# THE T. & R. BULLETIN

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Vol. 10

No. 2


## CONTENTS.



## CONVENTION COMES AGAIN

EDITORIALS in summer time are seldom literary gems, so we will dispose of the name this month and write a few random notes about the most important social event of the year—Convention.

Looking around next week, we shall see many members that have been with us at every one of the preceding gatherings, and right pleased we shall be to see them. How many of them we wonder remember that first Convention when a whole afternoon was spent arguing about T. & R. Section rules ?

Do they remember Capt. Hampson, who, in 1927, first suggested a British Empire Radio League, an idea which culminated later in the birth of B.E.R.U. ? The same year we recollect our Secretary commencing that argument which has gone on through the ages : " Shall we ban 'phone on 45 metres ? "

1928 saw the appointment of Sectional representatives and the formal recognition of Contact Bureau. It was at this Convention too, that the new District scheme, which has done so much to weld the provincial membership together, was approved. Those who were present on that occasion will remember the interesting discussion between E. D. Simmonds and Cecil Goyder, on the subject of crystal control and master oscillator control.

The attendance at our fourth Convention broke all previous records, and even to the most casual observer it was made apparent that the social side of the Society's work was fast becoming established as a valuable privilege of membership. The publicity efforts being undertaken by Mr. Arthur Watts were for the first time brought to light that year, and with it the fact that the B.E.R.U. was taking shape as an important section.

And so we could go on, bringing back pleasant memories of these happy occasions.

Convention is the one period in the year when we can get together and exchange ideas. This year a more informal programme than usual has been prepared primarily, because we believe our members appreciate the opportunity of indulging in " rag chewing." Convention is *your* show, and if by hook or by crook you can attend, we are sure you will go away looking forward to next year.

Those who come into London early next week will find a welcome awaiting them on our stand at Olympia. Make yourself known to whoever is on the stand, and do not be afraid of showing your ignorance of technical matters. We shall be there to help you to the best of our ability, and if by chance you wish to meet a specific person, leave your name at the stand and we shall endeavour to effect a meeting.

At considerable expense we have produced a completely revised Second Edition of " A Guide to Amateur Radio." A glance at its contents will convince everyone that it is worth its weight in gold. We ask all who visit our stand to buy *two* copies at least, one for the shack and one for a prospective new member.

Now, on with the Show.

# THE MODERN HIGH FREQUENCY RECEIVER

By Eric N. Adcock, G2DV.
(Manager, R.E.S. Receiver Groups).

*In this article Mr. Adcock gives an explanation of the principles underlying the operation of single signal super-heterodyne receivers, and his remarks should clear up many difficulties which have been encountered by members interested in this subject.*

"TEST BERU DE ZL CQ CQ CQ . . . . . ."
"UR T9 QSA ALLO ICI LA STATION . . ."

HOW often have we encountered this state of affairs during Contests and how often does the average member experience it daily? Unfortunately many amateurs regard this type of interference as a necessary evil and unavoidable, because of overcrowded bands, prehistoric signals, and over-modulated telephony. Whilst agreeing that our bands *are* overcrowded it is suggested that this and the other sources of interference can be overcome in about 90 per cent. of cases by means of a modern receiver similar to the one described elsewhere in this issue.

In addition to amateur interference, static (natural and man made) can be reduced enormously. Whereas with a straight receiver an R6 signal is inaudible to flat dwellers and others surrounded by motors, this same signal can become QSA5 using a modern single signal receiver. Moreover, when this method of reception is used one side of zero beat is eliminated, thus effectively doubling the width of our narrow and congested bands.

*Drawbacks to the Regenerative Receiver.*

The popularity of the simple oscillating detector with optional low frequency amplification has in the past been somewhat understandable, for the reason that fair sensitivity and ease of control is possible at low initial cost and small upkeep, but this type of receiver has many faults. Selectivity is relatively very poor and apart from the more obvious results we have a consequent higher background level than would be obtained with a more selective receiver. True, when the receiver is in a state of oscillation for C.W. reception, a proportion of this is a result of the modulation of the R.F. current flowing in the detector circuit, but in addition the broad resonance curve of the tuning gives a large admittance band for atmospheric and other exterior interference which contribute most of the noise level.

A shielded regenerative receiver with aerial removed is almost silent even in a state of oscillation, but add the aerial and things begin to happen. A measurement of the radio frequency selectivity of such a receiver is extremely difficult, owing to its unstable nature—instanced by the widening of the silent point in the centre of the beat and grid blocking when strong C.W. signals are being received, which is caused by the oscillator allowing itself to be pulled "into step" with the frequency of the transmission being received, necessitating constant retuning in order to hold the signal.

An attempt was however made to obtain readings and the resultant graph is shown in Fig. 1. Curve $\alpha$ was obtained by the use of a modulated signal generator, as in standard broadcast practice, whereas Curve $\beta$ utilised a pure carrier generator and depended on the strength of the audio beat note to obtain readings—the only apparent method. To avoid the troubles of instability etc. previously mentioned, the receiver was worked in a state of "hard" oscillation, with the result that curve $\beta$ considerably flatters the performance of the receiver under normal conditions.

The poor selectivity will come as something of a shock to the average amateur, whilst the lack of stability explains why methods of audio selection (see T. & R. Bulletin, August 1933), attain such poor success.

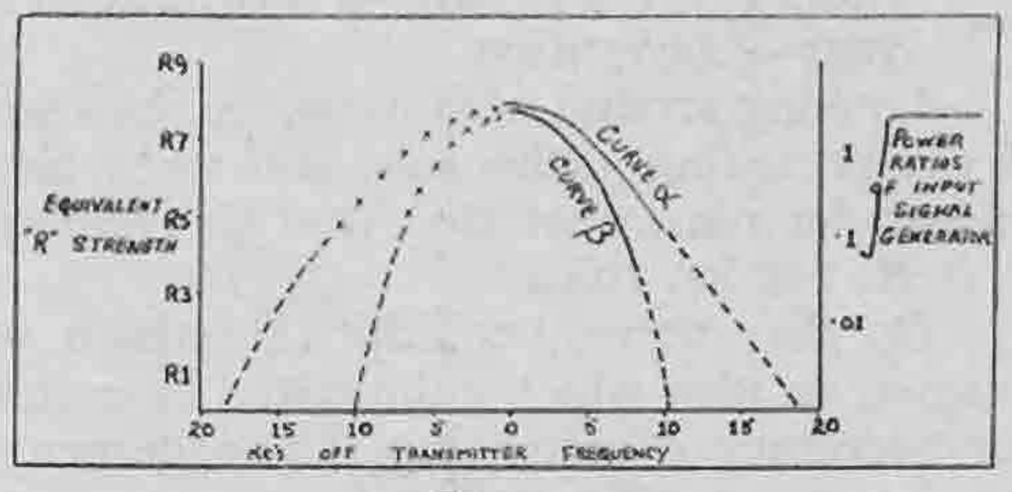



***Fig. 1.***
***Selectivity curve of a detector stage working on 7 mc. and using leaky grid detection.***
***Curve α. Without regentation.***
***Curve β. With strong regeneration for C.W. reception.***

The first problem then when dealing with C.W. reception is to provide a means of stabilising the oscillating portion of the circuit. This may be achieved by the use of a separate oscillator, which at high frequencies, should for the sake of stability use the electron coupled oscillator circuit. The detector would then be operated without any regeneration and the two tuned circuits could conveniently and easily be gauged. Unfortunately however our selectivity would now be worse than ever (see curve $\alpha$ in Fig. 1), but this could be overcome by using audio frequency filters. This method was at one time attempted by the writer, but the oscillator had to be adjusted just beat note (say 1,000 cycles or 1/10th KC)—away from the signal being received, and it was found that there was insufficient R.F. selectivity in the detector grid circuit to prevent a signal beat note frequency away on the other side of the oscillator frequency from being heterodyned, and giving the same audio output. Obviously this could not be overcome by the use of H.F. stages to increase the selectivity, as the number required would be enormous and the difficulties of tuning and retaining stability would render the scheme impossible.

With a regenerative receiver the tuning of a C.W.

signal produces a rather peculiar result, one with which all operators are conversant but one which few have paused to ponder over. Actually our mode of operation is to tune our oscillating detector to produce a beat note with the transmitted signal, consequently our receiver is never properly tuned to the frequency of the transmissions. It should be noticed that our beat is obtained by tuning the receiver *either side of the transmission frequency* and the signal therefore occupies at least twice the dial space necessary, space that would otherwise be available for other signals.

To remove this double beat effect was the early idea underlying the construction of a separate oscillator receiver, but the necessary selectivity to prevent beats being obtained when the oscillator was the other side of signal frequency was unobtainable by normal methods, as has been mentioned.

*The Super-heterodyne.*

One method however (and the only possible method with present day knowledge) of obtaining the necessary selectivity is by the use of a very selective super-heterodyne tuned to signal frequency, and introducing our beat (necessary for C.W. reception), at its output end.

The input stages of this receiver would be perfectly straightforward, although it must be particularly borne in mind that at least two tuned circuits at signal frequency are necessary to avoid second channel interference, that is to prevent a transmission intermediate frequency the other side of the H.F. oscillator tuning from passing a signal through the I.F. amplifier. This can conveniently be a stage of H.F. amplification. From a practical standpoint this constitutes no complications, for the tuning curve of such a stage has a very broad resonance and its tuning could be gauged together with that of the first detector and high frequency oscillator, or for amateur band work set to the middle of the band in use.

*The I.F. Amplifier.*

The I.F. amplifier is the most important part of the receiver, for it is here that the selectivity necessary for single signal reception is obtained. The frequency of the I.F. amplifier is optional within certain limits, but it must be below the low frequency end of the 1.7 mc. band and must be sufficiently high to prevent second channel interference. The lower the frequency the greater will be the gain, hence the general tendency is to compromise and adopt an I.F. somewhere in the neighbourhood of 400-500 kc.

There are three possible methods of obtaining the necessary selectivity.

(1) *The Crystal Series Resonator.*

The extremely low resistance and self capacity of a piezo-electric crystal, coupled with its very high inductance value and frequency stability, render it very useful as a sharp filter passing a signal at the resonant frequency and rejecting all others. However, the difficulty of matching its impedance to that of its input and output circuits, and obtaining variable selectivity without too great an attenuation, is considerable. One possible method is given in Fig. 2; the arrangement preferably employs two I.F. stages and the circuit shown is placed between them. Owing to the low impedance of the crystal, impedance matching transformers are employed, and the ratios of $\frac{L1,C1.}{L2,C2}$ and $\frac{L4}{L3}$ should be as high as possible. This mean that C2 must be rather large; it can conveniently consist of a fixed '0005 mfd. and a .0001 mfd. in parallel, the smaller condenser being variable for selectivity.

It must be particularly stressed that the capacity across the crystal be kept very small, consequently a Y cut bar is preferable to the more generally used X cut type. A small airgap should be used, and in order to reduce damping to an absolute minimum the crystal should be operated in a vertical position.

The explanation of the action of this filter is somewhat involved, but in brief it may be said that the action of C3 (the "rejection control" on certain commercial models) is to eliminate the anti-resonant frequency of the crystal. An examination of the circuit will show that when L2, C2, is tuned to the frequency of the crystal a quarter of the resistive impedance of L2, C2 plus that of L3 is in series with the crystal. Resistance broadens a resonance curve so at this position the selectivity is at its minimum, though a signal is passed through with least attenuation. Detuning L2 C2, increases the selectivity but reduces the strength of the signal. This is the one disadvantage of this type of filter.

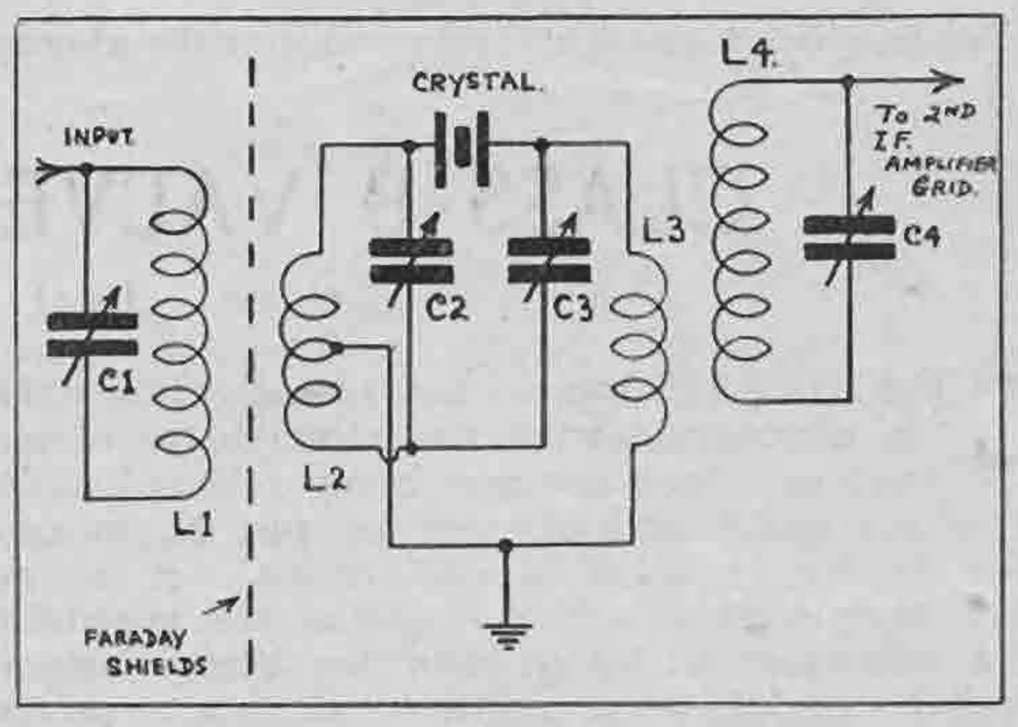



***Fig. 2***
***The Crystal Series Resonator.***

(2) *The Regenerative I.F. Amplifier.*

A normal characteristic of a regenerative circuit is that by virtue of induced negative resistance terrific amplification is obtained at the frequency to which the circuit is tuned. By introducing just sufficient reaction to bring the circuit to the threshold of oscillation an I.F. amplifier can thus be made extremely selective. This arrangement was utilised in the "R.E.S. superhet." In contrast to the peculiarities of the piezo-electric filter, increasing selectivity contributes increasing gain—where it is most required in picking out an extremely weak DX signal from a tangle of interference.

