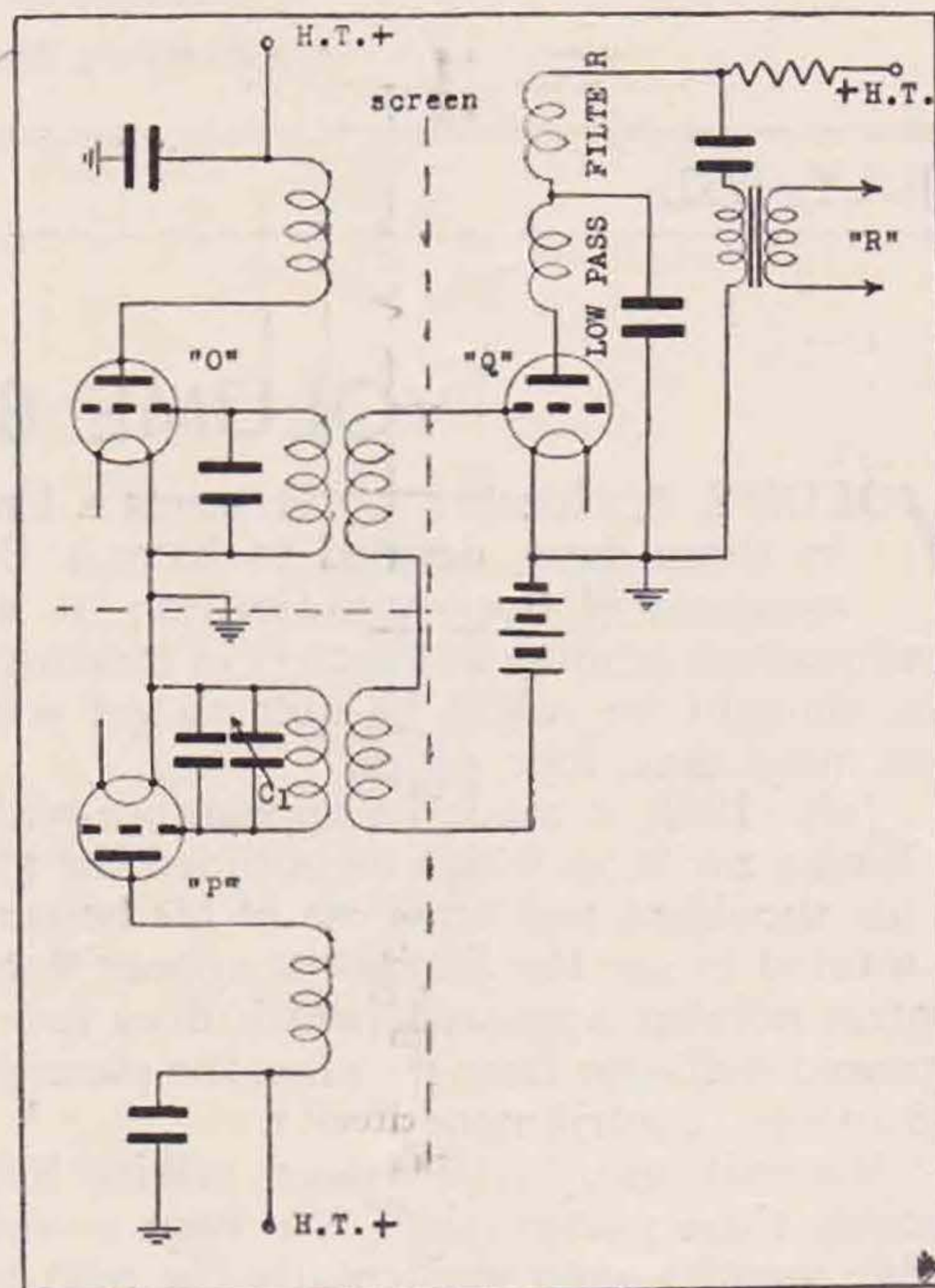


Fig. 1.

Beat Frequency Oscillator.

- $O = 30 \text{ kc.}$
- $P = 25 \text{ kc.}$
- $Q = O + P, O - P, O \text{ and } P.$
- $R = O - P.$
- $= 5 \text{ kc.}$

fier, fed from the grid circuit of V_1 for two reasons: (1) because the amplitude of A.C. in the anode is too large, and (2) because the load taken from the amplifier anode circuit will not be fed back and affect the oscillator valve so much. The transformer in the anode circuit of V_2 feeds a volume control of a type such that the input impedance is constant at any setting. These oscillations can be made accurate to 0.1 per cent. at all frequencies and have a small harmonic content.

(c) Dynatron.

The Dynatron principle has been dealt with by several writers in the BULLETIN, so I will not go into the operation beyond explaining that we use a screened grid valve with a tuned circuit in the plate lead and a higher H.T. voltage on the screen than anode and the valve oscillators due to the familiar kink in the characteristic. As a type they are not very constant in frequency and generate numerous

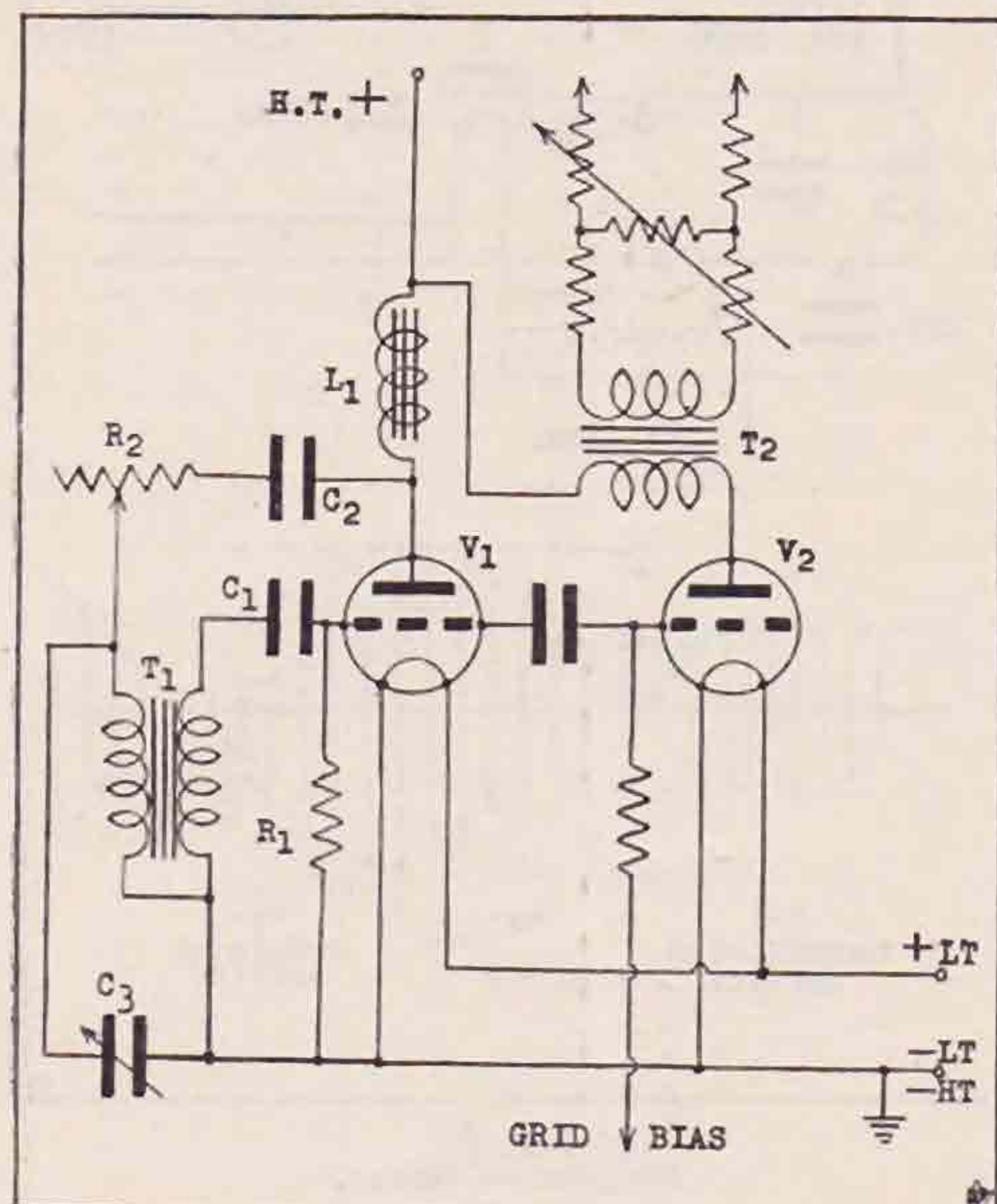


Fig. 2.
Fundamental Frequency Oscillator.

harmonics due to the non-linear characteristic of the valve.

(B) Attenuator.

An attenuator is a device which consists of networks of resistances so arranged to have a definite impedance and loss in decibels and brought into circuit by means of switches. They consist of two main types, "Balanced" and "Unbalanced." In the former each side of the circuit is symmetrical, and in the latter one side is straight through and must be used where one side of the circuit is earthed.

(C) Indicating Device.

This may be of three types: (1) A *thermo function* operating a galvo., which depend for their action on the heating of a junction of two dissimilar metals producing an E-M.F. to operate the galvo. They are very sensitive but costly, and have a small overload capacity. (2) A *small metal rectifier* operating a M/C meter. These are satisfactory with any frequency up to about 5,000 cycles but above that frequency the sensitivity falls off. (3) A *Valve Voltmeter* is, in my opinion, the most satisfactory for amateur use, being simple, sufficiently accurate, and has a great overload capacity. Figure 3 shows the essential circuit, which consists of a valve, a low reading milliammeter (the lower the better) a 4 mfd. condenser and means of varying the grid bias. The grid is biased as for anode bend rectification, then A.C. applied to the input produces a rise in anode current and one can calibrate

A.C. voltage in terms of anode current. The input may be terminated in a resistance if required so that it may match the impedance of the remainder of the measuring circuit.

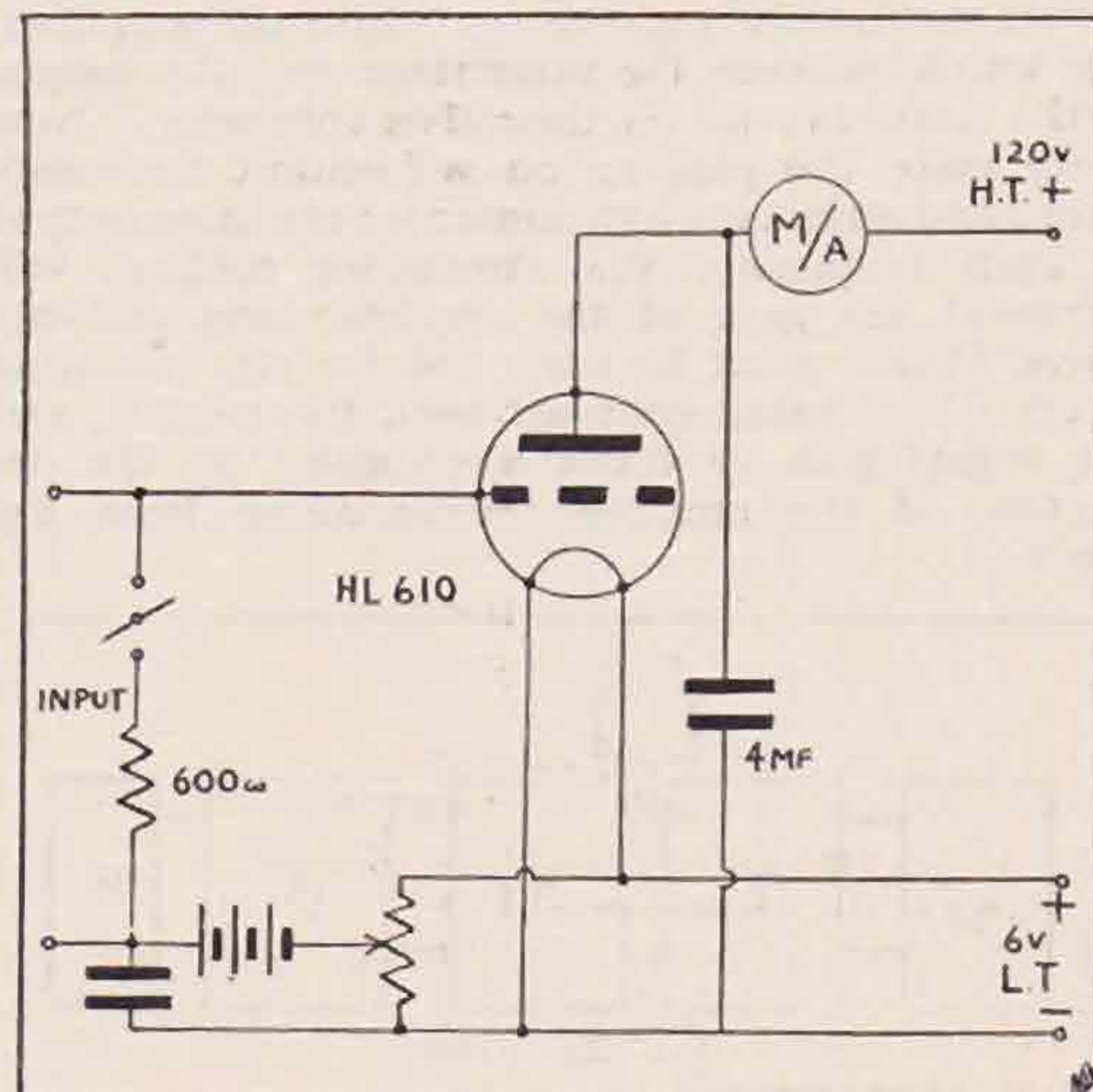


Fig. 3.
Valve Voltmeter.

(D) Measuring Circuit.

Figure 4 shows the Basic Circuit: "O" represents the source of A.C. supply, "A" the attenuator, "B" the amplifier or apparatus to be measured, and "V" the measuring instrument. The switch "G" consists of two parts linked together, and is arranged so that when thrown downwards the output of the oscillator "O" is read on "V," and when thrown upwards feeds the alternator and

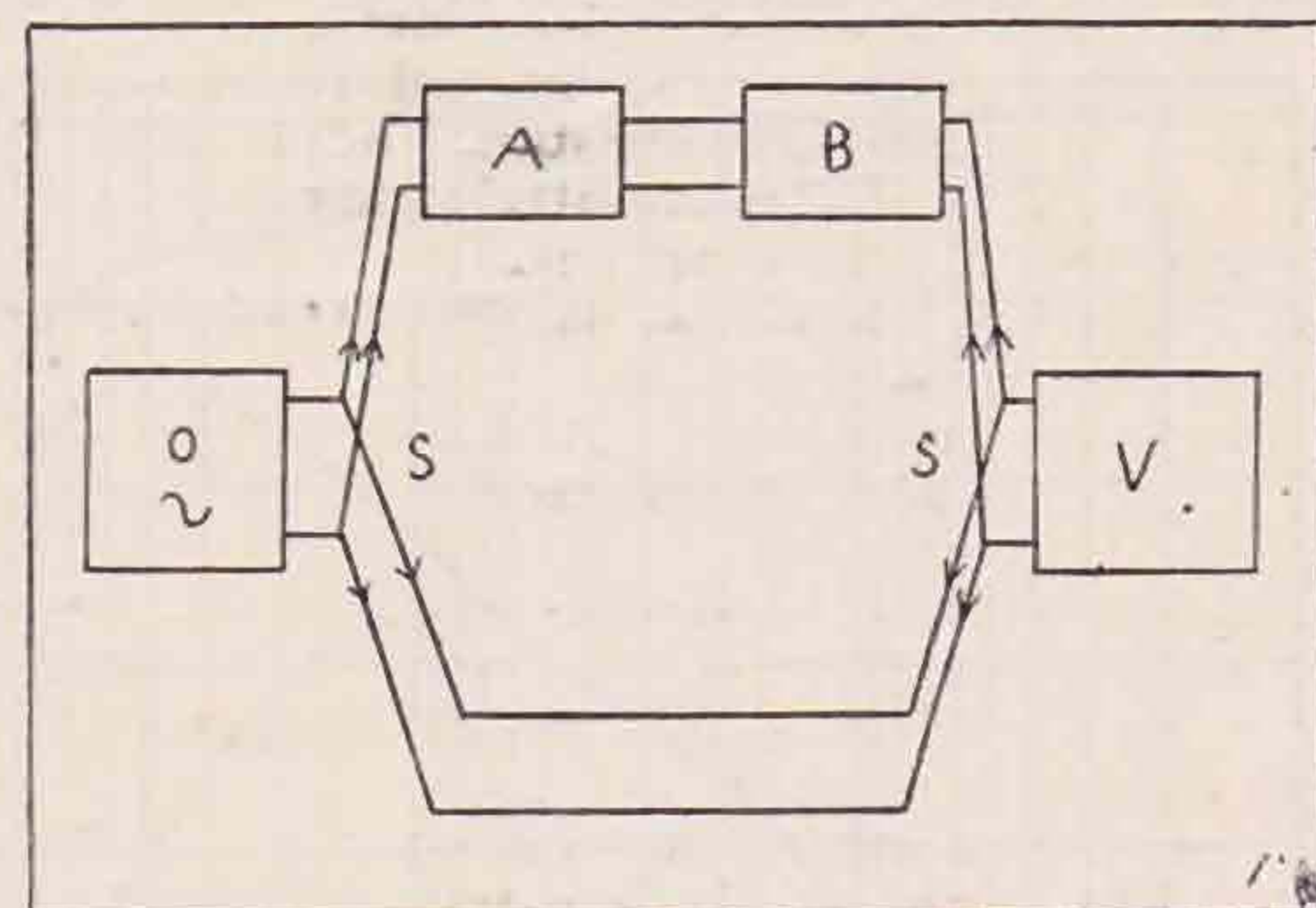


Fig. 4.
Basic Measuring Circuit.

amplifier in series, the output and the amplifier "B" being then read on "V." The method of operation is to throw the switch up and down and adjust the attenuator until the reading on "V" is the same each way. Then obviously the amplification of the amplifier equals the loss in the attenuator so that the resultant amplification, or gain, is read off from the attenuator setting in decibels.

If we take a series of readings at various frequencies we can plot a curve of gain against fre-

quency. We are now in a position to take curves of amplifiers and components by a process of substitution in the amplifier. If we desire to take a gramophone pick-up characteristic we take the curve of the amplifier first, then connect up a circuit so that the pick-up feeds into the amplifier. The amplifier feeds the attenuator and the output of the latter is read on the valve voltmeter. Now if we place the pick-up on a constant frequency record and adjust the attenuator for the same output at each frequency, the attenuator settings will represent the gain of the amplifier and pick-up. These figures must be corrected for the recording errors (these being supplied with the record), and the actual pick-up curve is obtained by the deduction of the amplifier curve alone from the result.

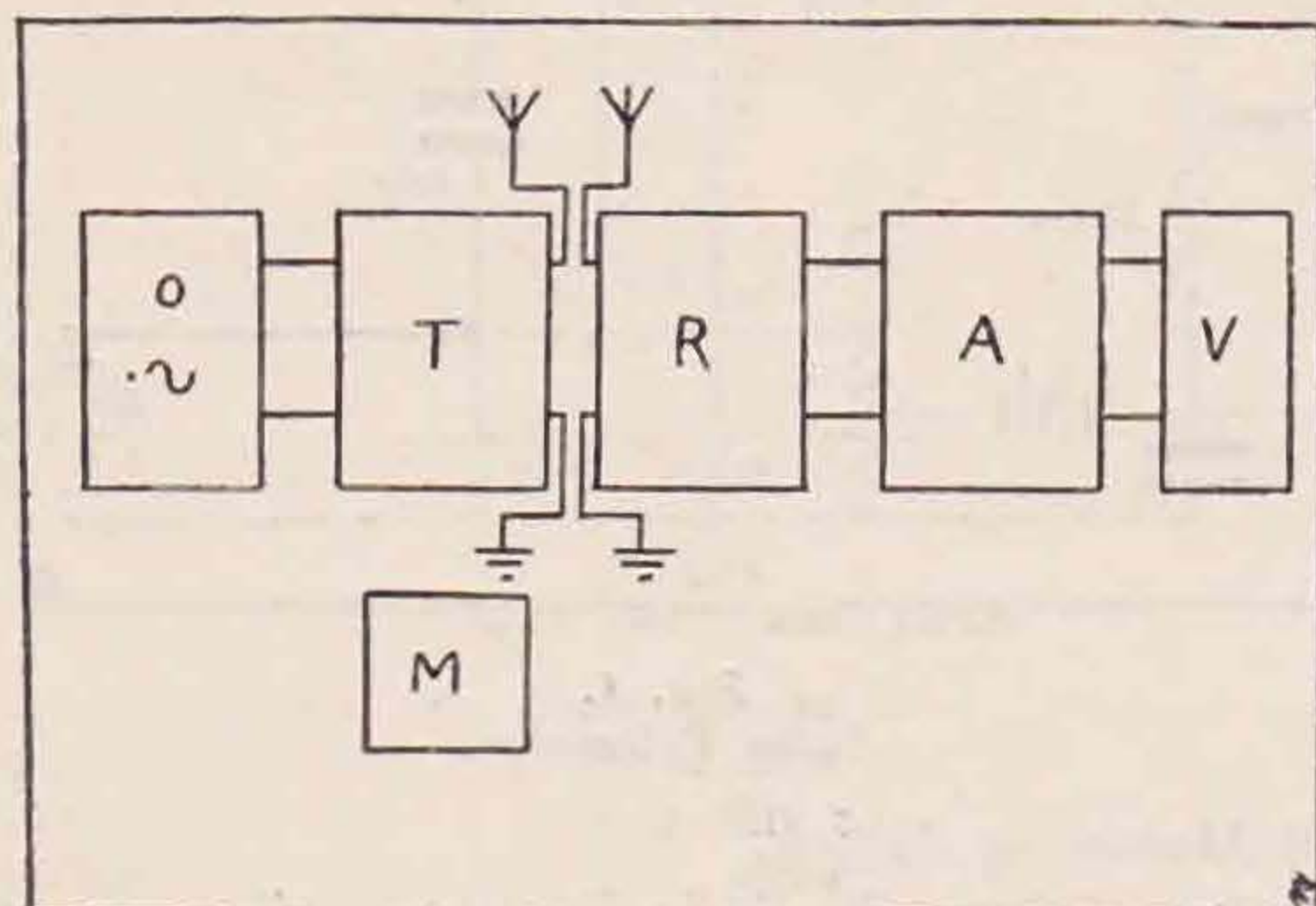


Fig. 5.
Circuit for Overall Performance.

