



T. & R. Bulletin

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The Journal of the Inc. Radio Society of Great Britain

(BRITISH EMPIRE RADIO UNION)



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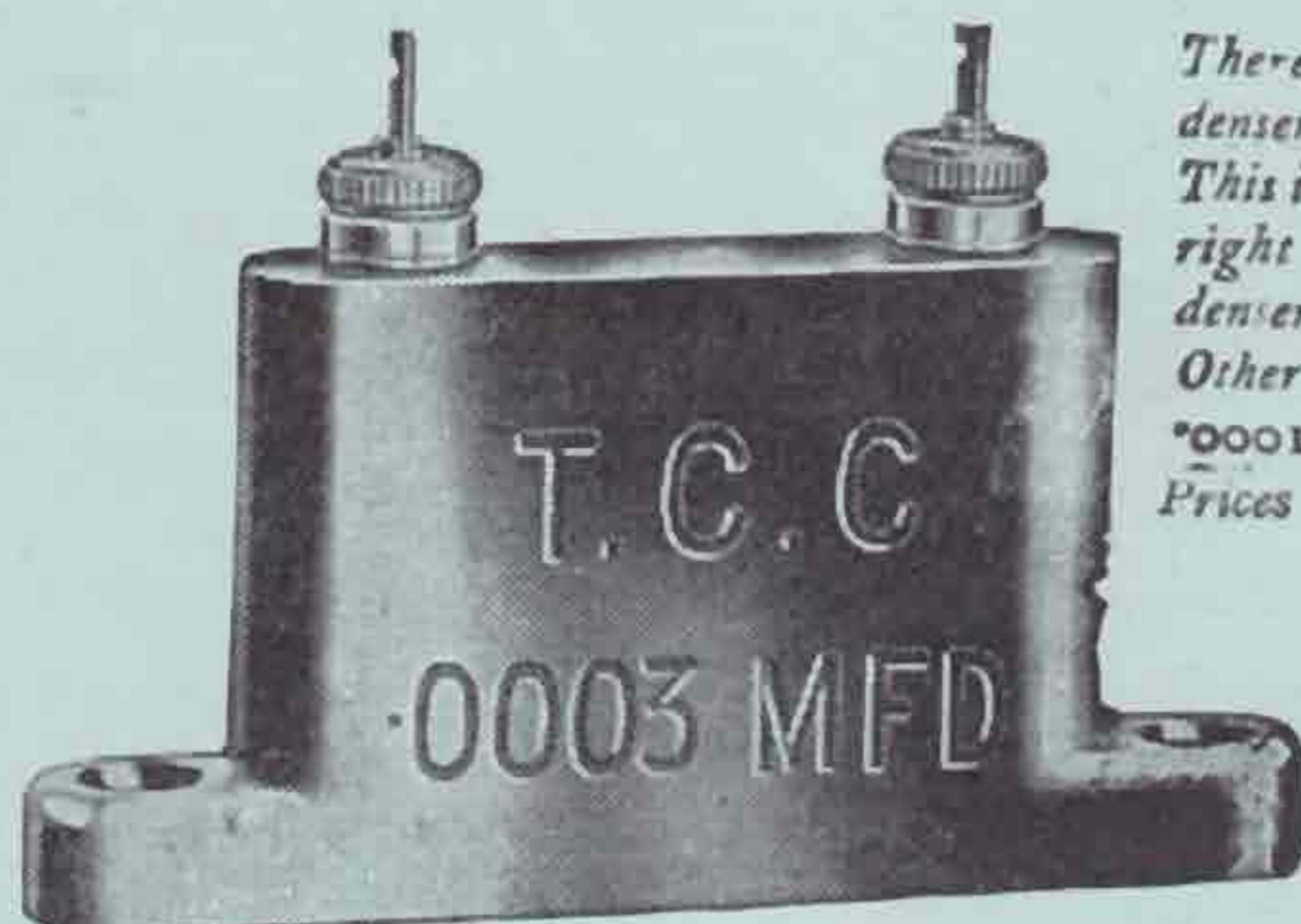
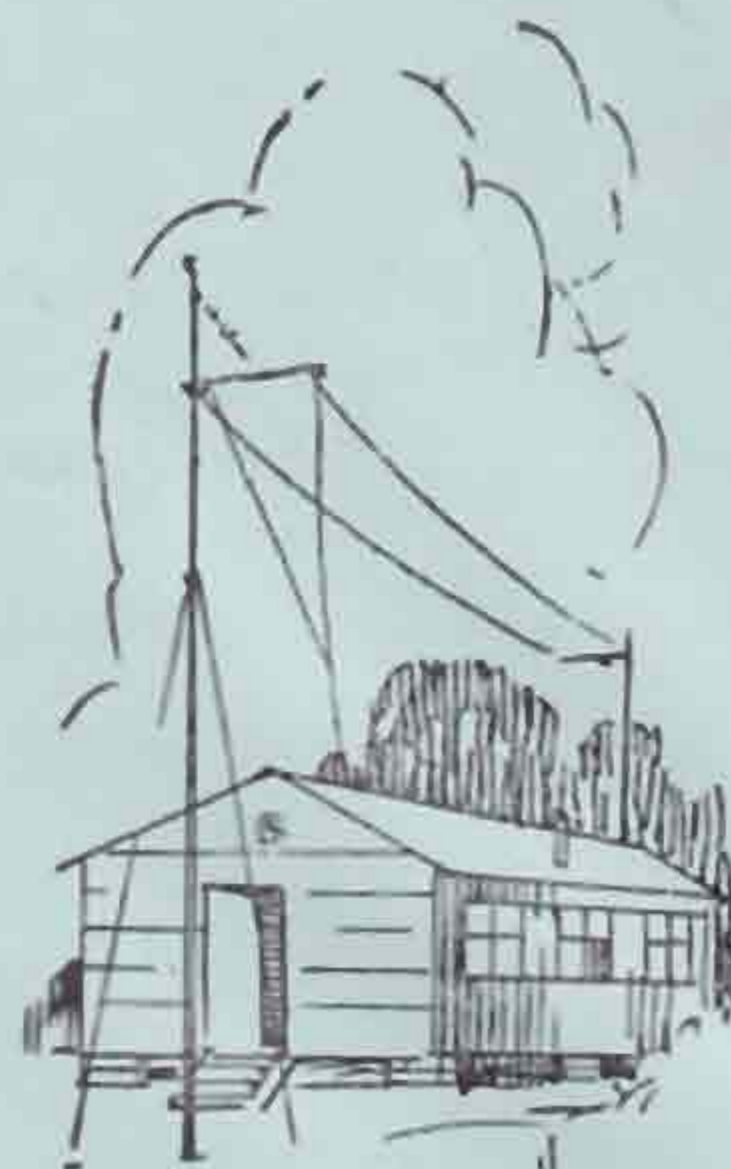
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The only British Wireless Journal Published by Amateur Radio Experimenters

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NOVEMBER, 1929.

Vol. 5. No. 5.

EDITORIAL.

A Warning.

IN last month's issue we addressed a few words to members on the subject of observance of licence conditions. We pointed out that if the British Amateur did not behave himself on the ether and respect any permit issued to him by the authorities, then we, as the representative of the British Amateur, would feel that attempts to improve the case of the amateur transmitter in this country would be biased from the start by the previous behaviour of the amateurs themselves.

Our word of warning was not premature. We have received evidence during the past few days that the Postmaster-General is very wide awake to the fact that there are a thousand odd licences granted in this country. The Post Office receiving stations, wherever they may be situated, are keeping a watch on the amateur wavebands, and probably off them. Some of the clauses we have in our licences do not appear in licences issued to fellow transmitters in foreign countries. Perhaps some of us consider they are unimportant and can be overlooked. In which case we take this opportunity of warning the British Amateur that the conditions must not be overlooked. A licence has been granted and the terms must be observed. We, as a Society, cannot uphold the misdemeanours of our members; if your licence is suspended, don't blame us. During 1928, when the proposed new licensing conditions were made known to us, we did all in our power to advise the Postmaster-General to make such modifications as appeared to us advisable for the good of the British Amateur. In that respect we were

regarded as the representative of the amateur in Great Britain. The Post Office had faith in us; we had faith in our members. The wisest course is for each individual member to consider it his duty to let that state of affairs persist.

* * *

The British Empire Radio Union.

COUNCIL'S decision to allot B.E.R.U. numbers, in accordance with proposals passed at Convention, to receiving stations in the British Empire marks another step forward in a far-reaching policy to extend the benefits of membership of R.S.G.B. to amateurs all over the world. Some of the older members of this Society will remember that the first mention of the British Empire Radio Union was contained in proposals put forward by Captain H. J. B. Hampson (G6JV) at our second Convention, held in 1927. From that time until the middle of last year little if anything was done to put the scheme on a firmer basis. The 1929 Committee, helped by the work of its immediate predecessor, tackled the subject in such a way that the B.E.R.U. is, at the present time, more than an idea in our minds.

The British Empire Radio Union stands for the Radio Society of Great Britain overseas. Colonial members do not join the R.S.G.B. as such, but the B.E.R.U.; both the Society and the Union are, however, one body, working for a common cause—Amateur Radio in Great Britain, the British Empire and the rest of the world. We are confident that with such a body representative of the transmitters in the British Empire, Amateur Radio regulations could be framed by the respective Governments viewed through the perspective of Empire rather than isolated countries.

Advertisement of the Society, or the Union, can be carried out to a great extent by our numerous transmitting members in this country, who every evening are in communication with most parts of the world. If, in the course of these contacts, our stations would tell the other Empire stations about the R.S.G.B., we feel that they would be helping considerably to extend the facts to the very men who matter. We hope to see our Empire membership very considerably increased before the end of our present year. It can be done and, with your help, it will be done. We have the machinery here for extending our membership in any part of the world; and remember, a bigger membership means a larger BULLETIN, and, again in turn, more members. We look forward to everyone to do his bit, and in this connection there is a prize offered to the member who introduces (proposes) the greatest number of new members in a specified time. Further details are to be found elsewhere in this issue.

Forthcoming Events.

Friday, November 22, at the I.E.E. Debate: subject to be announced at the time; 6.15 p.m., tea at 5.30 p.m.

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

Calibration Service.

Calibration waves will be sent from G5YK on the second and fourth Sundays of each month as follows:—

10.00 G.M.T. 7,050 K.C. (nominal).
10.05 G.M.T. 7,250 K.C. (nominal).

The call will be RSGB DE G5YK, followed by a two-minute dash and the frequency used.

Manchester Conventionette.

OCTOBER 26, 1929.

This was held at Manchester on Saturday, October 26, when about 35 members, a record for the Northern Area, were present. A meeting and discussion took place at the Milton Hall, Deansgate, under the chairmanship of Mr. Clarricoats (G6CL). A discussion on ultra-high frequency transmission and reception (*i.e.*, 28 megacycles and above) was opened by Mr. Noden (G6TW), who gave the gathering some very interesting information on the topic. To follow this the chairman started a general discussion which touched on many subjects regarding the work of the Society, and on a motion by Mr. Brownson (G5BR), which was seconded by Mr. Webster (G5JF), it was resolved that, in view of the difficulty of the reception of the 7 M.C. calibration signals by certain members in the North of England, the Society be recommended to transmit these (a) in the 3.5 M.C. band, (b) from some station in the Midlands. Several other suggestions were made and duly noted by the chairman for transmission to headquarters.

Tea followed at about 5.30 p.m., and then a general trek was made for the Radio Exhibition, where a round of the stands was made, and the meeting finally dispersed towards the close of the Exhibition.—(D. J. B.)

An S.G. S.W. Circuit.

By J. CROYSDALE (G5US).

Judging from comments appearing from time to time in these pages, it seems that some of us have doubts as to the efficacy of the screened grid valve when applied to 7 M.C. and higher frequencies. In many cases the addition of the extra valve has merely increased the aerial coupling and cut out the blind spots; very little, if any, true H.F. amplification being noticeable.

The writer has tried out the various known circuits and found the results mainly disappointing; the amplification falling short of what one might expect. However, ultimately a method of tuning the H.F. stage has been adapted which gives a decided amplification to the old detector and one L.F.

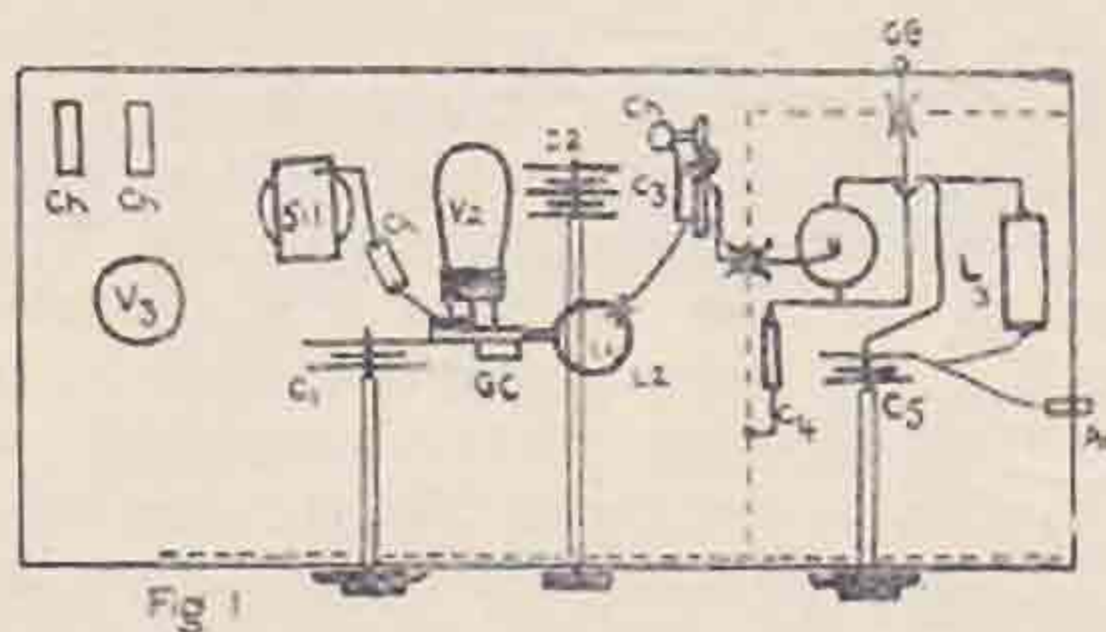


Fig 1

The excuse for penning this eulogy is the hope that it will encourage others to "re-discover" the S.G. if they have not already done so.

The practical lay-out of the circuit in the present case is rather novel, but, of course, not essential. An attempt has been made to give by diagram a rough idea of the scheme. The detector valve V2 is mounted horizontally, about 2½ in. from the base-board and the components of the associated circuit, including the grid circuit tuning condenser, are built directly on to the valve base. Thus minimum length connections are ensured. Complete screening of the H.F. stage does not seem to be essential. The rheostat to V1 is occasionally useful as a volume control for holding loud fone clear of the oscillation point. L3C5, plus the added capacity of the small aerial, is designed just to cover the band in use. If more than 6 ft. of aerial is used signals are, of course, a little louder, but L3 becomes a little on the small side; besides 6ft. is quite ample.

The degree of coupling to the detector grid circuit is controlled by the clip X which is usually about two turns from the grid end and is not critical to adjust. The detector circuit coils are wound with bare wire, mounted on a four-pin strip, one set to cover each waveband.

The valves, as denoted, might be improved on. The detector, Cossor RC 2-volt 70,000 ohms impedance seems a little smoother over reaction than a valve of lower impedance.

In tuning, the minimum of reaction by C2 is employed, i.e., the circuit is maintained just on the oscillation point when L3C5 is in tune with L1C1. Thus, on searching with L1C1, L3C5 can be used very slightly off tune, and one can follow round using C5 as reaction control. All this may sound a bit crude, but it works well in practice, and one can cover two or three meters with one setting of reaction C2.

Threshold howl is non-existent. Perfectly smooth reaction is achieved provided that the H.T. voltages

to the valves are carefully adjusted. Too high anode voltage to V2 tends to squeakiness.

Now, as regards signals. On 7 M.C. with 6ft. wire, as shown, slung indoors, the amateur "broadcasters" home and Continentals "fairly rattle the cans," and persuade one that things may be better on 14 M.C. Searching at the higher frequency is very critical and selective, but simple enough with practice. Amidst the commercial and Continental A.C. DX can be picked out in quantity. At this time of the year here South America comes through best in the evenings, many stations being "fones on the table" strength.

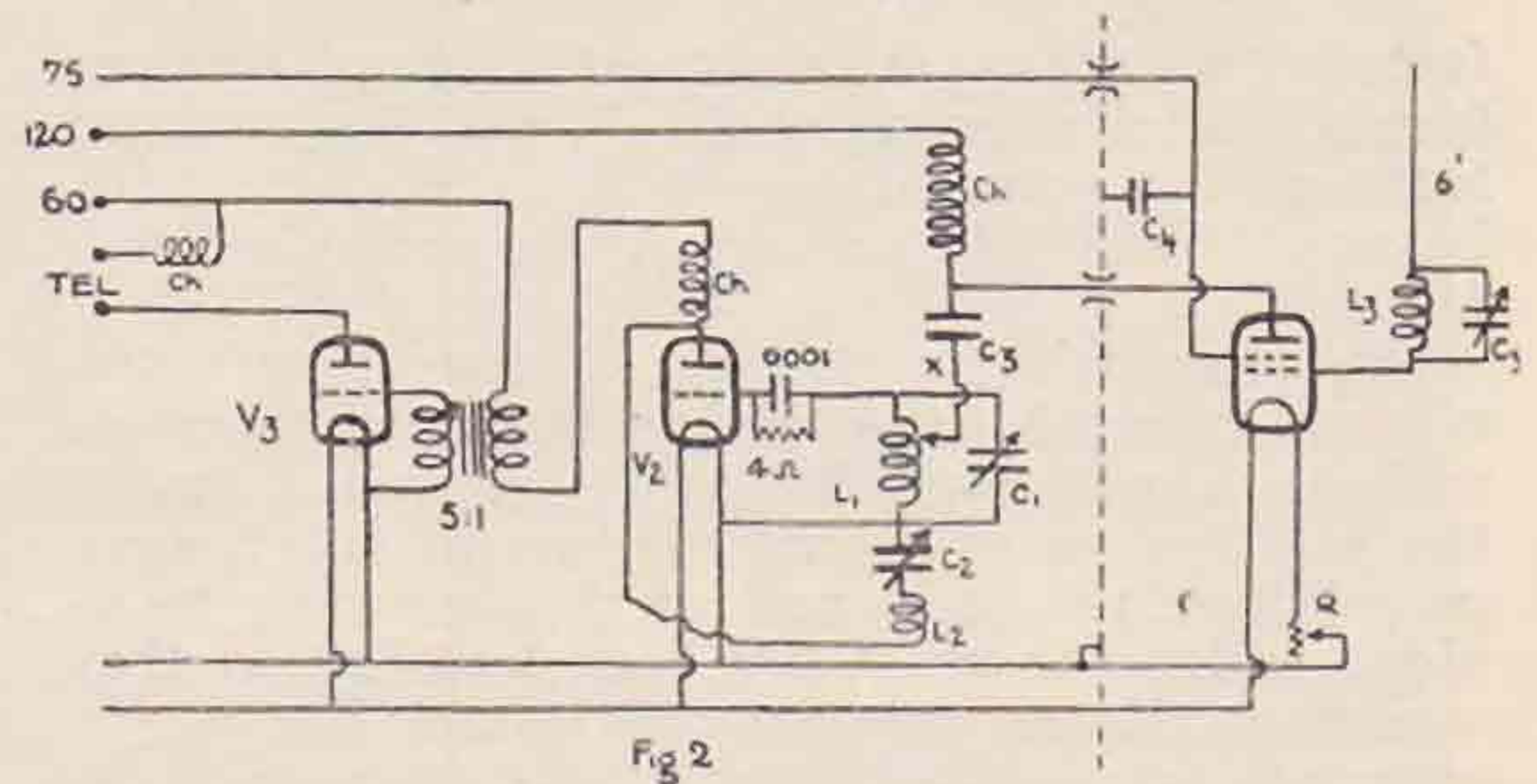


Fig 2

- | | |
|-------------------------------|-----------------------------------|
| V1. PM12. | C2. .00015. |
| V2. Cossor 210 RC. | C4. 1 mfd. |
| V3. PM2. | C3. .0003. |
| C5, C1. Single plate vernier. | Ch. 180 turns 36 s.w.g. 1in.diam. |