(3) *The Triple Frequency Method.*

It is a known fact that the admittance band width of a tuned H.F. stage is a function of the frequency to which the stage is tuned; experimental work has led to the conclusion that the function is approx. 1 per cent. Hence the use of an I.F. stage tuned to

50 kc. would give a selectivity of 500 cycles. By the use of iron-cored coils to prevent interaction due to large fields, the method attains practical dimensions. To eliminate second channel interference it would be necessary to use a preceding I.F. stage at a higher frequency (say 500 kc.), and selectivity would not be variable, but purely for C.W. reception the method should be useful.

*The Beat Oscillator.*

No mention has yet been made of the method of introducing the beat for the reception of telegraphy. Methods utilised in early superhets, such as an oscillating second detector, had the disadvantages of instability, high noise level, and being open to easy overloading. It is therefore necessary to use a separate oscillator to overcome these difficulties, and for a receiver of the single-signal variety absolute frequency stability is essential. Hence the oscillator should be of the electron-coupled variety. In order that " oscillator noise " may be kept down to a minimum, coupling to the output circuit of the second detector is preferable (coupling in the grid circuit gives amplification to oscillator hiss), or if a pentode be used in the detector position coupling may be into the auxiliary grid.

For single signal reception the oscillator should be tuned to give the same beat as the H.F. Oscillator (i.e., both on " low " or both on " high " beat) in order that the then asymetric response will assist in the elimination of the beat " image."

*Telephony.*

For telephony communication all that the average amateur requires from his receiver is intelligible speech. This is obtainable from the crystal filter arrangement with the selectivity control set for maximum signal strength (minimum selectivity), or if required the crystal may be shorted out by a low capacity switch, when the circuit will function as a straight superhet, with an admittance band width of approximately 5,000 cycles (for an I.F. of 500 kc.). Using the regenerative arrangement the selectivity control may be retarded until the required response is obtained.

*Aerials.*

Although ordinary common sense should dictate otherwise, most amateurs use the most inefficient aerials for receiving. An enormous improvement would be effected if a high open arrangement was used. Bearing in mind the fact that our bands are in harmonic relation, the author uses long harmonic systems tuned to resonate in the centre of the band being operated—the same system being used for transmission by merely throwing a switch. Such systems have a certain amount of directional effect, but one is at any rate certain that the transmitter will radiate in the direction of a signal being received, and the convenience and improvement in reception strength allows no other alternate, in the writer's opinion. Even when space is at a premium an aerial loaded to tune to the band in use will always give a better signal to noise level ratio. The inference is obvious—scrap that 20 ft. of wire in the roof !

# CLASS B VALVES AS OSCILLATORS.

By J. Paddon, G2IS.

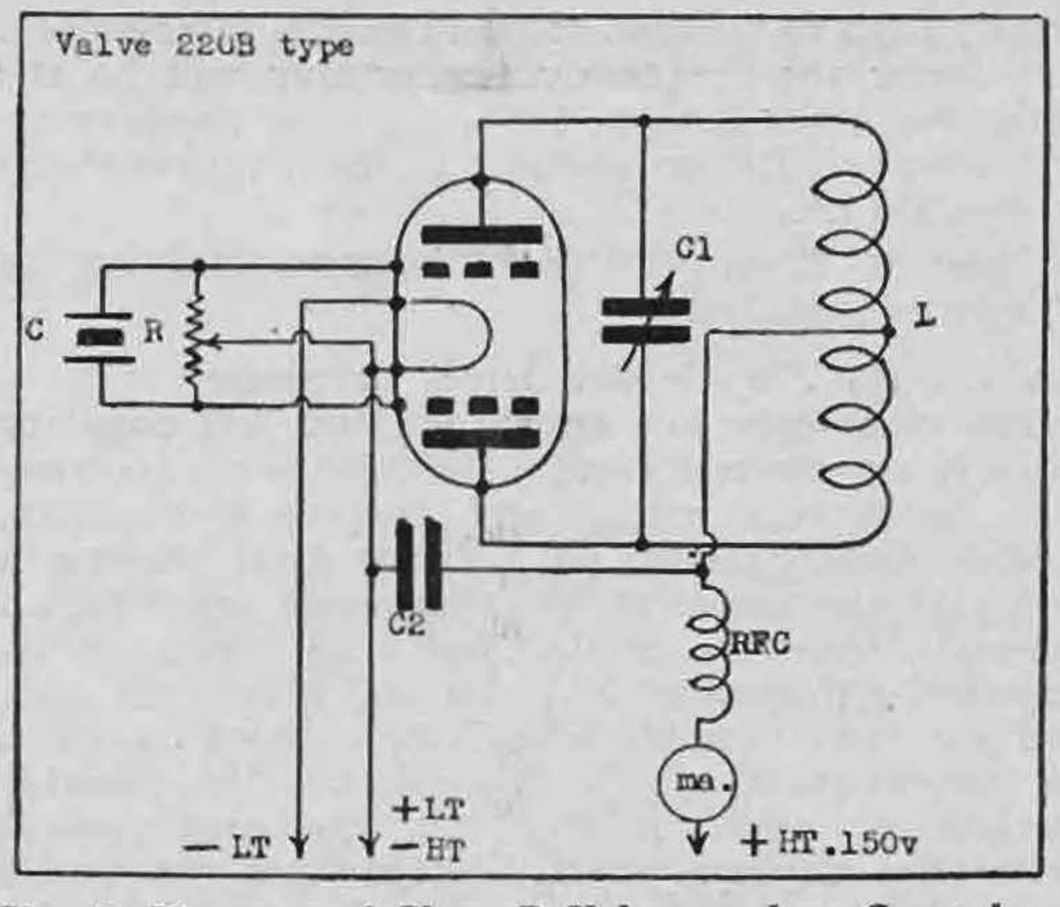
CONSIDERABLE field for investigation exists in connection with the multiplicity of new valves, which are now being released, many of which could undoubtedly be put to unusual uses in transmission work. Indeed, it is not altogether extravagant to visualise the possibility of a one-valve COPA transmitter being designed around one of these multiple electrode valves ! Among the more simple types, the Class B possesses obvious possibilities for transmitting purposes and the writer would be interested to learn if any reader has yet succeeded in driving such a valve with the output from a crystal oscillator or, for preference, with a pair of CO's.

Turning to more practical considerations, tests have been made using Class B valves as oscillators. At the outset, a straight TPTG push-pull transmitter was built and oscillation was obtained at once, but when an attempt was made to work on 28 mc., the valve functioned for two minutes, and then departed this life. No reason for this could be established as all loads were normal.

Tests with a second valve were more successful, using a 3.5 mc. crystal. The only outstanding difference observed between this arrangement and that of a normal CO was that the double resonance peaks of the crystal appeared to be much more pronounced.

Operating under these conditions, the valve, which was a *Cossor* type 220B, drew 20 milliamperes at 150 volts.

The inductance L in the diagram consists of 20 turns of " Glazite " wire wound on a 2-in. ribbed former. The condenser C1 is a .0003 mfd. receiving type, while C2 is a .002 mfd. mica. The choke RFC consists of three sections of No. 32 wire, each half an inch long on a one-inch former. Each section is separated by ¼ inch. The resistance R is a *Colvern* strip type of 50,000 ohms, tapped at the exact centre.




***Circuit Diagram of Class B Valve used as Crystal Oscillator.***
***Details of Components mentioned in text.***

# THE R.E.S. SINGLE SIGNAL BATTERY SUPER-HETERODYNE

By S. A. Taylor (G5TL) and E. N. Adcock (G2DV).

*This important development will, we believe, revolutionise receiver design in this country. For the first time a battery operated superheterodyne working on single signal principles is described.*

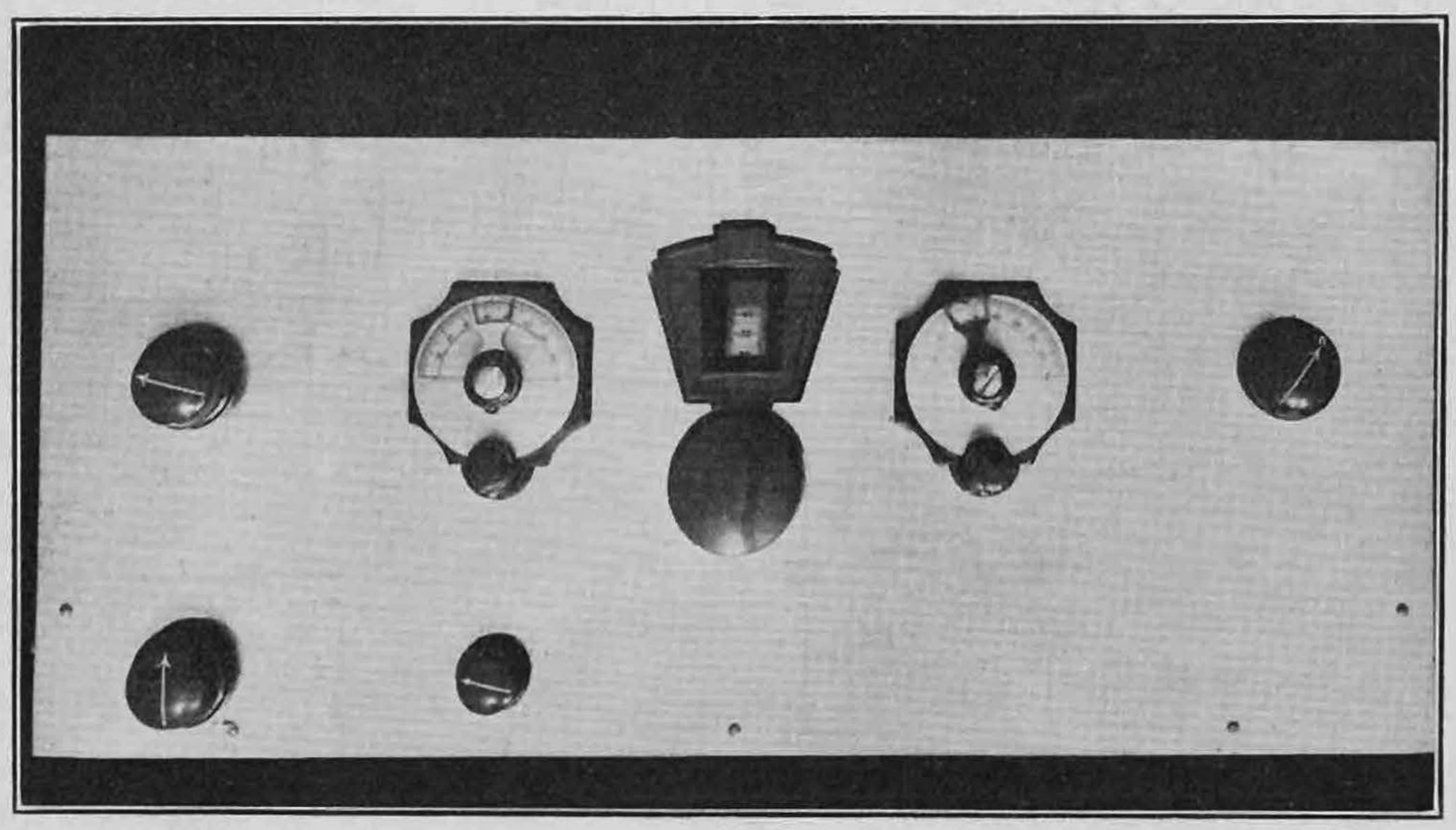
THE theoretical aspects of modern amateur superhet practice have been covered in an article which will be found elsewhere in the pages of this issue, and it is assumed that the reader is now conversant with the general principles underlying single signal operation. Although mains-operated receivers of this description have been featured in contemporary publications, no consideration has been given to an entirely battery operated model, and hence it is felt that this article will fill a much felt want.

### Considerations

In dealing with a battery-operated single-signal super-heterodyne, several important points must be taken into consideration. Of prime importance is the current consumption of the receiver, which necessitates that the number of valves be kept to the absolute minimum, consistent with satisfactory operation. The receiver about to be described fulfils this requirement to a degree at which the most rigid econonist cannot cavil, for the L.T. consumption is 0.8 amps., and the demand from the 120-volt H.T. battery a mere 10 m.a. !

### H.T. Stage Before First Detector.

In this receiver a stage of H.F. is incorporated ahead of the first detector. This at first sight may appear to some to be a wasteful procedure, but anyone who has operated a commercial receiver of this type will realise the absolute necessity for the inclusion of such a stage. Not only does it eliminate second channel interference, but it also amplifies the signal, and keeps out QRN and possible interference at the intermediate frequency and in general contributes its quota to the overall sensitivity, selectivity and noise free performance of the receiver.



*[Photo : Midland Press Agency.*

***Front view of panel. Reading from left to right, controls are : upper row, H.F. tuning, first detector padding condenser, main tuning control, H.F. oscillator padding condenser and beat note control ; bottom, R.F. gain control and selectivity control.***

In initial experimental work it was discovered that the tuning of the stage was fairly broad, so that for *amateur band use* it was merely necessary to tune its grid coil to the middle of the band, and once set could be forgotten, so this arrangement was adopted in the final model. Furthermore, a

vari-mu pentode in this position provided the only really satisfactory method of volume control possible for if the first detector be overloaded, overloading immediately follows throughout the line up, and the selectivity is ruined.

Leaky grid operation is most unsatisfactory for a superhet first detector, so anode bend detection was utilised in accordance with normal practice.

### The H.F. Oscillator.

The whole success of the receiver depends on the stability of the H.F. oscillator, so the use of the Dow electron-coupled circuit was virtually essential. The use of this arrangement with battery type valves presented some difficulty, as the filament is operated above ground potential. The unorthodox method by which this was attained overcomes many possible drawbacks, and its value is proved by the performance of the receiver. The L.T. negative feed was taken from a tap on the grid coil, and the positive L.T. feed was obtained by an identical winding running concentric with the grid winding, from ground to tap.