We next come to the measurement of overall performance of a radio receiver or transmitter. Figure 5 shows the circuit: "O" is the source of A.C. supply, "T" is a miniature transmitter designed to give a straight line curve, "R" is the

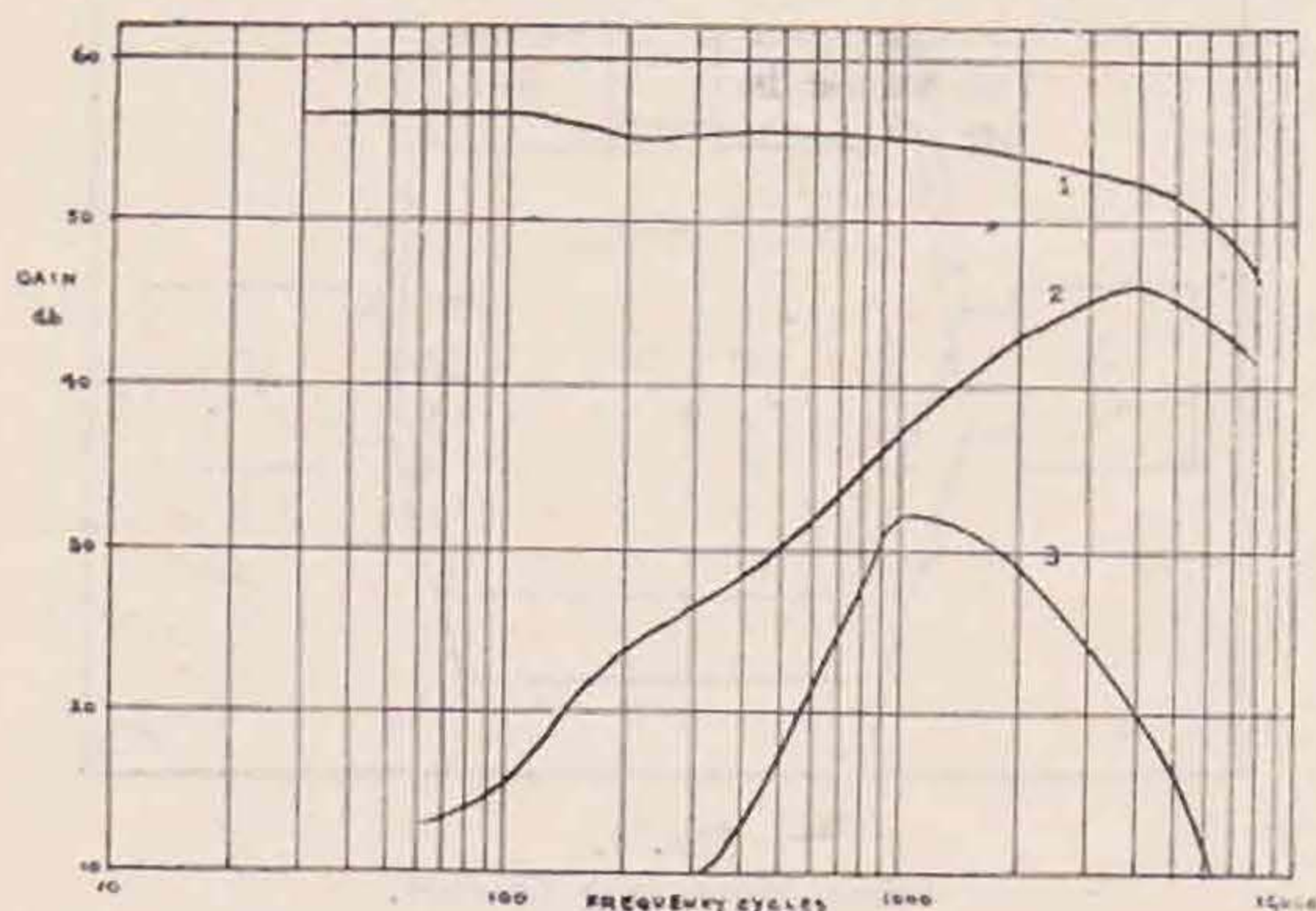


Fig. 7.
Performance Curves of Three Receivers.

receiver, "A" is the attenuator and "V" the valve voltmeter. We take an overall gain in the same way as Fig. 4, calling the gain at, say, 1,000 r. zero. The figures at other frequencies will be so many d.b. above or below this figure. "M" is a modulation meter coupled to "T" and for each reading the percentage modulation is adjusted to

be the same. If we take readings at a constant frequency but with varying percentages of modulation, we can plot a curve to show if the detector valve is linear or not. Having measured the curve of our receiver, if we use our transmitter as "T" and take a new curve, we can deduce from the result our transmitter curve, but great care must be taken

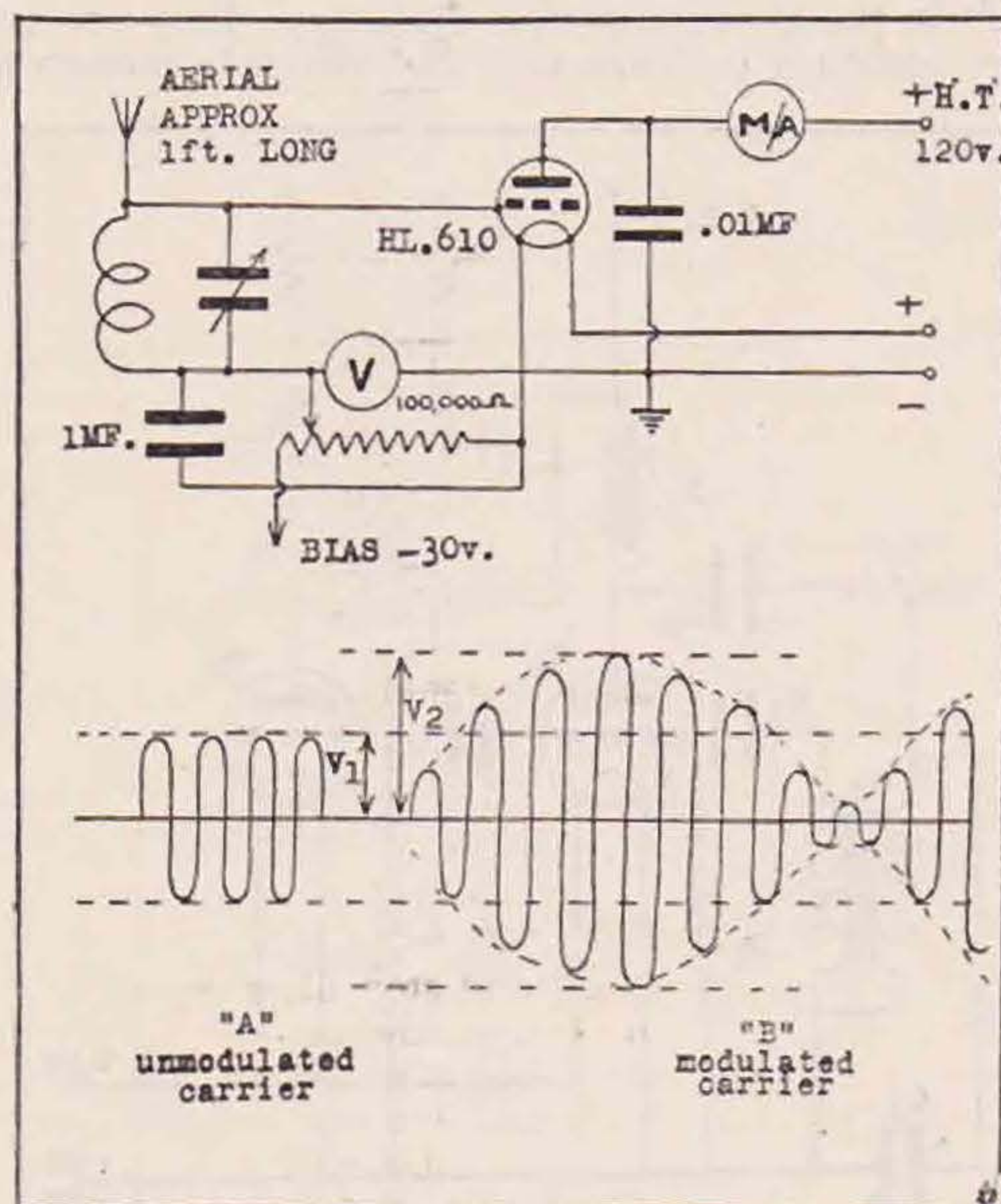


Fig. 6.
Modulation Meter.

not to overload the receiver due to the proximity of the transmitter.

A brief description of the Modulation Meter may be of interest. In principle it is a valve voltmeter reading the voltage across a coil tuned to the wavelength of transmission: Fig. 6 shows the circuit. Instead of reading the R.M.S. or "Root Mean Square" voltage, as is normally the case, it reads "Peak Voltage," due to the fact that the grid bias is adjusted for zero anode current for each reading. If you look at Fig. 6, "A" shows the carrier wave before modulation, "B" the carrier after modulation; then if we confine our attention to the part above the zero line, the voltage V_1 is the carrier voltage, V_2 is the carrier voltage plus the modulation. Now if we measure V_1 and V_2 by reading off the grid voltage for zero anode current in each case,

$$\text{then: } \left(\frac{V_2}{V_1} - 1 \right) \times 100 = \% \text{ modulation.}$$

Fig. 7 shows some curves obtained: (1) is the curve of the receiver in use at G5CD comprising S.G.-H.F., DET and 2 L.F. stages with output transformer; (2) is that of a two valve all-mains commercial receiver, and (3) is that of a portable receiver with two transformer coupled L.F. stages.

We have now arrived at a stage where we can measure the curves of our receiver and transmitter. But what happens if the curve is not to our satisfaction and we cannot improve it by substituting new components? We must correct it by artificial means and put what are known as "Equalisers" in the circuit. Briefly an "Equaliser" is a device to

give us an opposite curve to the one we have, the result being when both are added either a straight line, or some special shape required, is obtained. I will give you two examples. Fig. 8 shows a filter equaliser to correct for the side band cutting present in the receiver, Fig. 7 (1). Fig. 8 (1) is the loss curve of the equaliser, (2) that of the amplifier alone, and (3) that of the amplifier and equaliser.

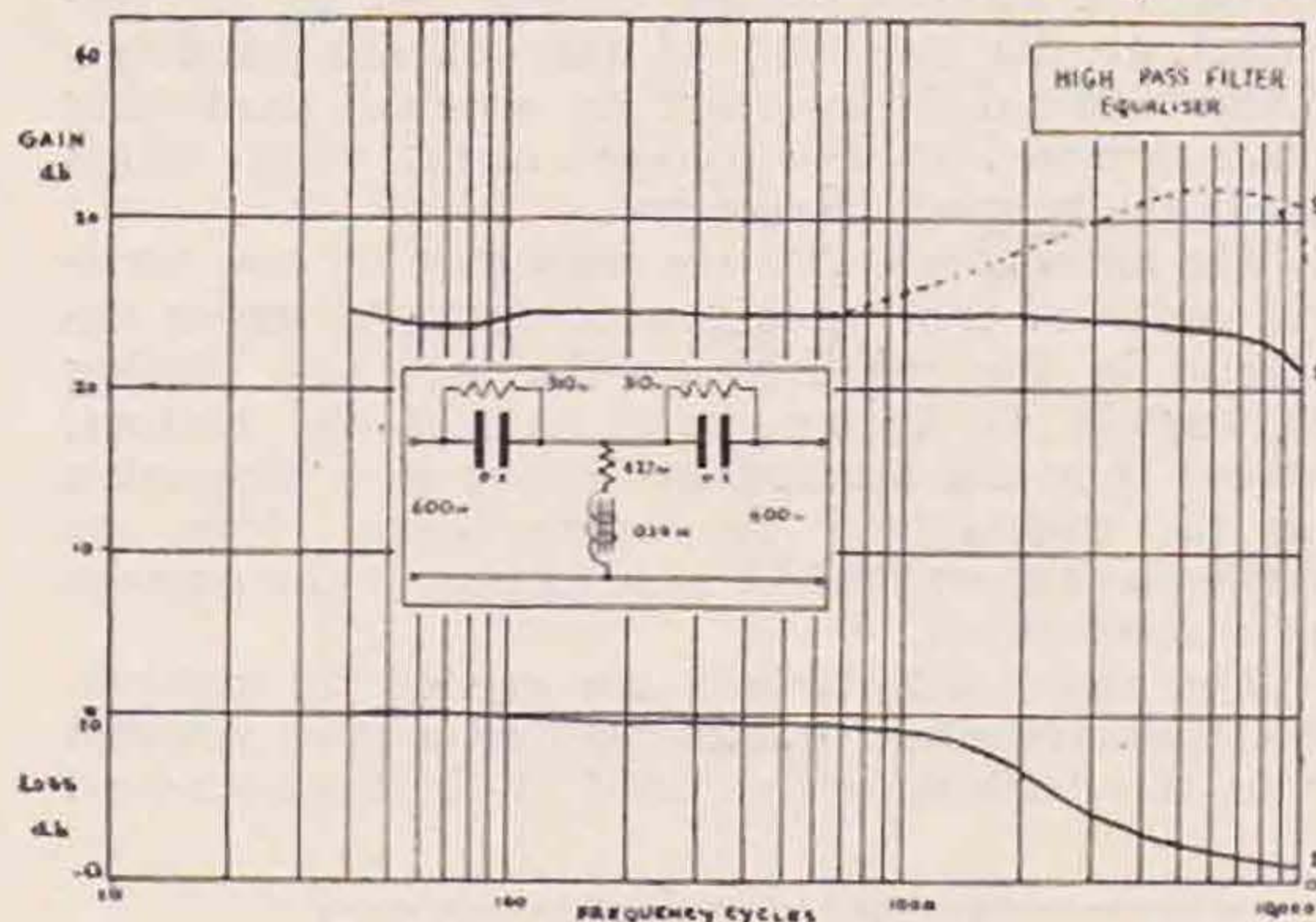


Fig. 8.
High Pass Filter Equaliser.

Fig. 9 shows a form of band stop filter equaliser to correct for the amplitude frequency distortion present in gramophone records below 256 cycles. (1) is the pick-up and amplifier curve alone, (2) with the equaliser in, (3) is the ideal perfect curve for comparison, and (4) is the loss curve of the equaliser. It is a peculiar shape, the rise at the bottom to correct for the record and at the top to correct for impedance matching loss between the pick-up and input transformer.

I fear space does not permit going any further into the details of what can be done with measuring equipment of the type described or into the design of equalisers. I do not doubt that readers will visualise for themselves the hosts of interesting data that can be obtained from measurements of performance and I hope they will realise that ap-

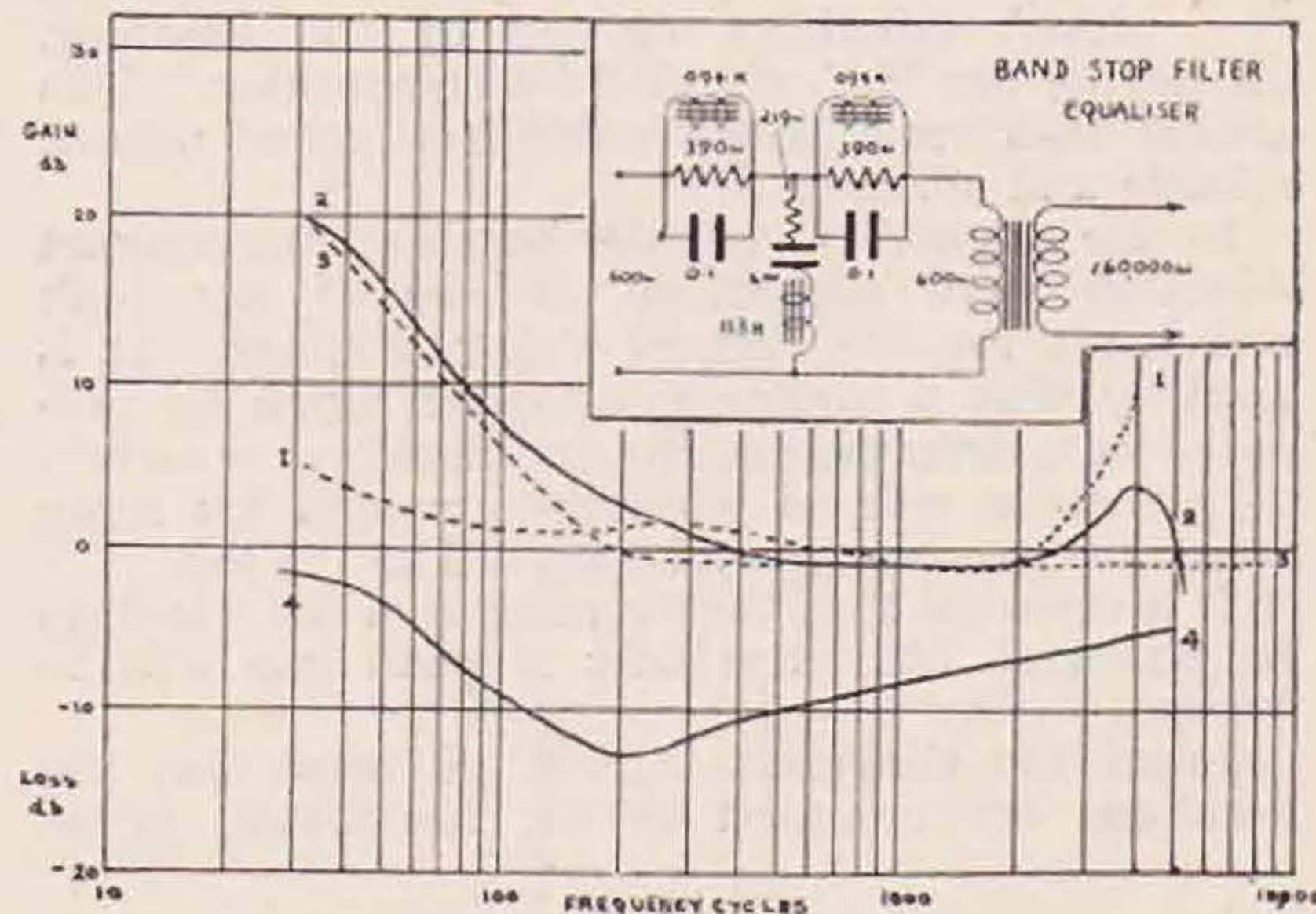


Fig. 9.
Band Stop Filter Equaliser.

paratus need not of necessity be elaborated or complicated and is within the constructional power of any true amateur gifted with sufficient patience.

In conclusion, I must offer my thanks and appreciation to Messrs. Standard Telephones & Cables, Ltd., for the loan of testing apparatus used in the demonstration; also to Messrs. W. Edwards, Ltd., and to the General Electric Co., for the loan of an "Epidiascope" and G.U.1 rectifier valves respectively.

Double Grid Frequency Changer (Continued from page 10).

be about 80 volts. Now apply reaction. If the reaction coil, which should be slightly larger than that required for a low impedance detector valve, has been well calculated, the valve will go into oscillation very quietly, the normal hiss being hardly audible from the loud-speaker. The plate current will increase gradually as reaction is increased, until a certain point is reached when the milliammeter will give a sudden kick backwards and a low-frequency howl will be heard. Reduce reaction until the meter reads about 1.2 milliamps. These values are for a Philips A441N valve, which has been found to be excellent for this circuit.

If a valve of a different make is used, a few minutes experimenting will show the correct plate voltage and current for best operating conditions. It is well to know that some specimens of cheap foreign-made valves will not oscillate at very high frequencies.

When using a B.C. receiver as an I.F. amplifier, tune this to the highest wavelength possible, as the selectivity of the circuit is entirely due to the I.F. employed. In this respect the circuit has the same drawback as all autodyne frequency changers.

Aerial radiation is about the same as with any ordinary C.W. detector reaction circuit. This fault can be entirely cured by the addition of an

H.F. stage, either aperiodic or tuned, before the frequency changer. If a tuned H.F. stage with a screened grid valve is employed, selectivity and sensitivity are very marked.

Conclusion.

After more than a year's experimenting with this circuit, and frequent comparisons made with the ordinary autodyne triode frequency changer, two advantages have become perfectly manifest: (1) A very marked increase in sensitivity; (2) absolute stability: fluctuations in filament or plate current, unless of considerable amplitude, have no appreciable effect upon the frequency of the oscillations generated.

I have on several occasions tuned in a telephony station, allowed the receiver to run for a long spell, switched off the set, and 24 hours later switched on again, to find the station coming through so well that no further tuning would improve the reception.

[EDITOR'S NOTE.—The Phillips A.441N valve referred to by the author is not obtainable in this country. Its approximate characteristics are: filament, 4 volts 0.08 amps; H.T. volts 2 to 20; auxiliary grid volts the same; amplification factor 4.5; impedance 4,500 ohms; normal anode current 1.3 ma. The nearest Mullard equivalent is the PM.1DG, consuming, on the filament, 0.2 amps at 2 volts. The mutual conductance is 0.8. The maximum anode volts is 80 but all measurements are taken at 20 volts for both plate and auxiliary grid. Osrams make a DG2 with an impedance of 3,750 ohms and an amplification factor of 4.5.]

THE DESIGN OF A KEYING RELAY.

By A. E. LIVESEY (G6LI).

AS far as the writer is aware, there is no firm in this country producing a double-contact relay, suited to the use of the amateur, for keying the H.T. circuit of a transmitter. This article describes a design which has proved robust, reliable and efficient.

In the original model, the base and the magnet windings were picked up at one of our junk merchants for the sum of a few shillings. It is unlikely that a similar thing could again be procured but, nevertheless, the experimenter is certain to possess a pair of windings amongst his scrap which may conveniently be applied to the job.