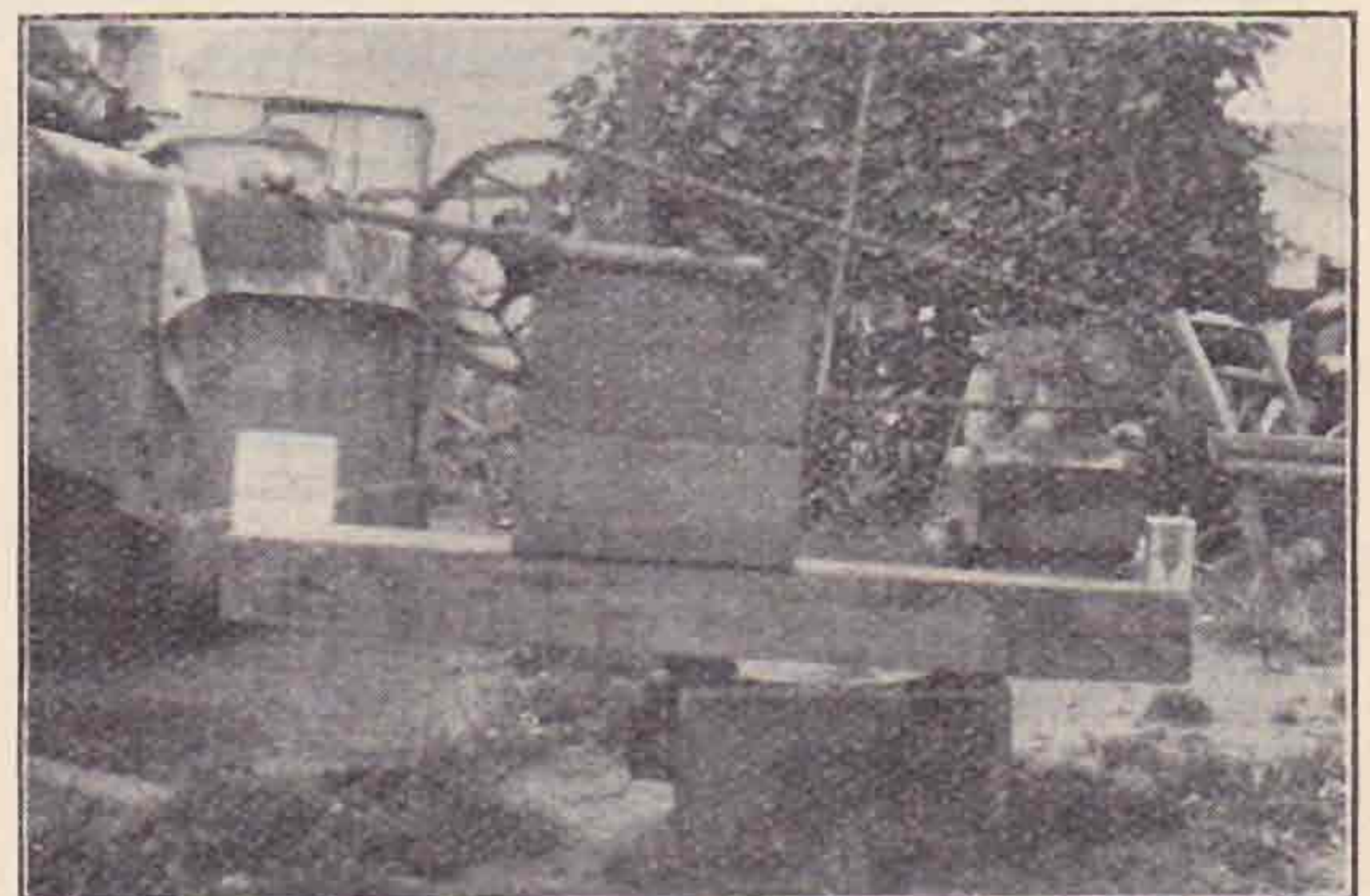
All things considered the S.G. is well worth using, and the elimination of T.H., at the same time keeping the detector valve at the peak of sensitivity, is a delight.

Hand Generator—Foot Drive.

By A. C. SIMONS (G5BD).

There must be quite a lot of hams situated as is the writer—with no mains—and who rely on the hand generator for power supply.

Owing to the loss of the right arm, some kind of foot operation was essential, and after several unsuccessful attempts, the following was devised. It is ideal, and must be 100 per cent. in advance of hand turning, both for ease of operation and steadiness.



An old cycle frame with pedals and chain wheel intact is obtained, everything sawn off except the

(Continued on page 113.)

Commercial Short Wave Communications.

Lecture to the Incorporated Radio Society of Great Britain.

By H. M. DOWSETT.

A LECTURE on "Commercial Short Wave Communication," illustrated with lantern slides and diagrams, was given by Mr. H. M. Dowsett, M.I.E.E., before the Annual Convention of the Radio Society of Great Britain at the Institute of Electrical Engineers, Savoy Place, London, on Friday, September 27.

The lecture had a topical interest owing to the fact that a few days later wireless telegraph services formerly administered by the Post Office and the Marconi Company came under the control of Imperial and International Communications, Limited.

Mr. Dowsett's lecture was concerned with the manner in which those responsible for commercial wireless have applied the knowledge gained during the last few years to the solution of short wave propagation problems and of the operating technique which has gradually been built up so that wireless traffic services are well established on an economic and satisfactory basis between this country and all parts of the earth.

Mr. Dowsett first spoke of the "Empiradio" services, which, he said, provided the most striking example of successful commercial short wave working in the world, and were the outcome of the researches of the Marchese Marconi and his assistants on short wave directional wireless from 1915 onwards.

The transmitter used for these services, he said, was of a design which gave great stability of wave-length, and with 20 kw. to the anode of the first magnifier provided more than enough power for high-speed working. The receiver was designed for strong signals, and these signals were not mutilated by short fade periods. It was three years since the first Imperial Beam service was opened to the public. In this period several types of projector aerial had been evolved and employed for commercial working in different parts of the world, but nowhere could they find a concentration of beam radiation equal to that provided at an Empiradio station.

Numberless short-wave transmitters could be heard on the ether, many of them crystal controlled, but a careful watch disclosed that the Empiradio transmitter had a constancy of wave-length equal to the best of them and that it was handling more traffic and continuing in service without "sticks" for more hours than any other type of transmitter. These were some of the facts which helped to explain the astonishing commercial success of the Empiradio services.

Mr. Dowsett proceeded to describe some of the distinctive features of the Empiradio Beam equipment and said stability of wave-length was obtained by the extreme care taken in the construction of the set.

The routine at the transmitting stations was to start up the plant and keep it going. A continuous monitoring watch was maintained on both the incoming and outgoing signals, and according to the conditions prevailing the receiving station advised the central telegraph office when to change

the operating speed of the route or the wave-length. Communication by one route or on one wave-length was continued until the signals one way or the other failed when the route or wave-length was changed, and then this change was carried out, when possible, at both terminal stations at the same time. Monitoring was of great importance and much of the success of a commercial wireless service depended on the efficiency and effectiveness of the monitoring. If the quality of signals fell off the operator at the C.T.O. was only in a position to recognise faults due to bad keying or badly punched tape at the other end. If it was due to any other cause than faulty transmission, he concluded that transmission was worse, and he was inclined to ask for the messages to be sent twice—which dropped effective speed to half—or, alternatively, for the operator to send at a lower speed. The monitoring operator on constant watch at the receiving station, however, was immediately able to diagnose the trouble whether it was due to atmospheric, fading, echo, or jamming, or some fault in the apparatus or landline link. He saved traffic time by indicating the source if it was at his end of the channel and could often minimise it, or clear it altogether, by balancing the adjustments of his receiver, or by advising a change of wave-length if the source was to be found in changes which were taking place in the physical conditions of the intervening medium between the two stations or by interference from some other transmitting station.

In addition to the "Empiradio" Beam services which provided a self-contained world system giving an exclusive service between centres serving vast continents that had growing business interests, and which therefore were able to draw on a large and increasing traffic supply, there was another extensive and important group of circuits which had its centre at Radio House, London, and was known as "Via Marconi" Telegraph Services. Many of these employed long-wave channels, but the majority now used short waves, and the number of short wave channels in commercial use was steadily increasing.

On 15 circuits these services transmitted on 17 wave-lengths, seven long-wave and ten short-wave, and the traffic from the corresponding 15 stations was received on some 85 different wave-lengths, 39 long-wave and 46 short wave.

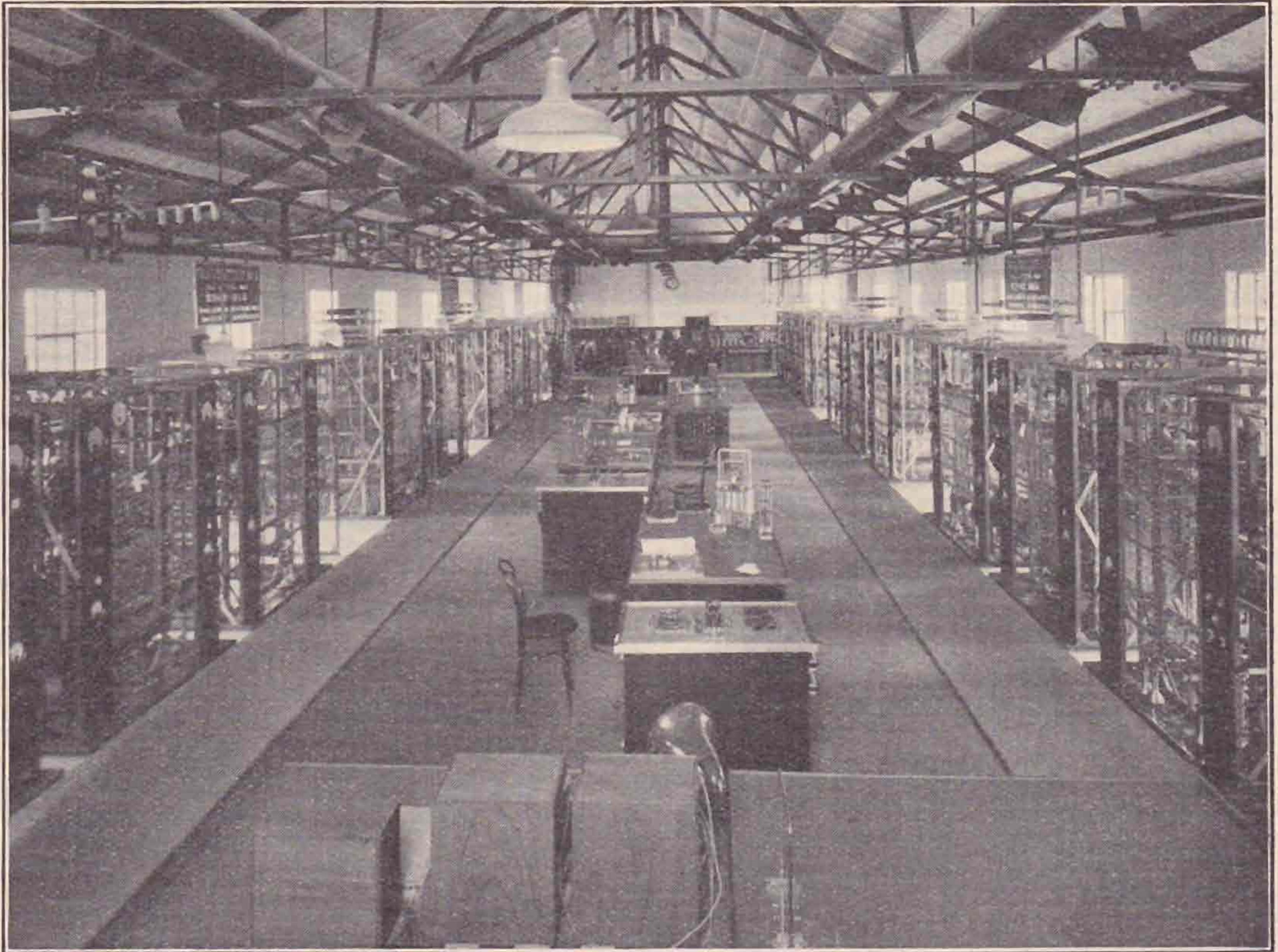
Mr. Dowsett then proceeded to describe the wireless stations operated from Radio House—Carnarvon, Ongar, Brentwood, Dorchester and Somerton. Eight transmitters at Dorchester, he said, were worked simultaneously from Radio House and signals from a similar number of stations were received through Somerton.

The Brentwood receiving station was originally built for the long-wave services, and at present the long-wave traffic, which in itself had considerable volume, all passed through this station. During the last few years, however, its short-wave receiver equipment had been steadily increasing, and now the station had some 24 long and short-

wave receivers employed on traffic circuits which used some 60 wave-lengths within the wide range of 15 metres to 30,000 metres. The Brentwood aerial equipment was necessarily varied in character and illustrated the progressive changes in design which the development of new ideas was constantly bringing about.

One had to realise, said Mr. Dowsett, that the wireless services of the whole world were interconnected commercially, and to a large extent technically, and formed practically one network.

periodically alter according to whether the Great Circle path through the two stations is in daylight, twilight or darkness, or in a combination of all three states. A careful systematic study extending over a considerable period had been carried out by the Marconi Research Department at Chelmsford on the strength of signals received from a large number of stations at various distances and on various wave-lengths during the day and during the night. These observations had shown that on all wave-lengths within the range of 15 to 100



A VIEW OF THE INTERIOR OF THE DORCHESTER BEAM STATION.

Owing to alternative routes by long or medium or short waves one need never be out of touch with the corresponding station. If for any reason a particular service should break down, the outside network was there and became aware of it, and was at hand, if need be, to carry on the traffic. Wireless had the advantage that its transmitters could be switched from one service to another. For the economical running of a number of short programme services this became a necessity, and it was also brought about by the need to change wave-lengths to avoid interference or because of weak signals.

Mr. Dowsett then proceeded to discuss briefly the conditions of propagation which existed in the communicating medium between the wireless transmitting and receiving stations and which

metres, signals fell off in strength up to 100 miles, but below 60 metres there was a recovery of signal strength with increase of distance, the extent of the recovery for daylight transmission being greater the shorter the wave-length used, 15 metres, for instance, producing a strong signal at 9,000 or 10,000 miles. The accepted explanation of these effects was that at distances within 100 miles or so of the transmitter propagation depended mainly on the direct rays which left the aerial at low angles, the energy from which was soon absorbed, whereas at great distances the received energy was obtained from the radiation leaving the transmitting aerial at higher angles which entered the Heavyside layer and travelled along it with minimum absorption and was finally bent down earthwards again, the actual angle incident to the ground at which the

rays reached the receiving aerial being about 15 degrees.

To complete his review of the present position of commercial short-wave communications Mr. Dowsett then gave some details of the traffic organisations and equipment at the other great centres of the international wireless network.

He first of all referred to the commercial wireless services of the United States, by far the greater number of which, he said, came under the control of the Radio Corporation of America, which sent out traffic on about 42 circuits and chiefly with short-wave transmitters.

In referring to these services in detail, he described the R.C.A. broadside projector antenna and the special method of reception devised by the R.C.A. for short-wave working and called by them the Diversity system.

Referring to French short-wave commercial communications, Mr. Dowsett said the State worked the commercial services which were at present carried on by two transmitting stations built by the French Government and installed at Lyons (La Doua) and by an auxiliary low-power station at Bordeaux (La Fayette), a further station at Pontoise (30 kilometres from Paris) being under construction and expected to be in operation at the end of this year. A corresponding receiving centre was under construction at Noiseux (25 kilometres from Paris).

The example set by Great Britain, said Mr. Dowsett, in the use of aerials which transmitted beam radiation had been followed in France as elsewhere, because the requirements of high-speed traffic compelled the use of a strong signal.

With regard to the German services, the Inter-European Wireless Service was worked by the German Reichspost itself, at present only on long waves, but the German Overseas Wireless Services were worked by Transradio, all the short-wave transmitters being at Nauen and the receiving stations at Geltow, near Potsdam.

The lecture was illustrated by photographs of wireless stations, diagrams of circuits and charts showing the extraordinary increase in traffic that has taken place in the Beam services and the efficient manner in which the demands made upon these services has been met. Information and

illustrations for the purpose of the lecture were supplied by all the organisations referred to by Mr. Dowsett.

At the close the President, Mr. Marcuse, cordially thanked Mr. Dowsett and the Marconi Company for the very interesting lecture and called for a vote of thanks, which was passed with acclamation.

The accompanying Wave-length Tables of British, Colonial and Foreign Commercial Stations are reproduced from charts displayed during the lecture:—

List of Commercial Short Wave Stations.

Call Signs.	Wavelength in metres.	Call Signs.	Wavelength in metres.
WKM	15.907	GLS	15.00
WTT	15.84	GLG	15.24
WLL	16.76	GLH	22.16
WIK	21.54	GLK	37.47
WEQY	21.63	GLQ	27.45
WAJ	22.24	GLL	21.96
WHR	22.35	GLP	27.45
2XAM	25.80	GLX	15.24
WEC	33.59	GLW	15.707
WOO	35.00	GLY	26.269
WEM	40.54	RKV	21.00
WIZ	43.00	RPK	33.80
WEB	43.25	FRE	15.45
EAN	25.03	FSI	25.125
EAQ	30.45	FTL	30.00
EAM	30.70	FSZ	40.03

Empiradio Beam Stations.

Call.	Station.	Country.	Wavelength in metres.	Working to
GBK	Bodmin	England	16.574	Yamachiche (Canada)
do.	do.	do.	32.397	do.
do.	do.	do.	16.146	Milnerton (S. Africa)
do.	do.	do.	34.013	do.
GBH	Grimsby	do.	25.906	Rockbank (Australia)
GBI	do.	do.	16.216	Dhond (India)
do.	do.	do.	34.168	do.
CG	Drummondville	Canada	16.501	Bridgewater (England)
do.	do.	do.	32.128	do.
CF	do.	do.	24.793	Rockbank
VNB	Kilhelwal	S. Africa	16.007	Bridgewater
do.	do.	do.	33.708	do.
VIZ	Ballan	Australia	25.278	Skegness (England)
VYZ	do.	do.	24.958	Yamachiche
do.	do.	do.	16.286	do.
VWZ	Kirkee	India	34.483	Skegness.

(Continued from page 111.)

pictures; (3) Campbell Swinton, on the cathode ray tube system; and (4) Baird, who has invented the only really successful true television system. (This system will be dealt with in Part II.) In America, France and Germany many investigators have also been at work.

There are a few special developments of the Baird system that are of great interest, and may ultimately form separate sciences themselves. These are noctovision and phonovision. In noctovision the invisible infra red rays are used for television purposes. Because of the great penetrating properties of the infra red rays, it becomes possible by noctovision to see in total darkness. This is of great importance in submarine warfare, as the submarine under the surface need no longer be blind (the periscope range is very limited), but can see the whole of the surface. It is also of great importance in anti-aircraft defence, as the aeroplane can

be picked out at any height by an invisible beam its position located and so destroyed. It will also be of great use for direction finding and fog penetration for lighthouses and ships. Fig. 1 shows a simple noctovision circuit that will be better understood when the Baird system has been dealt with in Part II.

In phonovision the light vibrations of a true vision are transferred to a gramophone record, so that it can be reproduced at any time by reversing the process.

Stereoscopic television also forms another very interesting special development. In this case two spotlights are used at an angle, and two corresponding photo-electric cells and a stereoscopic viewer are used at the receiving end. (The exploring device, too, of the transmitter has left eye and right eye spirals in it. Fig. 2 shows the diagram of such a transmitter.

(Continued on page 115).

The Science of Television.

By MAURICE GIBSON, F.T.S., M.A.F. de T.

PART I.

In writing about any subject, whether scientific or otherwise, it is necessary to make certain that the reader understands the definition of the subject. In my experience there seems to be some doubt as to what has really been accomplished under the name of television. Those who are as yet unac-

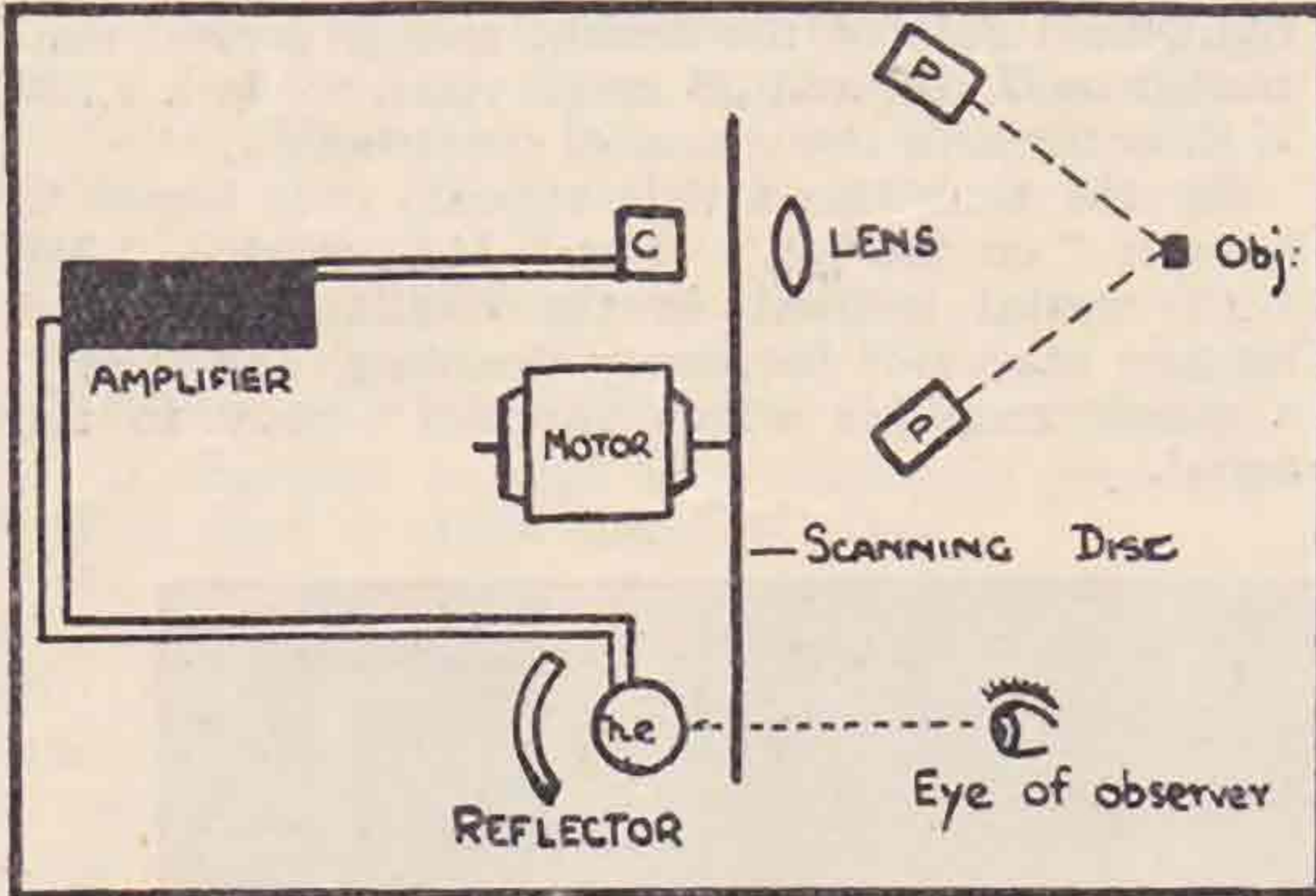


Fig. 1.
NOCTOVISION.