The output of the H.F.O. is taken via a very small condenser to the grid of the first detector. This condenser consists of two small brass angles having faces of 3 in × ½ in, bolted to a strip of ebonite, with spacing between faces of ⅛ in. The ebonite is supported on two ½-in. pillars raising it clear of the metal chassis to prevent H.F. leakage to ground.

### Regenerative I.F. Stage.

Stage economy led to the choice of a regenerative I.F. stage. The frequency used is approximately 460 kc., but this is not at all critical. The I.F. transformer shield cans were home-made, of 1/16 in. aluminium sheet, and measure 4½ ins. high by 4 ins. long by 2½ ins. wide, with lids to fit tight. These are bolted to the receiver chassis. Half an inch from the top a strip of ebonite is bolted lengthwise inside the can. From the centre of this the I.F. coil former is supported by a 1½-in. erinoid pillar, and the small condensers are secured each side of this on the ebonite strip. Previous to mounting the condensers, their spindles were sawn off short, and slots made in each spindle, so that they could

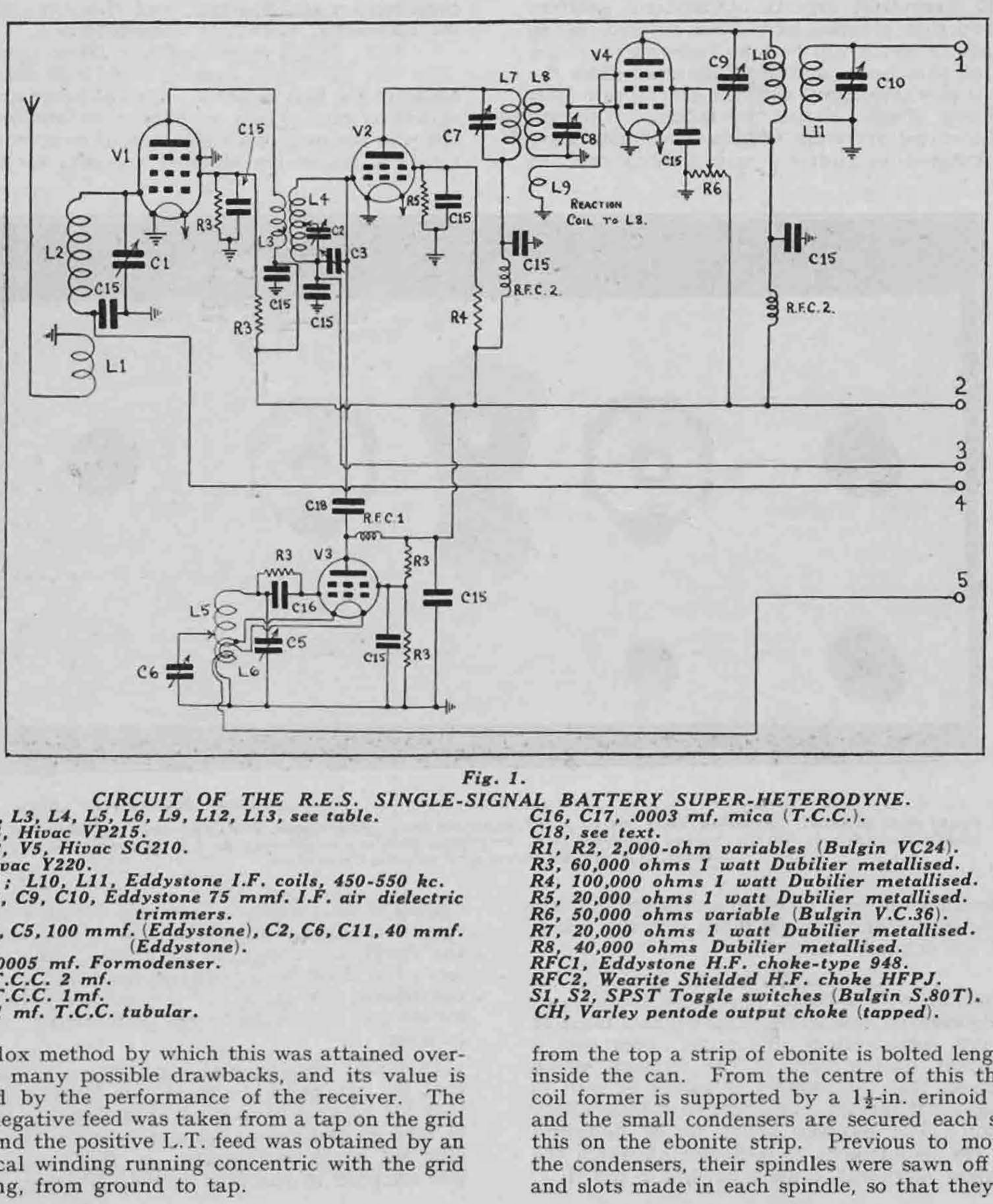



*Fig. 1.*
*CIRCUIT OF THE R.E.S. SINGLE-SIGNAL BATTERY SUPER-HETERODYNE.*

*L1, L2, L3, L4, L5, L6, L9, L12, L13, see table.*
*V1, V4, Hivac VP215.*
*V2, V3, V5, Hivac SG210.*
*V5, Hivac Y220.*
*L7, L8; L10, L11, Eddystone I.F. coils, 450-550 kc.*
*C7, C8, C9, C10, Eddystone 75 mmf. I.F. air dielectric trimmers.*
*C1, C3, C5, 100 mmf. (Eddystone), C2, C6, C11, 40 mmf. (Eddystone).*
*C12, .0005 mf. Formodenser.*
*C13, T.C.C. 2 mf.*
*C14, T.C.C. 1mf.*
*C15, .1 mf. T.C.C. tubular.*
*C16, C17, .0003 mf. mica (T.C.C.).*
*C18, see text.*
*R1, R2, 2,000-ohm variables (Bulgin VC24).*
*R3, 60,000 ohms 1 watt Dubilier metallised.*
*R4, 100,000 ohms 1 watt Dubilier metallised.*
*R5, 20,000 ohms 1 watt Dubilier metallised.*
*R6, 50,000 ohms variable (Bulgin V.C.36).*
*R7, 20,000 ohms 1 watt Dubilier metallised.*
*R8, 40,000 ohms Dubilier metallised.*
*RFC1, Eddystone H.F. choke-type 948.*
*RFC2, Wearite Shielded H.F. choke HFPJ.*
*S1, S2, SPST Toggle switches (Bulgin S.80T).*
*CH, Varley pentode output choke (tapped).*

*See You at Convention Dinner?*

be adjusted through holes in the can lid by means of a piece of ¼-in. wooden dowel shaped like a screw-driver.

The reaction winding on the first I.F. transformer consists of eight turns of 32 D.C.C. wire wound in a small hank ½ in. away from the grid winding on the coil former, and connected between suppressor grid and ground. Smooth regeneration is obtained by varying the S.G. volts of the first I.F. valve by means of a 50,000 ohm potentiometer connected directly across H.T.

### Second Detector Stage.

To avoid the use of a further stage of I.F. amplification an L.F. pentode was employed as second detector, and this gave sufficient volume to completely overload a pair of headphones on most signals. Leaky grid rectification was employep in this instance, and proved most satisfactory.

### Beat Frequency Oscillator

The beat frequency oscillator uses electron coupling in a similar manner to the H.F.O. On a 4-in. length of 4 cm. diameter paxolin tube a solenoid consisting of 160 turns of 30 S.W.G. enamelled wire is wound, the L.T. negative tap being taken 35 turns from the ground end. Over this 35 turn section an identical number of turns is wound to carry the L.T. positive feed. Direct coupling is employed between the anode of the B.F.O. and the screening grid of the second detector. To avoid the possibility of any oscillator output creeping through to the second detector when telephony is being received, the oscillator switching is done in the L.T. plus feed. The 20,000 ohm drop-feed to the B.F.O. anode and second detector suppressor grid completely removed any trace of the usual large increase in noise level obtained when the oscillator is switched in. The output of the receiver is fed to the phones by choke coupling, a tapped pentode output choke being utilised to obtain the correct valve loading impedance.

### Automatic Bias.

Having a natural antipathy for numerous straggling battery leads, the authors decided that the various values of H.T. required should be obtained by potentiometer devices across the main H.T. and that automatic bias should be employed; the method adopted stabilised the value of bias by the total consumption of the receiver.

The VP215 requires 9-volt variable bias, and the SG210, as an anode bend rectifier, appears to work best at about two volts bias. Two 2,000 ohm variable potentiometers in parallel gave a bias variation of 0-10 volts. The one controlling the first detector is mounted under the chassis, and the one for vari-mu control on the H.F. stage brought to a control on the panel.

### Practical Details.

The complete receiver was housed on an inverted rectangular 18-gange tin plate tray measuring 21 ins. long by 10 ins. wide by 2½ ins. deep. This material was used in order that all grounded connections could be soldered directly on to the chassis. The panel and remaining shielding, however, were of aluminium. The front panel is