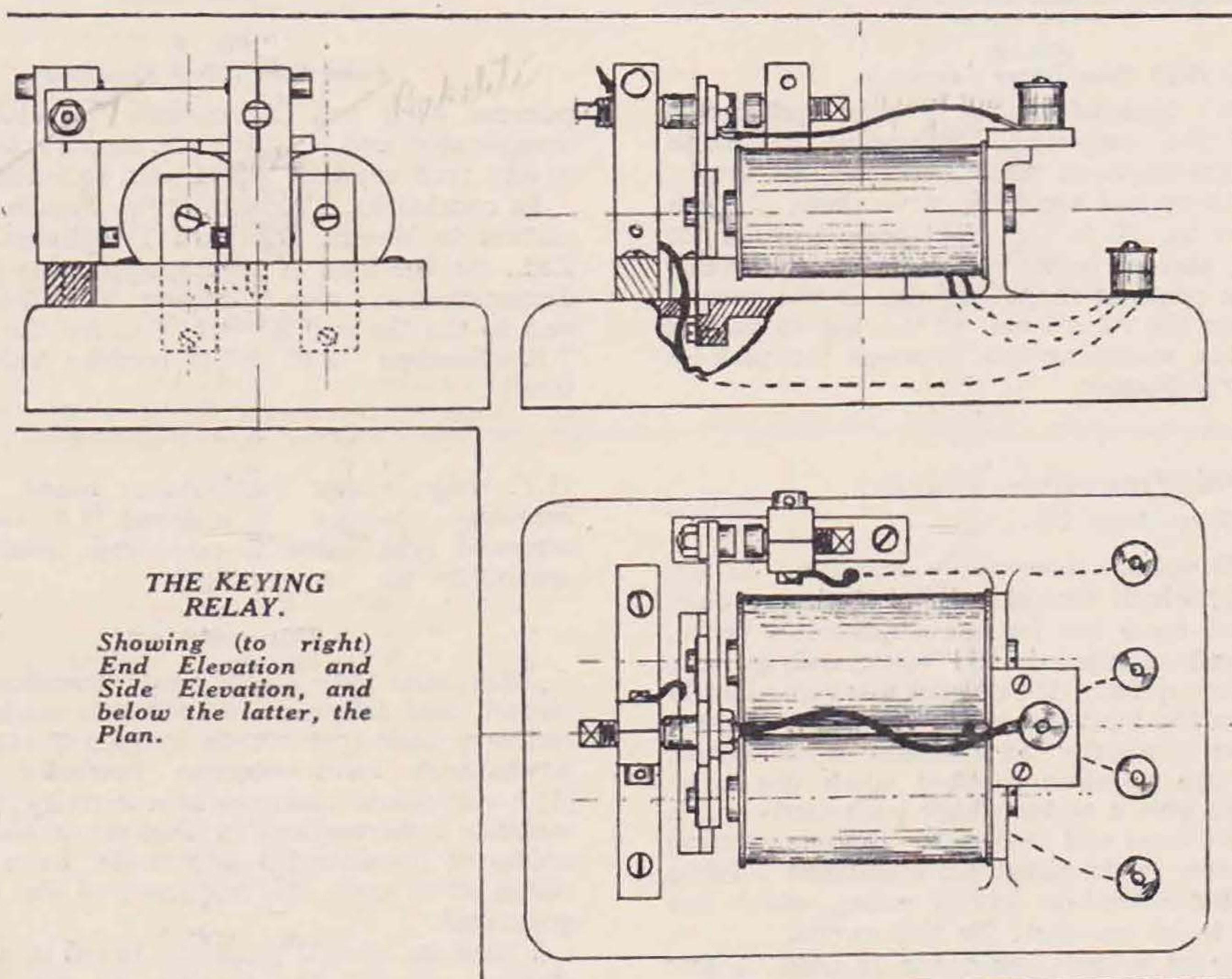
It is essential that the magnetism of the windings be powerful, otherwise only a small gap will be broken.

From the diagrams it will be seen that the windings are mounted in the horizontal, raised

like an arm, carrying on its end another contact. Flexible connection is made with the moving part through a strip of spring copper, led to the terminal at the rear end of the magnet windings. This terminal is fastened to a small insulating plate screwed to the upright metal pillar which holds the magnets in position.

The moving contacts are supported by two vertical strips of thin spring steel, fastened under the screws in the soft iron at the top, and passing through a slit in the metal base at the bottom, where they are secured by screws to a projection on the underside of the hollow base. Holes are drilled at the end of the base to permit the passage of a screwdriver.

The two fixed contacts are carried by vertical, rectangular-section pillars, having a stud screwed into the bottom, which stud is in turn screwed



slightly above the base level. A strip of soft iron closes the magnetic circuit, moving towards the pole pieces, when the key is closed, and taking with it an almost similar strip of bakelite which is screwed to the face—the iron being tapped to take two screws. The bakelite is so shaped that a portion projects into the vertical, like a kind of insulating lug, the section of the material being an inverted "T." To the stem of the "T" is secured one contact electrically bonded to a horizontal brass strip which stands out sideways

into a horizontal strip of ebonite. The ebonite is bolted to the base in two places. The pillar is made to screw tightly so that it can be centred accurately.

The tops of the pillars are split and carry a threaded hole into which the contacts are screwed. When the contacts have been set in place, the split is closed up by a small locking screw and further relative motion of the contact is rendered impossible. In facing the contacts up the gap is first arranged at the requisite amount, then the

"rigid" moving contacts are pressed up against the contacts in the pillars, which fit very loosely in the threads, whilst the locking screws are tightened and the fixed contacts are permanently lined up.

At the bottom of the pillars, which are insulated from the base, a set screw is arranged to lead off a wire to one of the terminals at the back.

Whilst the relay is at rest, the spring steel strips hold one pair of the contacts together, as shown. When the current is passed through the windings these contacts open and the other two close.

Essentially, the relay is a single-pole double-throw switch, since the two moving points are electrically united via the horizontal brass arm. Naturally, it can be used for back-space keying, as in absorption keying practice. Its chief value is with a D.C. generator. In this case, the moving contacts are connected to H.T.+, whilst the back contact is connected to a suitable back-space or back-loading resistance for keeping the generator speed constant. The contact which closes when the current flows through the windings should be taken to Transmitter H.T.+, since it gives the most positive connection.

In the construction it is necessary to see that the base is not made alive to H.T.+. The magnet poles and armature should not touch the live parts. The four terminals should be bushed with insulation.

The contacts of the relay are made from quarter-inch diameter cheese-headed brass screws, on to which has been soldered a facing of silver or other suitable metal. After the soldering, the screws are chucked up in a lathe and the heads again turned off flat. The excess shank of the screw is cut off.

With the model used at G6LI, a gap of over a quarter of an inch is broken at the contacts. It must be borne in mind that keying is accomplished in H.T.+, breaking 1,200 volts at 100 watts.

This means that, at the moment of change-over from transmit to back-load, only an eighth of an inch exists across the contacts. It is necessary, therefore, to have a spark filter connected to either throw of the relay. A half-microfarad condenser and 0/25,000 ohm variable resistance in series across each pair of contacts can be adjusted to a value such that not a sign of spark is seen across the gap when the full 100 watts is broken.

The condensers and resistances must be robust and rated at the working voltage of the transmitter.

The writer hopes that this design will prove of use to some of the gang who have struggled for ages with long keying leads, burns and shocks and arcs at the contacts! It has been worth its weight in gold at G6LI, and has worked splendidly for many months with 12 volts of dry cells for energising it. It is best for the temper to put it into a fairly sound-proof box. If long leads are existent between transmitter and key, it will be necessary to have a spark filter across the key itself to keep down the inductive spark of the magnet windings. If not, slurring will occur, due to lagging of the current.

A 1-M.F. condenser in series with a resistance of the Clarostat type will be suitable, and adjustment can be made with the receiver switched on, until the least noisy click is heard each time the relay is operated.

It will be noticed that the "transmit" contacts of the relay will have to be set slightly out of the horizontal to get them to face up properly. A test for good facing up is made by holding the contacts up to a strong light. Without slots in the tops of the pillars, the facing could not be carried out.

In conclusion, it would be as well to state that anything in the design which seems the least bit clever is not the product of thought but the result of a lucky dip in the junk box!

CALIBRATION SECTION.

WE have received for test purposes three quartz crystals from The Quartz Crystal Co., of New Malden, Surrey. The crystals were each wrapped in tinfoil-covered paper and encircled with a plentiful supply of wadding and enclosed in a small, neat cardboard box. A certificate was supplied with each crystal giving the frequency guaranteed to within 0.1 per cent. and stating calibration conditions.

We compared the frequencies in kc. of these crystals with our own standards with the following results:—

	(1)	(2)	(3)
Quartz Crystal Co. ...	100.0	3555.5	1813.5
R.S.G.B. ...	99.97	3556.0	1814.0

In this instance and as in the past, we were impressed with the close agreement between the Q.C.C. and ourselves (our own standards were within 0.01 per cent. of the N.P.L. in a recent test case), so that the Q.C.C.'s crystals are well within the guaranteed 0.1 per cent.

The 100 kc. crystal was a fairly good oscillator with practically any valve, although a PM2DX was specified in the certificate.

The response of the 1.7 and 3.5 mc. crystals in actual use was as good as any we have tested. They gave an H.F. output comparable with the best in use at the writer's station.

Rotten Rag-Chewing.—(Continued from page 13.)

Let us start a "Lids' Club." If everyone who wants a formula-QSO will just sign "Lid" after his call-sign, he shall have it. Further, for his special benefit I will compress his formulæ still further for him when I reply to him. My reply will be "GL57ULNP," which means "Good evening, lid, you're QSA5 R7, QRU here, QSL if you like, next please."

After which, with a blood-curdling cry of anguish, I shall either go on 10 metres and listen to the nice, intelligent mush for a while, or will stick straws in my hair and write another article for the "BULL."

STRAY.

G5IX, Skegness, would much appreciate a letter from a well-wisher in the Ilford district who is using telephony and C.W. on the 7 mc. band, and signing the above call to his transmissions.

STATION DESCRIPTION No. 26.

YI6KR

ALTHOUGH the owner and operator of YI6KR, Mosul, Iraq, has been doing radio work for some years, it was not until a visit was made to AQ1MDZ late in 1928 that the more interesting points of the game were seriously thought about. Nearly a year transpired before YI1KR came into being with a collection of old junk that would now make the hair turn grey! YI1KR did very, very little, chiefly through lack of appreciation of the aerial characteristics. Shortly after the initial experiments a move was made to Sulaimania, the home of YI2GQ, then run by Mr. C. W. Liversidge and Mr. N. Slater. Knowledge gained from YI2GQ was applied to the rebuilding of YI1KR.

The TPTG was the favourite transmitter and that with a modified Reinartz 0-V-1 receiver, 80-watt D.C. generator and Zepp feed half-wave Hertz comprised YI6KR. The initial tests on 14 M.C. included a VK3, JI and ZT and good European reports with an input of 45 watts. The free end of the aerial used to be on an old 24-ft. D.H.9 wing spar. This was moved often to see if the antenna had directional properties. Apparently it hadn't any! Since YI2GQ was on 7 M.C., YI6KR's activities were restricted to 14 M.C. only, and before the return to Mosul in April, 1930, over thirty countries had been communicated with.

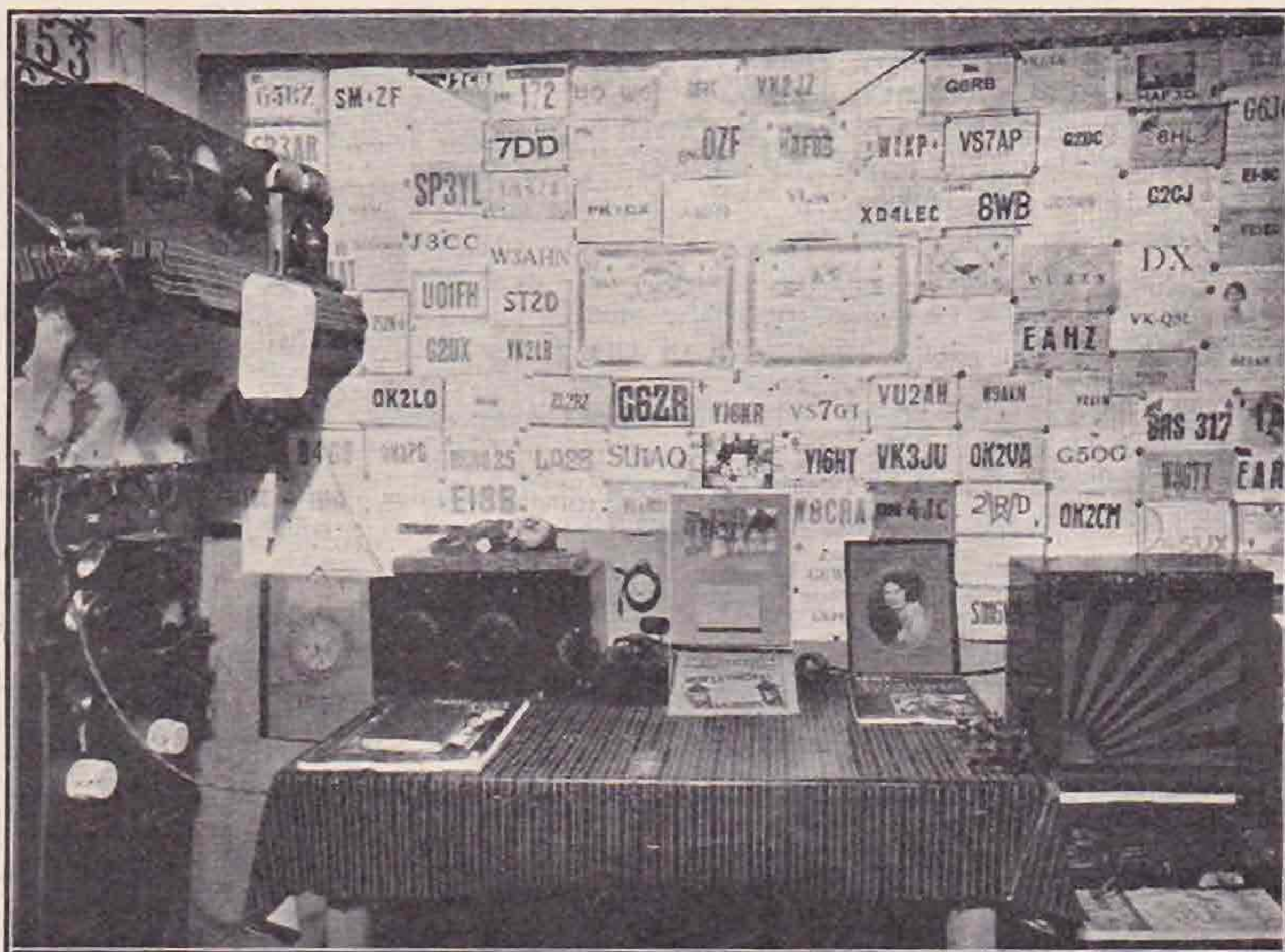
On arrival at Mosul the transmitter and receiver were again rebuilt and improved. Anticipating future moves, they were made as small as possible and fitted into cabinets. An old Indian cook-house became the "shack," and there, although only a few yards from the "Main Station," YI6KR started again. A new D.C. generator formed the power supply and gave 50-watts to two old 30-watt valves in parallel. The A.O.G. was used for the first time and the results surprising both on the 20- and 40-metre bands, VK and ZL being worked consistently, in addition to some good Western DX. Reflectors were tried with a fair amount of success. A P.D.C. note was easy to obtain on the 7. M.C. band, but on the higher frequency, in spite of various filter systems, only T6 and T7 were obtained. Fan interference was drastic at times, but with Mr. Slater (ex-YI2GQ), who had recently joined me, many profitable hours were spent at the key, and before he left for India in November, 1930, YI6KR

had another 21 countries to its roll, including Guam.

A further move took place in February, 1931, to an out-station in Kurdistan, which was situated in the hills and only about 25 to 30 miles from the Persian-Turkish-Iraq frontiers, and early in March, 1931, "XYI6KR" appeared.

The "shack" this time was an old dismantled Victoria aircraft troop carrier fuselage and was fb! Strange to relate, but I used to be the operator on that same machine when in England.

A series-feed ultraudion was tried, but the results seemed rather poor so the TPTG was again reverted to, using a D.C. generator and 45 watts in conjunction with the old A.O.G. aerial, and good results were obtained in spite of the fact that the



station was badly screened by mountains on three sides. Signals went over, however, and on one occasion produced a QSO with Iceland on 14 M.C. The first YI-TF contact.

DX conditions appeared to be getting worse throughout the period March to September, 1931, but it was hoped they would improve with the passing of the hot season.

In October, 1931, the complete gear was rebuilt at Mosul and considerably improved. In the new TPTG transmitter Eddystone H.F. chokes replaced the home-made ones, plug-in coils were used for 3.5, 7, 14 and 28 M.C. and the first use of the grid bias and a tapped grid-leak resulted in P.D.C. and C.C. notes on 7 M.C. and P.D.C. and D.C. T8 on 14 M.C., using an old aircraft type D.C. 120-watt

generator and a maximum input of 42 watts to two new 30-watt valves in parallel. Home-constructed air-spaced fixed condensers replaced the old mica type and two new Ormond transmitting tuning condensers with verniers were obtained from Iraq's one and only Radio Store, during a welcome holiday in Baghdad.

The transmitter shown in the left of the larger photographs is the result of many TPTG rebuilds, weighs about 3 lbs. and measures 14 ins. by 10 ins.



by 8 ins., and on 7 and 14 M.C. is pretty efficient. Conditions on 28 M.C. and 3.5 M.C. have prevented any fair tests being carried out, although transmissions take place every Sunday morning on the former band from 08.00 to 10.00 G.M.T. If conditions should appear good on the 3.5 M.C. band I can QSY in less than half a minute.

The latest receiver in use is shown in the larger photo on the left of the table and to the right of the switchboard. It is slightly larger than the transmitter and reception with a Mullard PM 2 DX as a detector in the Reinartz circuit is excellent. Tube base coils are used and arranged to give as much band spreading on the "G.E.C." grid-tuning condenser as possible. Incidentally, my PM 2 DX and PM2 have been in use two and a half years! For broadcast reception a .0005 mfd. fixed condenser is plugged in to two valve-pin sockets mounted on the grid tuning condenser. Good loud-speaker reception is frequent on the broadcast medium-wave band.

The wave-meter, shown on the right of the receiver, was rebuilt and used plug-in coils. Then a monitor was made. This is to the right of the transmitter and on it are the 7 M.C. plug-in transmitter coils. A final improvement was the key filter consisting of a 10,000 ohm spaghetti resistance and 1 mfd. condenser. Attention was then given

to the antennae. The new room is in a high building, but although generally satisfactory, the antenna is inferior to the old A.O.G. system. About 30 ft. were taken up as "feeder." The present aerial is between two 25-ft. poles on the roof of a 40-ft. building. A 133-ft. A.O.G. replaced the 67 ft. system, but was no good. Eventually, the "Windom Antenna," as described in the recent very excellent articles in the BULLETIN, was adopted and is still in use. On 14 M.C. the results are quite good, but it does not seem so satisfactory on 7 M.C., and I notice that, using direct coupling, the tuning of the transmitter is most critical. Noticing the respective readings in the monitor or receiver with the aerial on and off seems to be the best way to tune it. With little or no difference in the dial readings, one can safely say the antenna is in tune. No results are available on its 28 M.C. qualities.

A MOPA C.C. transmitter was built recently, but could not be made to work. A new crystal oscillator is at present under construction, and I hope it will be in use before the last of the BERU tests. It is being built as a separate unit and will be coupled to the TPTG.

Mr. W. Devoil is now helping YI6KR and with his co-operation it is hoped at least to gain a zone award in the BERU tests and to carry out more experimental work than has been possible to do single-handed in the past.

Particular attention is paid to logging, so that fairly accurate DX notes may be compiled. A record is kept of every QSO and QSL cards are always despatched. Some stations in later QSO's have reported their non-arrival. Postal facilities here are not so good as those at home, and I have nearly 200 cards still to come in, but for the benefit of those members who keep envelopes at headquarters, I would refer them to our QSL Manager's recent note: "Make a New Year resolution to keep some envelopes at H.Q., OM's." A new batch of QSL cards will shortly be ordered, and if any station that has not received one already will kindly tell me "over the air," or send me a P.C., I will send a card immediately.

The various notes in the BULLETIN have been a great asset in the life of YI6KR, and, together with our sister journal, QST and the A.R.R.L. handbook, have materially assisted in the many rebuilds and tests that have been carried out.

In the 64 countries worked, many friends have been made, and thanks to the "Amateur Spirit," these increase with almost every QSO.

STRAY.

G5TZ is transmitting every day on 28 and 56 mc. and would be glad to get in touch with anyone else working on these frequencies, particularly the latter one. He will also be pleased to see any member who visits the Isle of Wight during the summer.

NOTICE.

Owing to sudden pressure of business, the Editor and two members of the Editorial committee, G2CX and G5LA, will be unable to take any part in the production of THE BULLETIN for some time to come.

A DOUBLE GRID AUTODYNE FREQUENCY CHANGER FOR SHORT-WAVE RECEPTION.

By G. H. J. HORAN (AR8OBK).

THE circuit described by the writer of this note may be of interest to a certain number of amateurs who have not the means of building one of the very modern superheterodyne receivers, the interesting descriptions of which have appeared recently in the BULLETIN.

Most of the short-wave adaptor units described in radio reviews, and most of the commercial units also, are of the triode autodyne type. Many of these units may be greatly improved by replacing the existing triode by a double-grid modulator valve, the French "Bigrille," and arranging the grid circuit as follows (Fig. 1).

It will be seen that the inner grid is connected directly to the high potential end of the grid coil, the outer grid being connected in the usual way for grid detection; valves for the condenser and the grid leak are .00005 mfd. and 5Ω , respectively.

If a valve having a side terminal for the inner grid (such as a Philips A441N) is employed, a SW detector reaction circuit may be immediately converted by the simple addition of a short flexible connection from this terminal to a convenient point of the high potential end of the grid coil.

The output of the circuit may be fed into any conventional Intermediate Frequency Amplifier in the usual manner.

If a Broadcast Receiver having one, or preferably two, H.F. stages is used as an I.F. amplifier, the following method of feeding it will be found suitable (Fig. 2). It is the result of many months of experimenting to overcome the numerous snags which are believed to have rendered this type of valve so unpopular in England as a frequency changer. Blind spots, uncontrollable oscillation and harmonic troubles all disappear when the circuit is properly adjusted.

The diagram needs very little comment. Choke Ch_1 is an ordinary H.F. choke suitable for the band of frequencies to be received. A wide band choke should be carefully avoided here as it is required to bypass the I.F. to the I.F. amplifier. Choke Ch_2 , on the contrary, should be chosen with a view of blocking as completely as possible the passage of the I.F. and so allow it to pass easily

via Condenser C_3 to the input circuit of the I.F. amplifier. If preferred, this choke may be replaced by a tuned rejector circuit.