- P — Infra red projectors.
- C — Photoelectric cell, sensitive to infra red rays.
- Ne — Neon tube.
- O — Object.

quainted with the subject are apt to confuse television with the transmission of photographs, still pictures, and shadowgraphs. True television, as it is practicable even to-day, is the transmission of living movements reproduced at the distant receiver as they could be seen with the naked eye. It is even possible to-day, at great expense, however, to transmit whole scenes on a stage or elsewhere with

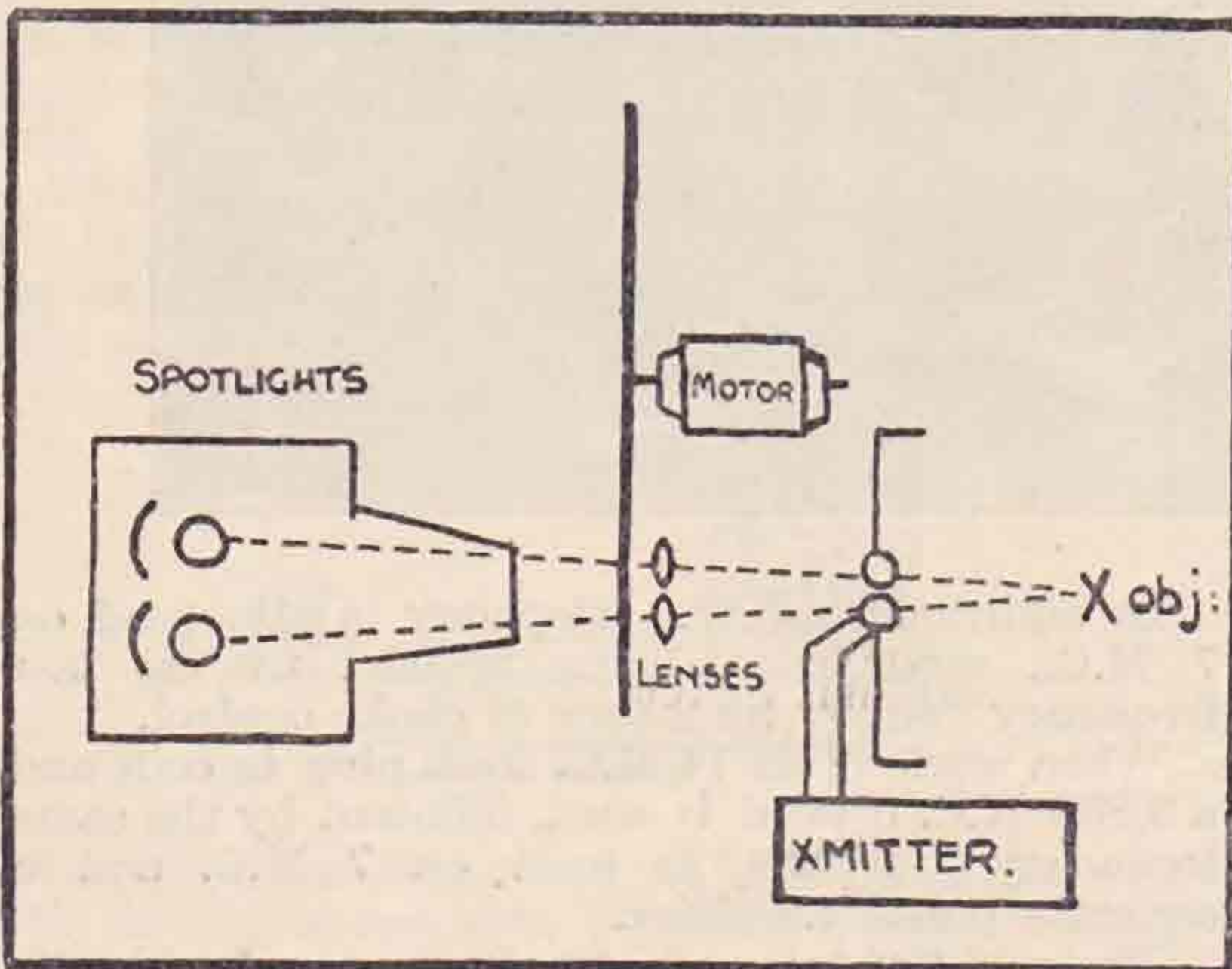


Fig. 2.
STEREOSCOPIC TELEVISION.

very fair success. A great deal of scepticism is no doubt due to the fact that television came rather suddenly into the limelight with the flotation of the Baird Television Development Co. This gave the impression that it was something very recent, but, in fact, the science is as old as that of wireless.

It is by no means an exaggeration to say that the science of television commenced with the discovery of the electrical properties of selenium. There seems to be some doubt as to who did actually discover these properties. Mellor gives the credit to W. Smith in 1873, but the chemical properties seem to have been known to Baron Berzelius in 1814. The description of an apparatus for seeing by electricity was filed by Bell at the Franklin Institute in 1880. In 1883 the Editor of the *Journal of the Telegraphic Engineers* made a statement that a box containing the apparatus for seeing

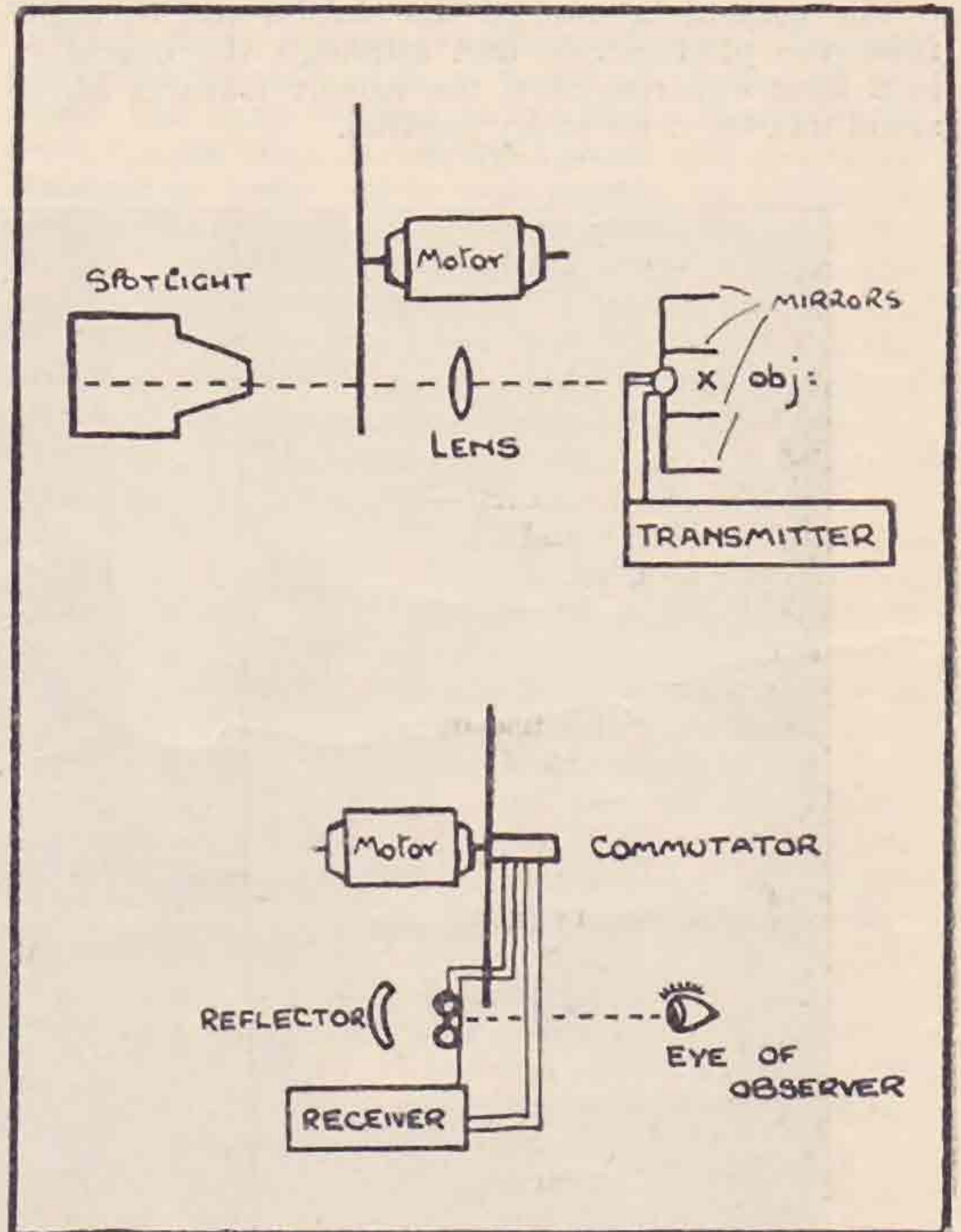


Fig. 3.

by electricity had been left with him by the inventor of the telephone. In addition to this, in 1880 Carey submitted the diagrams of a system of picture telegraphy to the *Scientific American*, using selenium cells and chemical paper. The first attempt at true television, however, seems to have been made by Rosing, who used rotating mirrors and a cathode ray tube. Nipkow in 1884 used a scanning disc with mirrors on drums, and Rhumer, a German, seems to have done a good deal of the early work in shadowgraphs. The principal work on vibrating mirrors and light valves seems to have been carried on in 1908 by Einthoven, Korn and Szezepanik. In 1910 Ekstrom developed a method of scanning by means of a moving beam. From that time until the present day the chief investigators in England have been: (1) Kerr, on light modulation with the Kerrall using Nicol prisms; (2) Ranger, on still

Station Description No. I.

G6LL.

By "THE ROVER."

G6LL, the station of Mr. J. W. Mathews, at 178, Evering Road, Clapton, E.5, represents in its present form the result of several years' hard labour and experimental work on the part of its owner.

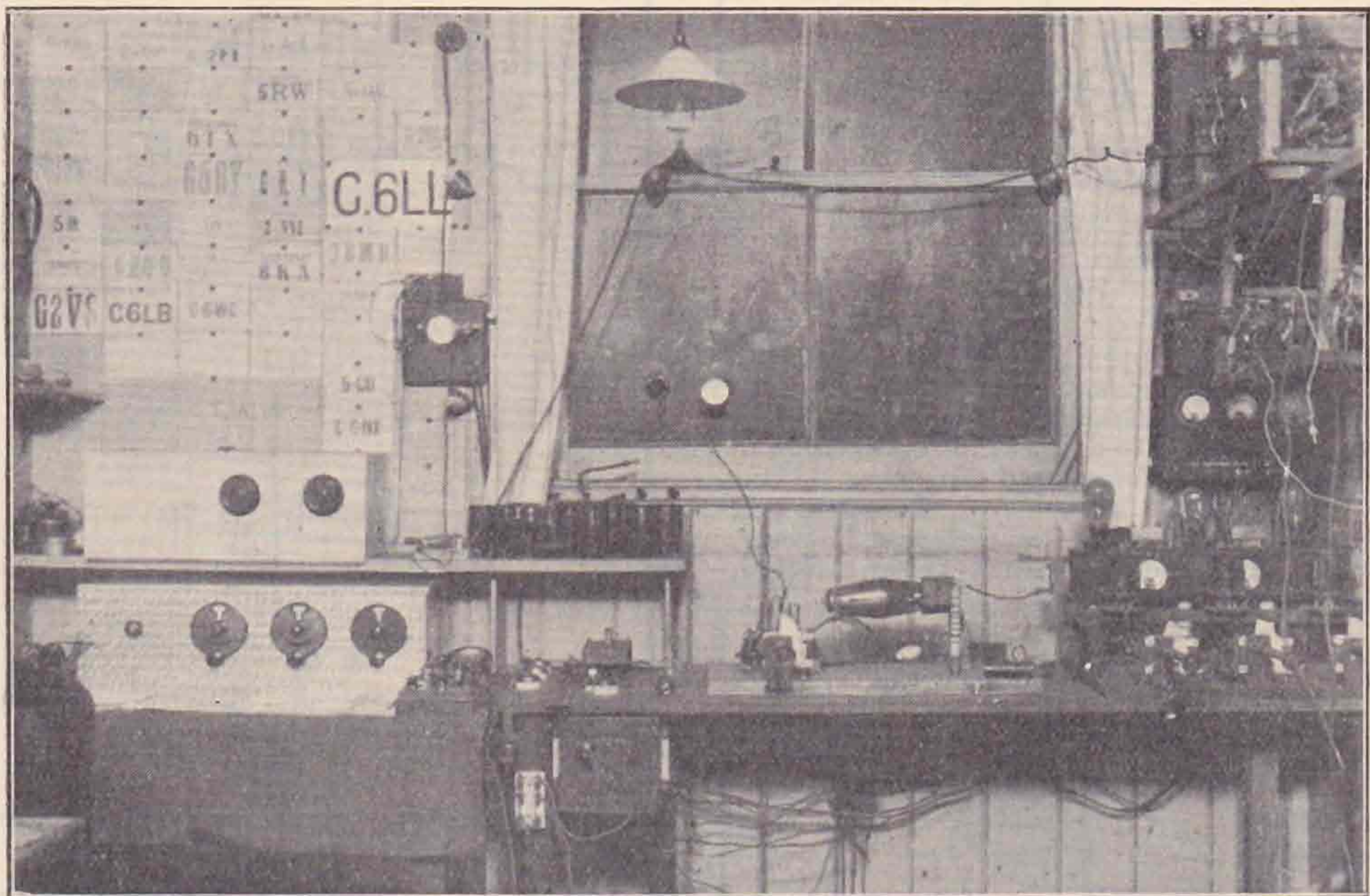
The term hard labour does not imply that G6LL has ever sported the broad arrow, although his neighbours would doubtless think it an excellent idea.

The general lay-out of the station can be seen from the photograph, and although the operator is a keen experimenter, the salient features have stood unaltered for many months.

sources of power supply are used, any section of the station can be brought into use without the operator leaving his seat.

The transmitting gear itself can be seen on the right-hand side of the bench, and is crystal controlled on 7, 14, and 28 megacycles, while a 1,750 K.C. outfit is in the course of construction.

By the time this article appears it is hoped to have it "on the air." For 7 M.C. work a 1,750 K.C. crystal is used in the oscillator, followed by two stages of frequency doubling, and, lastly, a power amplifier which supplies energy to the aerial.



Below the left-hand shelf can be seen the new four-valve receiver similar to one exhibited on the R.S.G.B. stand at Olympia, while above, on the shelf itself, stands the original three-valve receiver which has done duty for the past eighteen months. Like the larger set, this receiver is totally screened. The smaller set consists of a detector and two resistance capacity coupled amplifiers. This form of amplification was found to give a greater percentage of readability than the more common transformer style, although signal strength is less; it was, however, built primarily for 28 M.C. reception and readability was considered of paramount importance.

In the centre of the photograph, to the right of the operating table, is seen the switch gear, and although several transmitters, employing several

In addition to C.W., telephony is also used on 7 M.C., modulation being applied to the last frequency doubler by means of choke control.

When working on 14 M.C. fresh plug in coils and a 3,500 K.C. crystal is used, followed by the same frequency doublers as used on 7 M.C. and a separate power amplifier.

The addition of an extra frequency doubler to those used for 7 and 14 M.C. enables a 3,500 K.C. crystal to control the 28 M.C. power amplifier.

The oscillator and frequency doublers can be seen on the right-hand bottom corner of the photograph, the crystal oscillator stage being on the extreme right.

The separate power amplifier stages which energise the aerial for each band can also be seen, that for 28 M.C. being immediately below the window.

The Osram SW DET1 valve used can be plainly seen. SW DET1 valves are also used on the 7 and 14 M.C. units.

Experiments of many kinds have proved this type of valve to be highly efficient, while Osram valves are also used in all the frequency doublers and in both the receivers.

In the top right-hand corner, mounted on the wall, can be seen the 7 and 14 M.C. power amplifiers, the latter being situated below.

The power supply is obtained from 240 volt D.C. mains, this voltage being applied to the crystal oscillator, while the use of the "three wire" system enables 480 volts to be used on the frequency doublers.

The power amplifiers are supplied by an M.L. rotary converter running off the 240 volt mains and delivering 1,000-1,200 volts at 100 milliamps.

This machine is kept in a cupboard where it does its best to climb the wall paper.

The switch controlling the output of the generator is situated below the edge of the table beside the key, and is hidden by the tablecloth. Anyone whose hand strays about unsuspectingly while the machine is running receives a sudden and very violent reminder of its efficiency.

The aerial system for 7 and 14 M.C. is a "supposed Zeppelin," while a vertical half-wave end-on type is used on 28 M.C. This vertical aerial is supported by a 16 ft. tripod mast, with 11 ft. sides and the base clamped to the flat roof above the operating room.

This mast is a thing of wonder, and was built in the garden, after which it was hauled up the side of the house, some 30 feet, with the aid of much rope and energy. The scene when it reached the top was reminiscent of hauling up the net on a trawler, except that the "catch" consisted chiefly of rose bushes and small trees.

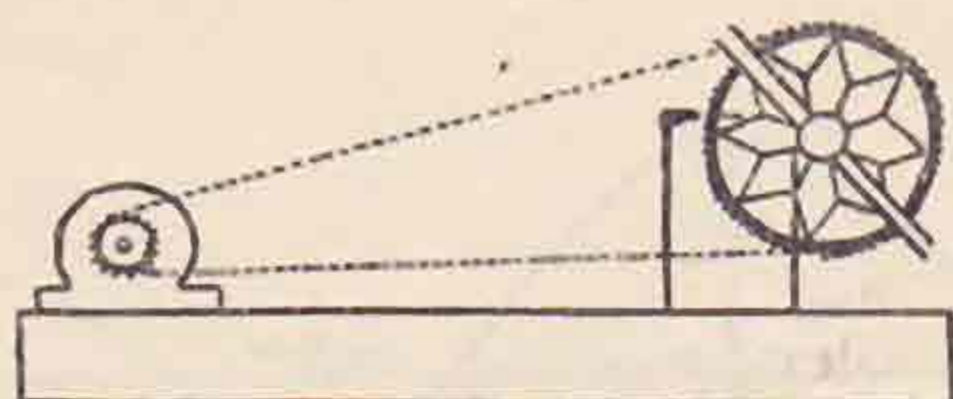
The gutter also suffered, but the ultimate result amply repaid the trouble and damage caused by erecting the mast.

While being a keen experimenter, G6LL has not neglected the DX side of radio and most of the world has been worked on 14 M.C. His pioneer work on 28 M.C. is widely known and needs no elaboration here. As is well known, he made the first G-W contact on that frequency, and also the first contact between England and Canada, the former feat winning him the Wortley Talbot Cup for 1929; those who know the "man behind the key" at G6LL will agree that his is a record of which any amateur might be justly proud.

Hand Generator—(Continued from page 107).

pedal bracket and about eight inches of the rear stays. The bed is wood, about three feet long, six inches wide, and three inches deep. The pedal bracket fits about two and a half feet from the end, raised up sufficiently for pedal clearance by one 8-in. or two 4-in. pieces of wood, two and a half inches wide, fixed with two long bolts through the bed and distance pieces, the nuts screwing tight to the portion of the rear stays. Countersink bolt heads are used, otherwise the job will not stand level.

A fixed cycle cog is fixed on the generator spindle and locked with suitable nut. (It is best to saw the cog off a rear wheel, as the axle hole is about the right size, the cog itself being too loose a fit.)