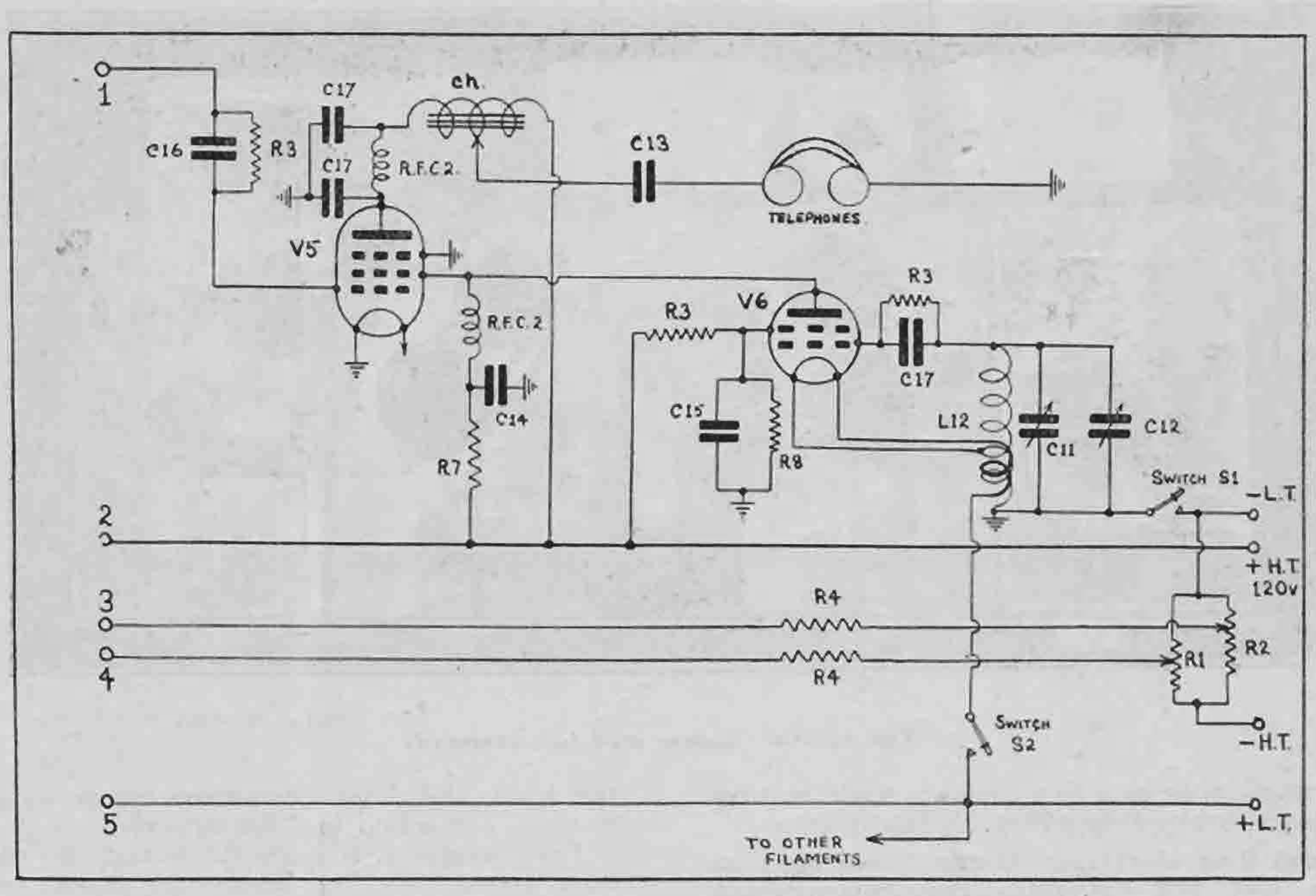


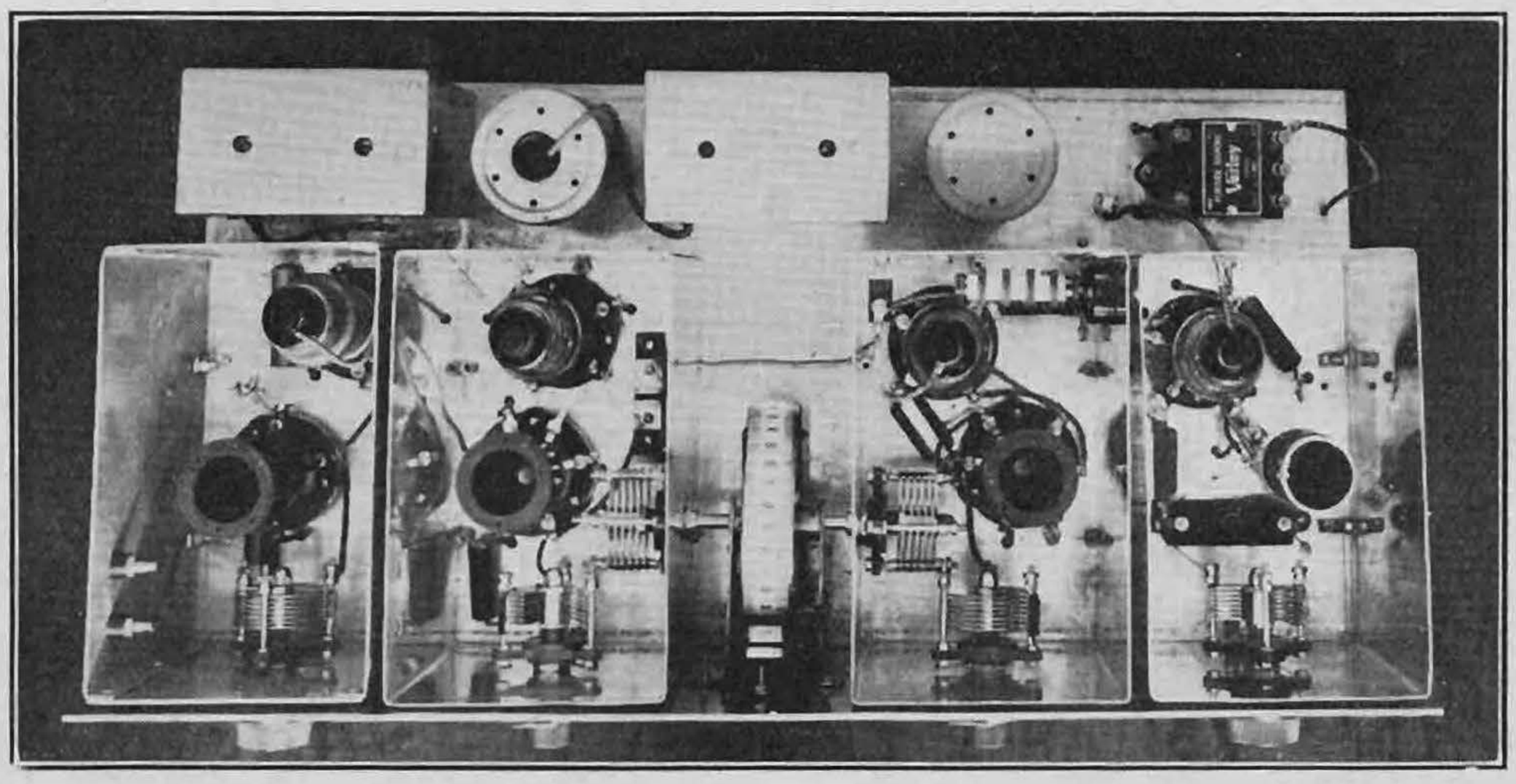

*Fig. 1A.*

*CIRCUIT FOR SINGLE-SIGNAL SUPER-HETERODYNE RECEIVER.*

*This is a continuation of Fig. 1 and has been divided for clearness. The list of components below Fig. 1 apply to the above figure.*

of 3/32-in. sheet measuring 21 in. ×9 in., and was bolted to the chassis by round-headed 6BA screws.

Immediately behind the panel are four compartments housing respectively the R.F. portion of the pre-H.F., first detector, H.F. oscillator and beat oscillator stages, with the drum dial located centrally between the first detector and H.F.O. compartments. Each box was made of 1/16-in. aluminium sheet measuring 6¾ ins. long, 4¼ ins. wide and 6 ins. deep and each box has its own lid. There is a spacing of ¼ in. between each compartment, and they are bolted to the chassis by means of ½ in. × ½ in. angles. It is most important that the shielding be carried out in such a manner, for if one piece of the aluminium be used as a common shield between two stages, interaction will undoubtedly ensue.



[*Photo: Midland Press Agency*

***Top view of receiver with lids removed.***

Behind these shields are arranged (reading from left to right) first I.F. transformer compartment, I.F. valve in shield, second I.F. transformer, pentode in another shield, and the pentode output choke.

Underneath the chassis in convenient positions are the various resistances, by-pass condensers, the I.F. high-frequency chokes, and the bias potentiometer for first detector. The latter is mounted on a bracket beneath the corresponding valve, and can be set while the set is actually working and then forgotten. Sub-chassis behind the front panel are the pre H.F. volume control, and the variable potentiometer controlling the S.G. voltage on the I.F. valve for regeneration.

On the left hand side of the sub-chassis is mounted a 4-pin chassis type valve holder, from which the H.T. and L.T. supply leads are taken. This valve holder has sunken pins so that it is impossible to "short" either battery in inserting the 4-pin cable plug to which the power supply cable is attached. On this same side and arranged near the front panel is the on-off switch.

On the side of the sub-chassis to right of set is the B.F.O. switch and a bakelite jack for the phones.

On the back edge of the sub-chassis are mounted the 1 mf. and 2 mf. condensers for pentode S.G. by-pass, and audio feed respectively.

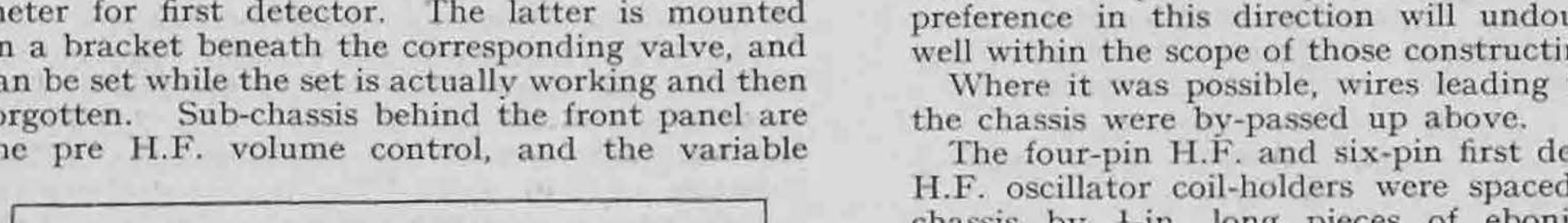



***Fig. 2.***

***Top view of coil sockets as seen from the front of set illustrated in the photograph. See text for connections.***

The photograph showing the view of the receiver from above indicates clearly the layout of the components, and requires very little description. The two plugs seen on the left side of the H.F. stage compartment are for aerial and earth respectively. The authors preferred the use of single wire systems of varying length and direction, as a result of previous experience, but the use of tuned doublets is quite easily arranged and personal preference in this direction will undoubtedly be well within the scope of those constructing this set.

Where it was possible, wires leading to beneath the chassis were by-passed up above.

The four-pin H.F. and six-pin first detector and H.F. oscillator coil-holders were spaced from the chassis by ½-in. long pieces of ebonite tubing, though the valve-holders were bolted direct to chassis. The beat oscillator coil former was fixed by means of two ½ in. × ½ in. angles bolted to the chassis.

The small sectionised H.F. choke seen at rear of H.F. oscillator compartment was mounted on two small pieces of ebonite which were fixed to the side of the compartment wall by small angle brackets.

(*Continued on page* 82)

# NATIONAL FIELD DAY

## Trophy Won by District No. 5 (South-Western)

INAUGURATED during 1933 with a shade of doubt as to whether or not it would appeal to the membership, National Field Day has leaped into favour as an event second only to the B.E.R.U. Contests. For nearly 12 months, active members in each District were making plans for the 1934 N.F.D. and many were the hush-hush meetings held in shacks and elsewhere!

The first N.F.D. was in the nature of an experiment, with every district ready to learn how best to tackle the problem of manning and operating portables over a long week-end period. From the experience thus gained, the success of this year's event was assured long before the first test call was sent out on the afternoon of June 9.

The primary object of N.F.D., as we have emphasised on numerous occasions, is to prepare ourselves and our stations for any condition of emergency which might arise, and we are convinced that most of our members have that thought in mind, the offering of a trophy being regarded only as an incentive for everyone to do their best for their district.

*Outstanding Achievements*

Some outstanding achievements deserve recording, the most important in our opinion being the successful bridging of the Atlantic by the District 7 A Station, G6GZ. Newfoundland is always a difficult country to contact from Great Britain, because so few stations are active in that Colony, but R. C. Neale (G6GZ) and A. R. Stansfield (VO8Y) demonstrated that trans-Atlantic QSO's are quite possible on 3.5 mc.

Especial credit is due to G2OA and G2RF for their contacts with LU5DJ and PY2QA on 14 mc. from District 1 B station. District 3 B station (G5VM) had an excellent spell, working SU (twice), VQ4 (twice), W1, ZL (twice) and VK, but in spite of these successes they finished lower than anticipated.

District 5, the winners of the Challenge Shield, worked three ZL's, two SU's, two W's and VU from their B station, G6RB. G6OK with G2II, at the B station in District 11, worked LU1EP.

Last year's winners, District 15, had trouble at their B station, but succeeded in contacting W, ZL and SU. G2IC, operating the B station at Folkestone for District 16, made the only VE1 contact of the event; W2, 3, 9, ZL, ZC and SU were also worked from this station. The B station in No. 17 District (G5GS) worked W2 and ZL, whilst their near neighbours in District 18 had two contacts with SU and one with W2, from G5FV. Northern Ireland had better luck this year and raised SU and W2.

The eight Scottish portables put up a good show, especially the two "A District" stations. They effected an outstanding achievement in contacting W6BIP on 14 mc. at 18.50 G.M.T. on the Sunday evening from G2MA, after having just worked SU and VU, whilst W2 was contacted earlier on the same band. VE2 and W8 were worked from this station on the previous evening. G6IZ, the Scottish "B District" B station, also had several good DX QSO's, including VQ4, SU, PY5, VE2, W2 (twice) and CT3. G6FN worked the only VP5 QSO of the day from the Scottish "D District" B station.

### National Field Day Scores

| *Position.* | *District.* | *A.* | *B.* | *Total.* |
|---|---|---|---|---|
| 1 ... | 5 | 151 | 210 | 361 |
| 2 ... | 18 | 117 | 206 | 323 |
| 3 ... | 7 | 164 | 158 | 322 |
| 4 ... | 12 | 128 | 156 | 284 |
| 5 ... | Scotland A | 83 | 198 | 281 |
| 6 ... | 14 | 139 | 137 | 276 |
| 7 ... | 16 | 129 | 133 | 262 |
| 8 ... | Scotland B | 107 | 151 | 258 |
| 9 ... | 15 | 107 | 142 | 249 |
| 10 ... | 8 | 159 | 84 | 243 |
| 11 ... | 17 | 132 | 109 | 241 |
| 12 ... | 3 | 103 | 131 | 234 |
| 13 ... | 11 | 85 | 140 | 225 |
| 14 ... | Scotland D | 63 | 161 | 224 |
| 15 ... | N. Ireland | 98 | 113 | 211 |
| 16 ... | 6 | 63 | 142 | 205 |
| 17 ... | 10 | 99 | 82 | 181 |
| 18 ... | 1 | 97 | 81 | 178 |
| 19 ... | Scotland C | 59 | 114 | 173 |
| 20 ... | 2 | 89 | 56 | 145 |
| 20 ... | 9 | | | *145 |

* Only one station operated.

*Some General Views*

The "A stations" generally did well, several of them working all other British portables and most of those operated by Swiss, Belgian and Dutch amateurs. High signal strengths were reported from the majority of contacts, but long periods of idleness, due to absence of signals, seem to have been experienced everywhere. The majority of "A station" working was effected on the 3.5 mc. band, which was surprising, in view of the general improvement in conditions which has recently been reported on 1.7 mc. From a study of the logs, it would appear that 3.5 mc. QSO's out-numbered 1.7 mc. QSO's in the proportion of nearly 50 to 1. Points were missed at certain A stations through the absence of telephony equipments. Several European stations use fone exclusively and do not answer c.w. calls. We suggest this is a point to remember next year.

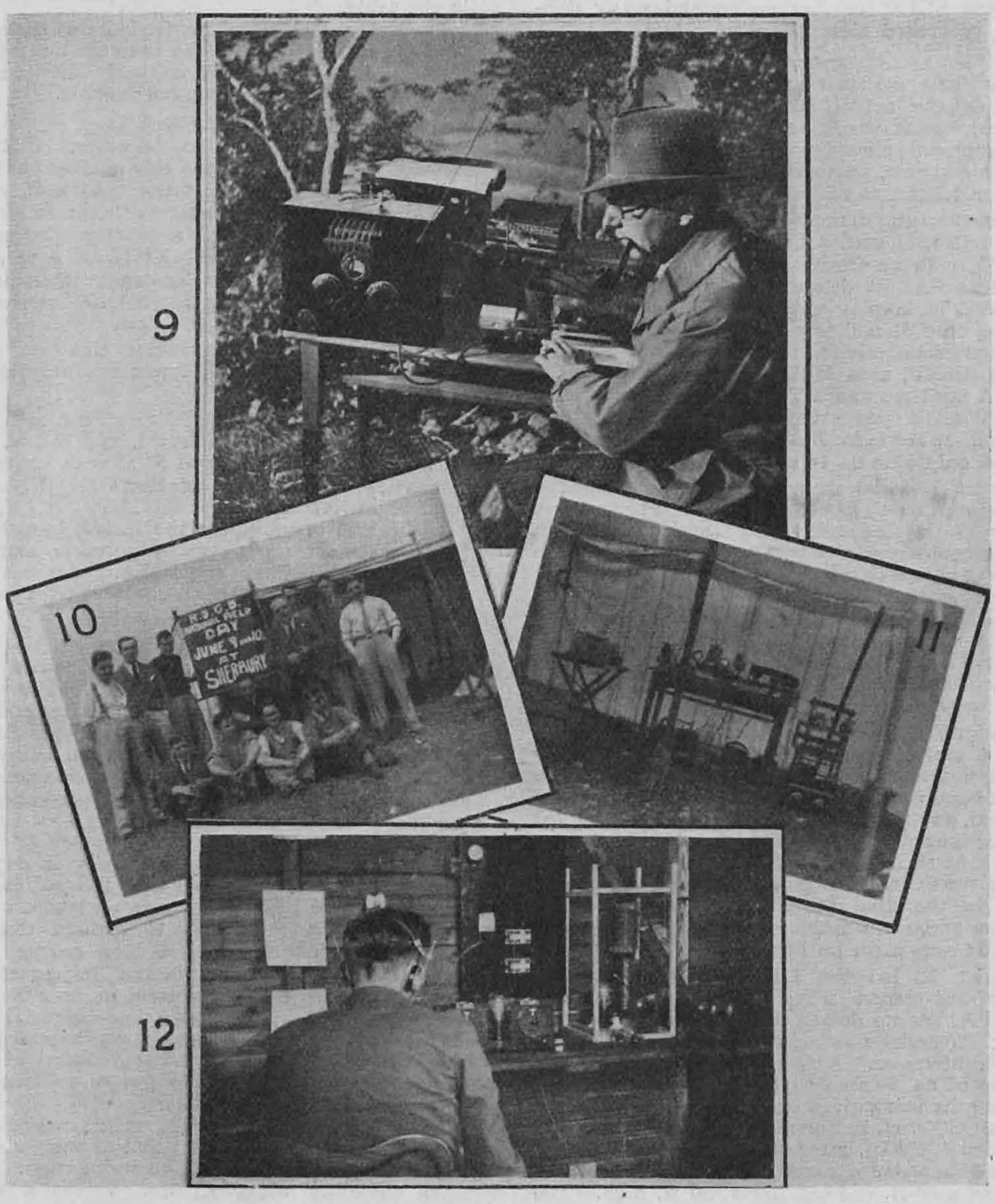
B stations scored most of their points from Europeans, working on 7 mc., and in this connection reference must be made to the very excellent support given by the Swiss organisation, USKA. Thanks to their co-operation, no less than 10 Swiss portable stations were put into operation during the week-end.