It is preferable, although not necessary, to feed the plate of the double-grid valve through a voltage dropping resistance R , which should be wire-wound to ensure a silent background. The usual decoupling condenser may be omitted with no inconvenience when accumulator H.T. feed is used, but should be added if an all-mains feed is employed. The milliammeter is not a necessity, but it is a very great help and is well worth its place in the circuit as it renders the set extremely easy to operate.

The section shown as screened in Fig. 2 represents either the input circuit of a modern B.C. receiver, or the input band-pass filter of an I.F. amplifier. The potentiometer is a refinement and may be omitted.

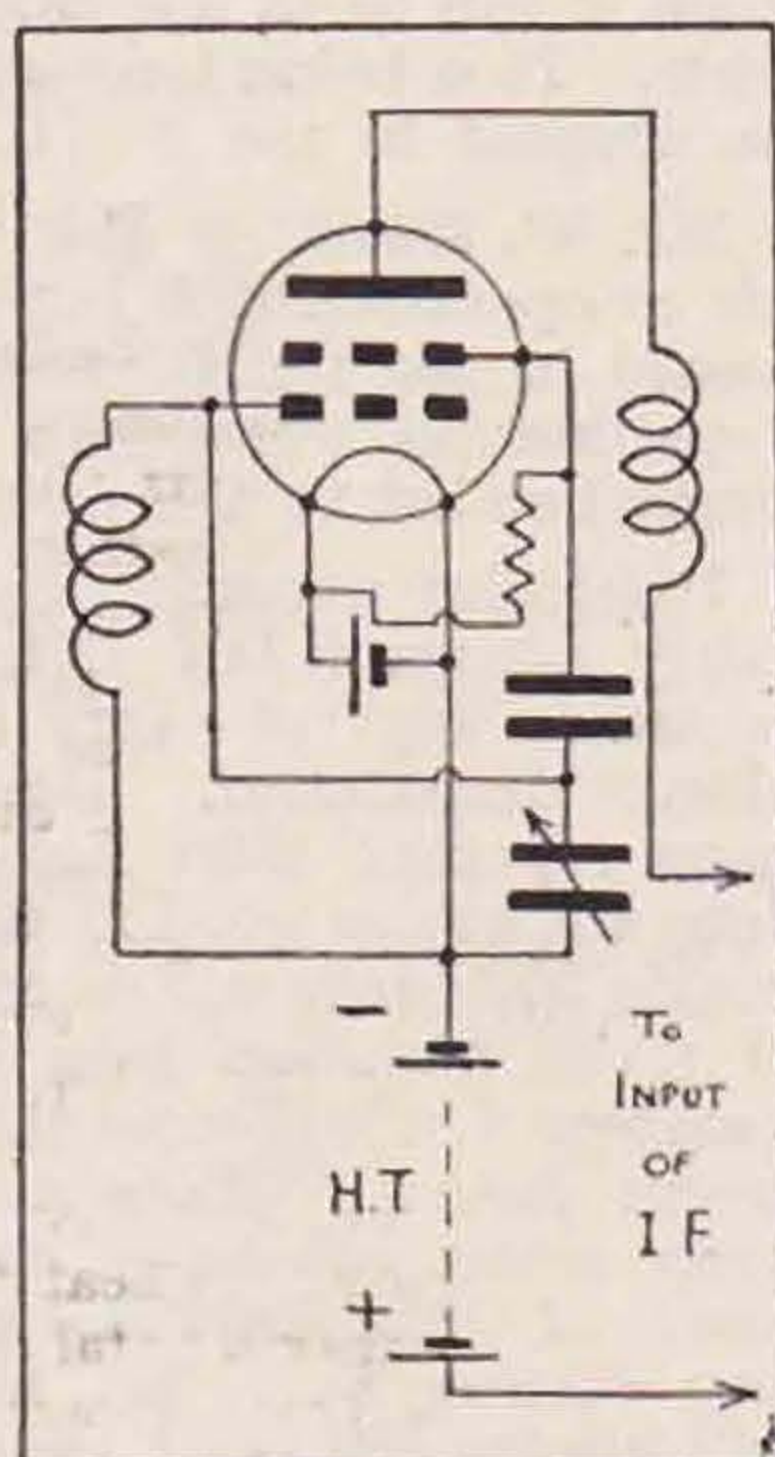


Fig. 1

shows the connections to the two grids when using the double-grid valve as a frequency changer.

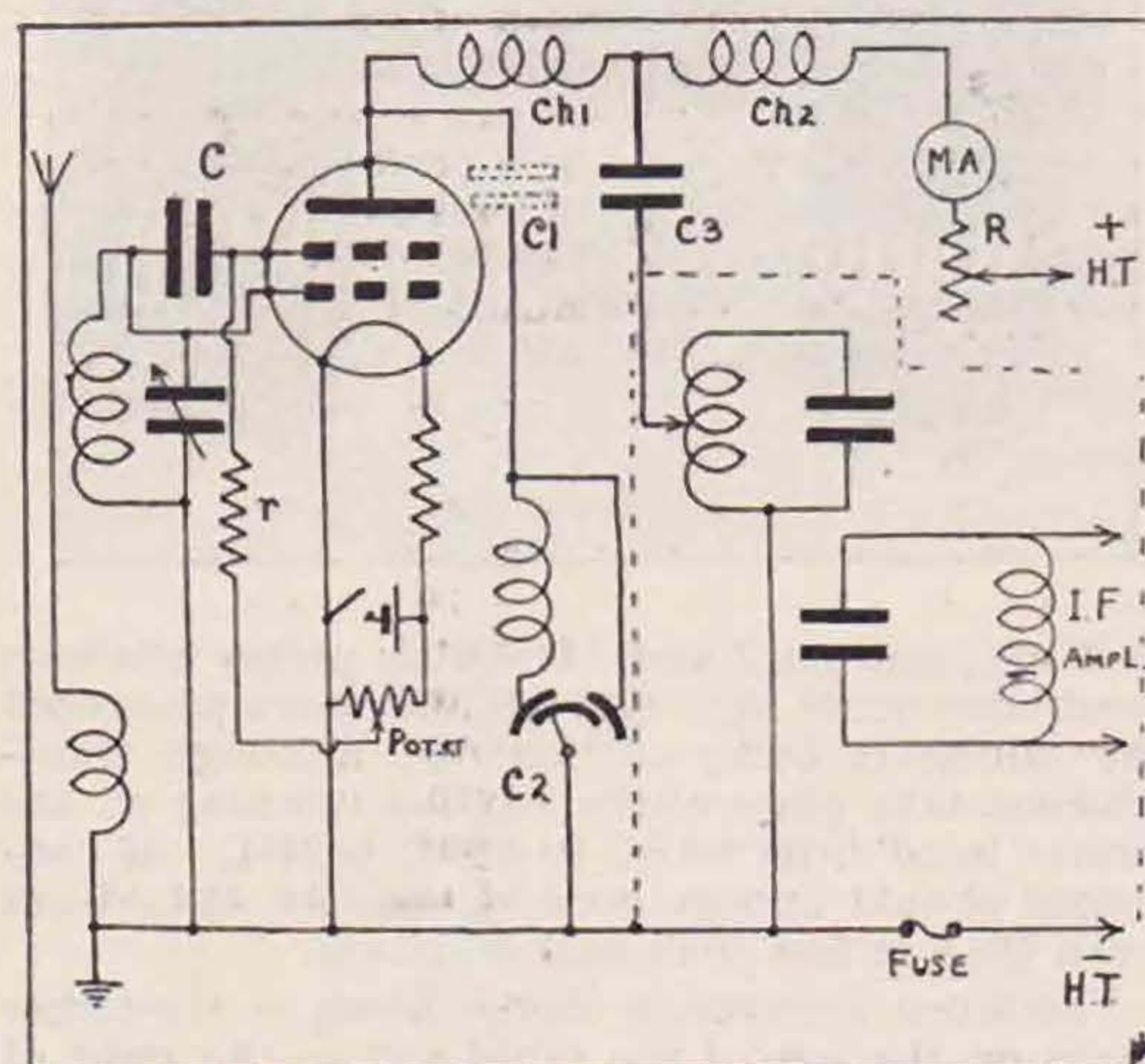


Fig. 2

shows the connections for fitting this type of Super-het. adapter to the H.F. amplifying stages of a B.C. Receiver or an already constructed I.F. Amplifier. The portion within the screening represents the input circuit of a B.C. Receiver.

C —.00005 mfd.
 C_1 —.001 mfd.
 C_2 —.00025 + .00025 mfd.
 C_3 —.001 to .01 mfd.
 r —5 megohms.

Operating Notes.

Adjust the plate-feed by means of R (having 120 or more volts H.T.), until the milliammeter reads about 1 milliamp. with the valve not oscillating (reaction condenser at zero). The effective anode voltage for a Philips A441N valve will then

(Continued on page 5.)

AMATEURS OF YESTERDAY AND TO-DAY.

It is seldom our good fortune to read such an inspiring address as that which was given recently by Mr. J. D. Gardham, Principal of the Port Elizabeth Technical College, on the occasion of the opening of the seventh Annual Convention of the S.A.R.R.L.

In reproducing Mr. Gardham's speech, we acknowledge our indebtedness to the Editor of *QTC* and trust that we may be forgiven for failing to obtain his written permission prior to publication.

Mr. Gardham said:—

You are met in a College the atmosphere of which is entirely friendly to you and to your deliberations, and I am sure that the Council of the College would desire me to express, on their behalf, the appreciation we feel at being able to place accommodation at the disposal of a body so important in the realm of science in South Africa.

You are well aware of the value of scientific and technical education, but you may not be so much aware of the inspiration it is to us to have a body of men engaged in the modern science of wireless holding their conference in this building. I trust that whilst you are here you will take an opportunity to look over the College and thus form an opinion of how much is being done in Port Elizabeth to further specialist education. I hope you will agree that it is a very great deal indeed, and that the youth of Port Elizabeth are fortunate in their possession.

I do not know why you call yourselves amateurs—is there such a being as a professional scientist? Or is it merely that you preserve the distinction between amateur and professional that obtains, say, in the realms of music, of art, of sport, in that you work for the love of the science and not for the material gain that comes to the professional through its means?

Assuming this to be so, may I remind you that the most valuable research is to be found in the ranks of the amateurs? His purpose is not affected by the thought of material gain. His love for his science is single-hearted and therefore all the more precious; his quest is pursued in the true spirit of scientific advancement, and whilst what he finds may be later put to commercial use, his finding is the finding of the scientist and not of the commercialist.

And so, perhaps, you will bear with me for a few minutes whilst I run back a comparatively short number of years and touch upon some of your colleagues who helped kindle the torch you are carrying to-day, a torch whose light is even now penetrating to the furthest corners of the earth, and, could we but prove it, maybe to other earths of which, so far, we have no intimate knowledge.

So recently as 1842, when the United States Congress was considering whether it was willing to spend money on building a line between Washington and Baltimore to test Morse's newly-invented telegraph, the Chairman of the Committee, urging the laying of the line, said that frankly it was so startling as to seem almost irreverent for man to annihilate space. Only to God had it been possible to be everywhere at one and the same time.

Yet here was an amazing invention which claimed that a man might sit at an instrument in one place and send messages over a wire to another, 20, 30,

100, or even more miles away. If this thing could be done, then man would be lifted above the ordinary human plane to something greater.

Well, that telegraph was installed by Congress. How little its members thought that within 15 years the President of the United States and the Queen of England would exchange greetings over the Atlantic cable, that within 35 years talking over wires would be possible, and that 80 years later people would be talking across space without wires. There is no more thrilling story than that which tells how, in the last 100 years, man has achieved his greatest conquest so far, the conquest of space.

Wheatstone is popularly supposed to have been the "father" of the telegraph, but the parenthood really belongs to an officer of the Indian Army, in Madras, William Fothergill Cooke, who, whilst visiting Germany on leave, noticed a model for demonstration of the vibrations of magnetic needles in an electrical field, and conceived the notion that this phenomenon might be put to practical use. It was due to Cooke carrying this notion to Wheatstone that between them a patent was taken out for improvements in "giving signals and sounding alarms by means of electric currents transmitted through metallic circuits," and thus was evolved the telegraph much as we know it to-day.

Now Cooke, as I have said, was an officer in the Indian Army; Wheatstone, though later a professor of experimental physics at King's College, London, began his career as a maker of musical instruments. Morse, the American inventor, whose name is immortalised by his telegraphic "code," was an artist, painting being his special interest. As a student he painted small pictures of his college friends and sold them for five dollars apiece. After college he studied painting under one of the leading painters of the day and actually had pictures hung with those of England's best artists.

It was later that he became interested in electromagnetics, and nothing shows the pioneer spirit of the man more clearly than the fact that, having little scientific knowledge and less experience with apparatus, he persevered in his ideas, using his art as a means to live whilst he evolved his "make and break" system of telegraphic signals.

Here, then, we have a picture of the amateur par excellence. It is the old story—the amateur discovers, the commercialist steps forward and uses, and though telegraphy now employs many thousands of professional men throughout the world, the debt to the amateur experimenter must never be forgotten.

You are, of course, familiar with the trials and disappointments which attended the laying of the first trans-Atlantic cable. How, although short

lengths of under-water cable were laid with success in England and America, it remained again for an amateur to connect the Old World with the New. Cyrus Field, a young merchant of New York, conceived the idea of the Atlantic cable. He was, naturally, assisted by the British and American Governments and by companies, but it was due very largely to Field's passionate enthusiasm that, despite the heart-breaking disappointments and losses of the venture, it was ultimately carried through to triumphant success.

Now comes Alexander Graham Bell, a teacher of deaf mutes, the inventor of the telephone. Because of his knowledge of talk-sounds, the positions of the mouth, lips, throat and tongue in speech, Bell was exactly the man who should have invented the telephone. The marvel is that so famous a teacher should have become interested in the idea and have gained the electrical knowledge to make such a machine. The germ of his idea was a "musical telegraph" with as many notes as the keys of a piano, supplanting the monotonous long and short clicks of the ordinary telegraph. From this idea was born the desire to talk into a wire so that someone at the other end should hear the words as he had spoken them. To us the idea seems simple because we know the telephone so well, but to Bell's friends and critics it seemed crazy. Yet, after patient research, the principles of the microphone and receiver were evolved and speech across a wire became an accomplished possibility. That was as late as 1876, only 56 years ago, and it took Bell several months even to get his invention noticed, so indifferent are people to react to anything new.

The life and work of Thomas Alva Edison have been too recently before the world for me to comment on this most prolific modern inventor, except to mention his contribution to the victory of man over time and space through the phonograph, the popular succession of which, the gramophone, has so many interesting and practical uses in everyday business life and in entertainment.

To no one man can be given the credit for discovering the facts and thinking out the theories which led to the miracle of talking across space without wires.

Perhaps Faraday began it with his wonderful studies of "fields of force" about a magnet. "Action at a distance" was his striking description of some of the effects he was able to produce. (You may recall that this giant of science began life as an apprentice bookbinder.)

Maxwell, a few years later, announced the theory that electro-magnetic waves travelled through the ether of space at the same rate and in the same manner that light waves did. Hertz produced and detected those waves.

Crookes wrote in 1892: "Here is unfolded to us a new and astonishing world. Rays of light will not pierce through a wall, nor, as we know only too well, through a London fog. But electrical vibrations will easily pierce such media. Here, then, is revealed the bewildering possibility of telegraphy without wires, posts, cables, or any of our present appliances."

Guglielmo Marconi, beginning as an amateur experimenter, found out how to use these waves for the practical purpose of sending messages across space, at first only for a distance of a few

yards, then from room to room in his father's house, and so on, but though we must freely admit the great part he has played in making wireless telegraphy a practical working affair, we must not forget the pioneer work of others who laid the foundation upon which this marvellous modern achievement rests. Nor must we overlook the fact that the reproduction of music, in our homes, and the ability to carry on a conversation with people on the other side of the world without wires is due to the genius of Dr. Fleming, who invented the thermionic valve, and the American, Dr. de Forrest, who improved it.

By wireless the world is made one. The peoples of the world are bound together by an invisible bond over which speech can be freely carried. Ocean cables may be cut, telegraph and telephone wires blown down, but the invisible ether through which electrical waves travel knows no national boundaries and is subject to no hazards. A whole country, half the world, may be the audience of a single speech. What an inestimable power for good this wonderful science may wield, and how wonderful are the opportunities opened up to the patent research worker in this field.

To any one of the thousands of amateurs applying themselves to this fascinating study may come an inspiration which may still further benefit mankind and may bring fame and honours in its train.

And so I enter a plea to this League that your members should foster the education of the modern youth in the principles and practice of your craft, so that the ranks of your workers may be swelled to your mutual advantage, to the benefit of our country, and of the world in general.

Reception Tests.

Dates and periods for the next reception tests are given below. As no logs are being received yet from Ireland, it is hoped that some members resident in that country will come forward and assist us in this direction. For full details of these tests, fresh entrants will find the necessary information by referring to the May issue of the BULLETIN. All logs should be sent off by August 8 to T. A. St. Johnston (G6UT), 28, Douglas Road, Chingford, E.4.

PERIODS AND BANDS.

Series No. 8.

Date.	B.S.T.	Test Letter.	Band mc.
Sunday, July 17	08.00-09.00	C	1.7
Saturday, July 23	23.00-24.00	G	1.7
Sunday, July 24	09.30-10.30	I	1.7
Tuesday, July 19	23.00-24.00	F	3.5
Sunday, July 24	00.00-01.00	H	3.5
Thursday, July 28	22.00-23.00	L	3.5
Saturday, July 16	23.00-24.00	A	7
Monday, July 18	21.00-22.00	E	7
Saturday, July 30	23.00-24.00	M	7
Sunday, July 17	05.00-06.00	B	14
Saturday, July 23	22.00-23.00	F	14
Sunday, July 24	18.30-19.30	K	14
Sunday, July 17	12.00-13.00	D	28
Sunday, July 24	15.00-16.00	J	28
Sunday, July 31	11.00-12.00	N	28

ROTTEN RAG-CHEWING.

BY UNCLE TOM.

With further apologies to "The Old Man."

BROTHER HAMS, I have just read some wise words that have led me to take up the old pen, fill the ink-well with sulphuric acid (conc.), and let fly at all and sundry.

There is, in Europe, a Rag-Chewers' Club, to which some of us belong, and with which many who are not members are entirely in sympathy. This month's issue of their journal, *Rag-Chewing*, contains an article by our friend PA0QQ, entitled "How to be Conversationalists on the Air." The words that I like particularly are these: "Conversation, attuned to the available time and the mentality of our correspondents, that's what we wish to confront to the MAD AND MEANINGLESS EXCHANGE OF FORMULAS."

PA0QQ has spilt a bibful. Uncle Tom himself could not have put it in a better way. So let us pour our wrath and vitriol on these useless users of our small ham bands for a while.

There is no need for me to describe in detail a QSO between two "formula-hounds." The only good point about it is that it is *short*. If they both packed up after one QSO we would all thank Heaven for formulæ. But they don't—they go on and on, saying the same thing to station after station *ad nauseam*, until one wonders (a) whether they can really think coherently at all; (b) whether they have sufficient grey matter to answer a simple question in plain English; and (c) whether they are actually capable of sending or receiving anything except the stereotyped formula "ur fb cc xtal t9 sigs fb QSA5 fb r8 hr QRA OK in buk pse QSL hr QRU tnx vy for nice QSO cuagn 73 cuagn ge 73 cuagn QSL bliberty-blah-bi-blah."

What, I ask you, would a sane, disinterested observer think of this? Imagine a man that one was introducing to ham radio; one who had been told all about the wonderful spirit of friendship on the air; one who was expecting to have a good chat with a fellow-enthusiast in a far country. Just what would his feelings be if his first six QSO's finished off like that?

When a ham meets another ham in the street, does he say "Good evening, old boy. Nice to see you again. Sorry I haven't any news now, so I shall have to push off. Glad to have seen you. Cheerio. See you next week (perhaps)"? If he *did*, I think he would soon have it taken out of him.

Looking over the whole thing, I have come to the conclusion that this "QRU" business is due chiefly to the insane desire to work as many new stations as possible; in short, to the wallpaper craze. In certain circles I am looked upon as a freak for saying that I would sooner chat with a Yank that I have worked fifty times before than with a new one. Up go the eyebrows in pious horror: "Why, you've got two cards from him on the wall now. What d'you want to waste time on him for, when you might raise a new one?"

I ask you, which is better—to have twenty real friends across the pond with whom one can really *talk*, or to have hundreds of mere "nodding

acquaintances" that are nothing more than "cards that pass in the post"?

Of course, we all know that some hams have carried the formula-business to such a pass that they are now incapable—yes, mentally *incapable*—of sending anything else on their key. Perhaps the key itself is bewitched and jibs at doing more than its usual twenty words per QSO. On the other hand, some of them suddenly come to with a jerk and realise what *mutts* they are, as in the case of a Yank who became friendly all of a sudden when I said to him "Talk, dam you, talk!" True, he sent "Hi" for nearly three minutes before he could think of any other intelligent remark, but after that I got to know where he worked, what times he was home, when I could expect to find him on the air, and, finally, that his OW was waving the breakfast eggs and bacon at him through the shack window!

I am not pouring all my H₂SO₄ on British hams—far from it. I think we have as high a percentage of intelligent rag-chewers as any other country, and higher than most. But I should like to see the others wake up their ideas a bit. They are of two sorts. One comprises the frankly incapable ones, who have got into the formula-habit and can't get out of it; the other, unfortunately, includes some of the DX-men who admit that they would sooner have a formula-QSO with a DX station than a good rag-chew with a friend in Europe.

Their point of view is easy to see when they are fairly new to the game and are out after WAC or WBE; but why, oh why, do they keep on at it after they have had years of DX work? Let them try 3.5 mc. and meet some real ops. in Europe, instead of judging Europeans by the noise of tearing linoleum that clutters up 7 mc. these days?

No one denies that the supreme thrill of all is a really good rag-chew with a DX-man; but in these days of poor conditions and QRM it is a difficult matter. So do let us resolve, if we call ourselves DX-men, to spend a little time on comparatively local rag-chewing, as well as our shorter DX QSO's, which, after all, are necessary just to make sure that the old TX is keeping up to scratch.

We *are* supposed to be experimenters; but how we can experiment over the air without telling the other man something now and then I don't quite see. There isn't much real value in knowing just how loud our signals are in South America, first with one aerial and then with another, particularly when conditions have probably changed in the meantime. But tell the other man what your particular line is, and get him to do the same, and you may get somewhere.

To my mind the chief virtue of phone work is that it does encourage rag-chewing and the exchange of details; and it is rather strange that those who condemn phone as a nuisance are mostly the brainless formula-merchants, who find that, owing to phone QRM, they can only say "QRU" to ten stations instead of fifteen in the course of a morning.