Complete Assembly

The generator is screwed at the end of the bed with the cog in line with the chain-wheel. A short L-piece on the bed may be necessary for this. On the chain being fitted the job is complete, and will be found well worth the trouble taken.

Stray.

YIILM states that the 28 M.C. tests announced in the August issue of the BULLETIN have ceased on account of the operator moving to India, where he hopes to start up with a VU prefix in December.

SHORT-CUT
TO
INTERNATIONAL PREFIXES.
(WHILE THEY LAST)

<p>E IS FOR IRELAND, BEDAD Y' BEEORRAH! YOU'LL HRE 'EM SING OUT YEZ WRE R9 TOMORRAH</p>	<p>W IS USA WHOSE DISTRICTS ARE NINE. NONE OF 'EM HRD ON BUM SETS LIKE MINE.</p>
<p>F IS FOR FRANCE. LA LA! ET OUI, OUI! I'VE HEARD SOME F PIRATES ARE LIVING IN G</p>	<p>E U IS FOR RUSSIA OF BOMBS, SNOW & PISTOLS, THE FROST IS SO HARD THAT ALL HAMS USE ITS "XTALS"</p>
<p>E A R IS SPAIN, ITS CALLS REALLY WRONG THEY GET 'POWER' FROM ONIONS, THATS WHY THEY'RE SO 'STRONG'</p>	<p>D IS THE GERMAN WINE RIDS ARE "HRD HRE" I WISH HED QSP US, SOME GOOD LAGER BEER.</p>

Capacity in the A.C. Circuit

FURTHER BURBLINGS BY "INCONNU."

In my last effusion it was shown how the reactance of an inductance to a frequency of cycles per second was $2\pi fL$ apparent ohms. It was explained that the term "apparent ohms" is used because, though it is the ratio of voltage and current, no actual heating effect is caused by the inductance; heating in a circuit is caused by real resistance—real ohms. Of course, heating takes place in an iron core due to eddy currents and hysteresis, but this can be included in the "effective resistance."

We all know that a condenser will "pass" an alternating current; and we know that the higher the frequency the more easily the current will pass, that is, the opposition to its passing is less. But something more quantitative than this idea is needed; just how much current will pass through a given condenser with so much voltage applied at such-and-such a frequency?

The opposition of the condenser to the applied frequency may be measured in the same way as was the resistance and the reactance—by finding the ratio

$$\frac{\text{Voltage on Plates.}}{\text{Current Flowing.}}$$

The voltage and current values we use are what are known as the effective or R.M.S. values, and represent 0.707 of the maximum value of the sine wave of voltage or current. This is the value which is indicated by ordinary instruments in an A.C. circuit.

By neglecting the real resistance of the condenser plates and leads, and also the effective resistance due to heating in the dielectric, this ratio may be called the "Capacitance," or, if you prefer it, the "Capacity Reactance" of the condenser.

By assuming the condenser to have no losses, as we have done above, no very great error arises in ordinary circumstances, but where there are high voltages and high frequencies, losses occur in the condenser from the mentioned causes, and also from corona effects—a sort of discharge of electricity into the atmosphere which, in another sphere of electricity, makes some overhead transmission lines quite luminous at night. But this question of losses will be treated later under the heading of "Power Factor."

The definition of the unit of capacity states that 1 farad capacity is such that when 1 volt is applied across the plates, unit quantity of electricity, 1 coulomb, is stored on the plates. Therefore, if 1 volt puts 2 coulombs into the condenser, it is clear that we have a 2 farad condenser, and that the quantity in coulombs per volt across the plates will tell us the capacity of the condenser.

As I write this I can hear already a rising hum of criticism from the highbrows—but this little talk is not meant for them, and when we have walked a little together, you will find it much easier to run with them and view the scenery of the capacity country under their care; at present we are meandering along the ragged lanes, winding about a bit, but getting along. Soon, with them, you will be on accurately straight roads, horrible traffic rules, and nasty little "letter of the law" policemen to keep you on a mathematically straight line.

Well, at the last corner of the lane we found, if you will glance back for a moment, that the capacity could be found by dividing the quantity stored by the voltage applied, getting coulombs per volt:—

$$\text{Capacity} = \frac{\text{Quantity}}{\text{Voltage}}$$

The amperes taken by our filaments must be considered as a rate of flow of electricity, just as the flow of water would be measured in cubic feet per second. So, an ampere is just the flow of electricity known as 1 coulomb per second; the rate of flow of coulombs will always tell us the amperes.

This is necessary to our talk, because when a varying voltage as given by a sine wave is applied to our condenser, the amount of charge on the plates will be changing—the rate of change at any instant will give the current in amperes which is flowing on to or off the plates at that instant.

The capacity is a constant quantity, so if the value of voltage is doubled, the quantity of electricity stored must also be doubled; if the voltage changes, the quantity changes in the same proportion. Changing the terms in the last equation a little, we get:

$$\text{Capacity} \times \text{Voltage} = \text{Quantity.}$$

and, of these three, capacity is a constant.

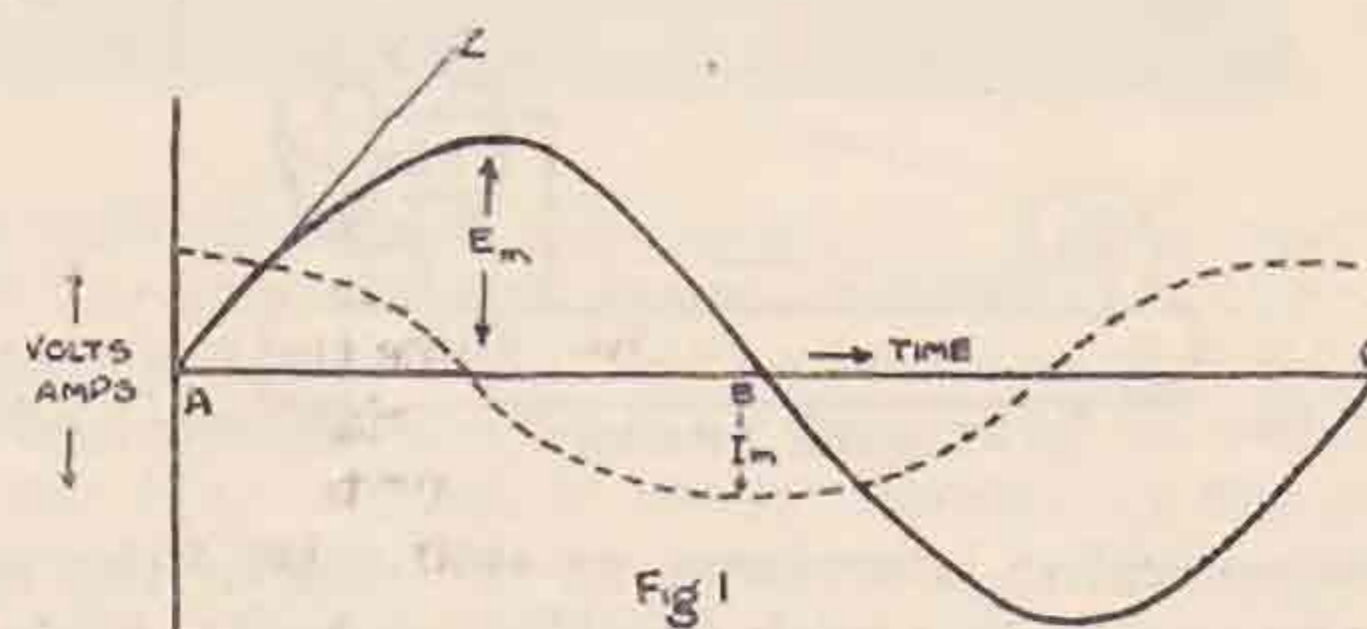
The rate of change of one side must be equal to the rate of change of the other side (in order to keep the equality true), but, on the left-hand side only the voltage can vary, so we get:

$$\text{Capacity} \times \text{Rate of change of volts} = \text{Rate of change of quantity.}$$

Choosing the maximum rate of change, we get:

$$\text{Capacity} \times \text{Maximum rate of change of voltage} = \text{Maximum rate of change of quantity.}$$

The first thing that this shows is that the maximum current (maximum rate of change of quantity) occurs when the maximum rate of change of voltage occurs. This is at the instant A, B, C, etc., in Fig. 1; the rate of change being the slope of the sine wave, and the maximum slope occurring at these instants.



The current at any other time will vary with the slope of the voltage wave (solid line), and the dotted line shows how the current values compare with the instantaneous values of the voltage.

The slope of a sine wave is another sine wave, so the current will be sinusoidal, and is not in step or "phase" with the voltage wave—it is said to lead the voltage wave by 90 degrees: the full cycle being reckoned as 360 degrees.

The line A-Z is the maximum slope of the sine

wave, and if you draw this line and measure the slope, you will find that it is $2\pi f E_m$ volts per second.

Substituting what we now know in our equation, we have:—

$$\text{Capacity} \times 2\pi f E_m = I_m.$$

To obtain the effective values, we multiply each side by 0.707, giving:

$$\text{Capacity} \times 2\pi f E = I.$$

where E and I are effective or R.M.S. values.

From this the ratio of volts and amps. is obtained:

$$\frac{E}{I} = \frac{1}{2\pi f C} = \text{the capacity reactance in apparent ohms.}$$

That is the end of this lane, but let us try a problem: say a condenser of 0.002 mfd. is used as a plate stopping condenser in a 14,200 K.C. Hartley circuit, and the applied alternating voltage is 200, what opposition does the condenser offer to the high frequency?

$$\text{The capacity reactance} = \frac{1}{2\pi f C}$$

$$= \frac{1}{2\pi \times 14,200,000 \times 0.002} = 5.6 \text{ apparent ohms.}$$

It is obvious that it will offer 2.8 ohms to 28,000 K.C., and so on.

Again, suppose a 10 mfd. condenser is subjected to a ripple voltage of 10 effective volts at a frequency of 100 cycles, and assuming the ripple to be sinusoidal (which is not really true), the current through the condenser is obtained thus:—

$$\frac{E}{I} = \frac{1}{2\pi f C} \therefore I = E \times 2\pi f C$$

$$= \frac{10 \times 2\pi \times 100 \times 10 \times 10^{-6}}{50} = 0.0628 \text{ amperes.}$$

The Science of Television—(Continued from page 110).

During the early experiments with the Baird system very large illumination of the object to be transmitted was necessary, but since the noctovision developments only normal artificial lighting, or even daylight, is necessary. Colour television offers much scope for further research. In this three spirals of holes are used in the exploring disc covered with red, blue and green filters. At the receiving end the neon tube provides the red light, a mercury vapour tube the green, and a helium tube the blue. A commutator on the disc motor switches the incoming television impulses on to the appropriate tube so that the correct colour is reproduced. Fig. 3 shows a colour television transmitter and receiver.

Monochromatic television can be obtained in a similar way. In Part II of this series the Baird television system will be discussed in detail.

Morse Inkers.

The following correspondence has passed between Mr. Hughes (G2NL) and Mr. Gibson (2BAA) on the subject of morse inkers, and is reproduced here in the hope that it will be of interest to readers:—
Dear Mr. Gibson,

I have read your articles in the "BULL." on D.E. valves with interest. I observe in your August article you mention about working a morse inker, and am wondering if you could assist me in that direction by obliging me with a circuit that will actually produce morse signals by inker via wireless.

I have the following gear:—

4-valve receiver (1-V-2).

Morse inker by Walters, of London.

G.P.O. sounder.

Siemen's 10,000 ohm relay.

Silvertown G.P.O. relay.

Most of the circuits I have read about contain one or more snags, and I must admit that up to date I have not been able to record satisfactorily morse signals with the above apparatus.

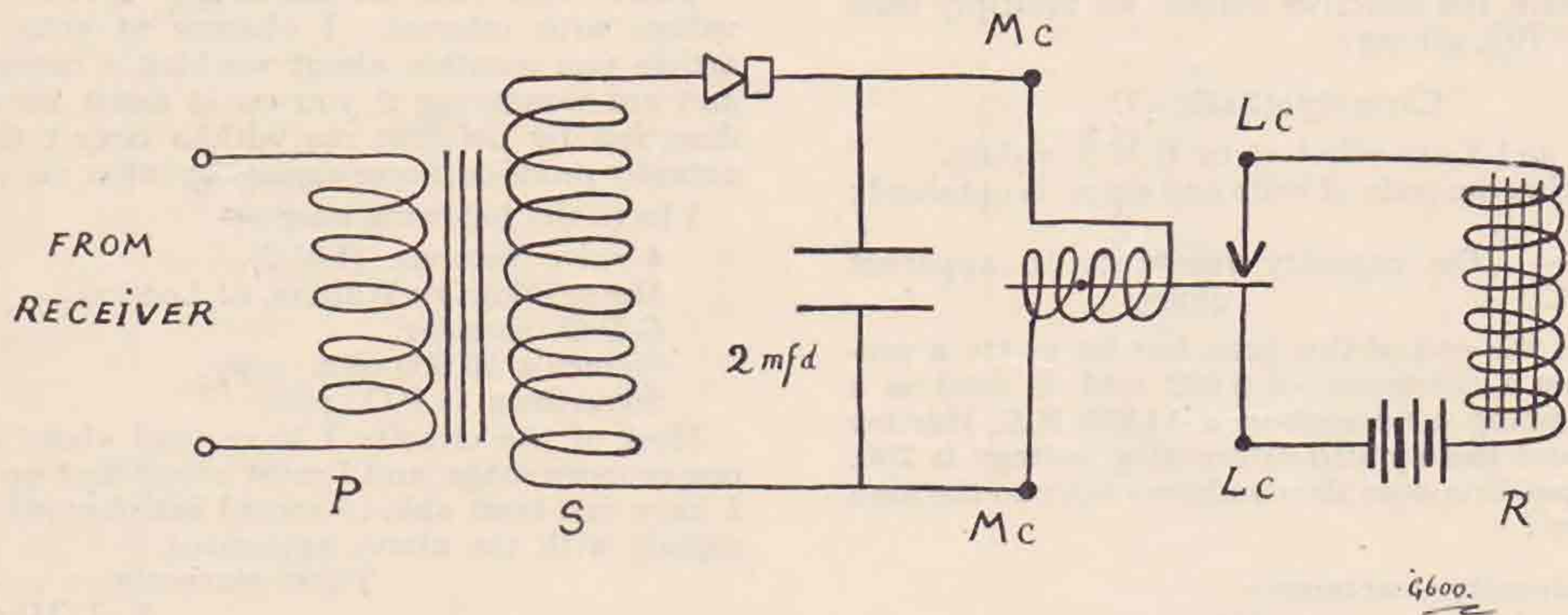
Yours sincerely,

F. J. HUGHES.

Dear Mr. Hughes,

I was very interested to receive your letter of the 6th inst. The subject of morse recording has always seemed to me to be a model example of a subject easy in theory but very trying in practice. In the first place the local circuit (*i.e.*, the recorder and working accumulator) are never considered sufficiently seriously. The sounder part of all commercial recorders are very heavily wound and require at least a six-volt accumulator to work them. If efficient recording is to be obtained this accumulator should have a capacity of at least 20 amps. actual. The recorder itself can be tested by connecting it in series with a key and suitable battery, using, of course, the sounder connections on the recorder. By this circuit line telegraphy recording can be obtained and the speed of the clockwork, the marking apparatus and the working of the sounder movement can be adjusted for maximum efficiency. The number of terminals on some recorders may offer some difficulty to the experimenter. On some types there are as many as five, two for the working of the sounder movement, one connected to the metal case (this will be referred to later) and two that need not necessarily be used connected to the framework of the sounder part. Now with reference to the relay circuit, the super-sensitive relay whether Post Office, Weston or otherwise, should be tested as a relay with a simple local circuit by some such method as suggested in my series of articles. If this method is unobtainable then without a doubt suitable testing and measuring instruments will be unobtainable, and it is a matter of luck whether the relay works efficiently or not. The contacts of the relay must be absolutely free from dirt or grease, and the moving coil must be allowed to rotate over just the best distance to obtain the "making" of the local circuit. Great care must be taken to understand the two local circuit terminals and the two moving coil terminals on the relay as to confuse these may mean the burning out of the moving coil. To understand the relay it should be experimented with open. That is to say, if it is of the enclosed type it should be taken from its case and used like

that until thoroughly understood. Now, considering the means of connecting the relay to the loud-speaker terminals of the receiver, there are two very good methods that may be tried. The most usual is to use an intervalve transformer, a carborundum detector and a Mansbridge condenser (see figure).



M.C., of course, stands for moving coil, L.C. for local circuit and R for recorder. The case of the recorder is usually connected to the frame or case of the relay. Carborundum is usually chosen for the detector because of its stability, but perikon is equally suitable (*i.e.*, zincite and bornite or zincite and tellurium). The second method is to use a single earpiece receiver placed close to a microphone, the latter being connected in series with a dry battery and a P.O. relay. The first method is probably the most successful, but the second is of interest.

The valve receiver should be of four valves for recording, or at least three, and the signals must be coming in very loud indeed on the speaker before it is possible. It is best to use a D.P.D.T. switch to

bring either the loud-speaker or the recording apparatus into circuit. I do not advise the use of ship signals for recording purposes as they are bound to be jammed and very short; the commercial high-power spark stations working on the higher bands are much better. The Post Office type of relays are wound in many different sizes, so that,

without knowing the amps. required to work it, it is impossible to say whether it would be sufficiently sensitive or too heavy. The Siemen's relay would possibly be more sensitive than the P.O. you have. The Weston super-relay, as mentioned in my article, takes about 40 microamps. No method of linking the receiver to the relay was necessary in the wireless control in my articles. The H.T. in valve receivers makes direct connection with the sensitive moving coil impossible, especially in modern amplifiers using a larger-power valve for the last stage and some 200 volts H.T.

Hoping that these notes will be of service to you and that you will let me know how you get on.

Yours sincerely,
MAURICE GIBSON.

Council Elections, 1930.

In accordance with the following extract from the Articles of Association, the undermentioned gentlemen have been nominated for Council for 1930.

48. Not later than the 24th day of November in each year the Council shall send to each Corporate Member entitled to vote a list of duly qualified persons whom they nominate for the offices of President, acting Vice-President, Hon. Secretary, Hon. Treasurer, and other elected Members of Council in December next following. This list must include at least four names of persons not serving on the existing Council.

49. After the issue of the Council's list, and not later than the fourth day of December next following, any ten Corporate Members (but not more than ten) may nominate any other duly qualified person by delivering their nomination in writing to the Secretary, together with the written consent of such person to accept office if elected, but each such nominator shall be debarred from nominating any other person for the same election.

33. The affairs of the Society shall be managed by a Council consisting of the President, the immediate Past-President, the first Past-President, the acting Vice-President, the Hon. Secretary, the Hon. Treasurer and eight elected Corporate Members.

Should any ten members wish to nominate any other person to serve on the Council, such nomination should reach the Hon. Secretary by December 4, in accordance with Article 49. Following that date a ballot form will be sent to all members.

President : Mr. G. Marcuse.

Acting Vice-President : Mr. H. Bevan Swift.

Hon. Secretary : M. J. Clarricoats.

Hon. Treasurer : Mr. E. D. Ostermeyer.

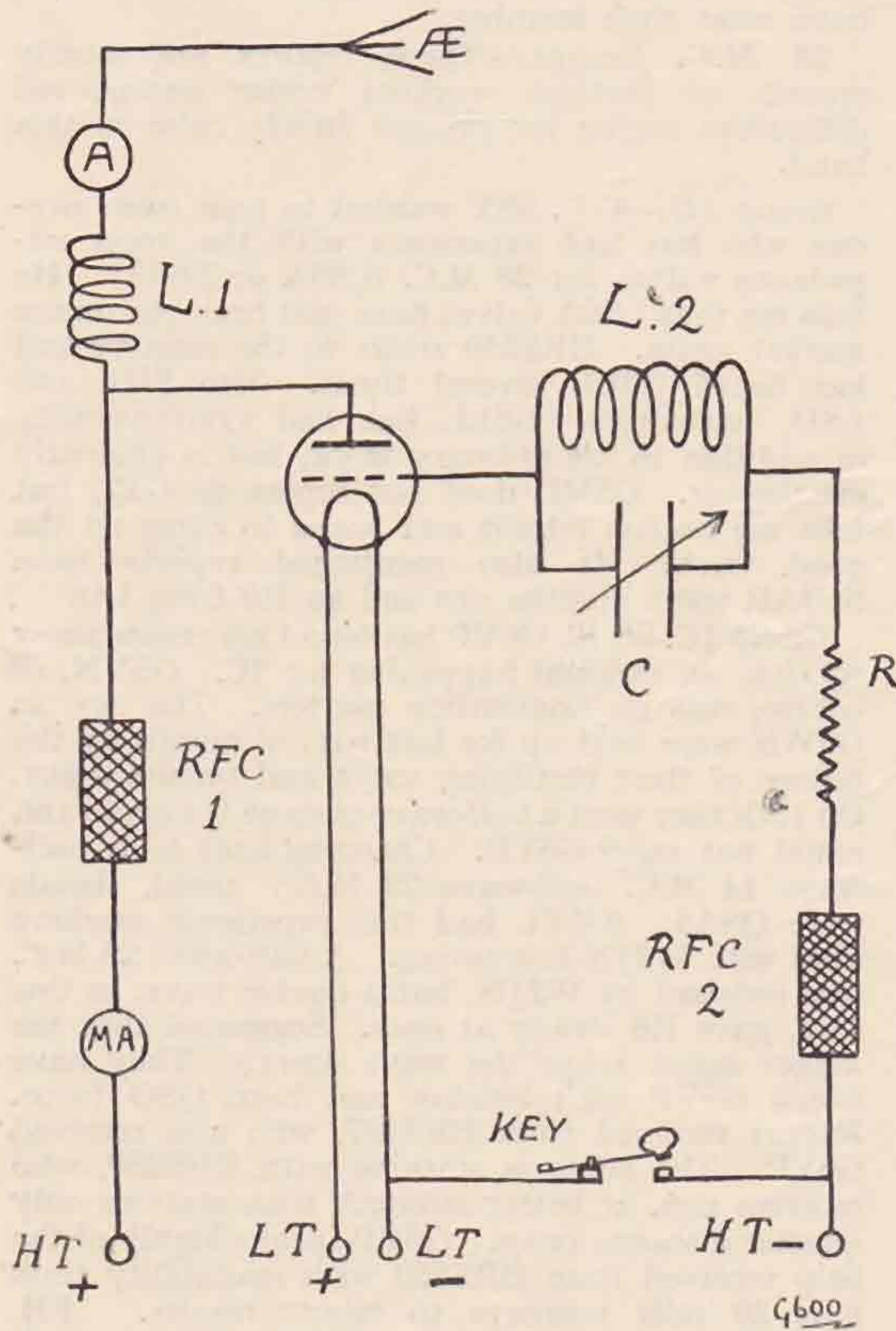
Council : Messrs. K. Alford, G. F. Gregory, K. Hartridge, G. W. Thomas, A. E. Watts (retiring members eligible for re-election).