*Co-operating Overseas Portables.*

Most of the B stations succeeded in contacting SU1A, the portable operated by the Alexandria B.E.R.U. Group. The score made by this station was 224 points, and in accordance with a Council ruling the station receives a special award of merit. The leading Swiss portable operated under the call XHB9P, with HB9B, 9AC, 9AE and 9P in attendance. This station gave points to 21 portable G

## AT THE OTHER END.—No. 2—

1. *Mr. A. Anderegg, HB9S President, U.S.K.A. at the key of the Swiss portable station, HB9S.*
2. *G5BO, G6WU and G5MG preparing to erect the Potters Bar "B" Station operated by District 12.*
3. *District 12, B Station at Potters Bar. Receiving aerial terminated on ladder in background. Left to right, 2AHM, 5BO, 6WU, 6CL, and 2SX.*
4. *Personnel at District 17, B Station. Call G5GS.*
5. *General View of G5GS, the District 17 B Station.*
6. *District 16, A Station, Call G2MI.*
7. *Portable G6WN, the A Station transmitter in District 15.*
8. *Personnel at District 1, A Station, Call G2OI.*




—National Field Day, 1934.

*9. Mr. R. Stuber, HB9T, Traffic Manager, U.S.K.A., at the key of the Swiss portable station, XHB9AG.*

*10. Personnel at District 18, A Station, Sherburn, Yorkshire*

*11. The gear used at the Sherburn station operated by District 18.*

*12. Mr. R. Neale, operating G8GZ, District 7, A Station*

stations, and in recognition of this achievement a certificate is being awarded to the chief operator, HB9P. No report was received from the personnel operating SU1X, but we understand many difficulties prevented their full co-operation.

*Apparatus Used.*

Very little information has been forthcoming regarding the actual gear used at the various stations, but it would seem that crystal control was employed almost exclusively. Inputs were, as a general rule, up to the limits allowed, *i.e.*, 10 watts on 1.7 mc. and 25 watts on 3.5, 7 and 14 mc.

From the entry forms we learn that the winning District (No. 5) used a CO PA at their A station (G2HX), with an *Osram* PT625 in the CO and a DET.1 as PA. With an input of 800 volts, they succeeded in keeping within the power limits by drawing only 31 milliamps on 3.5 mc., which band was used exclusively for the 58 contacts. Their B station (G6RB) used *Mullard* PM24M's for the CO and BA positions and a T25D in the PA. A half-wave Windom was used for 14 mc. and a half-wave end-on Hertz for 7 mc. They had 59 contacts, but five only were on 14 mc.

District 18, who were runners-up, employed a crystal-controlled locked oscillator at their A station (G6UJ) and an inverted L aerial, 43 ft. high with a counterpoise 8 ft. from the ground. No details of valves or input were given, but their log sheet shows they had 47 QSO's, all but one being on 3.5 mc. Their B station (G5FV) used a CO, BA, PA, on 7 mc., and a CO, FD PA on 14 mc., the aerial was a semi-vertical Hertz running North-South, 32 ft. high. They had 71 QSO's, seven of which were on 14 mc.

District 7 finished one point behind District 19. Their A station (G6GZ) used a series-fed Hartley for 1.7 mc. and a T.P.T.G. for 3.5 mc. For the former band a 66 ft. aerial with 90 ft. counterpoise was used, and for 3.5 mc. a voltage-fed Hertz filled the bill; the power was obtained from H.T. accumulators. At their B station (G2NH), DE5B's were used in the CO and FD positions, and a neutralised T25D in the final stage. A full-wave 14 mc. Windom aerial was employed. Twenty-one QSO's out of 54 were made on 14 mc.

District 12 led the London districts with a score of 284 points. Their A station (G5CD) used a CO PA, but no details of power or valves were given; the aerial was an inverted L 35 ft. high, with counterpoise. A feature of this station was the use of an 8-valve super-het for receiving, all R strengths being given on a loud-speaker! They had 49 QSO's, all but one being on 3.5 mc. Their B station (G6WU), after some initial tests with a matched impedance aerial, went over after four hours to a 66-ft. end-fed Hertz, 30 ft. high. The transmitter was crystal controlled on 7,040 kc., and employed LS5B valves in the first stages and a 210 in the final. Power was derived from an ML converter, which had been specially rewound by the *Rotax Company*. Both stations used this type of machine, which gave complete satisfaction throughout the event. The B station had 54 QSO's, 9 of which were on 14 mc.

Fifth place was secured by the Scottish "A District" with a score of 281 points. At their A station (G5DK) a T.P.T.G. with a T25D was used with 600 volts at 40 milliamps, and 32 QSO's were made, all on 3.5 mc. G2MA, the B station, had 58 contacts, 17 being on 14 mc.

The positions and scores of all stations appear in the table.

No entry had been received from District 4 (G2VQ and G6JQ) up to the time the Contest was judged. With this exception every District in the British Isles gave the event full support.

*Overseas and Check Logs.*

Mr. R. Stuber, Traffic Manager, U.S.K.A., forwarded a summary of the gear used by the Swiss portables. The leading station, XHB9P, which was located at Gempen, near Basle, at an altitude of 700 metres, employed a Hartley transmitter with an input of 25 watts. XHB9AG gave points to 20 portables and was located at Butschelegg, near Thun, at an altitude of 1,100 metres. A CO PA gave an input of 15 watts.

SU1A worked 14 G portables, three on 7 mc. and 11 on 14 mc. G2NH was the only station worked on both bands.

PA0FB reported three QSO's on 7 mc. and three on 3.5 mc. ZL4AO confirmed, *via* E.L.S., that G6RB, 6YK, 6JQ, 2IC and 5VM were contacted. It was noted from his message that G6JQ (District 4) received an R7 report.

G6CV was operated by the Middlesbrough and South Durham groups as a portable and had numerous QSO's, including K4SA.

G2ZC and 6QQ confirmed contacts with various A and B stations.

*Awards Committee Comments.*

The Awards Committee wish to record their thanks to all members who assisted in any way to make the event a success. They are especially appreciative of the publicity given to the Society by local newspapers and various radio journals.

The rules, as far as can be judged, proved generally favourable, and to date only one suggestion for modification, and that in connection with scoring, has been received.

The Committee had some difficulty in deciding on the authenticity of certain foreign stations alleged to have been working as portables, and in this connection they wish to explain that the runners-up (District 18) have been credited with 6 points for their QSO with the Belgian Station ONK4. No proof was submitted to show that this station was a genuine portable, but as several other districts had claimed 6 points, it was assumed that such was the case. *In future the Awards Committee will require direct proof that foreign stations were portable at the time of the Contest.*

District 7, who were placed third, reported one QSO as being with EA-DP; it has been assumed that the figure was unintentionally omitted.

An obviously faked call was used by a station signing VK2PO when in QSO with G2IC. In view of the nature of the report given by the station the Awards Committee allowed no points for the contact.

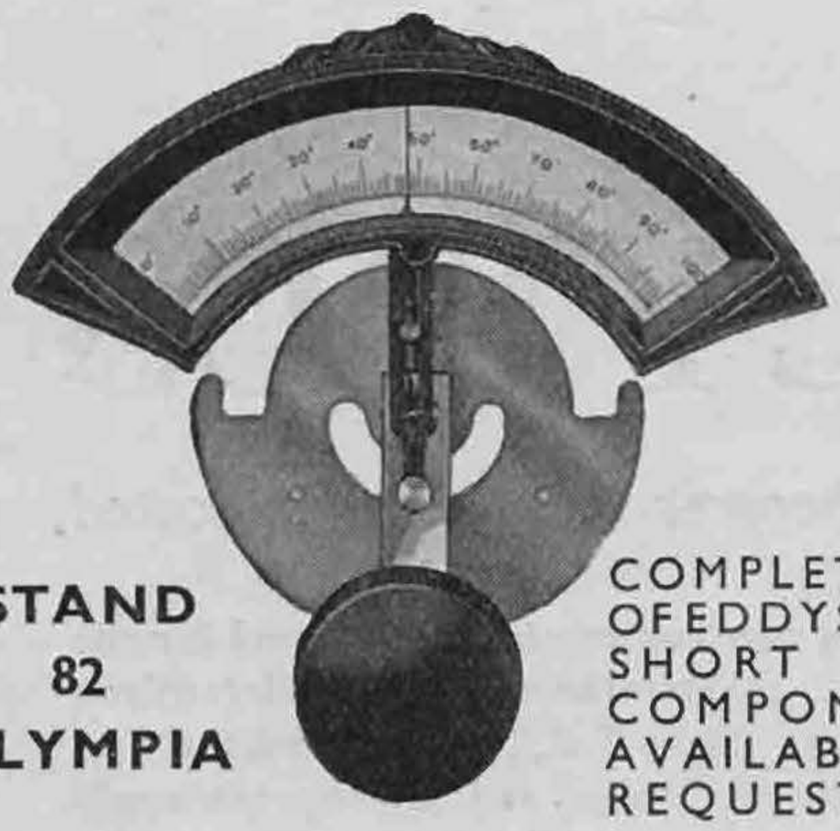
District 1 claimed points for working G2YA and G5HB as portables, but no evidence was given in support of these claims. Similar claims were made by District 5 in respect to G6MJ, worked from their A station, and PAOFLX for a QSO with District 6 B station. District 16 claimed to have worked SU1AS, but it is believed that this was actually SU1A.

# NEW EDDYSTONE LINES *for* AMATEUR USE

## DIAL DRIVE

This dial drive can be used with the metal cabinet described above. It is a precision made article suitable for all purposes where accuracy and smoothness of tuning are required. The 6″ open vision dial is travelled by a moving pointer and the reduction ratio is 22 : 1.

No. 970B—Black
No. 970W—Walnut } Price **10/6**



**STAND 82 OLYMPIA**

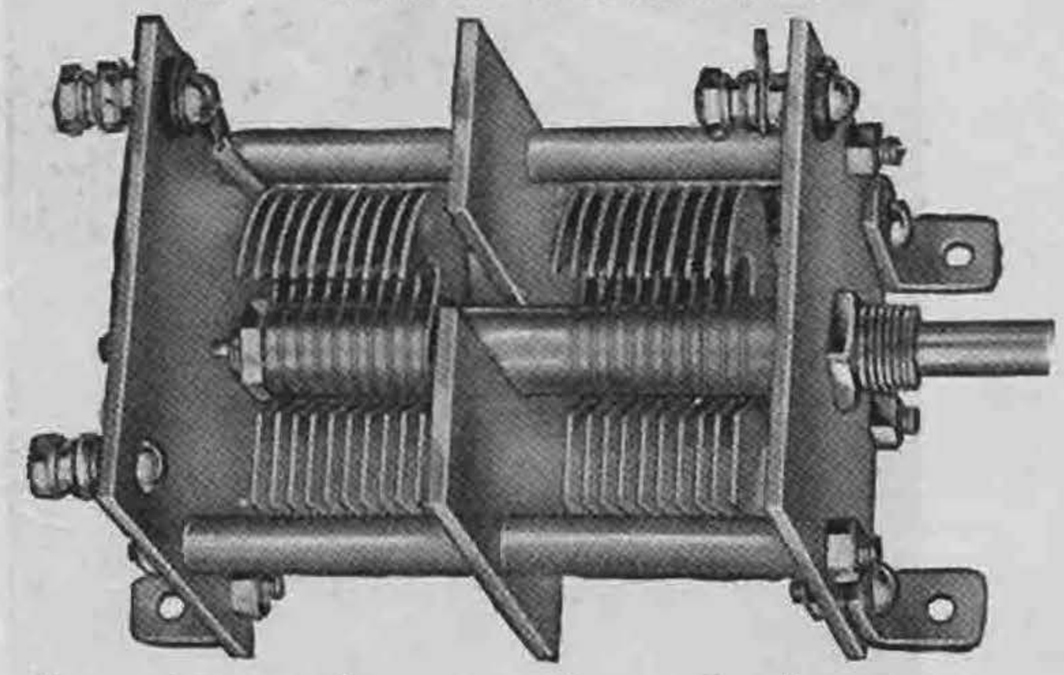
COMPLETE LIST OF EDDYSTONE SHORT WAVE COMPONENTS AVAILABLE ON REQUEST.

## METAL CABINET

An entirely new method of cabinet construction for the enthusiast. This latest Eddystone production comprises an all metal cabinet of aluminium copper alloy diecast in two halves. These hinge together with overlapping joint. Perfect screening with instant accessibility, this cabinet offers endless possibilities for the construction of amateur gear. Can be supplied with or without escutcheon hole. Smart brown crystalline finish.

No. 974. With escutcheon gap. Price **27/6**
No. 975. Plain undrilled cabinet. Price **27/6**
Size : 9¾″ × 8″ × 8″

## S.W. GANGED CONDENSER



A precision made gang condenser for short wave work and highly suitable for amateur band super-hets. All brass construction with well screened sections, low minimum capacity, giving large tuning range ratio.