(Continued on page 7).

CONTACT BUREAU NOTES.

By H. C. PAGE (G6PA).

THE most interesting event for C.B. this month seems to be the appearance of the new 56 mc. Group under the care of G6XN. Already this group is one over strength, and as soon as some more enthusiastic 56 mc. workers come forward another group will be formed under G2KB, who is very keen.

While this group, or rather collection of groups, as we hope it will become, is called the 56 mc. group, it is not intended that attention shall be devoted only to 56 mc. The constitution of the groups allows for work on all frequencies above 28 mc. Therefore if there are any people interested in 112 mc. or in the frequencies of the order of 37.5 mc., they should write to G6XN, and he will welcome them all.

Owing to pressure of business on the part of G2VV there will be no QRP notes this month. In future months will the group centres of the QRP groups please send their reports direct to me? QRP G.C.'s PLEASE NOTE THIS.

The 3.5 mc. groups have decided to close down for the summer, owing to the restricted hours of operation now in force.

There is no report from the 1.7 mc. group manager this month, probably due to the fact that his men are feeling the call of the summer. 1.7 mc. is unpleasantly noisy at night now.

G2ZC has asked me to appeal for more members for the fading groups. Anyone interested should write direct to him. He also would like information of any stations running definite schedules. In addition, he asks for information about any Continental Commercial stations which are using Beam, or non-directional transmissions. Perhaps someone will write to him about this.

GROUP REPORTS.

28 M.C. Work.

G6VP, Group Manager.

At last conditions have changed and stations on the alert were well recompensed for their long wait, and signals from most of the European countries have been heard. This is interesting inasmuch as the failure of 28 mc. recently was attributed to too long a skip or total lack of reflection and many efforts have been made to get a lower angle of radiation.

The distance of the stations heard and worked would point to the fact that high angle radiation has been responsible for this, but when one starts theorising on angles of radiation, and keeping in mind the average ham's location, it must be understood that one is on very uncertain ground.

Also it is safe to say that the best angle for any given distance and direction does vary from day to day, and this no doubt explains the fact that on certain days one may be very much better heard in comparison to other stations working than on others.

It is certainly gratifying that the successful stations, that is, the ones who have both heard and worked most, are the ones that have stuck to 28 mc. all though the impossible days. All credit to them.

Here is a résumé of the work done by the groups :—
Group 1B does not report.

Group 1C.—G6WN, the most successful all-round station on 28 mc. this year, have again a good log, and as will be seen, they have now worked HAF4D three times and HAF8B and D4GJC once.

During the month they have worked :—

June 4—HAF8B, D4GJE, HAF4D ; June 12—HAF4D ; June 13—HAF4D ; June 4—Heard by DEO625.

They have heard :—

May 16—Rome-Sardinia, EAM ; May 23—EAM, Rome-Sardinia, HAF4D ; May 24—Rome, EAM, CT1AY ; May 28—EAX ; May 29—CT1AA ; June 1—Rome, FZM, F8TOX, Sardinia, EAM ; June 3—F8WK, EAR128, EAM, Rome-Sardinia, EAR16, EAV, a phone station ; EAR16, F8WK (a Commercial), F8TV, CT1AA, CT1AA, EAR98, CT1AA ; June 4—Phone, EAR98, HAF4D, HAF6A, CT1AA, D4 (?), LCJ, Rome and too many Commercials to log ! ; June 9—CT1AA, LA2C, LCP, NAWU ; June 10—EAM, Rome-Sardinia, Rome, CT1AA, CT1AY, GBV, EAR98, CT1CG, IBF1DR, HAF4D. G's heard :—G6CO, G2XA, G6NK, G5SR, G5LA, G6QB, G6VP, G5PJ, G6WK, G2BY, G2YD, G2UV, G6XN, G2OL, G5OJ, G5KU, G5PQ, G6ZA, G5NL.

G6VP has nothing like so good a log to produce but nevertheless has heard many harmonics. No fundamentals, however, have been heard except, of course, G6WN.

Group 1F.—BRS25, although on holidays, has found time to send up report. FB om.

2BHK (the most consistent RX station this year) has sent the following log :—

May 18—HAF6B ; May 22—HAF4D, UO3WB ; May 23—HAF4D ; May 24—CT1AY ; June 3—EAR98, EAR104, EAR128, F8AR, F8SK, F8TV, F8WK ; June 4—HAF4D, 8B, 6A, EAR98, OR2MA, D4GJG, F8TV ; June 5—HAF4D ; June 10—CT1AY, F8FK, EAR98 ; June 12—HAF4D, CT1AA ; also EAM, EAX, UOX, and Italian 'phone.

2BHK thinks that G5SY's opinion of the real 28 mc. season is wrong, inasmuch as during the winter months signals (if any) were only audible for very brief periods, whereas now they remain audible for hours at a stretch.

SU6HL, SU1AA, and SU1EC, are all coming up to 28 mc., and will be transmitting on Sundays.

New groups are being formed, applications for inclusion should be forwarded without delay.

G5FV writes that he is now on 28 mc. and heard HAF4D, calling G2BM at R8-9 ! Later on he heard him working D4POG and G6WN. He next heard HAF8B and later working F8TV and G6WN. Then came signals from D4GJG. The Rx at G5FV's is a S.G. V.2.

Pro tem. G5FV joins Group 1C ; perhaps it may be necessary to change later, though.

Fading, Blindspot, Blanket and Skip.
G.M., G2ZC.

This month I have to report the completion of Group 2D, and the formation of yet another group, 2E, with G5KU as G.C. This group has three

vacancies, and I would welcome more applications from all interested in our subjects.

While I have a lot of interesting news, I must leave this over as owing to the eclipse of the sun, our groups are taking an active part in this, and I would welcome observation reports from any amateur who may be willing to help. The eclipse effects from N. Siberia, through the North Pole, Canada, and ends in the Atlantic Ocean, and takes place on August 31, 1932, from 1904 to 2130 G.M.T. Most of us are going to observe on some reliable commercial station, noting changes in signal strength, fading, and generally, any variations from normal. Up to the present, I know that 14, 7, 6, and 1.7 mc. will be observed, and I am particularly anxious that other bands (especially those outside the amateur range) will be observed, so that we can get as great a spread as possible, and therefore, would those who are willing to take a watch, please keep this in mind. Many amateurs outside the fading groups have signified that they will be on watch, and it is quite impossible for me to deal with the large correspondence, but will those who are members of C.B., please let their GC's have their reports after the eclipse (or DR's in

the idea is to issue group news that affects only our own groups, thus cutting down space in the BULLETIN.

Group 2A.—The Heaviside Layer is still under discussion, and the theoretical discussion has been co-ordinate with some practical observation work, and one or two interesting facts have come to light in connection with fading.

It is hoped in the next few months to confirm the findings with further experiments, and to issue some notes on the subject.

A mathematical analysis of some of the observed facts has been attempted, but agreement on some of the assumptions which have been made, has not yet been reached.

Group 2B.—We would like to thank G5UM for his remarks about 2 mc. during the South American earthquakes. G2DZ reports that he has found the actual time of an earthquake good for reception, but that conditions become bad shortly after. So far as the actual work of the group goes, Hollow Signals have been under discussion, and though several theories have been put forward, at the same time, this subject seems to be as indefinite as ones like the Heaviside Layer (which comes up for re-

Earthquake Report.

DATE (1932).	TIME, G.M.T.	SITUATION.	REMARKS.
May 1	Abt. 0355 G.M.T. ?	Slight shock felt at Cannes, and at various other places on the Riviera.	Seismograph at Marseilles Observatory indicated the epicentre as being about 75 miles away.
May 5	1955 Local Time ? 2215 " "	Two shocks, the second the more severe, felt in Hawke's Bay district of New Zealand. (Napier, Hastings, Wairoa, etc.)	—
May 7	0415	Two slight shocks felt at Horta, Fayal, Azores.	Reported by CT2AN, via G5IZ.
May 8	0605	Slight shock felt at Horta, Fayal, Azores.	Reported by CT2AN, via G5IZ.
May 15	?	Severe earthquake in Menado district of the island of Celebes, Dutch East Indies.	Damage and loss of life greatest at Kakas.
May 21	?	Volcano of Descabezado (Andes) in eruption.	Cinders fell on town of Melargue.
May 21		Severe earthquake at San Juan and Usulután (San Salvador).	—
May 23	0600 Local Time ?	An earthquake, followed by an eruption of the volcano Lewotobilebaki, near Laran-tuka (Flores), South America.	
May 26-27	Shortly after midnight B.S.T. ?	Slight tremors, lasting several minutes, felt in Sheffield district. Accompanied by a noise like a rushing wind.	Tremors believed to have been caused by recent serious floods penetrating the local strata. A weather expert at Dronfield noticed an extraordinary cloud formation.

cases of non-members of C.B.), and I shall be glad if the GC's and DR's will then let me have the reports, after receipt. The Australians are taking active part, and it is on the invitation of W.I.A. that we ourselves are participating, so we should have a well-spread observation result.

This month I have started a G.M. Group "News Sheet," which will be issued each month to C.B. Manager and all GC's of the fading groups, and

discussion again next month). G6YL points out an interesting fact, in a long report, that the height of the Aurora seems to stop 60 miles up, which is where the Heaviside Layer is. One member brings up an astonishing fact, namely, that in unloaded cables, voltages of from 200 to 500 volts have been registered, and says that he will get more information on the subject. It was over a voltage of 9 volts that suggested to the group "Changing

Earth Potential," which was dealt with some time ago, but this high figure is worth investigating.

Group 2C.—The group has started a discussion on the Heaviside Layer.

The Graph method of observation analysis has not yielded very much this month, but the results for April showed that the variation of weather and conditions on 1.7 and 7 mc., were very alike. This, however, did not continue through May. We are indebted to G6LM for his kindness in supplying details of sunspot phenomena, and trust he will be able to continue.

(As sunspot activity is interesting to all groups, may I suggest that G6LM supplies this information to C.B. Manager?—G.M.).

Ultra High Frequencies.

G6XN, Group Manager.

This month I have pleasure in announcing the formation of an active group.

Considerable work has been done with portable receivers, observations of signals from fixed transmitters being made.

G2KB and BRS77 have been co-operating in 56 mc. experiments. Using a two-valve "straight" receiver in a car, with a 4 ft. aerial, signals from G2KB were heard up to 10 miles distant. At $1\frac{1}{2}$ miles from the transmitter a definite spot was found where no signals could be heard, yet a few yards either side they were quite loud. Screening due to buildings, trees and hills was observed.

Using a super-regenerative receiver in a moving car, 'phone from G2CZ was copied at QSA5 up to a mile or so.

G2KB is experimenting with aerial systems and used a $\frac{1}{2}$ -wave vertical aerial for transmission in the above tests. His transmitter is a parallel tuned Ultraudion with 4 watts' input to an Ediswan PV625 valve. His receiver is a series-tuned Ultraudion with one L.F. stage and super-regeneration. He states that control of quench E.M.F. is essential for maximum ratio of signal strength to noise.

BRS107 is using a "super" on 56 mc., but complains of the absence of local activity.

G6XN is using a receiver on the balanced Colpitts' principle, and with the aid of transmissions from G2OW and G2OL, has also been experimenting with super regeneration. He doubts whether this confers any real advantage other than making telephony signals easier to hold. The 56 mc. transmitter also uses a balanced Colpitt's circuit, as this system has been found essential for maximum efficiency, from theoretical as well as practical considerations.

G2OL and G6XN have had a field-day on 112 mc. The receiver was a single-valve "Colpitts" using a based Shortpath valve. Reaction was controlled by a condenser in the aerial lead, and the condenser spindle—about 2 ins.—worked quite well as the aerial. It was supplemented by a portable $1\frac{1}{2}$ -wave aerial. The equipment was carried on motor-cycles.

The transmitter at G6XN was a series-tuned Ultraudion, using 10 watts at 200 volts on a de-based L.S.5 with about 1 watt H.F. output.

The following is a brief summary of the results:—

Position (1).—Near top of hill, about a mile from transmitter. With no aerial, signals R5. With aerial, signals variable from R7 to R1. The aerial

had to be placed at an angle of 45° to the direction of the transmitter and the minima were very sharp.

Position (2).—At the bottom of the hill, completely screened from the transmitter, distance about $1\frac{1}{2}$ miles, signals still a good R5. This was especially strange as similar tests on a previous occasion on 5 metres showed a drop in strength from R7 to R3!

Position (3).—On Harrow Hill, about 3 m. from the transmitter. Signals R6, no screening.

Position (4).—No signals were obtained on high ground about 8 miles from the transmitter. This was attributed to "shadowing" by Harrow hill.

The signals were also received outside G2OL and G2OW. In the former case (about $\frac{1}{2}$ mile) there was no screening other than houses, and in the second case (1 mile), a hill intervened. Signals were only R5 and R2 respectively, thus suggesting absorption by buildings to be very marked.

It is hoped to form a second group very shortly with G2KB as GC. Will anyone in the Midlands who is interested, kindly get in touch with him?

Television Group.

G5CV, Group Manager.

Group 11A.—An excellent letter budget this months show that many members of this group are very active with vision work.

An interesting discussion has arisen following my remark last month that I found 1.0 mfd. coupling condensers superior to 0.1 mfd. in resistance-capacity coupled vision amplifiers. G5AW disagrees, and in an interesting letter proves mathematically that I am wrong. His calculations, however, are based only on the audible frequency range, which of course is not so extensive as that required by television transmissions. Furthermore, he takes only 32 cycles as the lower limit. I hope other members of the group will join in this discussion.

G5GJ is busy constructing a mirror drum and intends to replace his tubular Kerr cell with another of different design. (I think that a rectangular shape would be better, OM.—G.C.) BRS759 has succeeded in obtaining recognisable though distorted images and BRS869 is constructing a vision amplifier. 2BFO has been QRT last month owing to re-building.

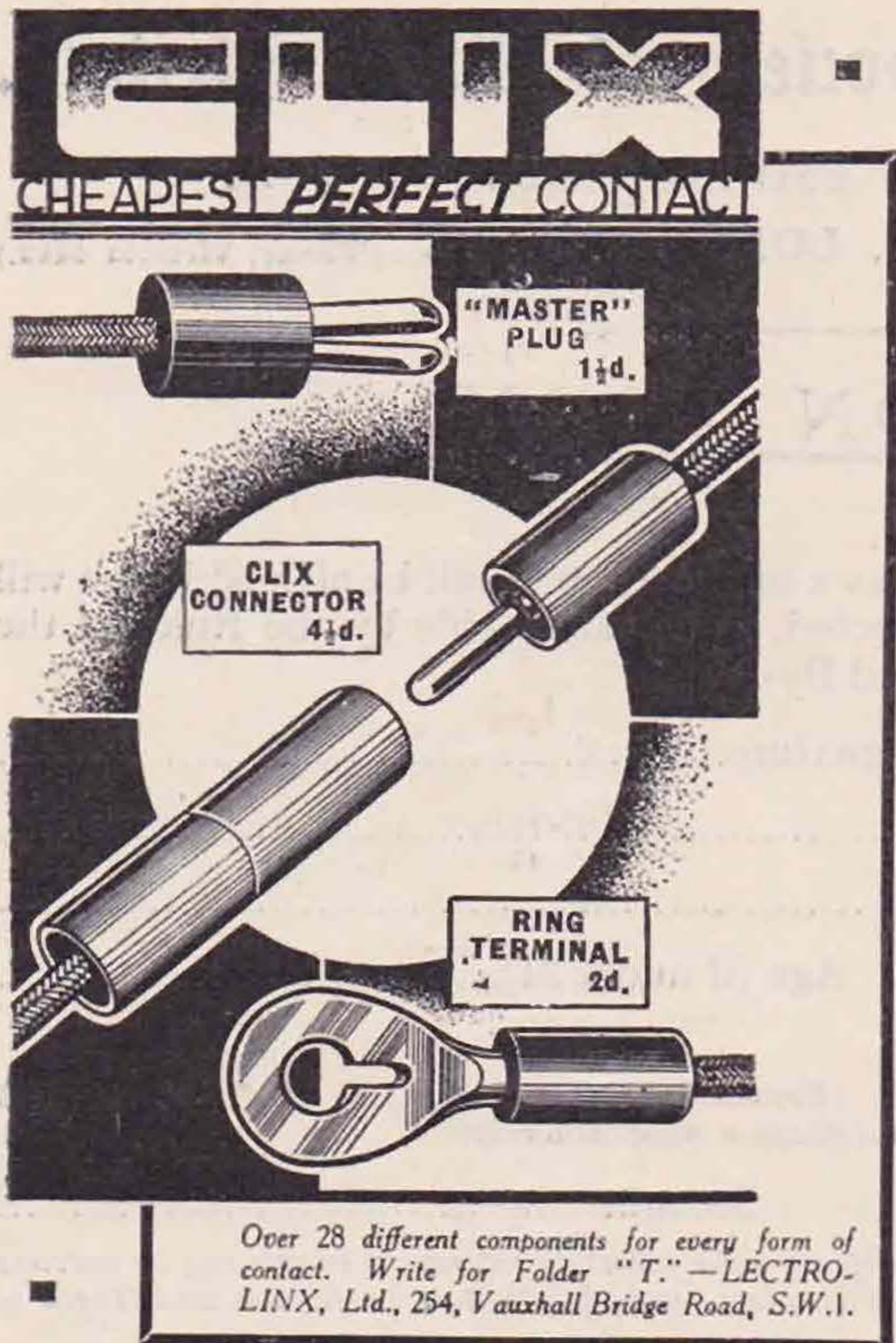
The chief activity at G5CV was centred around the Derby vision broadcast, for several Press representatives came to "look in" to the race again this year. Unfortunately the B.B.C.'s decision to relay the vision on 261 instead of the usual 356 m. wave rather upset arrangements but eventually the horses were clearly seen, although results were not very satisfactory.

Antenna Group.

G2OP, Group Manager.

Summer has hit us well and truly both as regards weather and radio activities, judging from the number of reports received. In this connection G.C. of the second group (12b) sends a nil return and requests that this group be disbanded for the time being. G.C. 12a reports that he had had the pleasure of entertaining ZL2AU, who is in this country in connection with Power Grid Scheme. He has also been testing out a Zepp in connection with a push pull transmitter, the best results having been with 33 ft. feeders. G5ML is using a 67 ft. Zepp and a 67 ft. Windom in different directions.

(Continued on page 19).



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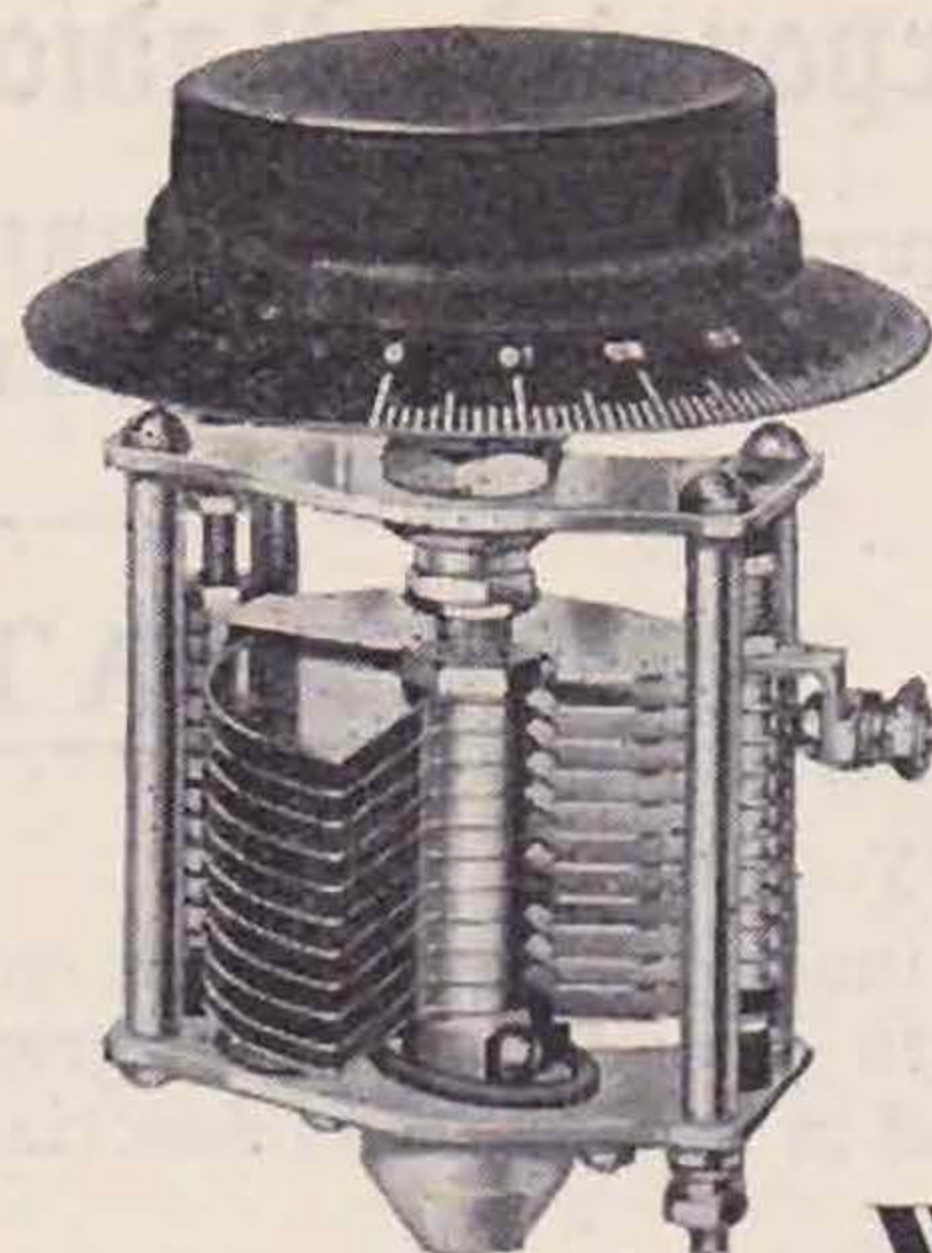
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I, the undersigned, agree that in the event of my election to membership of the INCORPORATED RADIO SOCIETY OF GREAT BRITAIN, I will abide by and observe the Rules, Regulations and Articles of Association of the Society, and that in the event of my resignation from the Society given under my hand in writing, I shall, after the payment of all arrears which may be due by me at that period, be free from this obligation. I further agree to observe strictly the terms of any licence issued to me by the responsible authorities to operate transmission or receiving apparatus.