Messrs. D. P. Baker (G2OQ), A. Gay (G6NF), J. W. Mathews (G6LL), R. L. Royle (G2WJ), T. A. St. Johnston (G6UT) (nominated by Council).

The Van Grasse Circuit.

We are indebted to Mr. J. A. Farrer (BRS245) for the following details of the Van Grasse Circuit, which ON4HL says is very popular in Belgium.

L1 is 14 turns, 3" diam., and L2 10 turns, same diameter. The condenser C is for small adjustments and consists of two moving and three fixed plates. RFC1 is a 500-turn choke (a duolateral coil of that size is suggested), and RFC2 is 300 turns. The above constants are for 7,000 K.C. operation, and the aerial will then consist of a full wave wire connected direct to the ammeter A. R is a 20,000 ohms resistance, carbon lamps of low power being suggested.



Strays.

Mr. Hughes gives us the following details of transmissions from GFA (The Air Ministry) and from GBR (Rugby), which may be of interest to members in morse code practice:—

GFA, Weather Shipping Inference at 19.00 and 20.00 G.M.T. : sent twice, first about 16 w.p.m. and repeated at about 24 w.p.m. Wave-length 4,100 metres. GBR, British Official Wireless Press at 12.00 G.M.T. (except Sundays), 20.00 G.M.T. and at midnight (except Saturdays). Speed about 21 w.p.m. Wave-length 18,500 metres. A 400-turn coil can be tuned to GFA and a 1,500 turn coil will be required for GBR.

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

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Contact Bureau Notes.

By H. J. POWDITCH (G5VL).

These first notes since Convention give me the opportunity to thank those present who confirmed my appointment to C.B. Apparently some are satisfied with the way things go along, and this leads to the point I want to stress. C.B. is essentially for the interchange of opinions whether regarding radio or management matters. Your opinions on the working of the Section would be valuable to C.B., for it is not possible for me to keep in close touch with all the current trends of amateur activities. Last spring 28 M.C. was the rage. Just now QRP seems to have taken on strongly. There may be other lines of work which could be opened out concerning which I have not heard. Some suggestions do reach me, and I think each one has been discussed with the sender pretty fully, whether adopted or not. One suggestion has come from several sources and applies especially to the 28 M.C. groups. It is that these be arranged in districts within reach of the G.C. A good idea you will all say, but, unfortunately, we are not strong enough in numbers and have not sufficient stations in each district to carry through this idea. Another suggestion is that a group of A.A. men be formed who would work on lines suited to the conditions of their licences and lead up to radiating licences in due course. I will be glad to start such a group if you A.A. stations are interested and think it likely to be of use to you. I quote the above as specimens of the help I am asking for. One other thing and this "sermon" ends for the month. A large number of stations registered in the early days of C.B. without taking any very active part in group work. Many of these we never hear from. I am writing round to them by degrees, but to save my time and postage expenses perhaps some of these stations will let me know whether they now feel inclined to take up any branch of active work.

QRP seems to be the lusty infant of the month. Triplets now! The third infant being steered into active life by G5PH. A contributor to 8B budget remarks "The Yanks haven't got anything like it," and with all the respect due to our transatlantic fellow hams, I think 8B is right. Really, OM's, the R.S.G.B. and the members of C.B. have put up a good show this year. G6LL and many others opened 28 M.C. G6TW and old BRS125 put up a world's record on 56 M.C., and it seems (though it is not easy to check) that our QRP men are well on the way to show records for consistent low-power transmission when the question of "Mr. Blank's" trophy comes up for settlement in December. A fourth QRP group is forming if there are further aspirants for membership.

Some months ago I asked for helpers to form an "Aerial" group, but the response has been very poor. Judging from the discussions we hear, the aerial is still largely an unknown factor in many stations. In fact, when records come up for discussion, the first question usually is "What aerial were you using?" BRS255 has a schedule all ready for investigating aerial matters generally, and especially the question of aerials for specific distances. He wants helpers for a group still.

Whilst on this subject, I have a letter from South Africa asking for help with D.F. aerials. Will anyone who has any information and practical experience of these on the present bands please let me know, and I will put them in touch with the inquirer. Another request came in for help with the location of mineral deposits, an engineer wanting expert radio advice and assistance. I have no trace of anyone interested and with time to take up this work, so pass on the matter generally in case we have some such member.

28 M.C. Groups.—These reports are mostly records of stations working under exceptional difficulties during the present unholy calm on this band.

Group 1B.—G.C. 5SY wanted to hear from anyone who has had experience with the lower impedance valves for 28 M.C. (LS5A or LS6A). He tells me that LS6A valves have just been put on the market again. BRS250 sticks to the receiver and has heard G6LL several times. Also SUZ and LSD, harmonics. G6LL has had Conventionitis in addition to his ordinary work, but is evidently on the air. G5ML does not report to G.C., but tells me he has rebuilt and hopes to carry on the good work. He also mentioned reports from SP3AR some months ago and an R9 from UO.

Group 1C.—G.C. G6VP has found his group below scratch, an unusual happening for 1C. G5YK, of course, was on Convention matters. The ops. at G6WN were held up for last part of month by the failure of their rectifying valve and repairs delay. On 15th they used a half-wave current-fed aerial and could not raise G6VP. Changing back to a half-wave 14 M.C. (full-wave 28 M.C.) aerial, signals were QSA5. (G5VL had this experience working sked with W2JN last spring. A half-wave 28 M.C. was unheard by W2JN, but a double wave, in this case, gave R6 steady at once. Suggested that the longer aerial keeps the wave down.) They have heard G6VP each Sunday and been QSO twice. Report received from BRS197, who also received G6VP. The latter is working with BRS250, who receives sigs. at better strength than stations only quarter distance away. G6VP speaks highly of the help received from BRS250 with readability tests plus 20 mile journeys to report results. FB, BRS250! A new aerial is up, 6/2 wave, inverted L type with feeder at 45 degrees, and gives such good results on 14 M.C. that great things are hoped for on 28 M.C.

Group 1D are still working, but want some new Irish stations to fill up.

Group 1E does not report.

Group 1F has to be rearranged, as G.C. G2YU has to pass on his job owing to business QRM.

Group 1H is now completed again with G2VQ and BRS264 and hopes for some signals.

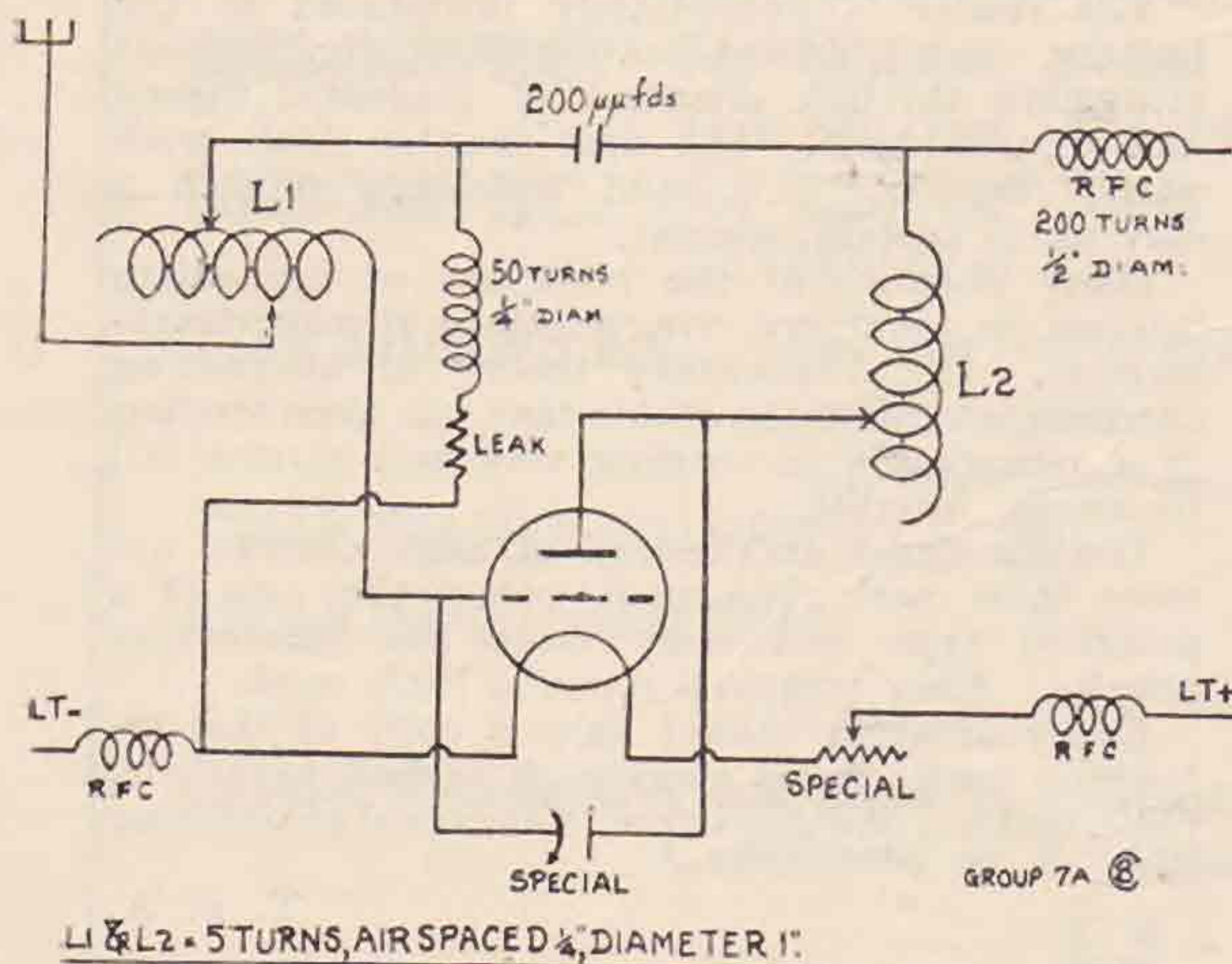
Groups 2A and B (Skip).—G2ZC takes over the job as G.C. for skip work and is in touch with the members.

Group 3A (Crystal).—G.C. 2NH promises a report for the new group, but, unfortunately, this just

misses the last day for this to reach headquarters. Next month will see it in.

Group 4A.—G.C. 2AUH has now completed a year of his "best times" forecasts, and thus it is of no use duplicating the work for another year. He goes over to a QRP group.

Group 7A (56 M.C.).—G.C. G2DT and G6TW were (so rumour says) thrown out of the R.S.G.B. stand at Olympia for impeding traffic. Parking was only allowed there for two hours! However, deliberations on new 56 M.C. receivers caused the hold-up. Finally it was decided to build new receivers, tuning scale to cover 7 centimetres only, large inductance, minute capacity and micrometer control rheostat. (Why this last? G5VL.) The chosen circuit is shown herewith, and further details will come along next month. Acknowledgment is due to W2AIU for the basic ideas of the receiver. Skeds have been kept with W2AIU using the old type BRS125 receiver, 5 to 5.4 metres, but N.D. Hence, great hopes will attach to the new pattern. Rightly or wrongly, the above-mentioned three stations have decided that the receiver is the whole secret of 56 M.C. success, and that next in importance is the use of QRP Txmtg valves. (Again, why? G5VL.) G6DH is still putting out signals on his previous sked published in these notes for September. He uses Ultraudion circuit magnetically coupled to full wave 20 metre aerial and intends altering to push-pull with 10 watts.



QRP success. He does not agree with G5RV's "ear inertia," pointing out that received voltage follows inverse square law and increments of power will be as the square root of this power. The group have not been successful with the organised tests to reach specified countries with 2 watts input. G5AZ is curtailed by BCL troubles. 2AUT finds fade out effects very prominent, but acts as reporting station for the group. G5PJ has been comparing QRP (2 to 3 watts) with QRO (6 to 8 watts) and confirms the general opinion that at comparatively short distances nothing is gained by the extra power. For long distance work he claims EU6AI at 2,400 miles as an instance of improvement by the higher power. BRS245 enters the arena with an aerial inertia theory. He notes that electrical apparatus in general has a higher efficiency at lower inputs and concludes that after the initial energising force is applied, the aerial will not radiate proportionally to increased input. (Afraid I don't agree with the general statement, possibly BRS245 is referring rather to normal and overloads than low and high inputs.) The group's best 6 QSO's with 6 different countries covered a total mileage of 6,450, power total, 10.8 watts. G2ZN was the star performer with 1,600 miles on 1.3 watts.

Group 8B.—G5JF finds things better on 14 M.C. and has a quick change transmitter for this and 7 M.C. Time required for change, 12 secs. Working EU consistently on 3 watts. G2VV gets 'phone at R5. G6SO has the water leak, previously mentioned, across key. With 2.1 watts to a DE5 and Ultraudion he has 8 countries to his credit. G2OA has, with an experimental input of 1.5 watts, worked UO, HAF, SP. Regarding the investigation carried on by 8A, he gives an example of a D station, who gave his (G2OA) signals R6 and was only R5 here. The D's input was 20 watts. (How about his receiver?) A test with UO gave same results there on 1.5 watts as 4.5 watts. G5MQ called and managed to double the aerial current at G2OA. G2RT, using a balanced split Colpitt with 5 watts, scores FM, making 3 continents, 19 countries. Has hopes of a WAC this winter. G5CM, with the Rx/Tx before mentioned, got R7 from D with point 84 watt. (The word in full to prevent any misunderstanding.) For instance, of reliability on this power he mentions regular contacts with GI6WG, 500 miles away. G.C. G2VV explains his chain test, one station starting off and each of the group transmitting in turn after and reporting on all previous stations' tests. Phone tests with G5JO gave from R8 on 4 watts to R3 on .9 watt. Exceptional receiving conditions were noted on 14 M.C. for October 6 and 7, from 05 hours on. On the following day nothing could be heard. For the 3 watts competition, OH, FM and LA were scored up and on 3.5 watts SU8KW was worked for 2 hours. On the same power W9DQU gave him R2/3. South America is now the missing one for WAC. However, G2OA heard a W8 calling G2VV, who adds that Sunday, September 22, was the worst day ever met with.

Group 8C will consist of G2AV, G2AT, G5QA, G5AQ, G6PS, with G5PH as G.C.

Group 9A (Weather).—Unfortunately the reports on the schedule transmissions from G.C. G5UQ and his group have failed to arrive. After the efforts made to get the tests known, it is very dis-

QRP Groups.—The "Receiver" belonging to G5CM, which pushed signals 400 miles on .75 watt, is a simple affair, using a 4 turn Igranic coil tuned by .0005 in grid circuit, a similar 9 turn coil, untuned, as plate or reaction with aerial directly clipped to this. Key is in H.T. positive feed, backloaded with 20,000 ohms, grid condenser and leak, .0003 and .25. Valve used is a Triotron XP4. G6SO advises a variable water resistance leak for getting the final mile per watt. He uses two lengths of 14G wire, one being fixed and uncovered, the other sliding up and down inside a length of glass tubing fixed through cork. I wonder how many old-timers remember a famous bottle leak of this description belonging to G2SH, if I remember correctly.

Group 8A.—G.C. G2ZN reports general discussion regarding various inertia theories to account for

heartening for the stations concerned. Better luck later, OM's.

Group 10A (1,770 K.C. work).—G.C. G6OT reports that things and stations are looking up, but hopes for still better times. He has been busy with a new 14 M.C. transmitter, but managed to obtain the first QSO with G2AX at the new QRA. A new set for 1,770 K.C. is also in hand, retaining choke control, but applying it to an intermediate amplifier before the P.A. G5UM has had business QRM, but "returns to his muttuns." He has already fixed tests with BRS164, but wants reports from other stations over 50 miles from London. G5RX also returns this month. 2AZQ notices improved conditions and a marked increase in the number of stations using the band. BRS164 notices the increase. He offers reports for any stations on 1,770 K.C. from 18.15 till 20.00 on Sundays. G2AX has suffered from the change of QRA, and we all sympathise.

28M.C. Notes.

It is some time since any notes appeared under this heading, but it is felt that it would be of general interest to make a few remarks on happenings to date.

In the first place, conditions at the present time are nowhere as good as they were the corresponding time last year. As far as we know, no W stations have been heard since March, until Sunday, October 27, when W2JN was heard by BRS25 and BRS190. BRS25 reports him as R6 maximum, but fading very abruptly to inaudibility, while BRS190 reports him as R3, QSA4. On this day, too, WIK's harmonic was heard for the first time for months.

On the two Sundays previous, BRS190 distinguished himself by hearing ZT6C; the first time, on October 13, he was reported as QSA4, T8, R3-5. On the second occasion, October 20, he was reported as R6 maximum, but bad fading. It will be remembered that this station logged ZS5C during the March tests, and is, as far as we know, the only British station that has received South Africa on 28M.C.!

Some of us have been listening regularly throughout the summer and these stations deserve special praise. They have spent hours listening on a band that has only produced harmonics of various 14M.C. stations, in the hope of hearing some more DX. This is the spirit that keeps the lead on 28M.C. work in British hands! Keep it up, OM's!

It would seem from the foregoing reports that 28M.C. is beginning to "look up" again. Therefore, *all* stations interested in this work, and who do any listening, are requested to send a card to G5YK or G6LL next month, and every month after, with particulars of stations logged, etc. All reports by 26th of the month.

Strays.

Foreign stations on — receivers are thoroughly enjoyable . . . you hear the radio of to-morrow—to-day! (Advert.) These sets should be invaluable for use on the eve of the Derby.

The 20th annual exhibition of electrical, optical and other physical apparatus is to be held by the Physical Society and the Optical Society on January 7, 8 and 9, 1930, at the Imperial College of Science and Technology, South Kensington.

Book Reviews.

Fundamentals of Electrical Engineering (Theory and Practice). By Franklin and Dawes. Published by Franklin & Charles, Lancaster, Pa. Price 3 dollars and 20 cents. 512 pp.

The present position of the amateur is a peculiar one; he is actively interested in high-frequency electrical engineering, but in the majority of cases has a quite inadequate knowledge of the fundamentals of his art. This might be expected of the man who merely builds a wireless receiver to hear programmes, and has no experimental urge, but we experimenters really require a fuller and more sympathetic appreciation of the general principles.

The amateur who wishes to equip himself with a broad knowledge of electricity, and at the same time enjoy the task, should read "Fundamentals of Electrical Engineering."

This text will appeal to the reader with limited mathematical knowledge, as the authors have contrived to reduce mental gymnastics to a minimum, while dealing with electrical phenomena in a practical and lucid manner.

In fact, the keynote of the book is practicality, and the treatment of many of the more difficult electrical subjects is ingenious and original.

The reader is immediately introduced to the battery, electro-plating, heating effect, etc., without struggling through chapters of magnetic theory and measurement. The first chapter deals with units, current, E.M.F., and resistance in such a way as to sustain interest.

Many portions of the book are of immediate interest to amateurs, viz., electron theory, transformers, cells, elementary theory of alternating currents, etc., but the whole text has been written in a remarkably interesting way and cannot fail to arouse interest.

The problems at the end of each chapter are more than mere class-room tests; they are of a practical type and seem more like fascinating puzzles. They will well repay a little work.

Every amateur should have a copy of this refreshing book on his shelves—it is well worth the price, and is a new departure in electrical engineering tests.

T. P. A.

Trade Notices.