No. 973. 2-gang, 40 m.mfd. sections. Price **15/-**
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Can be supplied 3-gang if desired.

*Showing the all metal cabinet partially open.*

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# THE MALVERNS CALLING

By F. R. Canning (G6YJ) and G. R. Scott Farnie (G5FI).

ON Sunday, July 15, the Worcester Beacon was the venue of two portable 56 mc. stations operated by the authors.

The weather was rather unsettled, but apart from a couple of showers we had only to put up with the very strong wind which was blowing across the ridge. It was far from being ideal 56 mc. weather, but could have been a great deal worse!

We had aimed at getting on the air at 11.00 G.M.T., but it was nearer 12.00, owing to various delays. Success was immediate, and we think that a reproduction of tabulated results would be better than description. It is interesting to note that the reports received from G2GG and 2BHP were from QRA's which were not in optical range owing to the formidable Cotswold Hills, but considerable absorbtion effects probably account for the poor QRK's received. This also applies to G6FO's QRA at Portishead, which he himself condemned as hopeless. At practically the same distance, in another direction, signals were R8—the intervening country being much more suitable.

G5FI unfortunately settled in "a dead spot" and also had aerial difficulties. As soon as he moved and overcame these difficulties a QSO was obtained with excellent QRK. It is a great pity that this was discovered so late in the day, otherwise we may have attained even more complete results.

The Malvern's provide an excellent 56 mc. site, rising sharply as they do out of a vast plain to a height of some 1,300 ft., and yet being easily accessible by road.

It is undoubtedly a tremendous advantage for the co-operating stations to also be on high ground and in the clear to avoid absorption from the surrounding hills or objects. That is, to be as far as possible in the horizontal optical range. An analysis of the results makes this quite obvious.

A few words about the equipment will, we think, be of interest, especially to those who are just embarking on 56 mc. work.

Both stations used about 4 watts input from dry H.T. batteries of cheap manufacture, but which stood the strain excellently. The L.T. was from a 6-volt accumulator.

The aerials used for both transmission and reception were half-wave verticals made from ½-in. copper tube. These were voltage-fed from modified series-tuned Ultraudion oscillators, with PV625X valves.

On the modulation side, G5FI used the orthodox Heising system, the microphone being fed straight into the modulator. G6YJ was using a special I.C.W. modulator, which has been developed for economical working and ease of portability.

Lastly, the receivers were similar, being the type which appeared in the *Wireless World*, except that G6YJ was using a modified aerial coupling.

| Time. | Station. | Report Received. | Report Sent. | QRA. | QRB (miles). | Direction. | QSO. |
|---|---|---|---|---|---|---|---|
| 12.15 | G6YJ | W3, R3 | Not heard | Portishead | 49.6 | S.S.W. | G6FO |
| 12.20 | G6YJ | W5, R7/8 | W5, R7/8 | Dundry Hill, nr. Bristol | 52 | S.S.W. | G6VK, G5UH |
| 14.45 | G6YJ | W4/5, R5/6 | W4/5, R3/7 | Hawkesbury, Upton | 37.4 | S. | G5JU, G5XV |
| 16.00 | G6YJ | W2, R1/2 | No TX | Boar's Hill, nr. Oxford | 53 | S.E. | 2BHP, 2ABM |
| 16.43 | G6YJ | W4, R4 | No TX | Nr. Ashbury | 50 | S.E. | G2GG |
| 17.00 | G5FI | W5, R8 | W5, R7 | Hawkesbury, Upton | 37.4 | S. | G5JU, G5XV |
| 17.15 | G5FI | W5, R8 | No QSO | Dundry Hill, nr. Bristol | 52 | S.S.W. | G5VK, G5UH |

*Results of* 56 *mc. Tests from the Worcester Beacon on Sunday, July* 15, 1934.

We were delighted to receive a visit from VQ4CRH, who came up the Beacon and enabled us to have our first VQ4 contacts on 56 mc.!

Although the tests were arranged hurriedly, the co-operation received was very encouraging, and all concerned are thanked most sincerely, even those whose results were negative. An example of real co-operation was the B.R.S. in District 10, who built three different receivers on the Sunday in an effort to locate the signals. He unfortunately failed, no doubt due to poor locality, but he is ready to co-operate in any future tests.

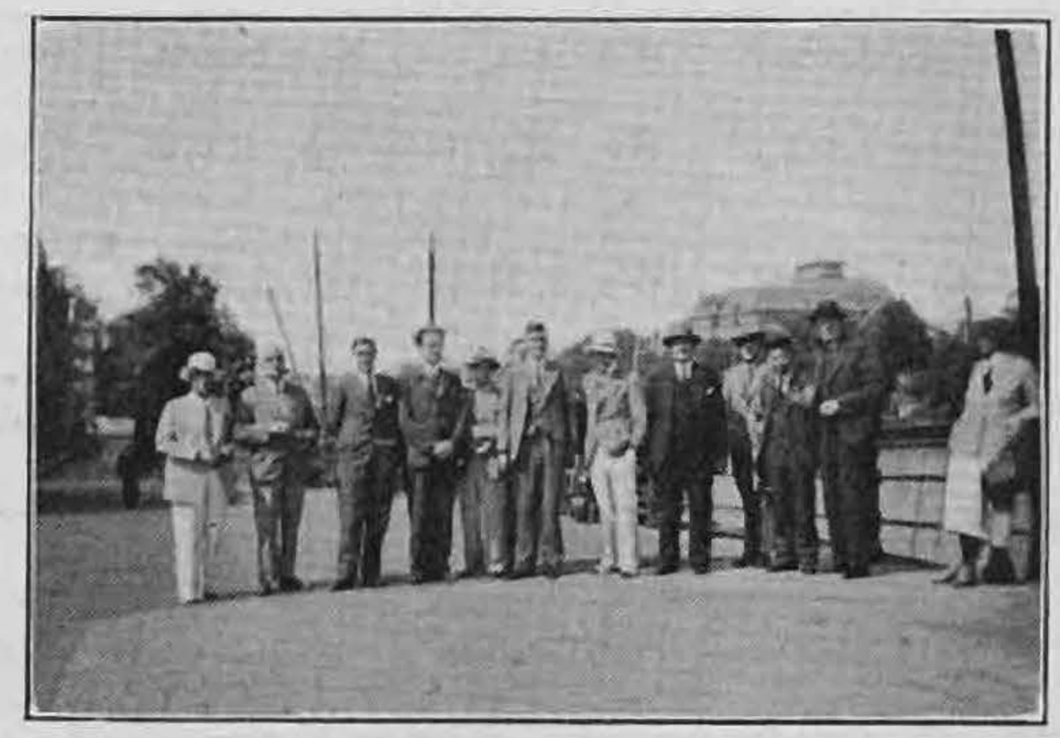
It is hoped to renew these tests on September 2 if a sufficient degree of co-operation is forthcoming, and an earnest appeal for such co-operation is made herewith. All interested are cordially invited to get into touch with either G6YJ or G5FI.

# A WEEK-END TRIP TO HOLLAND.

By H. A. Savage (G2SA).

IT is frequently asserted, at Conventionettes and other places where amateurs foregather, that the old "Ham spirit" is on the wane, and that the perambulating amateur transmitter no longer experiences that freemasonry of which "old timers" are wont to boast. Those holding such sceptical views would speedily have been converted had they joined the party which visited Holland during the last week-end in June.

The idea of the trip originated with G5UK, who devoted much time and trouble to the preliminary arrangements, and then, by the irony of fate, was prevented by business from accompanying the party. His place was filled, at short notice, by 2BWP, who spared no effort to ensure our comfort, and to whom much credit is due. Eleven amateurs assembled at Liverpool Street on Friday, June 29, comprising, in addition to Mr. Greenaway, the following:—G2WG, G5JZ, G2AO, G5RV, G2AX, BRS1075, G2SA, Captain Alejandro Lecon (X1L) and Lieut. Bonilla, of the Mexican Air Force, and Mr. Faudell. The boat train was crowded, but "diplomacy" secured comfortable seats in a Pullman, and the journey down to Harwich was spent in mutual introductions and discussions concerning the smoothness, or otherwise, of the North Sea. The train slid quietly into the Quay station, and we were soon on board the S.S. *Vienna*, a modern twin-screw member of the L.N.E.R. fleet. Our cabins found and occupied, we adjourned on deck and were quickly under way, watching the lights of England slip by to port as we steamed down the fairway towards the open sea. Midnight found most of the party turned in, although not, in some cases, alas, to sleep. There was a stiff breeze from the nor'east, and the good ship *Vienna* rolled her way steadily across to the Maas light vessel to the detriment of some who were making their first sea passage. In fact, the writer of these notes incurred a certain unpopularity through being the only member of the gang to consume breakfast (and bacon and eggs at that!) before we reached more placid waters. The morning was bright and sunny, and after a few turns up and down the boat deck one felt ready for anything! Off Ymuiden we picked up the pilot—his journey in a rough sea and a small skiff from pilot cutter to ship was an example of seamanship,—and entered the great lock which links the North Sea Canal with the sea itself. This lock is of very modern construction, being entirely electrically controlled from a circular tower, and, indeed, the Canal itself is a monument to the engineering skill of the Dutch. For four hours we steamed along this waterway, passing numerous tramp steamers outward bound, or discharging their cargoes at the various factories at intervals along the banks, amongst which we saw the ubiquitous Henry Ford establishment. Large steel swing bridges cross the canal in two places, carrying overhead electric railway lines, which, by the way, operate on direct current at the unusual voltage of 1,500, much higher than in this country. The bridges themselves are swung by electricity and operated from a sort of signal cabin high up among the girders. Shortly after 1 p.m. we berthed at Amsterdam in the centre of the busy harbour, and as our ship drew alongside the quay a welcome was shouted by PA0ASD and PA0FY, who were awaiting our arrival. We were soon on shore, and the group was augmented by PA0LL and PA0LR, all anxious to show us something of their great city and to make us feel thoroughly welcome. The whole group strolled around to the main shopping thoroughfares, where picture postcards were bought and a visit paid to the General Post Office, in which were a most ingenious system of mirrors for collecting sunlight from high above the roof and distributing it over the interior of the somewhat gloomy building. Then our good friend, PA0ASD, Mr. Jacot, secured a splendid motor coach and took us for a comprehensive tour of the old city, with its picturesque canals and narrow streets, and the new Amsterdam which is rising in the outskirts—ultra modern, with wide avenues and open spaces and a great



***Group taken in Amsterdam during the recent visit.***

all-glass indoor tennis court. Returning to the Rembrandt-plaats, in the centre of the town, we visited a house of refreshment for welcome iced drinks, and then strolled back to our ship for dinner, with strict injunctions to be ready on the quay immediatey after that meal. We obeyed, and found three luxurious cars, in which we were driven some miles outside the town to PA0ASD's shack, which occupies an ideal position in his own private field on the banks of a small canal. Here we experienced an illustration of international courtesy which will long remain in our memories. as the party crossed the bridge leading to the shack the strains of the British National Anthem burst forth from a concealed radio-gram and the Union Jack was run up to the cross-trees of one of the 60-ft. masts. Inside the shack, we found what is really a model station. There are two transmitters, each of 50 watts input, using either CW or telephony with double-choke Heising modulation. One operates on 3.5 and 7 mc., with the call PA0SD, and the other on 14 mc. as PA0LL, the latter employing a special variable beam antenna con-

sisting of two half-wave vertical antennæ spaced half a wave apart and fed by Zepp type tuned feeders either in phase or with the necessary phase difference to swing the beam as desired. Extensive use is made of screened grid valves to avoid neutralising problems, and all coils are of solid silver strip, which has proved greatly superior to copper inductances. Remote control permits break-in on both sets with the aid of mercury-vacuo type relays, and all transmissions are continuously monitored. There are two receivers—a single signal super and a four-valve D.C. set, both working on all bands, and the microphone is ribbon type with A.C. operated speech equipment. The 3.5 mc. aerial is full-wave, 70 ft. high, fed at centre with Zepp feeders. After a pleasant hour, during which light refreshments were served, the party were driven back to the ship, where we took leave of our excellent hosts. Early next morning the s.s. *Vienna* weighed anchor and steamed slowly down the canal to sea again and southward along the Dutch coast to the Hook of Holland, which was reached after a most enjoyable trip at about 2 p.m. Here a special train was waiting, and we were soon at The Hague, passing *en route* through Maasluis, Delft and Schiedam. At the station we were greeted by a genial crowd, including PA0MM, PA0FY, PA0HI, PA0DT, PA0XOK, and last, but not least, PA0JK, who took charge of the party. Our friends, the N.V.I.R., had chartered a motor coach, and we were taken on a conducted tour of The Hague and Scheveningen, where the sights ranged from Royal Palaces and Peace Buildings to the Kursaal and new fishing harbour. A halt was made at the QRA of PA0MM, where we noted the unit construction of all gear in screened boxes made by General Radio, ready for mounting in TX racks. The TX is of 50 watts input, and works on 14, 7, 3.5 and 1.7 mc., MM having the distinction of being the only Dutch amateur allowed to work on the last-named frequency. A feature of the station was an experimental "Tri-tet" drive unit, using two pentodes, giving drive on the five ham bands. The RX's consisted of two A.C. superhets with SS reception available by selector switch, also a home-constructed H.F. det. L.F. set. The aerial system is a Zepp-fed half-wave Hertz, the live feeder being used as a portion of the radiating system on the two lower frequency bands, when the dead feeder is cut out. Another interesting exhibit was a remarkable collection of valves mounted round the room on the picture rail, dating from early bright-emitters and V.24's, to the latest form of cathode ray tube. A complete 56 mc. rig is under construction.

From here we proceeded to the shack of PA0JK, where we found an excellent home-constructed 50-watt TX for 3.5, 7 and 14 mc. work on CW and telephony, using Heising modulation and feeding a 7 mc. Zepp aerial. The TX, which is of the now familiar rack-and-panel construction, embodies a clever system of Neon pilot lamps for each stage. The RX is a home-constructed tuned RF four-valve set, which appeared most efficient.

At each station one or two local QSO's were effected on the 3.5 mc. band, but whilst at PA0ASD's shack we fortunately linked up with G2DQ, of Wickford, who must have been surprised to receive such a multitude of voices from one QRA!