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HIC ET UBIQUE.

VOL. 8, No. 1—(Continued from page 1).

publish lists of British Empire Stations only, including British ships at sea, etc., though naturally accepting lists from any part of the world. We are confident that, generally speaking, this is giving the best service to members both at Home and Abroad. Just one more: please list in strict alphabetical and numerical order, state the period of the year covered by the list, and give the frequency band.

On the question of articles, we are continuing the Station Description Series and have this well mapped out for months ahead. As stated above, the constructive article programme will be carried ahead with as much vigour as possible and reports of Society lectures will be published when the subject allows of reproduction.

We rely upon the goodwill of yourselves for the remainder of the articles. Glance at the index in last month's issue and see who kept the T. & R. BULLETIN filled with useful articles. Now don't leave it all to the energetic few, but make up your mind that you are going to have a line in next year's index. It doesn't matter whether your article is long or short, theoretical or practical, simple or technical. No article can interest all the members, but you may be sure that there will be many interested in your effort.

Contact Bureau Notes, Empire News and Notes, and News from the British Isles usually occupy the last pages of the T. & R. BULLETIN. It seems unlikely that the first two will be altered to any great extent, though we have ideas for making the Notes and News from the British Isles of greater use to the majority and at the same time making them more interesting reading.

MADRID.

DURING the past few months it has been our privilege and pleasure to tell our London and Provincial membership a little of what has been going on behind the scenes as far as International Amateur Radio policy has been concerned.

At no time have we been unduly pessimistic or jubilantly optimistic as to the eventual outcome of the Madrid Conference, but we have attempted to explain the "high spots" which are likely to arouse discussion.

Since last autumn, two members of Council (Messrs. Marcuse and Watts) have been in constant touch with the Post Office authorities, and, armed with a keen knowledge of not only our domestic requirements, but with those of other nations, have been enabled to present viewpoints which have been accepted wholeheartedly by the powers that be.

At their last meeting, which was held late in June, they were officially informed that, acting on the advice of the British Technical Committee, the British Government intended to vote for the retention of all existing amateur bands on the basis of the Washington agreements.

Whether or not our Government may be persuaded to side with America and Canada in their

demand for exclusive amateur allocations around 1.7 and 3.5, 28 and 56 mc. remains to be seen, but we hope and believe that if there is a general tendency on the part of other Governments to support this proposal, they may withdraw their opposition.

We, as a society, have not pressed for support of the Canadian proposal to extend the 7 mc. band by 200 kc., because we consider that our present band width is a fair allocation at a point in the spectrum (particularly in Europe) where frequencies are at a premium, but we have no doubt that our Government will be ready to listen favourably to the I.A.R.U. delegates who are pledged to support this proposal.

We feel it desirable to place on record the fact that the G.P.O. have definitely advised our representatives that they will welcome the presence of an R.S.G.B. delegate at Madrid to advise them on all matters affecting amateur radio.

Present plans are that Mr. Watts, and possibly Mr. Marcuse, will journey to Madrid at some period during the Conference when important amateur matters are to be discussed. As the meetings will last for nearly three months, it will be impossible for an official R.S.G.B. delegate to be in attendance for their full duration, but we have the satisfaction of knowing that Mr. Kenneth Warner, supported by at least two other A.R.R.L. delegates, will be there from the opening roll-call to the final curtain, besides which, our Spanish friends will be "on tap" to present the European viewpoint when this is necessary.

We take this opportunity of conveying our good wishes to all amateur delegates to Madrid, and express the hope that they will throughout the Conference keep Mr. Stanley Baldwin's quotation in mind, "In non-essentials, Liberty; in essentials, Unity."

J. C.

Contact Bureau Notes (continued from page 16).

G2YX has done little with aërials this month as he has been rebuilding his 14 mc. transmitter and his receiver. G5FI has been chiefly on 1.7 mc., and reports an increase in radiation and results by making his counterpoise a three wire affair. Will he please give the lengths when he next reports? We are glad to know that he has now recovered from his motor accident. G2OP is busy testing out the G2BI aerial for all bands and thinks that it is going to be "the goods."

The G.M. is glad to notice the increase in activity on 56 mc. nearly all over the country. Many of us are handicapped with aerial experiments for lack of room. All of us probably have enough room to fix up a beam on 56 mc. and I hope all those who are experimenting on this frequency will keep me informed of their results especially as regards aërials. Later it should be possible to form a 56 mc. aerial group. What about it?

STRAY.

VU2LT, CAPT. E. H. DU CROS, Long View, Simla, India, would be glad to have QSO's with, or reports from G stations.

SOCIAL NOTES.

Please let me give you a reminder about accommodation for Convention. G6UT would like to know early and if double or single beds are available.

Owing to unforeseen difficulties in the proposed summer outing, it seems at the time of writing that it will be necessary to postpone the trip.

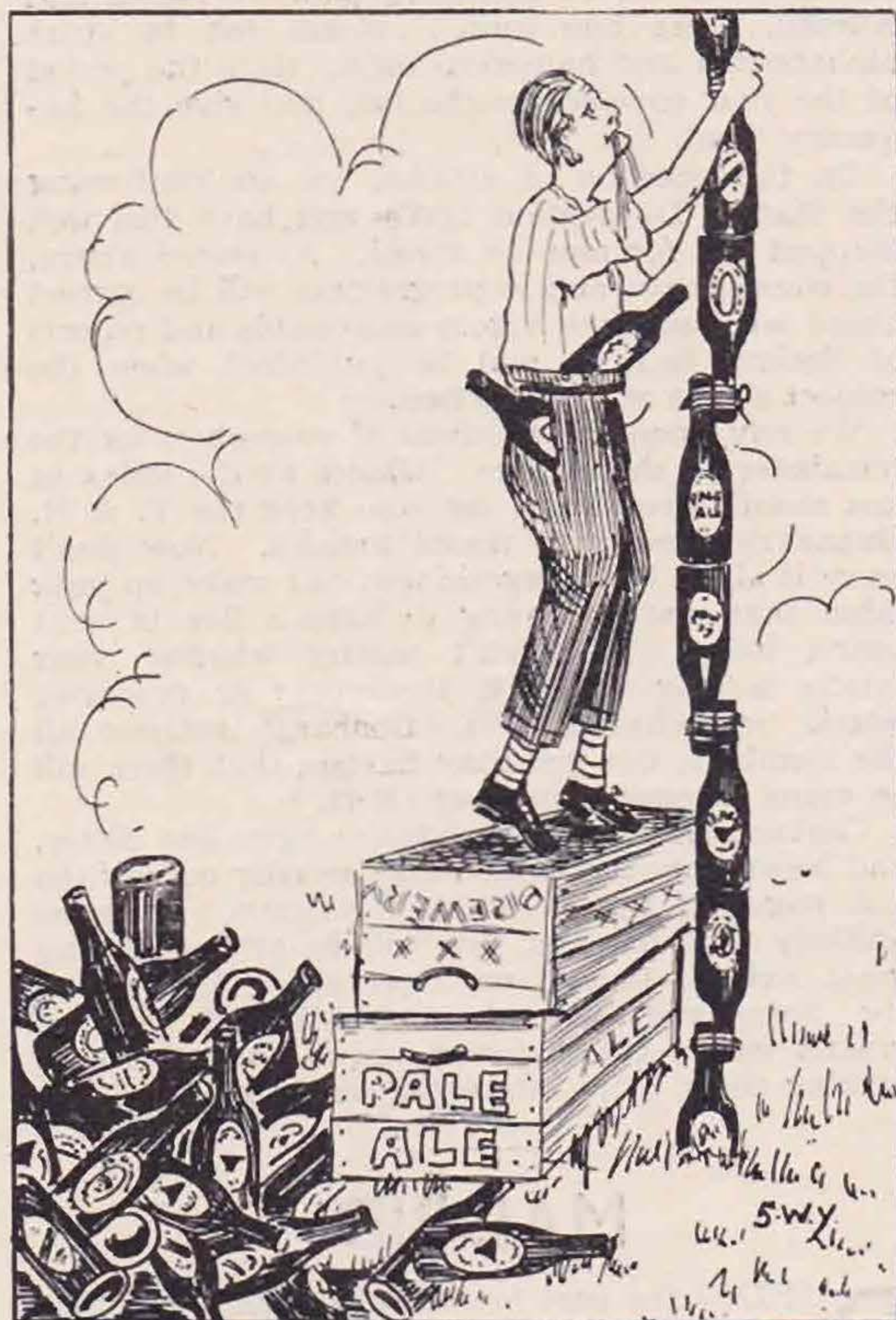
H. V. W.

STRAY.

We are informed that the Spanish station EAR27, who calls *Palentia* before each transmission works only on phone and that there is a pirate abroad using the call sign EAR27 and working on C.W.

STRAY.

We feel we should remind members possessing 3,500 kc. permits that the revised working periods (i.e., week-ends only) commenced on June 1 and remain in force until September 30. This is on account of the extra use made of the band by the Services during these months.



From a photo taken by moonlight of G2OP putting up a mast for his latest antenna.

Empire Calls Heard.

Calls Heard lists will in future contain only British Empire calls and those of British ships at sea and British Expeditions. Contributors will assist if they will list their calls in strict alphabetical and numerical order, stating the period of the year covered by the list and the frequency band.

A. H. Brown (BRS865), 71, Tintern Avenue, Westcliff-on-Sea, Essex. :—

May, 7 mc. : velbv, ve3bv, ve3hc, vp2pa.

June 1-15, 14 mc. : sulcx, vlyb, velbv, velbx (?), veldl, veldr, vp2mr, vq4crh, yi2fk.

Dr. J. Lunt, ZT1Q, Kenilworth, Capetown. March 19 to May 31. 14 mc. : g2ak, g2by, g2ig, g2op, g2yd, g5cv, g5la, g5ml, g5ni, g5oc, g5pj, g5yg, g5yk, g6hp, g6li, g6rg, g6vp, g6wn, g6wt, g6wy, g6yc, su6hl, vs3ac, vs6ae, vs7gj, vs7gt, vk6gf, vk6wi, vq2ty, vq4crh, vu2bg, vu3 (2 ?) cw, vu2df, vu2lj, xzn2a, xzn2b, yi2dc, yi6wg, zc6jm, zd2a, zeljh.

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JAN.
1932

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QRA Section.

Manager: M. W. PILPEL (G6PP).

T. A. ARCHER (VIYB) has informed me that in order to avoid any confusion which might arise he is changing his call-sign to VP2YB from July 1. Will members please make a note of this?

NEW QRA's.

- G2CO.—N. COOKNELL, 25, Ridley Avenue, Blyth, Northumberland.
 G2DQ.—H. G. COLLIN, Highfields Cottage, Rectory Grove, Southend Road, Wickford, Essex.
 G2OC.—L. R. SEAL, 98, Wollaton Road, Beeston, Notts.
 G2XG.—CPL. CARR, 73, West Banks, Sleaford, Lincolnshire.
 G5CU.—J. CUTHBERTSON, 2, Leamington Grove, Park Estate, Ormesby, near Middlesbrough.
 G5LW.—J. LITTLEWOOD, Pavilion Garage, Banham, Norwich.
 G5LX.—J. LITTLEWOOD, Orchard View, Banham, Norwich.
 G5MW.—Medway Amateur Transmitters' Society. (Hon. Secretary, E. T. PETHERS, "Gwynmur," Herbert Road, Rainham, Kent.)
 G5PQ.—W. F. MOORE, 17, Lawn Road, Uxbridge, Middlesex.
 G5QA.—H. A. BARTLETT, "Donbar," Birchy Barton Hill, Heavitree, Exeter.
 G5QT.—A. DAVIDSON, 19-21, Bridge Street, Work-sop, Notts.
 G5ST.—DR. R. R. MORRISON, East Green, Kilmalcolm, Renfrewshire.
 G5TS.—T. N. SMITH, The Officers' Mess, R.A.F., Renfrew.
 G5UI.—J. E. PERKIS, 67, Arthur Street, Ryde, I.W.
 G5XT.—F. ROBINSON, 4, Cranford Gardens, Acklam, Middlesbrough.
 G6CY.—A. S. CLACY, "Winwood," Portland Road, West Hove, Sussex.
 G6TY.—K. D. F. TOWNEND, 53, Lincoln Road, Enfield, Middlesex.
 G6US.—N. E. READ, 32-34, Earls Court Road, London, W.8.
 2ALD.—W. G. ROWLANDS, 46, St. Mary's Road, Gillingham, Kent.
 2AOO.—A. G. FORBES, 33, Rake Lane, Wallasey, Cheshire.
 2AUH.—G. SKEWIS, 22, Mountfield Road, Tunbridge Wells, Kent.
 2BDP.—A. BERRY, Victoria Cottage, Sion, St. John, Jersey, Channel Islands.
 2BFV.—E. HOWELL, 6, St. Paul Street, Chippenham, Wilts.
 2BIH.—W. BURGESS, "Friedensthal," St. Giles' Avenue, Scarthoe, Grimsby.
 2BJX.—H. HARRISON, "Lili Cote," Nunnery Lane, Limbury, Luton, Beds.
 2BKH.—S. C. BAVEYSTOCK, "Benoni," 29, Long Lane, London, N.3.
 2BTL.—A. J. GOODWIN, "Scotswood," Hale Lane, London, N.W.7.
 2BUW.—G. STONESTREET, Pilots Lodge, Lower Hardres, near Canterbury.
 2BXA.—V. G. M. CAMPBELL, 28, Kingston Road, New Barnet, Herts.
 2BYQ.—F. WISEMAN, 41, Hollins Street, Buxton, Derbyshire.

The following are cancelled:—2AZQ, 2BCJ.

New Members.

HOME CORPORATES.

- H. C. DAYNES (G5YD), 15, Elton Street, Stretford, Manchester.
 K. D. F. TOWNEND (G6TY), 53, Lincoln Road, Enfield, Middlesex.
 R. A. SPROULE (BRS892), Ardavon, Garvagh, Co. Derry, N.I.
 H. C. BECKETT (BRS893), 94, Cambridge Road, Seven Kings, Essex.
 L. C. JONES (BRS894), 24, Whitworth Road, S. Norwood, S.E.25.
 C. H. OLLETT (BRS895), 41, Harvey Goodwin Avenue, Cambridge.
 J. M. GIBSON (BRS896), 47, Richmond Street, Bridlington, Yorks.
 T. W. GENTLEMAN (BRS897), 36, Ashcroft Drive, Cathcart, Glasgow.
 J. K. HAYNES (BRS898), 85, Selborne Road, N.14.
 W. F. MILLER (BRS899), 60, Spitalfield Lane, Chichester, Sussex.
 R. S. CROSS (BRS900), Holly Tree House, Grange, West Kirby, Cheshire.
 W. M. FORBES (BRS901), 49, Rosebank Terrace, Aberdeen.

DOMINION AND FOREIGN.

- R. H. ELLIOT (VP2MR), Spring Hall, St. Lucy, Barbados, B.W.I.
 B. M. ORR (VQ2XD), Box 49, Livingstone, N. Rhodesia.
 W. J. MAGILL (VS7AO), R.F.A. "Slavol," Trincomalie, Ceylon.
 J. A. FAITHFUL (VU1AA), Imperial and International Commission, Ltd., Bahrain-Arabia.
 J. G. MCINTOSH (VU2LJ), Dinjan T.E., Rungagora P.O., Assam, India.
 CAPT. E. H. DUCROS (VU2LT), General Staff, Army Hqrs., Simla, India.
 S. A. RANCE (YI2DS), A. Bungalow, 203, Sqdn. R.A.F., Basrah, Iraq.
 F. E. GROOM (YI6BZ), R.A.F., 203 Squadron, Basrah, Iraq.
 G. E. KING (ZE1JF), Magistrates' Office, P.O. Umtali, S. Rhodesia.
 STAFF-SERGEANT S. A. STEVENS (BERS117), No. 1 (Madras) Sig. Company, Fort St. George, Madras, India.
 F. J. HOLLOWAY (BERS118), Trafford Hill, Galagedera, Ceylon.
 S. SUNDRA (BERS119), c/o Sundra Radio Salon, Ambala, India.
 C. W. CATT (BERS120), BM/AEOF, London, W.C.1.
 W. A. HARRIS (BERS121), P.O. Box 70, Crown Mines, Johannesburg.
 J. E. STUBBINGS (BERS122), 46, Edmonds Road, Durban, S.A.
 F. W. F. JAMES (BERS123), A. Bungalow, 203 Squadron, R.A.F., Basrah, Iraq.

Tests on 56 MC.

A special series of 56 mc. tests have been arranged between G2FN, G5VL, G5SY, and G5QA, to take place on July 23 and 24.

All stations, except G5SY, will be portable, and beam aërials will be used.

The portable stations will endeavour to erect their gear on the highest spot in their vicinity.

The frequencies of the transmitters will be in the neighbourhood of 57,200 kc.'s and anyone who listens for these tests, is asked to send a report, whether negative or not, to G5VL.

It is suggested that as many stations as possible should be "on the air" on 56 mc. during the week-end in question, if possible, with their gear erected on the highest ground available.

A list of scheduled times of transmission is appended.

Dates of Tests: July 23 and 24.

All Times B.S.T.

G2FN calling: 14.30-14.35, 14.54-14.59, 15.18-15.23; G5VL calling: 14.36-14.41, 15.00-15.05, 15.24-15.29; G5QA calling: 14.42-14.47, 15.06-15.11, 15.30-15.35; G5SY calling: 14.48-14.53, 15.12-15.17, 15.36-15.41; G2FN calling: 15.42-15.47, 16.06-16.11, 16.30-16.35; G5VL calling: 15.48-15.53, 16.12-16.17, 16.36-16.41; G5QA calling: 15.54-15.59, 16.18-16.23, 16.42-16.47; G5SY calling: 16.00-16.05, 16.24-16.29, 16.48-16.53.

CONVENTION.

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QSL Section.

THE situation regarding listeners reports for U.S.A. and associated countries appears to be improving, and we have received information from the A.R.R.L. that they are trying out a new system of QSL distributing similar to that at present existing in Europe. They hope that when this is working satisfactorily it will be possible to accept all B.R.S. cards once again.

A further announcement will be made in these columns as soon as a statement has been received from H.Q. of A.R.R.L.

You will see from a notice in another part of this issue that several members of Council whose work is connected with Government stocks will, as a result of the recent conversion of 5 per cent. War Stock, be unable to devote so much of their time to R.S.G.B. work, and we therefore crave indulgence if correspondence does not in the following month or so receive immediate attention.

J. D. C.

G6PL complains that his call-sign is being used by some unauthorised operator and he is receiving great number of QSL cards which are not checking with his log and refer to times when he has been off the air. We can only appeal to the pirate to play the game and warn him to be on his guard, as the Post Office, to whom such cases are reported, will not deal lightly with those who so unfairly avoid payment of the licence fee.

Radio Exhibition Tickets.

Council are making arrangements this year to supply any member of the Society with one complimentary ticket for this year's exhibition at Olympia (August 19 to 27 inclusive). Will all members who desire to avail themselves of this offer make written application to Headquarters before August 10, enclosing a stamped self-addressed envelope for reply?

R.S.G.B. AND N.P.L. CALIBRATION SERVICES.

R.S.G.B. Calibration Service takes place from G2NM (Sonning-on-Thames) on each Sunday at 11.00 and 23.00 and Thursday at 23.00 G.M.T. (or B.S.T. if in force) in the 3.500 K.C. band.

The N.P.L. Service is given on the first Tuesday in March, June, September and December from G5HW at 21.00 G.M.T on 1,785 K.C.

Full details of all these Services were published on page 259 of the February issue. The Service from G5YK (Cambridge) has been postponed pending alterations.

B.E.R.U. Report.

We apologise to Mr. Robins (BRS579) for incorrectly recording his score in the B.E.R.U. Contest. The total points scored by him were 690 (115 from six zones), whereas the report showed only 115.

Owing to a printer's error, Messrs. Wyllie (G5YG) and Groom (G6RG) were given as District 5 stations. The letter S, indicating Scotland, should have appeared.

Total Eclipse of the Sun.

August 31, 1932.

WE have been requested by the Western Australian Division of the W.I.A. to organise a Test to observe skip distance, etc., during the Eclipse. The arrangements are in the hands of Capt. A. M. Houston Fergus (G2ZC), La Cotte, St. Brelades, Jersey, C.I., our Fading Groups Group Manager, and details of the Eclipse and requests for co-operation have been sent to all B.E.R.U. representatives.

Arrangements are being made to try and cover as wide a frequency band spread as possible, and it is hoped to cover from 60 kc. to 60 mc.

The fading groups and a few others now amount to about 40 observers who will be on watch, and particular attention should be made to any alteration from *normal* in the behaviour of signals.

Where possible, especially those observing only (i.e., not making transmission contacts), even if an amateur band is being observed on, an attempt should be made to observe on a non-amateur band, for at present the amateur bands are well filled with observers, and it entirely depends on the number participating on the spread we can make over the bands.

It is suggested that a reliable commercial should be taken as a standard, and notes taken on the behaviour of the signals, and it is further suggested that this same station should be observed on a few days previous to the eclipse, and a few days after, so as to make comparisons of greater value.

In addition it will be appreciated if all stations who can be at work during the Eclipse will look out for and work stations in the various parts of the British Empire and send their reports (particularly any peculiarities noticed) to Capt. Houston Fergus.

Details of the Eclipse.

A total eclipse of the sun about 7 o'clock in the evening of August 31 by Greenwich time. Invisible at Greenwich. The eclipse begins north of Siberia. The track of totality, after passing near the North Pole, crosses Hudson's Bay, Quebec Province, Vermont, New Hampshire and Maine, and ends in the Atlantic Ocean. It leaves the coast line a little north-east of Boston. Maine, inland, near its boundary with New Hampshire, where the duration of totality on the central line will be about 100 seconds, a few seconds short of the maximum, appears to be a favourable spot, both as regards position and weather prospects. From Montreal, which is just on the southern limit of the path of totality, a total eclipse will be seen lasting a fraction of a minute at 20h. 24m. G.M.T.

	G.M.T.	Long.	Lat.
Central Eclipse begins	D. H. M. ... 31 19 4	in 109° 16E	79° 36N
Central Eclipse local apparent noon...	... 31 19 17	„ 109° 10W	78° 36N
Central Eclipse ends...	... 31 21 3	„ 40° 59W	28° 27N

At Montreal the eclipse begins at 19h. 14m. and ends at 21h. 30m. G.M.T.

Society Trophies.