From Ferranti, Ltd., of Hollinwood, we have received a most complete set of radio publications. All the ranges of transformers are given, including the push-pull type. Ferranti's make an excellent range of fixed condensers for coupling and smoothing purposes, and anode feed resistances in many sizes. Output chokes, transformers and coupling condensers are mentioned, and the Ferranti electro-dynamic speaker is described in detail. For battery supply there is the Ferranti permanent trickle charger (making use of a patent metal rectifier), and much information regarding their

(Continued on page 122.)

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H.T. supply unit. There is also a motor car battery charger. A very extensive range of meters is listed from D.C. meters to thermal radio meters, and should suit every amateur's requirements. For testing valves there is the Ferranti valve tester, which should be a useful adjunct to any laboratory, and to complete the list some very useful heavy contact switches of various types. The range of Ferranti's products appears a very complete one, and readers will be interested in perusing the lists at leisure.

* * *

Bulgin's new 55-page catalogue, list No. 125, contains a complete list of their products, as well as giving a number of circuits.

* * *

Heayberd's list 936 is devoted chiefly to battery chargers and eliminators, and should be useful to the potential constructor.

* * *

We have recently examined a new variable condenser retailed in this country by Messrs. Claude Lyons, Ltd., of Liverpool, which should find a ready use in receiving sets. It is known as the type 557 condenser. It consists of six stator plates and two rotor plates of the straight line wavelength type and two additional plates which are complete circular discs, revolving with the shaft, but producing no capacity change. The minimum capacity is approximately 43 mfd. and the maximum about 70 mfd. The use of such a condenser in a receiver will be found to open out considerably the tuning band.

ERRATUM.

In Messrs. Wingrove and Rogers, Ltd.'s advertisement in the October issue, under the heading Polar Volcon, read "where slow motion is *not* essential"; and under Polar Standard Choke, read "50 to 5,000 metres."

Publicity Section Notes.

By A. E. WATTS (G6UN).

The Council has decided that B.E.R.S. (British Empire Receiving Station) numbers can now be allotted to members residing within the British Empire overseas. Will overseas members who wish to have a B.E.R.S. number please apply to headquarters?

These numbers are issued for identification purposes only, and are similar to the B.R.S. numbers issued to R.S.G.B. members resident in the British Isles. Overseas members who have no transmitting call sign will find that the possession of a B.E.R.S. number will help considerably in the forwarding of cards via the QSL section, besides identifying themselves as being genuine experimenters.

A prize of one year's subscription is offered to the member who introduces (proposes) the greatest number of new members between the date of issue of the November BULLETIN and the end of August, 1930. At the end of August it will be the member's responsibility to write to the Publicity Manager, claiming the number of new members introduced. The result will be announced at Convention.

I hope that every member will do his best to obtain at least one new member during the year.

HIC UBIQUE.

Council desire to express their sincere thanks to Messrs. Claude Lyons, Ltd., of Liverpool, for their kindness in allowing the Society the use of a small portion of their Stand at the recent Manchester Exhibition. By this means the Society were able to obtain representation in the Midlands, and it is hoped that considerable benefit will result therefrom. Judging by the success of Mr. Beattie's Conventionette on the last day of the Exhibition, it would appear that the Society is in a very strong position in that part of the country, and our thanks go also to Mr. Beattie and his colleagues for their recent efforts.

* * *

Wanted—one of our experts to design a tuned L.F. transformer for use in receiving sets.

* * *

In this issue will be found the first of a series of station descriptions. It is hoped to publish one station in each issue, choosing the well-known ones, whether they be high or low power. These descriptions will, it is felt, prove of interest to readers, and any comments will be welcomed.

Calls Heard.

By W. A. Bousfield, York Street, Bellerive, Tasmania; July and August on 14 M.C. band:—

CTIAA. D—4abg, 4an, 4by, 4uak, 4uj, 4yt.
EAR21. F—8alp, 8da, 8dmf, 8do, 8dot, 8fr, 8gdb, 8gua, 8ho, 8iz, 8jf, 8olu, 8rrr, 8sm, 8wb, 8zx. G—2bm, 2od, 2sw, 2xv, 5bz, 5by, 5uq, 5wp, 5yx, 6dh, 6hp, 6nt, 6vp, 6wy, 6rb, 6ut.
HAF8B. OH2nam, OK2ny, ON—4bz, 4fe, 4fp, 4hp, 4il, 4ja, 4jj, 4us, 4vo, 4ww, OZ—7t, 7y.
PB7W. SM6ua. UN7ww, UOSX.

By CE7AA, J. Enrique Nielsen, Box C., Punta Arenas, Magallanes, Chile:—

G—2ay, 5ml, 5qv, 6cr, 6dh, 6gc, 6nx, 6wp, 6wy, 6vp, 6xq.

By LU2CA, A. Radaelli, Paraguay 2233, Buenos Aires:—

G—2lz, 2xv, 5bj, 5da, 5ml, 5rm, 5rs, 5ub, 5wk, 5wp, 6ci, 6dh, 6dr, 6hp, 6lk, 6mc, 6nt, 6oo, 6pa, 6qb, 6rb, 6uh, 6uj, 6xc, 6xj, 6vl, 6vp, 6vj, 6wl, 6wn, 6wy, 6xq, 6yv, 6abw.

By LU8DJ, C. Laporte, 58 No. 1030, La Plata:—

G—5bj, 5rm, 5wd, 5yx, 6fo, 6gc, 6ut, 6xc, 6xn, 6vp.

By M. S. Killen, Western Union Radio Club (CT2AA), Horta, Fayal, Azores, 7 and 14 M.C. bands for month of September:—

G—2ao, 2az, 2bm, 2cj, 2dz, 2lz, 2nh, 2ux, 2yu, 2zc, 5ad, 5bj, 5cs, 5is, 5mq, 5ms, 5mu, 5pl, 5qa, 5sm, 5sy, 5ub, 5ux, 5vm, 5wp, 6bj, 6br, 6cl, 6gs, 6hp, 6iy, 6nt, 6py, 6qb, 6rb, 6rk, 6rw, 6uh, 6uj, 6um, 6uz, 6vp, 6wl, 6wn, 6wt, 6wy, 6xg, 6xj, 6xq, 6sm. EI2b, 2d, 7c, 8b, 8c. GI5ot, 6mk, 6wg, 6bvj.

Correspondence.

New Zealand Comes Along.

To the Editor of T. & R. BULLETIN.

DEAR SIR,—As one of the few New Zealand members of R.S.G.B., I should like to see more of my colleagues and more New Zealand news in the BULLETIN. I know ZL2GA is starting a contact bureau group, but it will take a lot to overcome the inertia of the ZL amateurs as a body. One thing that would help, I think, would be the improving of the BULLETIN by the publication of more technical and practical articles. If QST can do it, why can't we? If I read the Contact Bureau Notes aright, there are dozens of G's doing serious experimental work, and surely some of them can wield a pen.

To "start the ball rolling," I enclose some notes about the conditions N.Z. amateurs work under, as some of your readers may be interested in a comparison between English conditions and those of this "Britain of the South."—I am, yours fraternally,

C. W. PARTON (ZL3CP).

69, Hackthorne Road,
Cashmere Hills,

Christchurch, New Zealand.

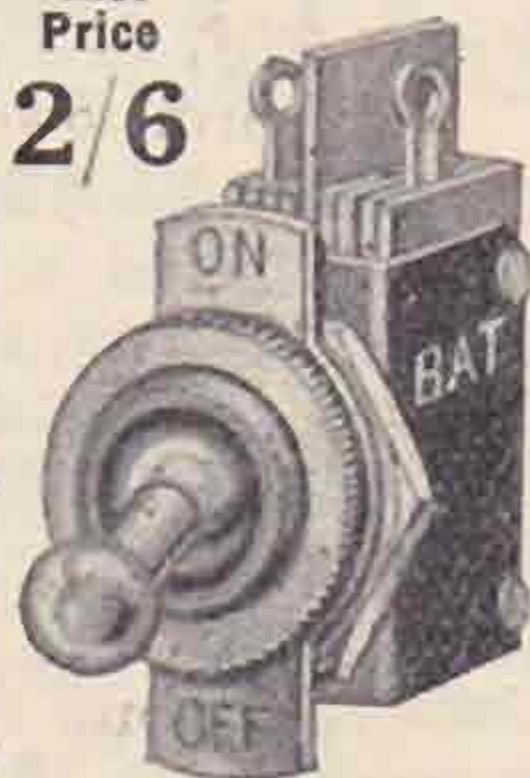
August 30, 1929.

[Mr. Parton's remarks are opportune. We agree that before B.E.R.U. can hold its head high and claim to represent the amateurs of our Empire, much water must flow under London Bridge, but a start has been made, and with the formation of a really live and enthusiastic Publicity Section we are confident that shortly the B.E.R.U. will have many members scattered throughout every Colony. South Africa has set the pace; Mr. Heathcote (our representative) is bringing in new members rapidly, and Mr. Parton and his colleagues, who have supported us in the past, will leave no stone unturned in placing the aims and objects of the B.E.R.U. before those friends who have so far known little of our activities. Mr. Parton's description of conditions in his country is highly appreciated, and we look forward to receiving further information from him and other members overseas.—ED.]

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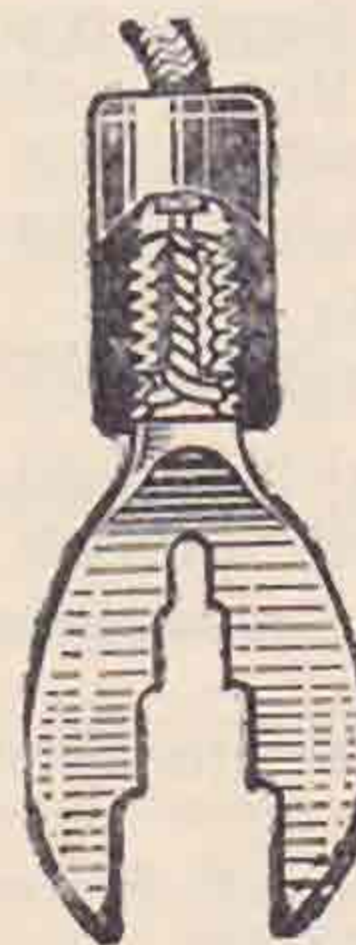
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Adjustable to fit any socket. A turn of the insulator locks it. Special short insulator. Red, Black, and Green. ... **2½d.**

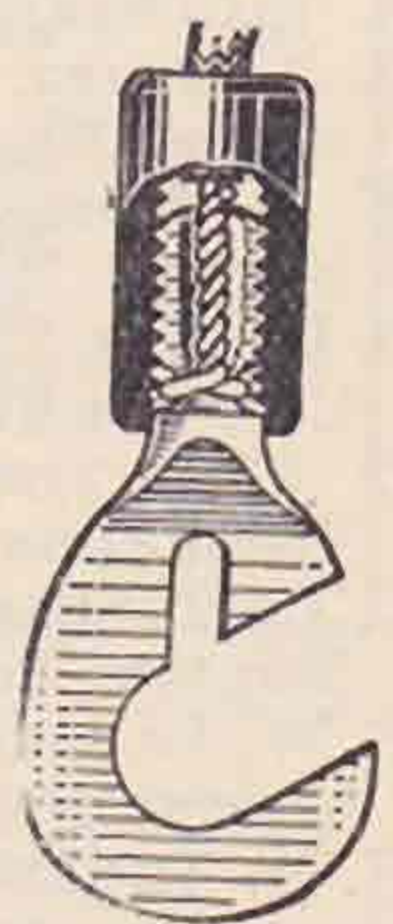
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QRA Section.

By M. W. PILPEL G6PP.

Two new stations have appeared on the air during the last few weeks, using prefixes that were not allotted at Washington. I refer to SN1AA and YK2XX, the former giving his QRA as Ascension Island and the latter his as Formosa. It is a pity that the operators of these stations did not consult an official list before choosing their prefixes, and so avoid some confusion which may arise. Ascension Island, being a British possession, should really use VP—VS, and Formosa, belonging to Japan, should have selected J. Perhaps the two operators concerned can be prevailed upon to alter their identification letters, and so fall into line with every other country except Russia.

NEW QRA'S.

- G2HI.—E. WILLIAMS, 23, Park Road, London, S.W.19.
 G2RM.—E. J. ARMSTRONG, "Quisisana," Folders Lane, Burgess Hill.
 G6HR.—W. D. KEILLER, 21, Newton Way, Cambridge Road, London, N.18.
 2BIC.—L. R. SEAL, 28, Dovecote Lane, Beeston, Notts.
 2BIR.—J. C. WICKS, 161, Sangley Road, London, S.E.6.
 2BJG.—A. E. GROOM, 13, William Street, Luton, Beds.
 2BMV.—L. J. SHERSBY, 41, Reverdy Road, London, S.E.1.

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 S. TOWNSEND, Esq., Barnwood House, Gloucester.
 H. E. BOTTLE, Esq., 27, Stormont Road, S.W.11.

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 278.—W. C. GIBBINS, Esq.
 279.—C. BEARDOW, Esq.
 280.—D. HOVELL, Esq.
 281.—H. J. BROWN, Esq.
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 294.—R. L. SAVAGE, Esq.
 295.—R. BALDWIN, Esq.

B.R.S. NUMBERS RELINQUISHED.

- 204.—A. E. GROOM, Esq. (now 2BJG).
 90.—T. C. PLATT, Esq. (now G2GA).
 72.—A. F. E. BOTT, Esq. (now G5VB).
 The following persons, having ceased to continue membership of the Society, automatically relinquish the B.R.S. numbers allotted to them:—
 27. G. W. E. PARISH, 20, Avenue Road, Witham, Essex.
 43. W. J. N. SOWELS, Preston Capes, Rugby.
 53. A. WAINWRIGHT, 144, Chapel Street, Swindon.

55. D. LEWRY, 131, Trevelyan Road, London, S.W.17.
 82. K. R. FRASIER, 109, Hagley Road, West Birmingham.
 100. W. HIBBERT, "Gothlands," Bushey Wood Road, Totley Rise, Sheffield.
 109. W. McG. GRADON, "Garliestone," Corkickle, Whitehaven.
 115. E. D. TAYLOR, 64, High Street, Galley Hill, Swanscombe, Kent.
 131. R. L. ROWLANDS, "North View," Wivelsfield, Sussex.
 138. L. H. SHEAR, "Trentham," Commonsides, East Mitcham.
 141. P. B. CRINKS, Newick House, Cheltenham.
 143. C. RHODES, 83, Shaftesbury Road, W.6.
 151. J. DOBBIN, 17, Thomas Street, Portadown, N. Ireland.
 168. A. POWYS-LYBBE, Rectory Farm, Streatley, Berks.

QSL Section.

By J. D. CHISHOLM, G2CX.

I expect many of you have noticed that your supplies of cards from H.Q. during the past month or so have been a little irregular, and had your grouse about it.

The truth of the matter is that H.Q. staff has had an exceedingly busy time, and owing to the heavy demands on its time due to Convention, the Radio Exhibition and a flood of incoming subscriptions, the QSL section has not been receiving all the attention we should like to have been able to give it. In this connection I should like to emphasise a point that appeared some time ago in these notes, and that is—All incoming QSL cards for British stations are dealt with by H.Q. staff alone and consequently the ONLY ADDRESS OF THE SECTION IS 53, VICTORIA STREET, S.W.1. This reminder seems necessary owing to the fact that I am receiving an ever-increasing number of QSL cards from members at my private address. If you want to send cards for foreign countries to me at this address there is no objection, but I think you will find it cheaper and more convenient to put all your cards into one envelope and leave us to do the sorting into British and Foreign.

In case there are those who did not see the new scheme for buying stamped addressed envelopes from the QSL section, I should like to refer them to the October BULLETIN for full particulars of how to obtain them.

GI5HN (Mr. Robert S. Holden) would like to remind GI members that the address for their cards is: GI5HN, 29, Colinvew Street, Springfield Road, Belfast. He says that as the busy season in radio will soon be upon us, and he is desirous of doing a little himself now and again, he does not want to be buried under a heap of unclaimed cards. Envelopes should be marked with the call-sign and the number of cards to be sent in each envelope, both in the left-hand top corner.

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NOTES & NEWS FROM THE BRITISH ISLES.

District Notes and News.

Glancing back through the BULLETINS published during the past year or two, one cannot but feel that the general tone of the present numbers is considerably higher than those published during 1926, 1927 and 1928. Gone are the old "ham" abbreviations, which were but a passing phase in amateur radio. By a sound editorial policy, designed to uplift the foremost European amateur radio journal to a high level of journalistic endeavour, we have reached a point when we can with safety say that on the whole our BULLETIN is published in King's English.

There is now but one section of our journal which is somewhat behind the times. We refer to the District Notes and News. Therein we find even now at times expressions which we feel could be dispensed with, without in the least detracting from the object of the notes. Those of us who have the task of editing the notes have noticed of late a tendency on the part of D.R.'s to send in almost verbatim the reports which they receive from their co-operating stations. From our experience in London we find in numerous cases that a large proportion of the verbatim accounts can be cut out without destroying in any way the effectiveness of the report. In order that the Editorial Committee may devote more of its time to assisting amateur writers to tell their yarns more clearly, the following few suggestions to district representatives, and all those who report to them, are submitted:—

Stations reporting should cut out all trimmings, refrain from ham language and omit references to the countries worked unless the result has been obtained under conditions not generally known. It is quite unnecessary to state that "G7AA has worked 14 European countries on 5 (or 50) watts on 20 metres," but it is of interest to know that G7AA has worked Czecho-Slovakia on 10 metres

or Scotland on 5 metres. Omit reference to having been QRT owing to exams or holidays, or that a new pole has been put up, but if a new design of vertical aerial has been used, then tell the world. It is all a matter of perspective. A few years ago DX with low power was an achievement, but with the grouping of all stations on two DX bands it is an everyday occurrence in 1929.

Receiving stations, when reporting, should omit reference to having heard those places which we all know about, but they should record any reception of stations in new parts of the globe.

Reports to D.R.'s should reach them not later than the 20th of each month, and should, where possible, be typed.

District representatives are our sub-editors, and it should be their job to translate the reports into a crisp little account of what has happened in their district. Reports should reach London by the 25th and should, where possible, be typed.

The reports should be headed as below:—

District No. —

followed by the representative's name, address and telephone number (if any).

Introductory remarks by the D.R. himself are always published, providing they are of general interest to their members or the Society as a whole.

We are confident that a vast improvement can be effected, and with the introduction of new blood amongst our provincial representatives, we feel that in a few months the Notes and News columns will prove an even greater attraction than at present.

In order, therefore, that some encouragement shall be given officially, it has been decided to offer a year's subscription to the D.R. who, in the opinion of the Committee, has during the period October, 1929, to September, 1930, produced the most interesting and concise series of monthly notes. It is, therefore, now up to each D.R. to get his house in order and make a bid for the honour of being the star reporter.

DISTRICT No. 1.

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

G2DH, using 6 watts, has worked W1, 2 and 8. Aerial full-wave Zepp with quarter wave feeders. Hopes to have his transmitter working in Manchester shortly. G6QA is using C.C. on the 1,750 K.C. and 7 M.C. bands and TPTG on 14 M.C. Power 4.5 watts. Has a sked with G6AX, G5VN, G5RX and G6ZS on the 1,750 K.C. band every Sunday. G5MS has worked 50 countries to date on 14 M.C. G5CI is waiting for A.C. mains. G6CA has worked Russia. 2AUH has rebuilt his transmitter, but done little listening. BRS161 has come to Manchester from Cambridge, and has so far found conditions patchy. BRS269 is about to apply for full ticket. BRS274 has rebuilt his receiver, and will also be applying for licence soon. G6BJ found conditions good during the first part of the month, and worked W2 and 8 and VE1 for the first time, but no DX has been done lately. Telephone wires have been fixed close to and

actually cross the aerial, and this seems to have prevented effective radiation. By the time this is in print the Manchester Conventionette will be a thing of the past, and judging from the number who hope to be there, it will be a good show. The date of the next informal meeting is Saturday, November 23, and will all who wish to come let me know as early as possible.

DISTRICT No. 2.

Representative: T. WOODCOCK (G6OO), 8, George Street, Bridlington, Yorks.

G2YU reports his month's work on 14,000 K.C., and appears to be the star performer this time, having worked W, PY, VK, CE and RVIG, Persia. Transmitter: Split coil Hartley, with 8 watts; aerial, 16 ft. 6 ins., counterpoise similar. G6YL says she arrived back from Convention to find that her aerial had blown down, but will soon be quite busy "on the air" for the forthcoming season. G6NG is temporarily "off the air" with mast down.

DISTRICT No. 3.