After the station visits at The Hague, we were entertained at one of the leading hotels, and the whole group escorted us to the station, whence we returned to the ship, sailing at 11 p.m. that night for England, and bearing with us happy memories of a real ham week-end.

In closing this article, the writer would like to record his indebtedness to G5RV for valuable assistance in compiling the technical descriptions of gear.

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# AN AMATEUR'S BOOKSHELF

By J. V. Warner (2BXC).

A GREAT number of amateurs to-day are hampered in their activities by the fact that they do not avail themselves of the store of data, practical and theoretical, which exists in various text-books and publications. The day has long passed when radio possessed no literature dealing with its mysteries, apart from a few papers read before various societies. To-day the number of books bearing on radio subjects is large, and is continually receiving additions, so that the amateur, once uncatered for, has now at his disposal a small but comprehensive library to assist him. The mathematics fiend, the seeker of technical detail and description, the amateur who cares only for numerous rebuilds—all are catered for. The purpose of this short article is not to assert that any particular book is the best on a certain subject, but merely to point out a few works which the writer uses or has found useful.

The writer's radio library is housed on a small shelf just above the operating position, and it is proposed to enumerate the various books in the order in which they appear on the shelf.

The first volume is a large tome of some 1,100 pages, namely, *The Admiralty Handbook of Wireless Telegraphy*, published at 7s. 6d. This book, last printed in 1931, is one of the most useful obtainable from the point of view of general radio knowledge, since it starts from first principles and works through everything connected with transmitting and receiving. The mathematics involved are not very difficult, whilst for those who do not possess the requisite knowledge of algebra and calculus, there is an appendix dealing with the subject. As a sequel to this work, Ladner and Stoner's *Short-Wave Radio Communication* offers itself, being, in the writer's opinion, the best book on the theory of short-wave work ever written. It is somewhat harder to follow than the Admiralty Handbook, but any amateur who has read and studied these two books together should have a firm grasp of the theory of wireless.

The next few books on the shelf deal with the practical side of amateur radio, and are the A.R.R.L. *Radio Amateur's Handbook*, the R.S.G.B. *Guide to Amateur Radio*, and two bound volumes of the Bulletin. The first-named is one of the most comprehensive books devoted entirely to the amateur, and although written around American circuits and components, should nevertheless be in the hands of every practical man, whether he be of many years' standing or just about to build his first circuit. The second book is too well known to need any comment, whilst the third is, in the writer's opinion, by far the most useful of any in his possession.

After these practical volumes come two large loose-leaf notebooks, containing the current catalogues of some 25 radio firms. The catalogues are held in place by means of rings passing through holes punched in them. The two files form a most useful reference library of modern radio components. Next to them stand the station log books—three in number. One of these is the first short-wave log the writer ever compiled, and lists short-wave broadcasting stations only. The first entry in it records reception of Moscow RW59 at R6. The first amateur logged was G5YV, using 'fone on 14 mc. Last of all, bringing up the right-hand end of the shelf, is the station scrapbook, in which are stuck photos, QSL's, letters, and anything else of interest. Doubtless, most amateurs possess some such record of their doings, and very often it is one of the most interesting of the station logs. A glance through it will bring back memories of past days. Here is the QSL that secured the coveted W.B.E., there a letter from a B.E.R.S. in New Zealand reporting reception of your signals. A photo of another station arouses memories of hectic QSO's in by-gone B.E.R.U. contests. And so on, to the last page.

Truly, no amateur should be without a library, to while away the time when all the bands seem dead (apart from French 'fone), and one feels too lazy to send even a belated " Test."

## A Danish Arctic Expedition

By D. S. Mitchell (G2II).

ON July 5 an expedition, under the command of Dr. Lauge Koch, left Copenhagen for East Greenland, where it will remain for two years. Two Danish amateurs, OZ2Z and OZ7T are accompanying the expedition as wireless operators. During the voyage to Greenland OZ7T used the call XOZ7T in the 7 and 14 mc. bands with excellent results, many amateur contacts being obtained. The transmitter is an M.O.—P.A. using an input of between 12 and 15 watts from 300 volts of dry batteries.

On arrival at Scoresby Sound, East Greenland, OZ7T, together with four geologists, will leave their ship, the *Gustav Holm*, and board a small motor boat, in which they will make a long trip up the coast. While on this voyage the call XOZ7T will be used on 7 and 14 mc.

OZ2Z will proceed to Hochstetter Foreland, which is to be the base of the expedition, where he will erect a fixed station to keep the party in touch with the outside world.

In addition to working in commercial bands, the station at Hochstetter Foreland will also work in the 7 mc. amateur band with an input of 50 watts, using the call NX2Z, and OZ2Z hopes that many amateur stations will be contacted during their stay of two years.

OZ7T will leave Greenland for Europe some time during September.

Both XOZ7T and NX2Z would appreciate reports from any station hearing them.

The above information was obtained from XOZ7T during skeds, and up to the time of writing (July 15) he has been worked daily from G2II. His note is T8, and will usually be found on about 7,060 or 14,100 kc.

The best time to work Greenland on 7 mc. is around 22.00 G.M.T., while on 14 mc. 15.00 G.M.T. appears to be the " peak hour," although contact can usually be established with Europe at any time between 12.00 and 17.00 G.M.T. on this band.

The expedition was due to reach Scoresby Sound on July 20, but NX2Z will not be in operation until the end of August.

## The St. Albans Conventionette.

In recent years we have come to regard Conventionettes as rather formal affairs with a business meeting tucked in somewhere in the programme. District 8, supported by District 12, however, decided to dispense with formality and get back to a strictly social gathering.

At 3 p.m., then, on a glorious Sunday in July, no less than 71 members took advantage of a permit granted by the Engineer-in-Chief, G.P.O., to visit the St. Albans Radio Station.

*A ST. ALBANS SNAP.*
*From left to right: G6LL, Mrs. G2NM, G6NJ, 2OD, 6UN, 6CL, Mrs. G5AR, G6OT, YL, 6CJ.*

Extra staff had been detailed for duty to conduct the party round the station, which is devoted entirely to the reception of CW signals. Many interesting items were explained, a feature being a very fine all A.C. short-wave receiver. This measured about 10 × 8 × 3—*feet* not inches!

During the afternoon small groups of members were conveyed some three miles by car to a farmyard and proceeded thence on foot over some potato fields to an isolated group of small huts. Here is situated the official frequency checking station of the G.P.O. This was the first occasion on which the public had been allowed to visit this department, and everyone genuinely appreciated the unique privilege. Each group was given a practical demonstration of frequency measurement, which was both interesting and convincing, many members expressing their admiration of the efficiency and unquestionable accuracy of the operators.

An excellent tea which was served later at the Mecca Café in St. Albans, was quite in keeping with the success of the afternoon programme. Speeches and votes of thanks were prohibited, and as a result the function quickly assumed a very happy " social " atmosphere.

The attendance was most gratifying to the organisers and the large number of distinguished visitors was noteworthy. It was a great pleasure

to everyone to meet those two respected members Messrs. Gerald Marcuse (G2NM) and Simmonds (G2OD) in person again. Mention must also be made of our President, Mr. A. Watts, and several members of Council including " Clarry " and G5AR, T. P. Allen (GI6YW) and EI7C, Lieut. Beaumont (VU2FP) and also a number of members from District 7.

This will be long remembered as a red letter day not only for both districts concerned but also, if one may be permitted to say so, for the whole Society.

G. F.

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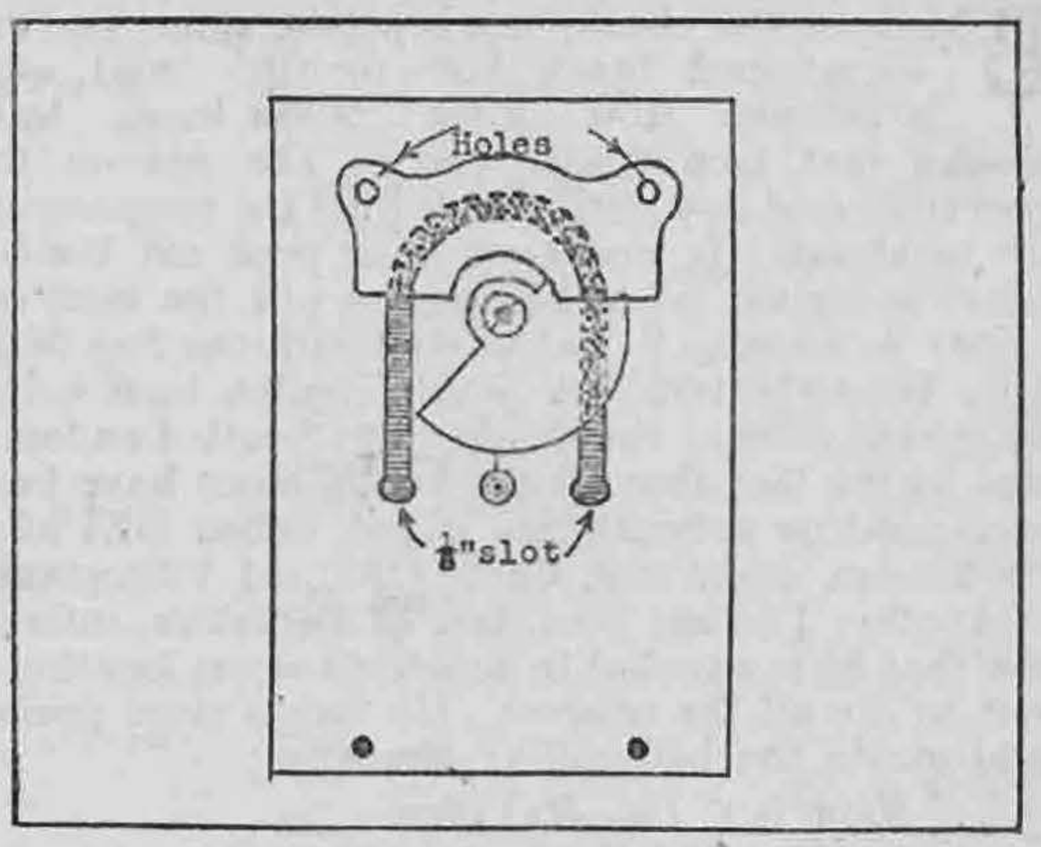
# A Neutralising Condenser.

By W. Graham (GI5GV).

MANY weird and wonderful gadgets have appeared under the guise of neutralising condensers, but very few possess the advantage of being electrically and mechanically sound. It is believed that the condenser to be described possesses these advantages, and so may be of interest to other amateurs.

The necessary parts are obtained by dissecting a " Lissen " air dielectric reaction condenser to obtain the panel bush, spindle and contact spring, three fixed and two moving vanes, the two pieces of screwed rod, nuts, washers. In addition, a piece of quarter-inch quality ebonite, measuring 4 ins. by 2½ ins., will be required. The method of drilling will be made clear from the figure, those marked C being countersunk to allow the fastening nuts to be hidden from view. The slot can be cut out by means of a fretsaw or similar tool. The ebonite should be well cleaned with emery before the parts are assembled.

The plates should be double spaced, and in the condenser described the leakage path along the ebonite has been extended to 2 ins. from moving




to fixed plates. This is, of course, due to the slot, and the longer it is made, the longer will be the leakage path, but for mechanical reasons it should not exceed 2 ins.

The ebonite can be screwed to a wooden support and fitted with an extension handle. No drilling measurements have been given, as the condenser vanes can be used as templates. All holes should be drilled before the slot is cut.

# SOLILOQUIES FROM THE SHACK.

By Uncle Tom.

*(Driven crazy with the heat, the poor ole man presents a more pitiful figure than usual, assuming that to be possible.)*

BACK to the shack, me hearties, after an unaccustomed break last month. And *what* a shack. How many fellow-hams have shacks that face South-West? The sun on the roof from mid-day until sunset puts the temperature up to about 110, and even your poor old Uncle's heart is melted when he tries to put the cans on.

But to business! Let us deal with our Fan-Mail, Miss Winterbottom. A South London ham writes to inform us that the deadness of South London is due to the fact that all the active hams have been marooned on a South Sea island, called DX, after its famous discoverer, Capt. QRO, of Vibroplexia.

Another London ham, late of Berkshire, informs me that he is situated in London's worst location—but so are all the others! He wants more poems, and starts the ball rolling thuswise:

*"Here lies Joe McVitter—*
*Alas, he's dead and gone;*
*For he fixed his big transmitter*
*While the power still was on."*

Then a lad from Brum who calls himself "one of the younger nephews," confesses to the major crime of being a B.R.S. He is very puzzled about the QSL business. He assures me that he doesn't flood the globe with worthless reports, and yet to 75 QSL's sent to North America he has only had four replies. Why?

He, too, breaks out in verse, which seems to be worth quoting:

*"A young B.R.S. lad of Birmingham*
*Received nothing but awful mains Hirmingham.*
*When asked why he sighed,*
*He said "Gosh, I've tried,*
*But not a darn signal will Kirmingham."*

On this vexed subject of QSL's, he suggests that if he has a card printed with "PLEASE DON'T QSL" in the printer's largest selection, he may get quite a crop of replies. Seriously, I think it's about time the QSL business stopped altogether. Cards mean absolutely nothing nowadays except for WBE and WAC claimants. My own walls would look much better without the darn things, and I should save at least two bob a week.

(Oh, golly, he's broken out again!)

*"There was a transmitter of Lancs.,*
*The worst of a house full of cranks.*
*When told of the drought,*
*He purchased a spout*
*And soldered it on to his tanks."*

No more fan-mail, Miss Winterbottom? All right, go and sit on my hot-water bottle over there. Now what are we going to talk about? Convention, I suppose. I'm not looking forward to Convention—there are far too many people who know who I am. And they all tell somebody else every day, so in a year or so my cloak of anonymity will be completely rent asunder, and I shall stand before you in the (No! *Ed.*); in the (NO!! *Ed.*) (Shurrup! *Ed.*); in the precincts of the Institootion of Electrical Hengineers, known to all of you and publicly disgraced. I wouldn't dream of appearing in the (No! *Ed.*) (Funny way of spellin' it!)