We have pleasure in announcing that the "Rotab" Challenge Cup has been awarded to Mr. Jack Wyllie (G5YG), the Honorary Scottish Manager of the Society. The award has been made as a mark of appreciation for the work which Mr. Wyllie has carried out on our behalf, and also in recognition of the excellent DX which has been worked from his station during the past seven years. We are quite certain that old and new members will join us in congratulating Mr. Wyllie on his well-earned award.

The Wortley-Talbot Trophy has been awarded to Mr. H. C. Page, (G6PA) in recognition of his work as C.B. Manager and also as a mark of appreciation for the experimental work which he has carried out, particularly in connection with frequency measurements.

The Somerset trophy is awarded to Mr. E. G. Ingram (G6IZ) as winner of the 1932 1.7 mc. tests, whilst the 1930 Committee Cup goes to Mr. Waters (G2WP), the winner of the 3.5 mc. tests.

All awards and the presentation of the B.E.R.U. Challenge Trophy will be made during Convention, when it is hoped that the successful winners will be present in person to receive them from the hands of the President.

Convention 1932

The following programme will be followed at the Seventh Annual Convention to be held on Friday, August 26 and Saturday, August 27, 1932, at the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, London, W.C.2.

FRIDAY, AUGUST 26.

- 5 p.m. Informal tea and re-union.
- 5.55 p.m. Reception by the President, H. Bevan Swift, Esq., A.M.I.E.E.
- 6 p.m. Presidential Greetings.
- 6.15 p.m. Convention Lecture.
- 8 p.m. Charabanc parties will leave Savoy Place for stations of Mr. T. A. St. Johnston (G6UT) at Chingford; Messrs. H. and L. Wilkins (G6WN) at Hanwell. Charabancs return to Central London at 11 p.m.

Provincial members wishing to be included in these parties are requested to notify Headquarters *in reasonable time*, as space may be limited.

Members not taking part in these visits are requested to join London members' car parties, which will be made up outside the I.E.E. These parties will go on station visits.

SATURDAY, AUGUST 27.

- 10 a.m. District Representatives' Meeting, to be attended by all new D.R.s or their deputies. The agenda for this meeting will be circulated to all D.R.s.
- 1.50 p.m. Convention photograph on the steps of the I.E.E. Members are urged to be present in order that the photograph may be a complete souvenir of all those attending Convention. A proof of this photograph will be passed round for inspection at the dinner. Price 3s.
- 2 p.m. Presentation of Society trophies for 1931-2.
- 2.15 p.m. Business meeting. The meeting will

adjourn at 4 p.m. for tea, and conclude at 5.30 p.m.

6.30 p.m. Convention dinner at Pinoli's Restaurant, 17, Wardour Street, London, W.1. Informal dress, tickets 5s.

Members are urged to apply for tickets *early* in order that reservations may be made. Members desirous of bringing friends must apply to the Hon. Secretary with the names and addresses of such friends.

WE LIKE TO SEE YOU AT CONVENTION. Notice.

Members are reminded that early application for accommodation is advisable, and intending visitors to London should get into touch with Mr. St. Johnston, G6UT, without delay.

County Representatives.

The following have been nominated to serve as C.R.'s during 1932 and 1933, and will automatically take office as from Convention, 1932:—

Mr. J. Davies (G2OA)	...	Cheshire
Mr. W. Geraghty (G2AW)	...	Durham
Mr. A. E. Livesey (G6LI)	...	Lincoln
Mr. C. I. Orr Ewing (G5OG)	...	Oxford
Mr. H. A. M. Whyte (G6WY)	...	Kent
Mr. R. J. Denny (G6NK)	...	Surrey
Mr. C. W. K. Sands (G5JZ)	...	Sussex
Col. W. L. Palmer (G2BI)	...	Wiltshire
Mr. G. R. Scott Farnie (G5FI)	...	Breconshire
Mr. H. J. Gwilliam (G6GW)	...	Monmouth
Mr. D. A. Low (G5WU)	...	Glamorgan

Other C.R.'s will be appointed by Council and their names published in the August issue of the BULLETIN.

R.S.G.B. NOTEPAPER.

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blem	-	1/6
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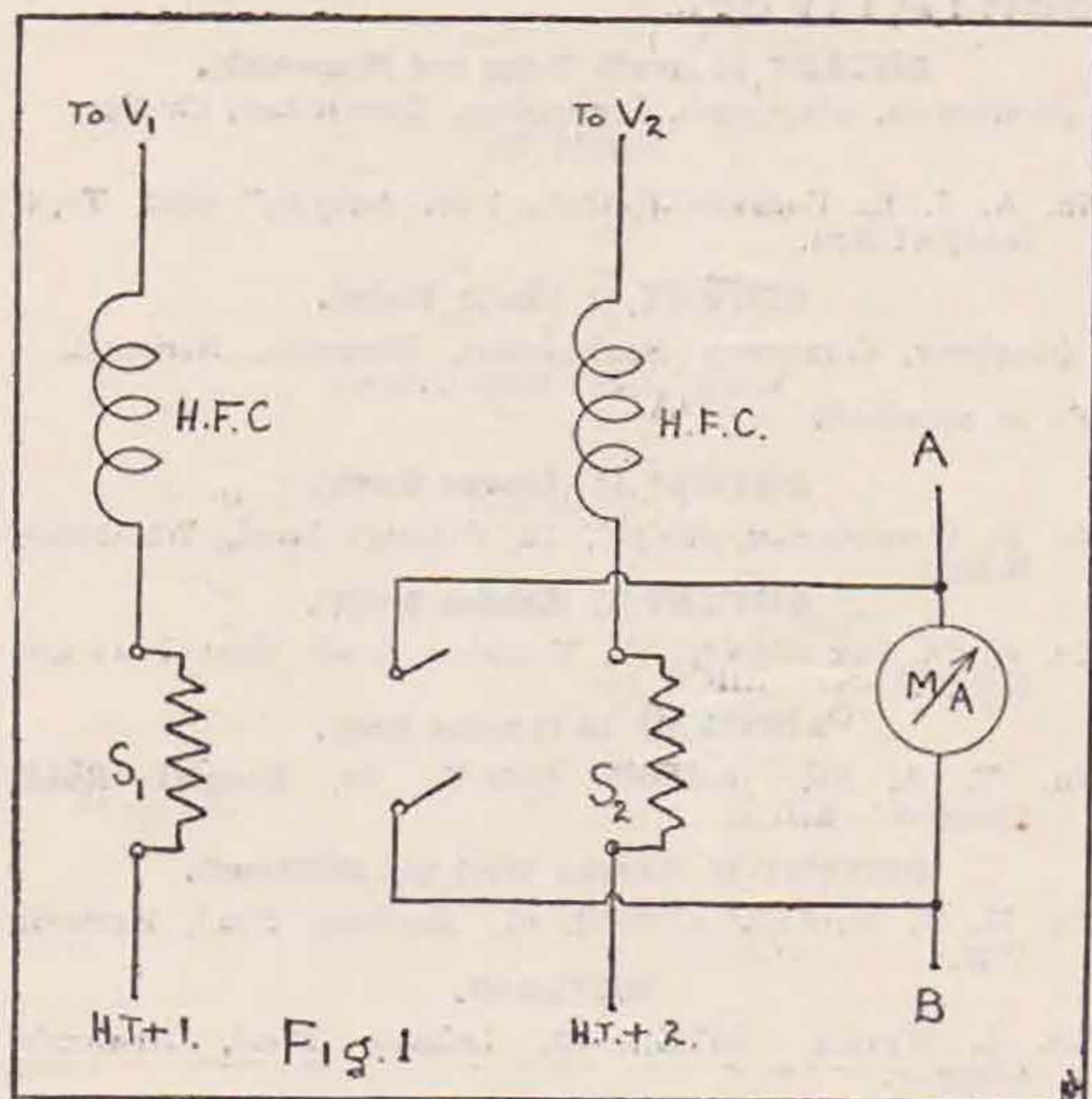
CORRESPONDENCE.

The Editor does not hold himself responsible for opinions expressed by correspondents. All correspondence must be accompanied by the writer's name and address, though not necessarily for publication.

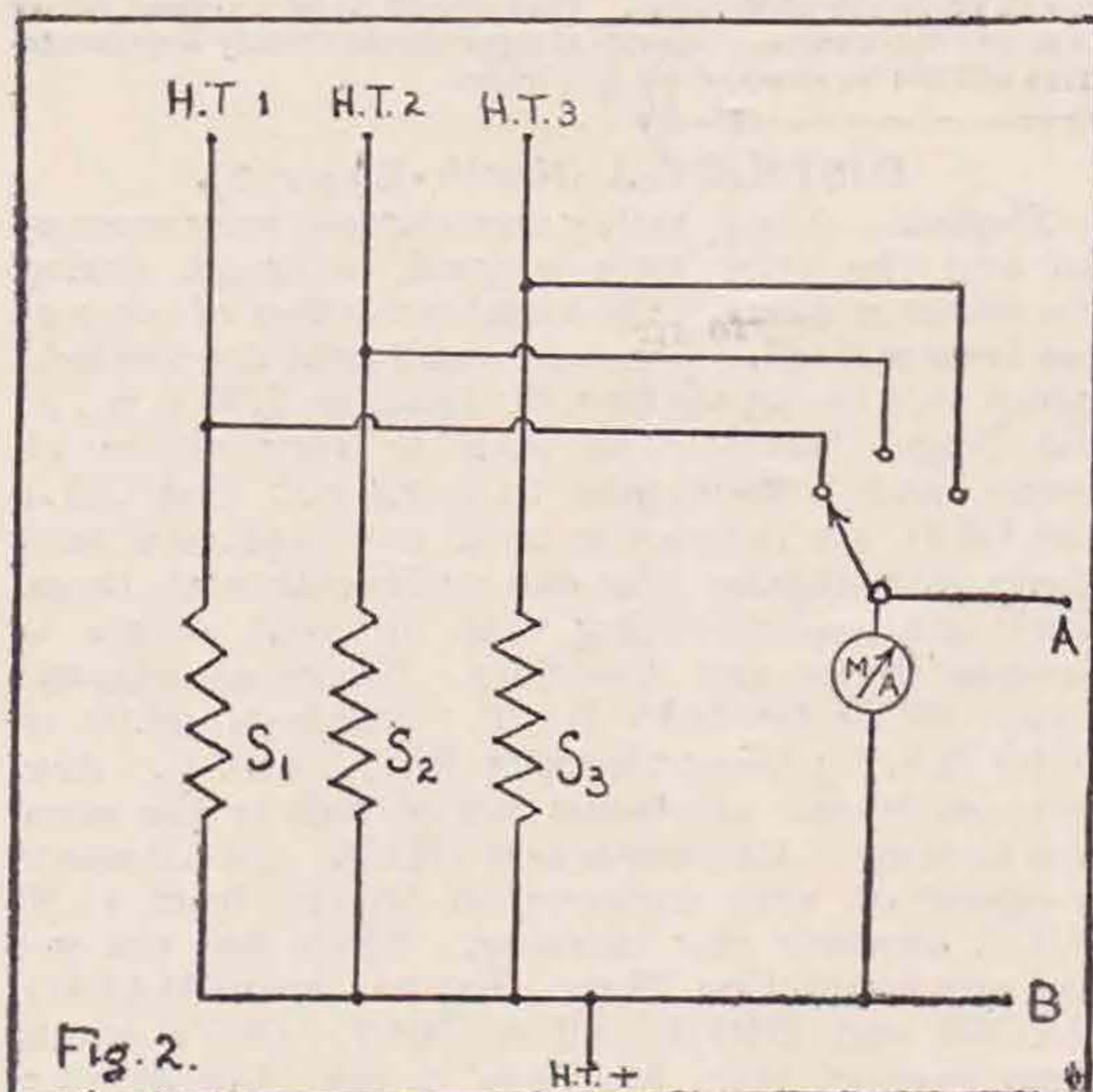
SWITCHING METERS IN TRANSMITTERS.

Editor, T. & R. BULLETIN.

DEAR SIR,—On reading the article on the C.C. transmitter in the May BULLETIN, it occurred to me, how many amateurs find the "jack method" of switching the milliammeter inconvenient. For my own 3 valve C.C. transmitter, I use two meters and



switch the second meter between the CO and FD, having a dislike to all spring switching and unnecessary metal parts in the transmitter. The



diagrams show how a DP-DT. switch can be utilised. Current can always pass to the valve, via the milliammeter shunt (Fig. 1). If a 0.5 milliammeter

is used, it is not difficult to make shunts to give readings up to 100 m/amps. Resistance wire can be used, but as most milliammeters have a low resistance, 38 gauge wire is quite suitable. The value of the shunt is found by trial, switching it in, and out, and noting the meter readings in conjunction with a battery and resistance (an earpiece makes a good resistance for the job). If the meter is required for two or three valves fed from the same supply, or with series resistances to CO and FD, a single 2 or 3 point switch is only necessary, as in Fig. 2. It may sometimes be necessary to prevent the switch from making momentary contact on more than one stud.

In the writer's opinion it is always advisable to have a permanent meter in the output stage, in order that any change can be quickly detected.

Yours faithfully,

W. J. H. KEMPTON (G2AI).

THIS IS A JOB FOR OURSELVES.

The Editor, T. & R. BULLETIN.

DEAR SIR,—During the past few months I have received numerous cards from amateurs in this country and abroad claiming contact with my station at times when it was inactive, in other words, some unauthorised person has been using my call-sign, varying it occasionally to GI6PP.

I have notified the Post Office of this but am fully aware that they have much other work to do and cannot devote very much time to tracking down unlicensed transmitters.

As I am not the only person who has been the victim of the "pirate's" activities during the last month or two, to judge by reports which have appeared in the BULLETIN, it occurs to me that members of the Society could do much towards locating many of the unlicensed stations which are being operated in this country at the present time.

In particular, B.R.S. members could render extremely useful service in this direction, and I would suggest that groups of members be organised, if possible, but not necessarily, under the leadership of an active transmitter and having the use of direction-finding apparatus, so that they could deal with any complaints which may arise. Various field days in the past have shown that D.F. apparatus need be neither complicated nor expensive to work very effectively.

If, say, 20 groups were organised throughout the country, I am certain that their work would be highly appreciated by all licensed transmitters.

I feel sure that the Post Office authorities would not object to this scheme, on the contrary, they would probably welcome it with open arms.

It now only remains for the members concerned to signify their willingness to participate in this idea when it could be put into effect without delay.

Yours faithfully,

M. W. PILPEL (G6PP).

STRAY.

G2NI and G6TP would be grateful for reports from anyone picking up their week-end 'phone transmissions on 1.5 metres.

NOTES and NEWS



BRITISH ISLES

DISTRICT REPRESENTATIVES.

DISTRICT 1 (North-Western).

(Cumberland, Westmorland, Cheshire, Lancashire.)
MR. S. HIGSON (G2RV), "Hebblecroft," Egremont Promenade,
Wallasey, Cheshire.

DISTRICT 2 (North-Eastern).

(Yorkshire, Durham, Northumberland.)
MR. L. W. PARRY (G6PY), 13, Huddersfield Road, Barnsley,
Yorks.

DISTRICT 3 (West Midlands).

(Warwick, Worcester, Staffordshire, Shropshire.)
MR. V. M. DESMOND (G5VM), 199, Russell Road, Moseley,
Birmingham.

DISTRICT 4 (East Midlands).

(Derby, Leicester, Northants, Notts, Rutland, Lincoln.)
MR. H. B. OLD (G2VQ), 3, St. Jude's Avenue, Mapperley,
Nottingham.

DISTRICT 5 (Western).

(Hereford, Oxford, Wiltshire, Gloucester.)
CAPT. G. C. PRICE (G2OP), 2, St. Anne's Villas, Hewlett Road,
Cheltenham, Glos.

DISTRICT 6 (South-Western).

(Cornwall, Devon, Dorset, Somerset.)
MR. H. A. BARTLETT (G5QA), 95, Old Tiverton Road, Exeter,
Devon.

DISTRICT 7 (South-Eastern).

(Berkshire, Hampshire, Kent, Surrey, Sussex.)
MR. J. DRUDGE COATES (G2DC), "Burleigh," Farnborough
Park, Hants.

DISTRICT 8 (Eastern).

(Cambridge, Huntingdon, Norfolk, Suffolk.)
MR. S. TOWNSEND (G2CJ), 115, Earlham Road, Norwich.

DISTRICT 9 (Home Counties).

(Bedfordshire, Hertfordshire, Essex, Buckinghamshire.)
MR. F. L. STOLLERY (G5QV), "Kingsmead," Lancaster Gardens
East, Clacton-on-Sea, Essex.

DISTRICT 10 (South Wales and Monmouth).

(Monmouth, Glamorgan, Breconshire, Carmarthen, Cardigan,
Pembroke.)

MR. A. J. E. FORSYTH (G6FO), "St. Aubyns," Gold Tops
Newport Mon.

DISTRICT 11 (North Wales).

(Anglesey, Carnarvon, Denbighshire, Flintshire, Merioneth,
Montgomery, Radnorshire.)
[To be appointed.]

DISTRICT 12 (London North).

MR. S. BUCKINGHAM (G5QF), 19, Oakleigh Road, Whetstone,
N.20.

DISTRICT 13 (London South).

MR. A. D. GAY (G6NF), 49, Thornlaw Road, West Norwood
S.E.27.

DISTRICT 14 (London East).

MR. T. A. ST. JOHNSTON (G6UT), 28, Douglas Road,
Chingford, E.4.

DISTRICT 15 (London West and Middlesex).

MR. H. V. WILKINS (G6WN), 81, Studland Road, Hanwell,
W.7.

SCOTLAND.

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

NORTHERN IRELAND.

MR. C. MORTON, (G15MO), 27, Bristol Avenue, Belfast.

District Notes for publication should be written as concisely as possible and should be in the Editor's hands by the 25th of the month preceding publication. They should be of a general rather than personal nature. Individual reports from County Representatives will not be accepted for publication.

DISTRICT 1 (North-Western).

THE Manchester Gang held their usual meeting on June 1, and was attended by 18 members, G6OM and G2RV attending from Liverpool Area. A very interesting station description was given by G2WQ, and great interest was shown in the key thump filter. G6OM has promised to give the next one on the first Wednesday in July, so roll along gang. The Liverpool gang have changed the day of meeting to the third Wednesday in each month for a trial period of three months. The last one was attended by eleven members, and a general discussion took place on many and varying subjects. A field day has been arranged for July 10 on 5 and 10 metres, both the Manchester and Liverpool gangs participating. Many stations have sent in a report, but the weather appears to be against anything out of the way having been accomplished. The following are active: 6GZS, G5LR, 2BUI, G5WR, G5UT, G6QF, BRS767, 2AOB, G2DH, G2OI, BRS768, G5ZN, G2QB, G5FC, G5CN, G2OA. We welcome BRS881. BRS789 and BRS812 are swotting for their ticket application tests! I still get no reports from the two Northern counties!

DISTRICT 2 (North-Eastern).

Sheffield.—The monthly meetings are very successful and the attendance is good, although during the summer months the usual reduction of support has been noticed. The next meeting of the Sheffield group will be September 13, 1932, at 7.30 p.m., at the Angel Hotel. The area is very active all round, and I would like to point out that G5LT and G6YC are very active on 28 mc. band, and want skeds with anyone who can co-operate with them. They are experimenting with different aerials at various angles and directions. Times as follows: Daily, 07.00 to 08.15 B.S.T.; Sundays, 08.00 to 10.00 B.S.T.; using 15 watts R.A.C. or C.C. Also tests on 56 mc. are being carried out by the same two stations. BRS588 is now 2BAF. G5HB wants co-operation with someone on 28 mc. from 11.30 B.S.T. onwards any morning. G5FV has not yet had any contact on 28 mc., but has heard HAF4D, HAF8B and D4GJG, all at R8-9. G5FV wants some support from members in the Hull district, so as to get a monthly meeting going in that area during the winter. G6PY has got the zepp to zipp O.K., but the length of the top span would appear to be rather longer than usual—69 ft. 6 ins.

'hi. G5VO and BRS868 also report active, and the latter will be pleased to stand-by for any station.

Leeds.—The Leeds people are really waking up. An interesting evening was spent at G5TQ (Cleckheaton) on May 28, when 13 members turned up. Experiments on absorption keying were carried out, after which our host gave an excellent cinema show. 2BRJ, G6BX and G2WS are doing crystal grinding, and G2WS volunteers to start a group for research on pebble grinding. G5HB, G6DB, and G6MY report active.

DISTRICT 3 (West Midlands).

Very hearty congratulations to BRS457 on passing his test, and he is now G5YY. G2YX is experimenting with antennas. He is a member of this group of Contact Bureau, and is also building new Xmitters for each band and a hot-stuff RX. Warwickshire seems generally busy, but reports are very few and far between. There appears to be a great interest in 56 mc. G2KB and G2AK are already working on that band, and many others are building Xmitters for this band. G2OQ has spent many fruitless hours trying to hook up with G5UW on sked during the latter's cruise round the South-West coast on the *Susanette*. The cruise was most successful, but the sked was not. We are very pleased to have a report from the recently rejuvenated "Ole Timer" G2WN. He complains of filter condensers breaking down. The cure is to fit a higher test voltage rating condenser and safeguard same with a bleeder resistance—in your case, 50,000 ohms to carry 5 m.a. shunted across the output.—(G5UW). 2BUS is grinding Xtals. 2ATK makes himself known, but has no report. BRS780 would like information on 28 mc. reception and frequency of CEA and PPX. (Contact Bureau will help you with 28 mc. information, OM.—D.R.) BRS589 uses Doublet aerial with marked improvement. M.A.R.S. meetings are being held the second Tuesday in each month until October.

DISTRICT 6 (South-Western).

First of all, let me thank everyone who came along to our Conventionette on Whit-Sunday last, in spite of the appalling weather. By 3 p.m. Cleveland Road, Torquay, resembled a car park, and nearly 20 hams had congregated in the various rooms of G5SY's house, and after a glorious rag-chew, tea was provided by Mrs. SY, assisted by a friend of G6LL's! Anyway, after everyone had stuffed themselves with the good things provided, the gang visited G6WT's shack at Churston, returning from there to the St. James's Hotel, Torquay, for dinner. A most enjoyable day, and one which marks No. 6 District as having made a start at any rate. Thanks, too, to the Bristol gang who came along, and to Mr. and Mrs. G2OP from Cheltenham.