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

I am very sorry I have lost Monmouth from my district, but I can say that Wales is the better for the taking over, and my thanks go to Mr. Harding (G2HH) for his past help. Shropshire, Hereford and Worcester are still very dead, and I am hoping for a better show from Cheshire. G5FC has worked 19 countries and been heard in the Azores. He is now using 500 volts to a LS5. 2BHI has heard WFA (Byrd Antarctic Expedition) and SN1AA (Ascension Island) on 14 M.C. G2VP has worked the British Isles with less than 2 watts. G2CG is using the mains with 8 watts, and is doing his best (with chemical rectifiers) to obtain a C.C. note. G2OA has done ultra QRP work on 1.75 M.C. covering 50 miles with only 30 volts (0.12 watt). This seems to be the only workable band for low power. G5US is welcome to this district. By the time these notes appear he will be on 7 and 14 M.C., and will be experimenting with aerials, hoping to get on the 28 and 56 M.C. shortly. G6TW is spending a great deal of time on the 56 M.C. band, and a little on 7 M.C. At the week-ends he hopes to work on 1.75 M.C.

DISTRICT No. 4.

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

Eight reports only this month, fellows. A few more would be welcome. What about you fellows in Leicester? Anything doing? Last month's spell of bad conditions appears to be still with us, although curiously enough the South Africans are coming through well. G2AT (new member) active week-ends only on 7 M.C. using 3 watts from dry cells. Bids fair to be a star QRP station. G5CY very active on 14 M.C., but complains of the apparent non-existence of DX stations. Works all Europe on 7 M.C. when tired of 14 M.C. G6HK active on 7 M.C. QRP reduced to 3 watts and an all-round improvement noted. Directional observations on Zepp antenna upset by a report received from the Azores on his 7 M.C. sigs. Dope on filament current from D.C. mains would be appreciated. G5BD rebuilt TX and wishes he hadn't. Result—new Zepp going up. Active on 14 M.C. and 7 M.C. Moving TX from shack to house should alter direction of aerial. 2BIC reports very poor receiving conditions, especially after dark. QST Hartley being tried on A.A. 2AYX is building a new RX and experimenting on 56 M.C. (or thereabouts). ZSXG (G6UO) is trying to QSO the gang from South Africa on 14 M.C. BRS103 is back at college until Christmas.

DISTRICT No. 5.

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

Staffordshire.

G6SO has been getting good results on the 14 M.C. and 7 M.C. bands, using low power and crystal control. With an input of 2.1 watts has worked most European countries.

Warwickshire.

G5BJ finds DX very poor on 14 M.C. and has been doing a fair amount on 7 M.C. band both 'phone and C.W.

G6CC has been too busy to do any real work. However, a new wood mast stands in the place of the old steel one.

G6CI.—Some excellent DX has been worked on 14 M.C. band, including WFA, the base station of the Byrd Antarctic Expedition, situated La 78.34 S., Long. 163.3 W. and SN1AA.

G5ML reports conditions very poor. Best contacts here, China, South Africa, Kenya Colony, Ascension Island, and South Pole. On 28 M.C. conditions have improved. WIK and HJO were heard (harmonics) strength R8! but no amateurs.

DISTRICT No. 6.

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

G2SA has had a fortnight's holiday in Germany and met D4RE, D4RH and D4LD. Has got two new members. G6DH has worked W2AKE at R6 on 14 M.C., using 2.3 watts, and on 15 watts several ZL's and VK's. Says conditions were bad. BRS 231 (brother of G6DH) says conditions were good, which is curious as both are at same QRA. He has a good log, and wants to know if anyone else has heard VE5 on 7 M.C. He has heard VE5JS, G6WI, G2AF, G5QV, and others all reported as being active when at Convention, but no details to hand. (Don't forget your promises, OM'S.—2ABK.) BRS77 is up at Cambridge, and has a RX on 28 M.C. BRS76 is also there, but a B.C.L. set is occupying his time at present. G5YK has started 28 M.C. again and has been tidying up. The usual 14 M.C. work has been done. G5JO has been busy on 7 M.C. fone and hopes to get going on C.C. soon, when he can get the frequency doublers to work the P.A. G6DG is up at Cambridge this term, but no news of him. 2BJG (ex BRS 204) is busy on a T.P.T.G. transmitter, and wants to know the best aerial to erect in space of 22 ft. long by 22 ft. high. Is going O.K. on 28 M.C. BRS191 has made a few alterations to R.X., and continues to fill up his log. BRS233 has had a visit from BRS261. Has been busy on a control board for tests and valve characteristic measurements. G5SN has been busy on 7 M.C. and also 1.7 M.C. Has had a visit from G2SA. 2ABK has had little time for amateur radio. Well, OM'S, I trust you will support me as your new D.R., and I hope to attend all committee meetings, as I am in London daily now. And I am there on *your* behalf, OM'S, so let me have your grouses and praises to lay before these meetings.

DISTRICT No. 7.

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

There are very few reports this month, and I have received none from G2VV. G2RM is now nearly ready to make his debut on the air. He will be using a 1929 type transmitter with 500 volts D.C. from mains and accumulators. G5AQ has been very busy building a new T.P.T.G. transmitter, which is fitted for either choke control or grid modulation. He is using C.C. Has now got a new $\frac{1}{2}$ wave Zepp Hertz with $\frac{1}{4}$ wave feeders which seems to be very efficient. An Ultraudion transmitter is now complete for work on the 2 M.C. band. G2DT has, as usual, been very busy. He has got on the air at last, but owing to severe QRM from the "Hush Hush" 56 M.C. receiver has not done a great deal yet. His first test call resulted in a QSO with Finland. G5UY is trying to raise some enthusiasm in Sussex, but has not had any time for operating. G6PA has been building a new frequency meter, which can be read to 2 Kc.

Crystal grinding has also taken place, and a very good control is now possible on the 7 M.C. band with a 2.3 M.C. crystal. A new 1-V-2 S.G. receiver is now under consideration. DX conditions here have been very poor, although the new $\frac{1}{2}$ wave A.O.G. Hertz is working very well. First call resulted in a W9 contact.

DISTRICT No. 8.

Representative: Q.M.S. C. S. ROBERTS,
(BRS255).
Army Signals Office,
Government House,
Portsmouth.

O.M.'s,—

I had hoped to meet you on the ether, but Convention arrived before a "Perker" was fixed, and I now find myself representative of No. 8 District with no formal introductions.

So, if you would all send along a card I should be extremely grateful, and still more so to three fellows who volunteer to represent Berks, Wilts, and Dorset.

There are now 54 licensed stations in our bunch, and what with the eight BRS members, I am looking forward to a collection of over fifty pasteboards.

Could we arrange to meet ourselves at, say, Southampton or Salisbury, one Saturday?

If you will write "Yes" or "No" on the back of your card, I will go ahead and fix it.

In concluding, may I remind you that the arrival of the BULLETIN is a signal for the departure of your notes?

DISTRICT No. 9.

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

The last few days of September and the first few days of October were fairly good for DX but the remainder of the latter month has been very poor and consequently there is nothing much to report. G2CJ, a new member, is on 14 M.C., using an L.S.5, and is already going well but owing to location has difficulty in getting up a really good aerial. G2LV is on 7 M.C. and using 300 volts from accumulators is R7 around Europe. G2OP is on 14 M.C. Best DX VK4RB. G5FS has rebuilt his C.C. outfit and is now using an L.S.5b, doubling to a D.E.T. S.W.1 G5QA is on 7 and 14 M.C. and is making a start on 28 M.C. Wants information on this band. G6RB is trying out a new C.C. outfit. DX worked during month includes ZL (six times), and VK. G6XB having previously W.A.C., is turning to 28 M.C. G2YX and G6ZR at present rebuilding. 2AWV will shortly be taking his Morse test. FK4MS is now on leave in this district and is at present making a motor tour of the leading transmitters in the S.W. Hopes to get a licence for work in this country during his stay. BRS212 has made a new tube base receiver which is satisfactory. BRS242 during the last days of September found conditions good for VK and ZL stations especially in early mornings. Best DX logged, VP5OUX, SN1AA, AC1BD, AC3FR.

DISTRICT No. 10.

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

It will interest those who live in North London to know that the total number of licences in the

area is 67 (the fourth largest in Great Britain). There are also 20 B.R. stations and a number of A.A. men. The sum total of reports received is two, and yet Convention voted overwhelmingly in favour of the continuance of these notes. During my two years as London and North London representative I have noticed that only two persons consistently report; they are Mr. Maurice Pilpel (G6PP) and Mr. Hum (G5UM). These are the sole representatives this month.

Mr. Pilpel has continued his 20 metre work and has now SU to his credit; he is busy trying to bring the British Q.R.A.'s up to date.

Mr. Hum has had some excellent contacts on 160 metres, Bolton (G5VN) being his best work of the month.

Mr. Watts, our new publicity manager, is organising the work of extending the Society overseas, and looks for help from all Britishers who work DX to put in a word or two about the B.E.R.U. and R.S.G.B. when sending cards.

G6CL has had a busy month of R.S.G.B. work and little else; however, the station has no cobwebs, and although only occasional stations have been worked, hardly a day has gone by without a call being made. Convention Sunday brought its usual "Ham Party." At one period of the evening a matter of 19 "Call Signs" were on show in one room at "Ciel." Fortunately they brought their own provender and beer!

Just a word to the twenty BRS stations in North London. Are you fellows doing anything at all? I know very few of you; I realise it is my job to get in touch with you, but, unfortunately, my work as D.R. is but one small part of my R.S.G.B. duties, and I do not get time to look you up, but I shall be delighted to arrange a meeting of all District 10 BRS men if you will come along. If you fellows will send a card or 'phone me I will fix an evening. Now BRS 1, 12, 24, 36, 57, 61, 74, 84, 121, 123, 124, 166, 178, 210, 220, 241, 246, 263, 272, what about it?

G6XN has been testing on 56,000 K.C. and is awaiting a confirmation of the reception of his signals outside Europe. A new aerial has been installed and four Yanks were worked on the lower frequencies at the first attempt. He laments that London members do not do enough visiting. From experience gained at G6CL I cannot quite agree. I suggest that he attends London meetings (there is one on November 22), and gets to know the London fellows, who will, I am sure, be pleased to fix visits for him. G5HJ has a nil report except for a contact with Kenya, on the 14 M.C. G5PJ sends a report, but whether he is now in No. 10 District I do not know, as he omits his address. Europe has been worked regularly with 7-10 watts on 7 M.C., whilst VS6AH (Hong Kong) was the best D.C. work on 14 M.C. This contact was made at 12.30 G.M.T. He is making tests to improve his note and finds that A.C. on the filament of a P625 gives T6., whilst with D.C. filament supply T9 reports are common.

DISTRICT No. 11.

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

G6NT, G6NF, G5WK, G2AX, G2GF, and G2DZ are active but have not reported. G2NH is using the C.C. "Goyder-lock" system, and has done

much DX. G2UX wants information regarding the cutting out re-radiation of 2LO from B.C.L. aeriels nearby, and on reducing key-clicks. G5PL has been experimenting with rectifiers. He reports that overcast and cloudy weather seems good for 14 M.C., whilst a clear sky is ideal for 28 M.C. work. G5MA, after being completely off the air for nearly two years, is now active again on all bands with C.C. G5SH has very little time to spare but hopes to be on the air occasionally. G6HP has had some twenty QSO's with the Antipodes and has also worked AC1BD. He is active on 28 M.C. and thinks conditions are improving at last on that wave. G6QC has rebuilt everything and is now active again. G6QB had fifteen QSO's with ZL and is active again on 7 M.C. with a fairly low-powered C.C. outfit. He is always ready for "rag-chews" on this band and would like to receive other districts' reports by radio. G6WY at last has a wave-meter, built for him by G6HP and G6QB! BRS190 expects his two-letter call soon. He has heard several G's and another South African on 28 M.C. He is keen on 56 M.C. and wants a little more to listen to. (Get in touch with G6TW or G2DT.—ED.) BRS25 has logged many G's on 28 M.C. BRS250 has logged YA2ZL. He hears many W 6's and 7's and K6 on the 7 M.C. band in the morning, but no one seems to raise them.

DISTRICT No. 12.

Representative: T. A. ST. JOHNSTON (G6UT), 28, Douglas Road, Chingford, E.14. Telephone: Chingford 118.

G6FY, although active on 14 M.C., found conditions poor, his only DX being VP5OUX; he is trying to obtain a good note, using a 500-cycle generator, but is not satisfied with results. G2ZN, with 1.3 watts on 7 M.C. has worked EU2GF, but unable to obtain results hoped for on 14 M.C. 2AZR is building a new receiver. G6LL reports nil on 14 M.C.; he is busy trying out distant control of his transmitter. G6LB has no results to report on 14 M.C.; he is now trying out a split Hartley circuit. G2NU is using fone on 7 M.C. with crystal control. G5AR has nothing to report, but we all appreciate the good work he is doing at H.Q. He was in Manchester with G6CL for the Convention. G6UT on 14 M.C. has only European contacts to report, including a Y.L. in SP, and would confirm that this band has not yielded results as far as he is concerned. Members of No. 12 District are asked to get their reports in by the 20th of each month and to note that their representative will be "at home" on the evening of the fourth Tuesday of each month, when it is hoped this innovation will provide an opportunity for the discussion of matters of general interest to the members. Members of No. 12 District wish to take this opportunity of thanking their late representative, Mr. L. J. Fuller (G6LB), for his untiring efforts on their behalf in the past and desire him to know that he has their good wishes for his future business career.

DISTRICT No. 13.

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

Another month with very few reports, but I am anticipating more now that "Radio weather" is with us once again. On Sunday evening, November 24, I am holding an "open evening" at my station and I should like to see as many of you as

possible, please. Don't forget the date, and if you are not sure how to get to me, write for particulars. G2OL reports for the first time and is working on 7 and 14 M.C. His station is remotely controlled and uses a "1½ wave twenty meter" aerial, fed at the centre. Building new Rx for 28 M.C. and having periodical troubles with his chemical rectifier. G5LY reports numerous European contacts and Brazil as the only DX. He is out of action owing to generator trouble, but has been experimenting with aeriels in preparation for the winter. G6CO is getting ready for the coming season and has recently rebuilt. Will use T.P.T.G. on 7 and 14 M.C. and L.C. Hartley on 1.7 M.C. Is not having much success with "growler." Is using "half-wave 20 meter" Zepp for 7 and 14 M.C. G6WN has been off the air most of the month, but towards the end managed to QSO three stations on 28 M.C. This is the only thing of note. BRS72 is only awaiting his call-sign now and hopes to be on 14 M.C., using about 3 watts in T.P.T.G. circuit. Later hopes to be on 28 M.C. Has heard two or three W's on 28 M.C., but has not done much listening. G6VP has W.A.C. several times. During the "fade-out" period a new RX has been built, with improved reception. Found conditions this October totally different from October, 1928. Has had several visitors but wants more, as he is unable to "go the rounds." Station visits—G6WN to G5ZA, G6VP, G2OL, G6CL, BRS222, G5RG; G6NF, G5WP and BRS250 to G6VP—G2OL, G6NK, GI2CN and ex EARW to G6WN.—G2CB and ex EARW to G5RG. May I suggest you write one another with the view to stimulating still more visits.—(D.R.)

G6CO wants reports on his "pick up" experiments on 1.7 M.C.

DISTRICT No. 14.

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

Conditions during October have been very patchy, and while some really good DX has been done, it has been a matter of "fits and starts," as periods suitable for such work have been broken up by long spells of bad conditions. A new station is starting up shortly in Galashiels, the call sign of which is G6RG. The station is owned and operated by Mr. Brian Groom, whose full QRA I do not have at the moment. VP5OUX has been twice reported from the Area, but so far only one contact has taken place, that being with G6KO. The monthly "rag-chews" at G5YG were resumed on Wednesday, September 25. On this occasion there was a poor turnout, however, as several "A" District men were away south on business. During the month I had the pleasure of a visit from GI6WG.

"A" DISTRICT.

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

G2MA working on 14 M.C. nearly all month, found conditions patchy, but when the "sun shone" VK, ZL, and about 30 W's were hooked with an average of R6 in U.S.A. G5CL has been fairly active on 7 M.C., and has had some good reports from distant European stations. He intends to ascend shortly to 14 M.C. G5XQ is getting his station into condition for the winter. A

wavemeter in the form of a C.C. oscillator is in course of construction. G5YG has had a fairly good month, having worked with Hong Kong, also with VK, ZL and ZS repeatedly. Alterations were made in the generator filter circuit which seem to have improved the tone. He regrets the breakdown of a QSO with ZS4M after months of trying to hook up. The trouble was caused by a fractured brush in the generator. G6MS has been active on both 7 and 14 M.C. bands, but finds conditions hopeless for DX on 14 M.C., and cannot work outside of Europe. G6NX has been on the 14 M.C. band nearly all the month. Has been in contact with Ascension Island and with PY on frequent occasions, but is experiencing some difficulty in raising W's. A good deal of work has been done in an effort to get his new "jenny" to behave, with some success. G6RG expects to be on the air shortly with a couple of DO/60's. G6WL found 14 M.C. conditions very favourable during the last week-end of September, and the first week-end of October, when he managed to effect contact with the following:—AC3FR (R4 D.C.); VK2JY (R4 D.C.); VK2RX (QSA5); ZL3AS (R4 Q3); ZL2AC (R3 QSA2), and VK4RB (QSA3). This last contact was made at 14.30 G.M.T., a most unusual time for VK work. The foregoing was accomplished with an Ultraudion making use of a DFAS valve, the input being about 15 watts. Some time was also spent in calibrating special wavemeters for BRS266. G6WZ has suspended action pending a change of QRA. BRS266 by the time this reaches print will in all probability be in possession of an "AA" licence. He intends to experiment with waves of 2½ metres and under, working down to the point where radio and light rays merge.

"B," "C," AND "D" DISTRICTS.

I have not had a "scrape of a pen" from "B" District since I was visited by the D.O., G6IZ, in July. "D" District is also a backslider, although I hear my old friend G6UU regularly at the week-ends. In "C" District poor old G6KO is ploughing a lonely furrow, and gets no reports. What about it, you fellows? If you are dead or moribund from a radio point of view, at least you might let us have word in order that we may send flowers.—(G5YG.)

"C" DISTRICT.

Sub-Representative: J. B. STURROCK, Kirkbuddo, Forfarshire.

G6KO has at last been able to make his 28 M.C. C.C. signals audible at a distance of six miles. His aerial system on this band is a Zepp, with a two-wave horizontal portion and ¾-wave feeders. An LS5 is found to drive nicely on this frequency. A sked is kept with EAR18, but so far no contact has ensued. Most work during the month was done on 14 M.C. and a little on 7 M.C. On 14 M.C. contacts were made with W, 1 and 2, Ascension Island, and VP5OUX. BRS211 has put in for a radiating permit.

DISTRICT No. 15.

Representative: H. ANDREWS (G5AS), Wireless Depot, Ystradgynlais.

There are no reports this month from Wales, but I welcome the report Mr. Harding has sent on to headquarters. I wish to thank the London and provincial members who made me welcome at the Convention.

Please let me have a few lines by the 20th, everyone in District 15 who is active.

Monmouth.

Sub-Representative: H. HARDING (G2HH).

BRS239 has completed his new receiver, and is willing to co-operate with anyone requiring assistance. BRS237, G2BG and 2AWT have not reported. G6PF and G2HH visited London recently and spent an evening with G6FY. G2HH has concentrated on frequency response in connection with his 1.75 M.C. equipment with satisfactory results.

(Please note, Monmouth is now in the 15th District and reports should be sent to Mr. Andrews, G5AS.—ED.)

DISTRICT No. 16.

Representative: C. MORTON, "Simla," Glastonbury Avenue, Belfast.

All the stations reporting this month are working on the 7,000 K.C. band, and conditions appear to have been fairly good for low power operations. GI2CN is rebuilding in anticipation of 220 volt A.C. mains reaching Bangor soon. GI6WG is only on at week-ends and reports a fair number of European contacts. GI5WD has now got settled in Portrush with a D.C. mains supply, his new QRA is 42, Eglinton Street, Portrush, Co. Antrim. GI5HN is working his own station, as well as GI6YM fairly regularly. GI6MG hopes to be "on the air" almost immediately. GI5MO has had trouble with the rectifier, but hopes to get it going well again soon. The following stations are inactive this month:—GI6TB, GI6YW, GI6QD, BRS251.

B.E.R.U. News.

IRISH FREE STATE.

BY COL. DENNIS (EI2B).

So far as I can gather from reports received, only a few stations have been active during the past month, the remainder being almost idle for various reasons. EI3B (W.S.I.) is now on the air again, using C.C. M.O. P.A. circuit. The transmitters section of the Society has recently had some interesting lectures by members. EI8B reports working a number of W's, on 14 M.C. EI6C has received his licence for the 28 and 56 M.C. bands, but has been inactive. EI7C reports that he has been too busy to do any regular work. He is now C.C. on 7, 14 and 28 M.C. bands, and he has also received his extended licence. On 28 M.C. he reports conditions very behindhand for the time of year, though recently when working locally with EI8B he was reported R5 T8 by EAR18. EI8C has worked a number of W stations. He has a very neat arrangement for changing his Tx from 7 to 14 M.C. by means of a barrel switch. He has now WAC. EI2D has worked a few W stations on 14 M.C. EI2B has been grinding 7 M.C. fundamental crystals and has now four of these enabling rapid change of frequency to be made on 7 and 14 M.C. when QRM makes this necessary.

NEW ZEALAND.

For radio purposes, our country is divided into four districts, these being the Posts and Telegraphs districts. There are only about 150 amateurs all told, the majority of whom are in one of the four main centres. The prospective amateurs have to pass a written examination in radio theory, an oral one in connection with the regulations, plus a code

test. The yearly licence fee is £2 2s. The allotment of frequency bands is entirely different from Great Britain. The 2 M.C. band is open to everybody for any mode of transmission, including television, but is not used. The 3.5 M.C. band is open to all for phone and code. This is our band for working locally, and with Australia. To use the 7 M.C. band the permission of the P. & T. has to be obtained, and this is only granted when the applicant has been on the 3.5 M.C. for six months. Only code is allowed. This is our main DX band. The 14 M.C. band is granted only to those who can impress the Radio Inspector that they have done good work on 7 M.C. and are sighing for fresh worlds to conquer! This is the best band for DX, if only for its freedom from "Yank QRM." From the foregoing it will be seen that the use of the 28 M.C. band is only granted to really keen experimenters. The 56 M.C. band is not in use as far as is known. The power limit is rather more liberal, being 100 watts radiated energy, but very few approach this limit. Most of the higher power men use UX852 valves, but the favourite valve here is the UX210, followed by the TB04/10. Quite a number of amateurs use receiving valves with "B" battery plate supply. Every year a shield is given to the man doing the best work with 45 volts on the plate. At present ZL3CI holds the shield. This low power work is done on the 3.5 M.C. band. Quartz crystals are practically unknown in N.Z. at present, only two stations—ZL2GA and ZL4AE—being C.C.; but ZL3CP now has a crystal, and probably others will shortly go over to this method.

SOUTH AFRICA

By W. HEATHCOTE (ZT6X).

Long-distance radio conditions vary considerably during the equinoctial period of the year in South Africa. The 14 M.C. band has been, on the whole, very good; between 13.00 and 15.00 G.M.T. American stations have been worked consistently, whilst South America, India and China are particularly well received (and contacts made) from 15.00 to 18.00 G.M.T.

During the month many German and French stations were heard, with very bad notes. (This trouble has been noticed in Great Britain, and reported upon to the Societies concerned.—ED.) Your station G5ML has been received with very marked regularity, his strength being an average QSA 4 R7. It should be mentioned that Southern Rhodesian and East African amateurs are still using their old calls (viz., FO and FK). This is due to the fact that their respective Governments have not yet conformed with the requirements of the Washington Conference.

The following members of the S.A.R.R.L. are at present experimenting on the 28 M.C. band: Messrs. Owen, Tennant and Drennen. No reports are yet to hand, but it will be remembered that Mr. Drennen recently made the first European contact.

Mr. Prentice Selby (ZU6N) is leaving for England shortly and hopes to meet many of his British confrères.

"The Broadcaster" (G5SW) has been received well recently, but at times a definite "wobbling" has been noticed. The talks in the earlier part of their programme are, generally speaking, rather boring.

Unfortunately, this station does not transmit during week-ends, when most listeners have time to spare.

It is pleasurable to record that Messrs. H. B. Theunissen (ZT5X), Box 49, Durban, A. M. McIver (ZT5E), Box 685, Durban (a Vice-President of our Society), T. Greaves (FO4SRB), Box 646, Salisbury, Rhodesia, and Bruce Morison (FO7SRB), Box 34, Salisbury, Rhodesia, have joined the B.E.R.U. and R.S.G.B., and look forward to assisting in the compilation of future S.A. Notes and News.

R.S.G.B. members will be welcomed into the S.A.R.R.L. Overseas Section. The subscription is 10s. per annum, which includes a copy of our monthly journal, "QTC."

In conclusion, I take this opportunity of wishing R.S.G.B. and B.E.R.U. every success during its New Year, and look forward to the day when every transmitter in the Empire is a member of our Union.

The BULLETIN is invaluable and I congratulate those responsible for the excellent manner in which it is produced.

CANADA (2nd District).

By JOHN STADLER (VE2AP).

Activity this month has been very little. Many of the usual 14 M.C. hounds are on a spree on 7 M.C. because conditions were very bad indeed. Very few G stations came in regularly. Contrary to the general opinion, the 14 M.C. band did not prove to be what it was last year at this time. The newcomers to the district are VE2AI, VE2AY. VE2AX is building a push-pull transmitter and should soon be heard. Many of the G-hams will recollect working him often. Another ham is putting in crystal control, and that is VE2BH. VE2AP has come back on the air with a new transmitter and will be using about 150 watts input. VE2BD is just remodelling his T.G.T.P. transmitter and should be heard often from now on. VE2CA is entering the description of his station in the QST contest. We hope that the R.M.A. exhibition was a complete success and that the R.S.G.B. has again proved its value.

An old member of the R.S.G.B. and a "ham" well known to most British transmitters as the operator of G2WR, left us this month for Toronto, Ontario. He has promised to let us have some notes on conditions in the 3rd District of Canada and is trying to do some recruiting for us out there. When the difficulties of licensing have been overcome, we hope that we shall hear him again from his new home.

Notes and News from Europe.

ROUMANIA.

At the International Radio Exhibition at Bucharest, which opened on September 1, 1929, amateur short wave work obtained a look in. CV5AF showed a collection of cards and photos of amateur stations in various parts of the world which interested the officials, including A. S. le Principe Nicolas-Haute Regent. After the exhibition CV5AF spoke to the manager of "Radio si Radiofonia," who showed himself favourably disposed to the amateur movement and appreciated their difficulties.

NORWAY.

By G. H. PETERSEN (LA1D), Vice-president,
N.R.R.L.

In spite of the fact that there are up to date only about 30 amateur transmitters in Norway, membership in the N.R.R.L. is well over 80, and is steadily increasing. Our membership list includes all transmitters; many short-wave listeners; several ship operators with short-wave apparatus; employees of the Norwegian Meteorological Office (which makes an extensive use of short waves); and the operators of our great whaling companies in the South Seas. We recently began to organise the short-wave listeners in our country, giving them registration marks in the form LA-M-001, similar to the B.R.S. and D.E. numbers.

Our President (LA1G), who boasts the only WAC certificate in this country, recently set a record, making contact with three VK's in half an hour. Some days later he made his first ZL contact (with ZL4AO) who, to his astonishment, began "rag-chewing" in Norwegian. Most Norwegians are on 7 M.C., but we have a few consistent workers on 14; among them LA1G. There are none on the higher or lower bands yet, but we are considering the possibility of using 3,500 K.C. or even 1,750 K.C. for local work.

Through the courtesy of the Norwegian representative at the Hague Conference, the N.R.R.L. was given an opportunity to present our views on amateur matters at the Conference. We raised the question of fixing internationally the regulations for amateur traffic, types of communication allowed, etc., a matter which we consider of the greatest importance, in view of the very different regulations which exist at present.

DENMARK.

By HELMER PETERSEN (OZ7S).

Conditions during the month have not been so good owing to an increase in QRN and QRM. New Zealand stations have been heard on the 7 M.C. band in the early mornings, and many local Americans, but these were generally weaker than a month ago. During the day all Europe was heard and the strength was highest at about 17.00 G.M.T.; after this time Europe faded out, only the distant countries being heard (I, EAR, CT and EU). Conditions on 14 M.C. were rather bad and not at all constant. ZL and VK and sometimes CE, LU and PY were heard from about 06.30 to 09.00 G.M.T., but their strength was inferior to that a month ago and on some mornings the band was quite "dead." During the day most Europe and North Africa could be heard with moderate strength. About 17.00 G.M.T. PK, ZS, FK (Kenya) and the Azores were heard, but the strength of stations in these countries has also decreased. On the 28 M.C. band conditions have been bad. Only harmonics from commercial stations were heard, but their strengths have been good.

GERMANY.

By W. RACH.

During the past month, DX conditions on 14 M.C. have somewhat improved. Amongst others, D4BY continued his work from a paddling boat on a lake near Berlin, and worked with ZL, VK, LU and PY, using only 4 watts. D4AAR, in Saxony, is using a 160 feet single wire aerial, or a 30 feet Hertz, and by the latter device got an

"R9" report from China. His input was 25 watts. He is a newly-appointed W.A.C. member. Owing to internal troubles we are compelled to ask our foreign friends not to give any messages to D stations for delivery to a third party.

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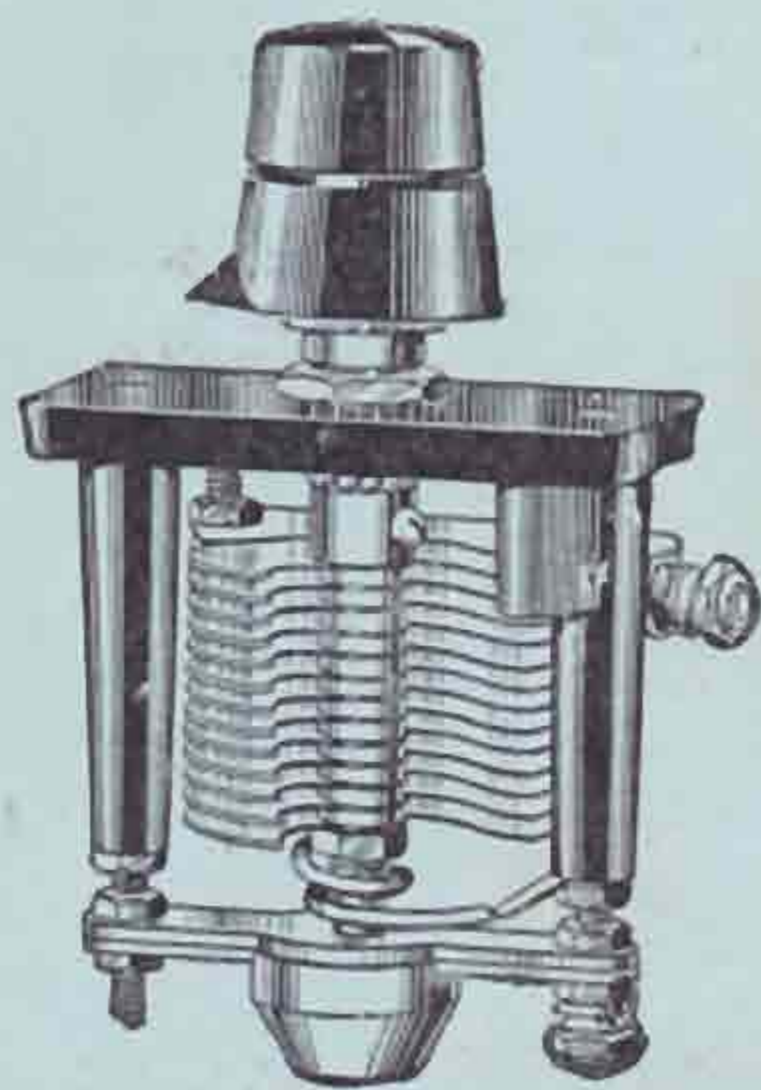
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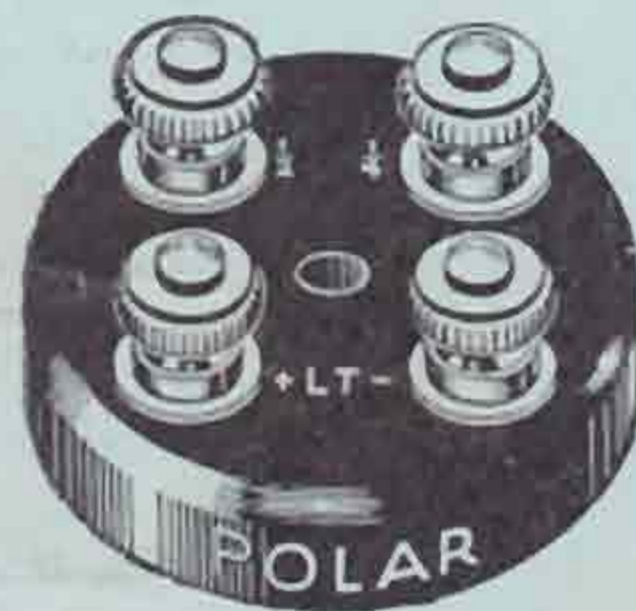
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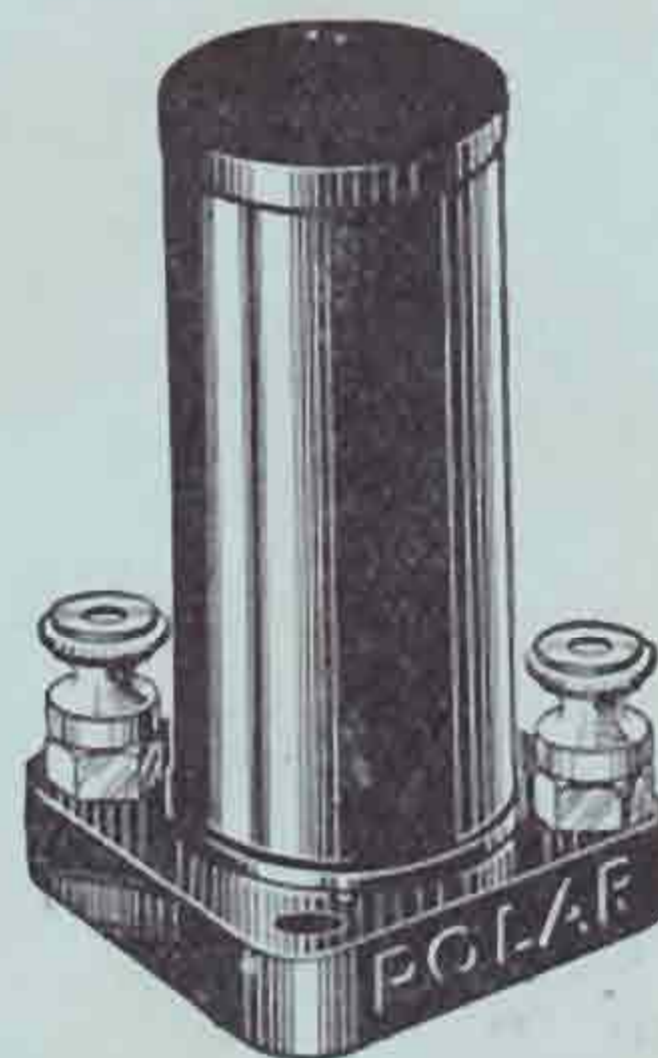
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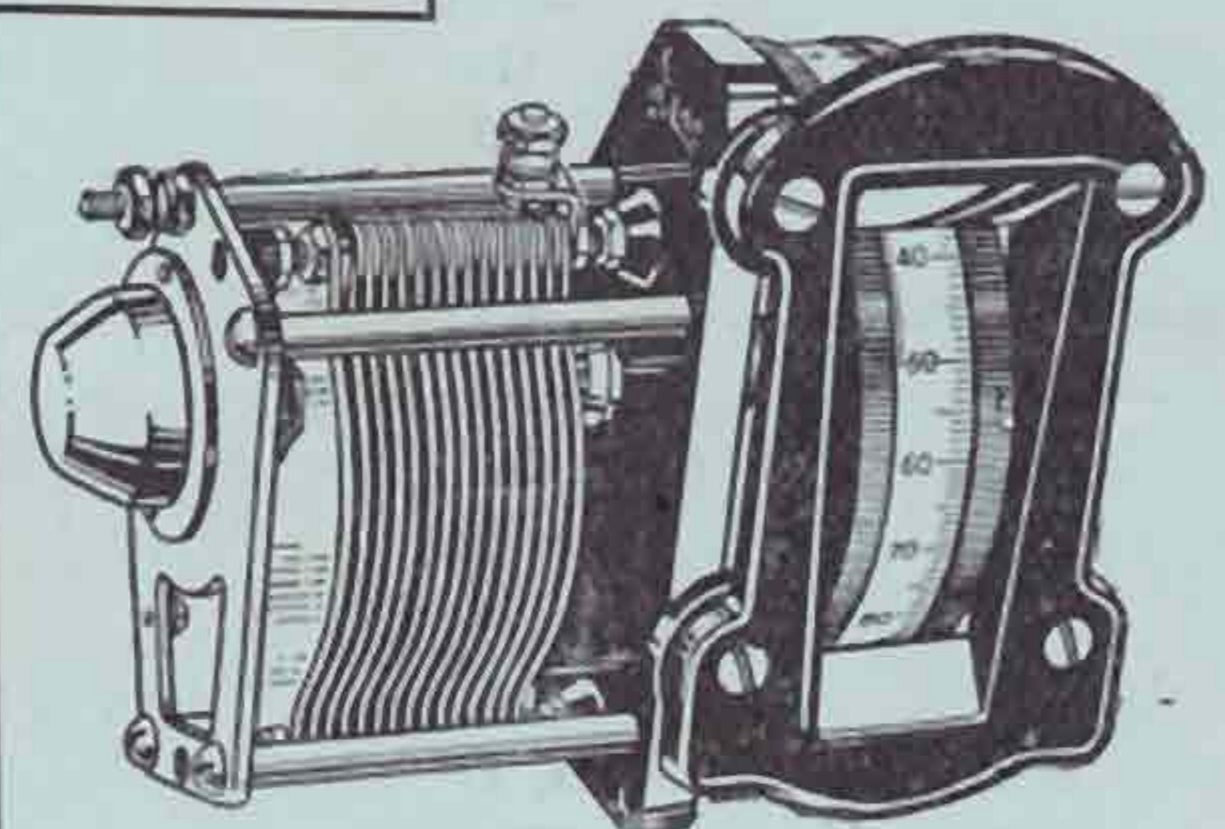


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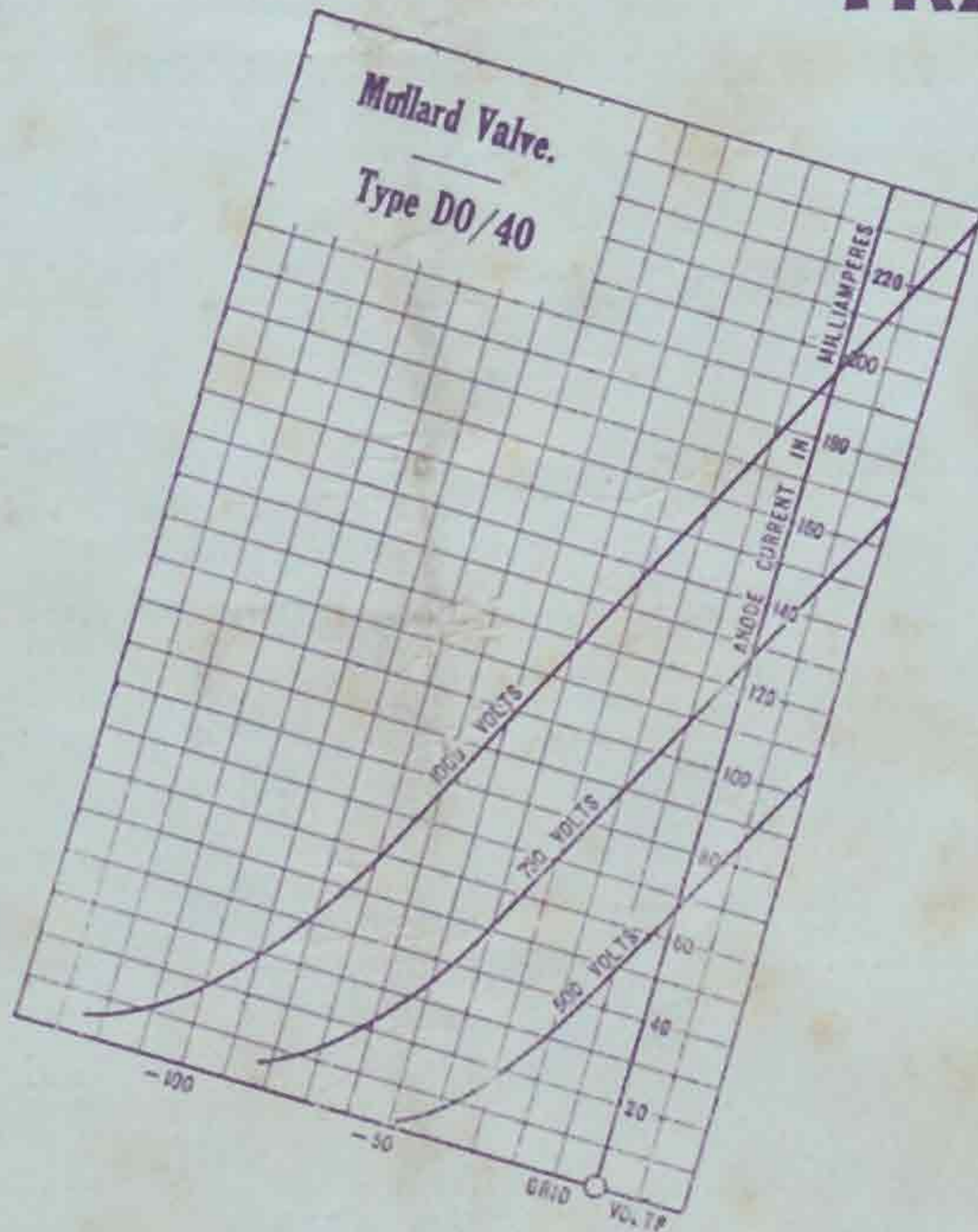
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