Now for the monthly report. G5SY has done rather well during the month, having got all continents except the elusive ZL-VK. They are there at 6 a.m., O.M.! At the moment he is concentrating on the 56 mc. TX and RX for the forthcoming field days of this district (see announcements elsewhere). A new TX man is welcomed, viz., G5YB, of Plymouth. G5VL is hard at the 56 mc. business in readiness for the tests mentioned above, likewise G2FN and G2ZP. G5QA is also deep in the throes of 56 mc., and has chucked the Ultraudion in favour of push-pull. G5QA is still

running a successful sked with VP2PA on Mondays, Wednesdays and Fridays at 23.00 G.M.T. on 14 mc., and has once joined the party of VP2PA, W2CG, HC1FG, EAR96 on 7 mc. at 5 a.m. Please note that when these notes appear the new QRA of this station will be "Donbar," Birchy Barton Hill, Heavitree, Exeter. From June 25 till August 1 G5QA will be off the air as regards the main TX, but portable sets on 14 mc. and 56 mc. will be going with a very A.O.G. aerial. The following also report: G5WY, G5QS and 2AWJ.

DISTRICT 7 (South-Eastern).

The outstanding item of our activities during June was our Conventionette. This was held at Tunbridge Wells on the 5th, and was supported by over 50 members. For a provincial area I think this was a very fine attendance, and everyone seemed to enjoy themselves. We were very pleased to see so many members from our Council, and regretted that only bad weather kept the President away. Although very chilly weather conditions prevailed, the following made long journeys by road in the real "ham" style: G2KB and BRS77 from Rugby, G5JO and a party from Cambridge, G2GG from Newbury, and I believe one of the Birmingham gang arrived in time for tea. Excellent catering arrangements were carried out by the Wellington Hotel under the supervision of G2JH, and a hearty vote of thanks was passed in accordance to "ham" rules for G2JH's excellent arrangements.

The business meeting held after lunch was well attended. The D.R. gave a short report on the activities of the District, and he was followed by each C.R., who gave a brief account of their work in their own counties. Our Hon. Secretary then gave his address, which was most interesting. Many points were raised and cleared. The meeting ended in a discussion on 56 mc. work being carried out in the District, and many present were surprised to hear of the results already obtained. A promise from the Hon. Secretary to "tap" the powers that be for a concession in relation to ultra high frequency work was cordially received. The Conventionette wound up with tea and a chinwag which lasted until about 7 p.m.



District 7 Conventionette at Tunbridge Wells on June 5

Activities throughout the District appear to be normal. Congratulations to G2JH, who has come out on top in the ONE-WATT WEEK contest; also to G6QB, G2DZ and G2IG for obtaining high positions in the 1932 B.E.R.U. contest. 56 mc. work is still going ahead strongly, and the following stations are now fully equipped with TX and RX: G2NH, G2DZ, G2DC, G5GZ, G6GS (dismantling temporarily). It is hoped to obtain the use of an aeroplane in the near future for tests. Arrangements are also being made with No. 6 District for 56 mc. tests. G5XB has constructed a Reisz mike. 2BJY has a listening sked with W1BES, who is

using 2 kw. phone on 3.5 mc. ! G6WY has been QSO with two new countries, YV and RX. G6GZ has kindly offered a prize of radio goods to the value of one guinea for the first two-way contact from No. 7 District with No. 6 on 56 mc.

DISTRICT 8 (Eastern).

It is refreshing to be able to record that conditions this month have definitely improved. 2AAK and BRS769 send logs of their 14 mc. reception. These show that a variety of DX signals (including J) have been heard.

G6BS reports the usual activity in Cambridge. G5MR, G5LM and G5UC are up at the university, the wireless society of which has been allotted the call sign G6UW. G6YP is concentrating on 56 mc. work.

G2CJ is experimenting with "super-hets" in an endeavour to prevent QRM from adjacent trams. Results are promising, but he would like to know how to stop the separate oscillator from rectifying.

G6BT reports that, as usual, his members are mostly inactive.

It is probable that an informal meeting will be held in Cambridge in the near future to discuss the affairs of this District. The date will be mailed to individual members later.

DISTRICT 9 (Home Counties).

This is the time of year the DR gets many personal visits, quite a good way of reporting; another is by radio on 1.7 mc. Sunday evenings, 19.00-20.00 G.M.T. Many in this area will be pleased to hear late G6FT, of Felixstowe, appeared in the flesh, having returned to his home town after several years in the States. BRS358 and BRS818 made personal calls. Quite a number of reports are to hand. G2HJ (Bucks) has reports from G2QJ, who has changed his QRA, and BRS490 and BRS669. G5FB (Herts. and Beds.) is very active, as usual. G5VT is QRP Fone on 1.7 mc. G2WJ also testing. G2AF, G6QO and G5QV are usually on 1.7 mc. at week-end. G2YI, G2WG and others can be heard before breakfast on Sunday mornings, a time when there is little QRM or QRN. They report ideal conditions. G2LZ, G5VS, G6WQ and G2SA are busy on tests. We welcome a new member, G6CT (Westcliff). It has been suggested we hold an All-Essex Field Day early in August. G6WI would probably co-operate in this from his motor launch off the coast, if we could select, say, Mersea Island. Please write your own suggestion at once to the DR. We should like a full muster from South Essex.

DISTRICT 10 (South Wales and Monmouth)

There is little to report for the District this month, except that G2PA logged HAF4D on 28 mc., while there seems to be an awakening of interest in the band generally. The area meetings, held at Cardiff on the first Thursday of the month, are not being well supported, and only four members—G5KK, G5WU, BRS727 and G6FO—put in an appearance at the last one. The Letter Budget is being kept going by the enthusiasm of a handful, though it is probable that the season of the year and the appropriate weather is tending to submerge interest in amateur radio. It is with the greatest pleasure that I record the re-election of G6PF, of Abertillery, to the R.S.G.B. He is one of the

oldest of the original members in this part of the country. I am also glad to say that the receiving side of the 1.75 mc. tests was saved from complete disaster by 2BRA, of Newport, the only RX station in the whole of the country to send in a report. His score of 27 points is creditable in view of his situation geographically, and the difficulties of local QRM. The slackness of the BRS membership generally is beyond belief, and little to the credit of the Society. In future, it will be necessary to DO SOMETHING to get a mention in these Notes, and that includes attending meetings.

The District Conventionette was held at Cardiff on Sunday, June 26. The Angel Hotel provided a very good lunch and tea, and in spite of the poor and most disappointing attendance, a very interesting and cheerful afternoon, enlivened by Capt. Price's witticisms, was enjoyed by those present.

After the Hon. Secretary's remarks about amateur radio in general, and the R.S.G.B. in particular, a discussion developed in which several points were raised in connection with the BRS tests, QRP working during B.E.R.W., membership, licencing, and the official attitude with regard to the all-important Madrid Conference. In regard to this, it is very gratifying to know that the efforts of certain hard-working and enlightened senior members have resulted in a complete understanding between the authorities and Council, and interesting developments are predicted shortly.

Before tea several photographs were taken, and it is to be hoped that G5WU's long-suffering cine camera will reproduce Clarry's conjuring tricks, notwithstanding the DR's efforts at film photography.

With the D.R. (G6FO) in the chair, the following were present: G2GG, G2OP, G2PA, G5FI, G5NS, G5PH, G5WU, G6CL, G6GW, G6RB, G6RB, 2ANN, 2BRA, BRS525, BRS727, BRS766, BRS854.

We are greatly indebted to the Hon. Secretary (G6CL), G2OP, G6RB, and G2GG for travelling long distances and honouring us with their presence, and also to G5WU for the very excellent, but insufficiently rewarded, arrangements he made with the Angel Hotel.

DISTRICT 12 (London North).

A visit to Brookmans Park took place on Saturday, June 18, 15 out of the 17, who promised to come, arrived late, owing to the bus service from Golders Green being crowded, but thanks to Mr. Radford (G2IM) they were conducted round the station by him. The visit was concluded by a tea at the Brookmans Park Café. Congrats to BRS497, who has won the Zone 1 award in the B.E.R.U. tests with over 2,000 points! Activity varying owing to holidays and conditions. G6OT is packing up for moving, G6CL working on new TX when possible. I should like to hear from all in this district about arranging a field day; please let me have your views and plenty of assistance!

DISTRICT 14 (London East)

Our June meeting was held at the QRA of G6TX and was well attended. By the time these notes are published another District 14 Field Day will have been held at Dobbs Weir, Hoddesdon, and some experimental work on 56 mc. will have been carried out. The next District Meeting will

(Continued on page 30.)

Empire



News.

B.E.R.U. REPRESENTATIVES.

Australia.—H. R. Carter (VK2HC), Yarraman North, Quirindi, N.S.W.

British West Indies, Bahamas, Bermuda, and British Guiana.—H. B. Trasler, No. 2 Mess, Pointe à Pierre, Trinidad, B.W.I.

Canada.—C. J. Dawes (VE2BB), Main Street, St. Anne de Bellevue, Quebec.

Ceylon and South India.—G. Todd (VS7GT), District Engineers Bungalow, Nuwara Eliya, Ceylon.

Channel Islands.—H. J. Ahier (G5OU), Lansdowne House, 45a, Colomberie, St. Helier, Jersey, C.I.

Egypt and Sudan.—E. S. Cole (SU1EC), Haking House, Abbassia, Cairo, Egypt.

Hong Kong.—P. J. O'Brien (VS6AE), 12, Kent Road, Kowloon Tong, Hong Kong.

Iraq.—H. W. Hamblin (YI6HT), Wireless Section, R.A.F., Shaibah, Basra, Iraq.

South Rhodesia.—S. Emptage (ZE1JG), Salcombe, Plumtree, Southern Rhodesia.

Irish Free State.—Col. M. J. C. Dennis (EI2B Fortgranite, Baltinglass, Co. Wicklow.

Kenya, Uganda and Tanganyika.—H. W. Cox (VQ4CRF), Box 572, Nairobi, Kenya.

Malaya.—G. W. Salt (VS2AF), Glenmarie Estate, Batu Tiga, Selangor, Malay States.

Newfoundland.—Rev. W. P. Stoyles (VO8MC), Mount Cashel Home, St. John's East.

New Zealand.—D. W. Buchanan (ZL3AR), 74, Willis Street, Ashburton; and C. W. Parton (ZL3CP), 69, Hackthorne Road, Cashmere Hills, Christchurch.

Nigeria.—Capt. G. C. Wilmot (ZD2A), 1st Battalion Nigeria Regt., Kaduna, Nigeria.

N. India and Burma.—R. N. Fox (VU2DR), C/o VU2FX, Sgt. C. D. Connerton, Aircraft Park, Lahore Cantonments, Punjab, India.

South Africa.—W. H. Heathcote (ZT6X), 3, North Avenue, Bezuidenhout Valley, Johannesburg.

Australia.

By VK2HC.

April-May.—With the approach of winter, DX activity is rapidly declining. The 28 mc. band showed one bright spot, when VK3JJ, VK3BQ, VK3NM, VK3DT, VK3OF, VK4XN, VK5HG, and VK2HC were all operating. VK2HC had a lengthy QSO with VK5HG, the former station using 'phone. The 14 mc. band is fair, and occasionally a European contact can be made, but on 7 mc. there is little else but W stations.

The old 3.5 mc. band carries a great number of local and ZL contacts and is the only reliable band for night work. W signals have been heard but no contacts reported.

All stations are requested to listen for VK4XN on 28 mc.—a regular schedule is run from 17.00 to 18.00 G.M.T. Sundays, when ten minute calls will be given at ten minute intervals.

Canada.

By VE2BB.

May and June.—Although local conditions are fair at present, there is very little doing on the 14 mc. band in the way of DX. The first week of June, however, was exceptionally good on this band and many European contacts were made, but conditions rapidly fell off again and have not since recovered. It is our sincere hope that things will be more lively when the time comes for the 1932 Loyal Relay.

Ceylon and South India.

By VS7GT.

May.—The only report this month is from VU2JP, who is now using QRP cc. on 7,142 kc. and is getting out well. VU2JP states that little has been

done during the past month owing to the heaviest QRN yet experienced and suggests this latter may be due to recent cyclonic disturbances.

VS7GT is again active at the new QRN—Nuwara Eliya—up in the clouds—and is engaged on selecting the best antenna system for the location. At present the only one giving any results is a full wave 7 mc. antenna. Conditions on 7 mc. this month have again been very poor with heavy QRN; 14 mc. shows a very slight improvement; Europe, however, is still unworkable.

B.E.R.U. flourishes, and we have now secured four recruits, with more to follow. Considerable interest in B.E.R.U. has been caused through the announcement of a weekly Morse class from VS7GT.

New Zealand.

By ZL3CP.

May.—The N.Z.A.R.T. camp held at Kelcey's Bush, Waimate, this year, proved a great success and was attended by members from all parts of the country, 30 amateurs in all being present, including some YL operators. Only one B.C.L. was present, and it is hoped that in future he will look more favourably on key-clicks!

Several portables were used at the camp, ZL3BN being the most active. The party had a great time, which passed all too quickly, and when the camp finally broke up it was decided that this would only be the first of a series of "ham" camps.

Northern India and Burma.

By VU2AH.

May-June.—Conditions at beginning of the month were the worst ever experienced, QRN and fair QRN being at their highest. During the second

and third weeks local stations were heard from 08.00 G.M.T. to about 13.30 G.M.T. A few Europeans were heard at various times from 11.00 G.M.T., the greatest activity being at sunset (13.30 G.M.T.).

During the last week no local stations were heard, and DX (very little) was only to be heard after dark. BERS74 reports that American broadcast stations come romping in during the early hours of the morning.

As far as can be ascertained, the following are the only active stations in India, but there is a great part of the country from which amateur signals never percolate:—VU2AH, VU2BG, and VU2LT.

District Notes—(Continued from page 28).

be held at the QRA of Mr. A. J. Hall (G2NU), 33, Hazelbrouck Gardens, New North Road, Barking-side, Ilford.

DISTRICT 15 (London West and Middlesex)

Seventeen attended the area meeting, but of this number, half were visitors. The next one fixed for Thursday, July 21, at G5CV at 7.30 p.m.

Again very few reports have come to hand, but those I have received indicate a revival of interest on the higher frequencies, and several stations are now on 56 mc. Interest in DX, however, has not suffered and a certain amount seems to have been done.

May I remind those in the area who can accommodate a provincial member during Convention to let G6UT know at once.

Three members recently accepted an invitation of the North London area to accompany them to Brookmans Park. A very enjoyable afternoon was spent, thanks to No. 12 District.

NORTHERN IRELAND

The reports are fewer this month, showing a decrease in activity, owing no doubt, to the fine summer weather. GI6YM reports two new countries worked (Canada and Brazil), with an input of 9 watts. The direction of the 14 mc. aerial has been changed with greatly improved results. GI5QX has been on 14 mc. and reports conditions not good with the exception of a few nights and early mornings. Best DX worked this month: CM2, VP, and VE3. BRS701 has been using a portable receiver on 14 mc. with good results and he hopes to be on 56 mc. soon. 2AXW has found the local weather conditions too good for radio and has nothing to report.

IRISH FREE STATE.

June.—At a recent meeting of the Transmitters' Section of the Wireless Society of Ireland it was decided that the connection between the two bodies be terminated, and that the Transmitters' Section be re-established under its old title of "The Irish Radio Transmitters' Society." The secretary of the new Society is H. C. McElligott, EI8D, Highfield Manor, Rathfarnham, Dublin, and the QSL Bureau is being run by R. N. V. Sadleir, EI4D, at Lonsdale, Roebuck, Clonskeagh, Dublin, S.4, the same address as that of the old QSL Bureau of the Wireless Society of Ireland. We all wish the new Society every success.

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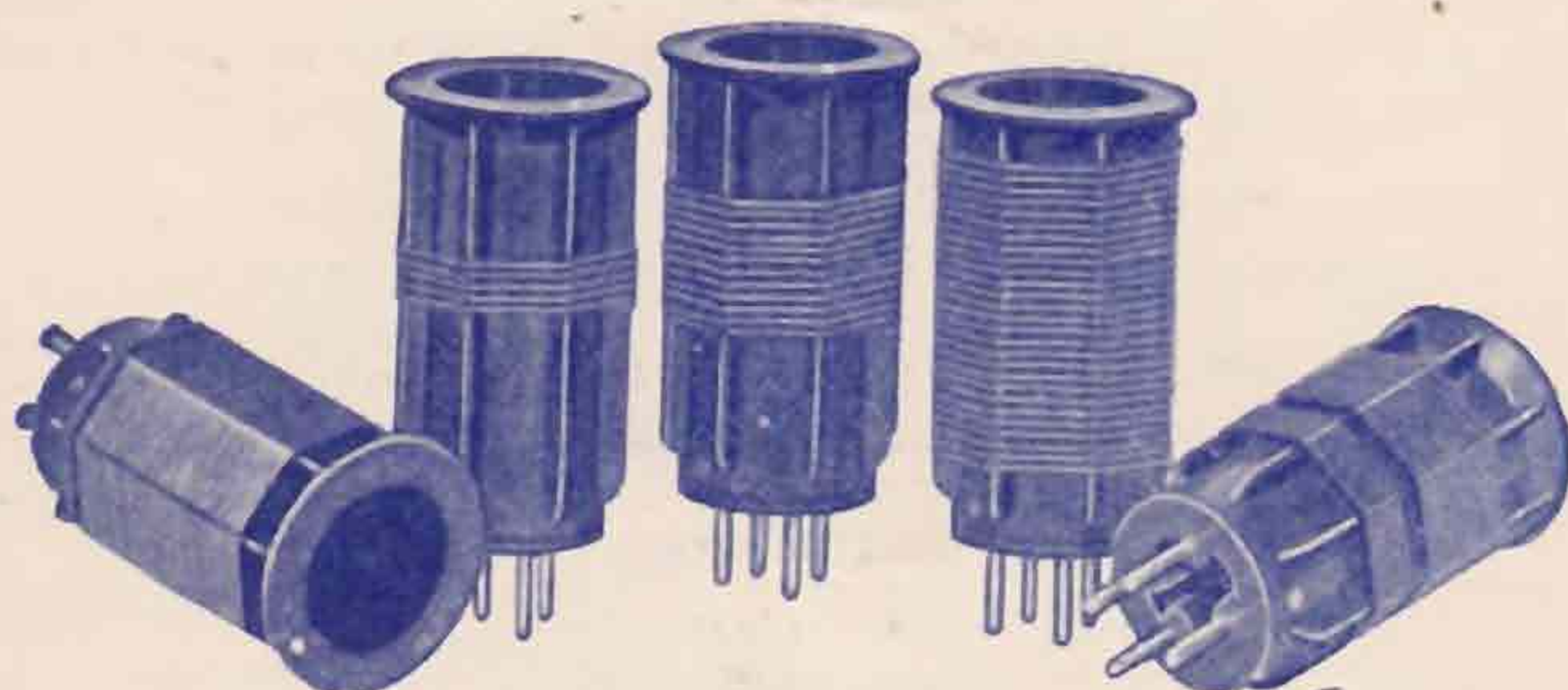
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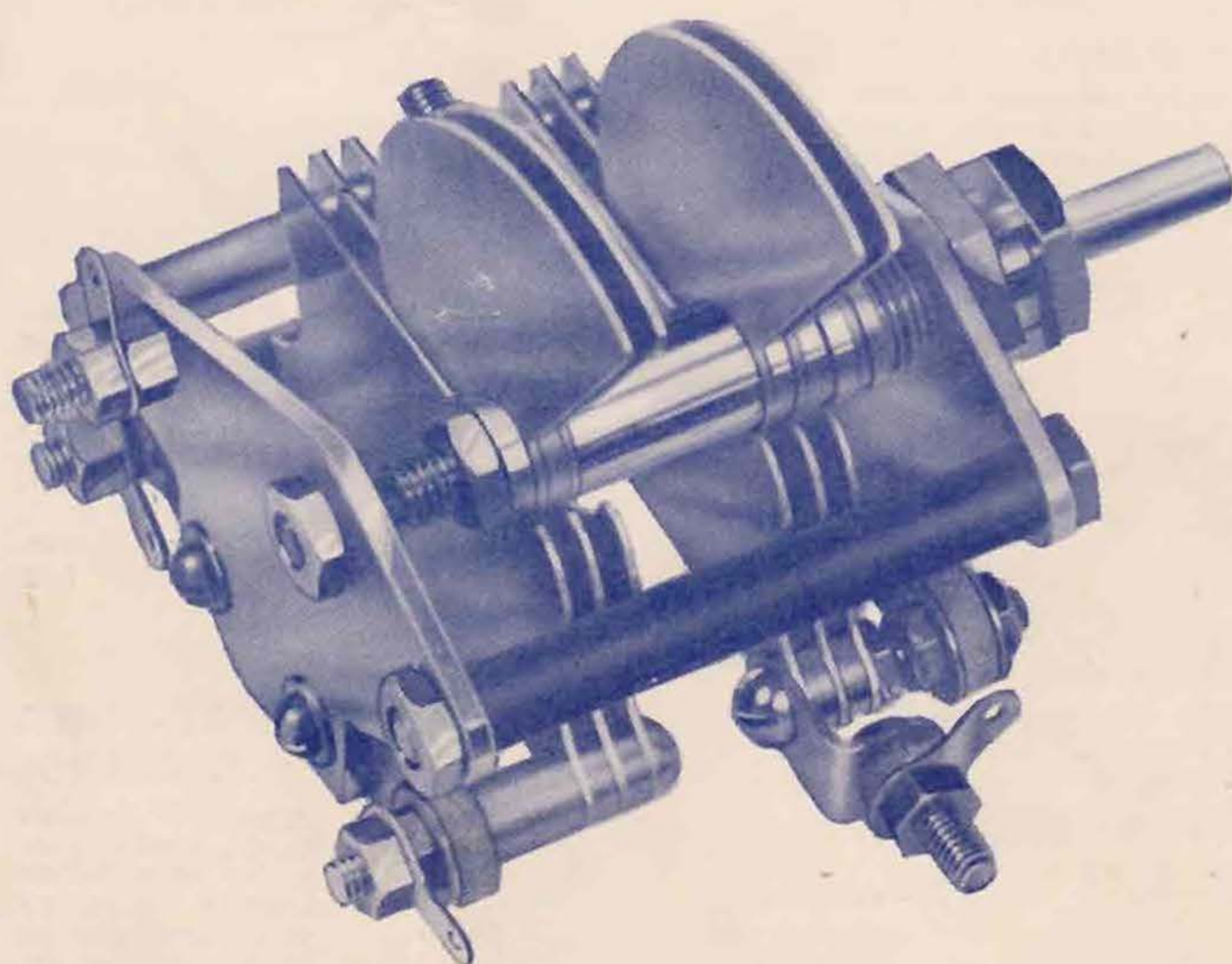
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