I often wonder what Convention would be like if none of us had better manners in public than we have on the air. Imagine G2EE talking to G5EE like this. "Hullo, old boy. Glad to see you again. Don't think we've met since this time last year. Well, that's all now; cheerio, 73, and see you again next year. Want to QSO someone else now."

***MODERN GRECIANS.***

***Such poise, such elegance! A South London trio, headed by G2CX, practice the gentle art of throwing ye old darte during N.F.D.***

If I were G5EE, G2EE would be looking for a slab of raw meat ere nightfall. Funny we're such a friendly lot in the flesh and so beastly rude on the air, except to our own special friends. If we were consistent we should ignore, at Convention, (*a*) people with an impediment (or, as my nephew calls it, a peppermint) in their speech; (*b*) people who speak slowly; (*c*) people that we already meet frequently.

Let's make it a real Ham Convention. Don't on any account talk to anyone you've met before, or anyone that comes from less than 200 miles away.

I'm looking forward to the 56-mc. Field Day after Convention is over. One or two local folk have evolved very nice little portable outfits, and I find 56-mc. local work a welcome relief from the strain of working DX. I wonder why it isn't more popular.

Incidentally, the best thing the Big Noises have done for Convention is shifting the business meeting (so-called) from the afternoon to the morning. If anything bores me stiff it's the sight of a crowd of hams wandering from the subject under discussion. Still, it's a good annual safety-valve.

I shan't be there in the morning, so if anyone wants to say things about me he'd better do it then. You'll all recognise me by my ginger hair and snow-white whiskers.

(*Continued on page* 82)

*C. U. at 204?*

# RESEARCH AND EXPERIMENTAL SECTION

## MANAGER :

H. C. Page (G6PA), Plumford Farm, Ospringe, near Faversham, Kent.

## GROUP MANAGERS :

**No. 1 : 1.7 and 3.5 MC. WORK**
J. H. Hum (G5UM), 68, Bridge Road East, Welwyn Garden City, Herts.

**No. 2 : 56 MC. WORK**
E. A. Dedman (G2NH), 63a, Kingston Road, New Malden, Surrey.

**No. 3 : ARTIFICIAL AERIALS**
J. K. Todd (G2KV), Orchard Place, Wannock, Polegate, Sussex.

**No. 4 : ATMOSPHERE AND FADING**
J. C. Elmer (G2GD), Aethelmar, Seabrook Road, Hythe, Kent.

**No. 5 : TELEVISION**
C. W. Sands (G5JZ), Springfield, Heathfield, Sussex.

**No. 6 : CONTEMPORARY LITERATURE**
R. A. Fereday (PAOFY), Reinkenstr, 40, The Hague, Holland

**No. 7 : RECEIVER DESIGN**
E. N. Adcock (G2DV), 206, Atlantic Road, Kingstanding, Birmingham.

**No. 8 : TRANSMITTER DESIGN**
A. E. Livesey (G6LI), Stourton Hall, Horncastle, Lincs.

**No. 9 : AERIAL DESIGN**
F. Charman (G6CJ), The Cottage, Park Way, Hillingdon, Middlesex

**No. 10 : VALVE RESEARCH**
D. N. Corfield (G5CD), 10, Holders Hill Gardens, Hendon, N.W.4,

**No. 11 : 28 MC. WORK**
(Manager to be appointed.)

**No. 12 : AUXILIARY EQUIPMENT**
A. O. Milne (G2MI), "Southcot," Larkfield, Kent.

THE section is making steady headway despite the call of summer, and most of the Sections are well under way, even if no actual reports appear for publication from some of them. I have received several reports from individual members, and would like to remind them that these *should be sent to the Group Manager concerned, and not to me*, except in the rare cases where the subject under study is not included in the list of sections already formed.

While on the subject of individual members I would like to say that the proposed list of members will not be published just yet, as after due consideration it is felt that possibly some better way of rendering them service can be arranged.

I am asked by G2KV—the A.A.G.M.—to state that all letters should be sent to his address at Orchard Place, Wannock, Polgate, Sussex, in preference to his Cambridge address, as letters to his home are forwarded more promptly.

An instance has recently occurred where a G.C., who shall be nameless, has advised his G.M. that a member of the Society has joined his group. I would like to make it quite clear that *all* members of R.E.S. groups must apply to H.Q. for membership of R.E.S. In no case can any other method of entering the Section be allowed.

Now a word to intending members of R.E.S. Before filling in your form, please examine the top of the Notes for the current month and see which subjects are already being investigated. If none of these interest you, write to me for advice as to procedure. Please do not fill your form in for "General DX," QRP work, or the like. Such expressions mean nothing at all, and only create a bad impression.

I shall be present at Convention this year, and will be glad to discuss as many points with R.E.S. members as time allows. H. C. P.

### 1.75 and 3.5. mc. Group (No. 1).

*Group 1A.*—G5WU continues to experiment with aerials that are distinctly out of the ordinary. Following his initial work with a centre fed twin aerial, he has now taken the logical step of using such an antenna with a counterpoise of similar design, as shown in Fig. 1. He writes :—

"On the score of stability of frequency it is superior in windy weather to any type of aerial with which I have experimented. Unfortunately, though, I have found it impossible to get this new system to 'pull' more than 8 watts, and reports to hand indicate R6 against R9, the latter with 10 watts, using the original aerial.

"As I was not very particular to secure perfect insulation between the wires of the twisted feeds, it is more than likely that I am getting serious losses by minute contacts. Further tests will be made to remedy this point."

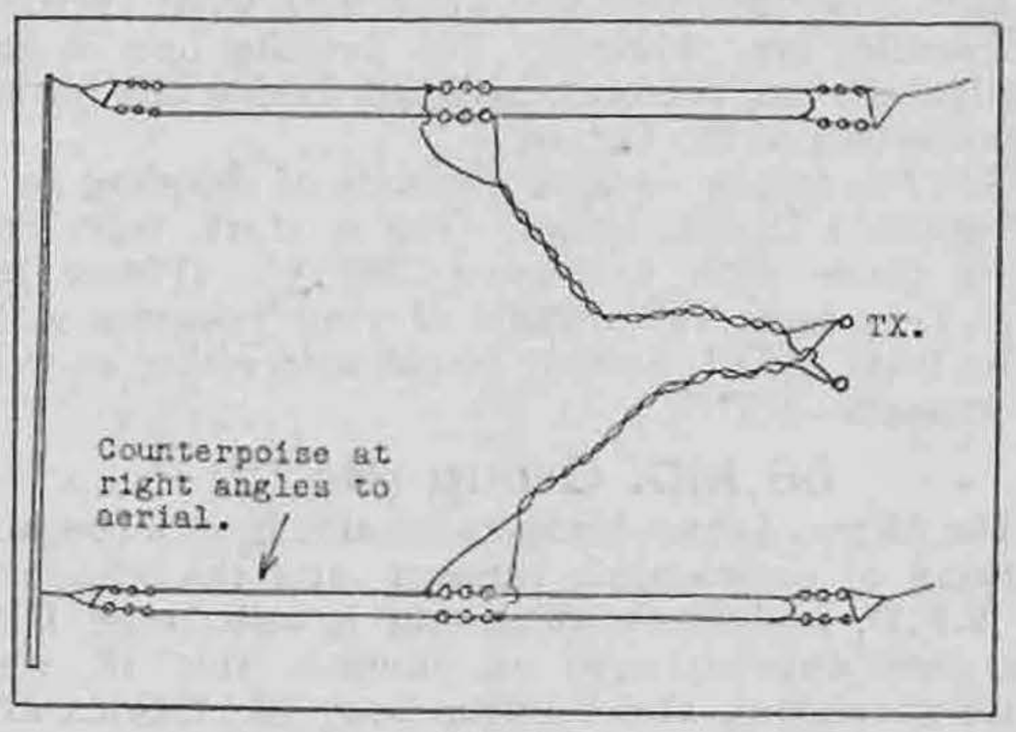



*Fig. 1.*
***AERIAL SYSTEM TESTED BY G5WU.***
***Note how the aerial and counterpoise leads join at the transmitter.***

The counterpoise, incidentally, is at right angles to the aerial. Although this arrangement was adopted owing to lack of space, it is possibly a preferable one. A counterpoise immediately below an aerial and in the same plane, often causes cancellation of the two fields, and although it may give a big aerial ammeter reading it will not be functioning at all efficiently.

Despite the summer, BRS1245 reports good conditions on 1.7 mc. He has been making fading observations on G5FI, 170 miles away.

After many experiments G5UM has completed a S.G. 4-valve receiver with choke and condenser coupling from the S.G. to the detector, and tuned grid detector. This system was found superior to all other methods, elaborate screening being

unnecessary, the fact that all variable condensers are at earth potential gives good stability. No advantage was found by the use of H.F. pentodes as either detector or R.F. amplifier. The use of a high efficiency R.F. choke in the S.G. valve plate lead is stressed ; one with section windings is best ; while centre tapping of the input to both R.F. and detector stages is found to be a great improvement.

*Group 1C.*—Congratulations to the G.C., who is now G5WW. He has had the unusual experience of obtaining consistently equal reports on a 15-ft. V.F. aerial as on a 100-ft. one, on 1.7 mc. On this band both he and BRS207 report remarkable skip effects ; both are in London, yet neither can hear Scottish stations which are reported R8 south of London. G6OO has been experimenting with keying the aerial coil *via* a relay, and finds it a useful method to adopt for avoiding BCL interference on 1.7 and 3.5 mc. BRS1173 finds that 3.5 mc. conditions improve after a shower of rain. Both he and BRS207 continue to receive Americans on this band even at the height of midsummer.

*Group 1E.*—Comparison of notes on receiver design has been made by the Listening Group. Straightforward circuits are favoured by all but BRS1330, who uses a 6-valve superhet. BRS1357 is building a detector unit especially for 1.7 and 3.5 mc., and is experimenting with dual range coils. (More information, please, with description of switching arrangements—G.M.)

*Group 1F.*—Mr. H. C. Daynes (G5YD) is now G.C. for this Group. All members report, each giving the basic circuit diagram of his equipment, so that other members will know with what apparatus results are obtained. No definite line of investigation has yet been adopted during the initial organisation of the Group.

G2YI is trying various methods of coupling to a full-wave 1.75 mc. aerial. For a start, tests are being made with half-wave, 264 ft. (Please let your G.C. have full details of your progress with these tests, G2YI, as they sound interesting as well as unusual—G5UM.)

## 56 MC. Group (No. 2)

The 56 mc. Letter Budgets for this month contain nothing of outstanding interest, and the influence of N.F.D. and Conventionettes is still being felt. The field day arranged on Sunday, July 15, was quite successful, and reports from 16 stations are to hand. G6QB took his home station gear to G2CX QRA, which is about 700 ft. above sea level at Sanderstead. G6NF, 5XH, 5IS, 2YD, 2MR, 6UH, who are all within 10 miles of Sanderstead, were worked. In addition, QSO's were made with G5MG at Southgate, 16 miles across London, G6CJ 27 miles in a S.W. direction, and G5RD at Abbots Langley, Herts, a distance of between 35 and 40 miles, also right across London. This last QSO seems to be particularly meritorious. G5IS worked a station 35 miles away on Firle Beacon, near Newhaven, using 2 watts input to his portable transmitter. In the West, G6YJ and G5FI were at Worcester Beacon, near Malvern, and succeeded in working several of the Bristol members who had erected their stations at Dundry Hill, a distance of between 40 and 50 miles ; QSA5 R8 reports on both tone and phone with an input of 5 watts were obtained. Several Surrey members effected QSO's with different stations, but the distances were under 10 miles in all cases.

The time seems ripe to attempt a 56 mc. relay across country, and we hope to organise this before the end of the summer season. The G.M. has received notice of a number of field days to be held on various Sundays in local areas, but in all cases the notice has been received too late for inclusion in these notes. *Will members note that the South London, Surrey, and Hampshire areas co-operate in holding a 56 mc. field day on the last Sunday in each month throughout the summer.* Where field days are arranged in other parts of the country it is suggested that every endeavour should be made to arrange it on a last Sunday in the month to the mutual advantage of all concerned. Arrangements for 56 mc. National Field Day appear on another page.

Members' views on the decentralisation of group membership are extremely varied. The G.M. feels that a number of people do not realise that the groups are for the interchange of ideas, and are complementary to, and not in place of, local working groups. If a group member is one of a number of local amateurs working in a purely local group, it is obvious that he should give the whole of the 56 mc. section the benefit of the experience gained by the local group in his letter to his group letter budget. Complete national interchange of ideas is essential if we are to make progress on the technical side.

This report was held back until July 23, but up to that date no letter budgets had come to hand from Groups 2C, 3D or 2F. This is not good enough, and in future, group centres should send their budget out on the 17th of each month, even if it contains only one letter. Holidays are bound to cause some dislocation, but please do your utmost to see that YOU cause as little as possible.

## Artificial Aerial Group (No. 3)

I must apologise for the absence of these notes last month, but there seemed to be nothing worth recording ! For this, the weather was probably responsible.

From Group 3A, 2BYP reports on the use of a resistance only for the A.A. This is tapped onto the tank circuit under test ; he describes the use of an electric light bulb of suitable wattage and resistance (400 ohms) in this position. This does not appear very good practice as the load on the transmitter varies with the watts output, and hence for optimum transference of energy, the tapping points must be varied for different power outputs. G2KV suggests various H.F. wattmeters using heat, light and square law volt measures. The latter appears to be promising as readings will be nearly linear. 2BXC is working on the light wattmeters using Selenium cells. BRS1147 suggests the use of a light cell using copper and copper sulphate, and also the use of astatic coils in the A.A. to reduce reradiation.

The use of artificial aerials is slowly becoming recognised, and the G.M. has described his latest circuit for the new edition of the "Guide." It consists of a 20-ohm. resistance, .0003 mfd. condenser, and a suitable inductance all in series and coupled to the anode of the valve circuit under test, via a 35 mmfd. variable condenser ; a diode circuit is tapped on or coupled to the inductance. A Pen 220A with 1.5 volt L.T. and a 0.5 m/a meter gives nearly linear readings.

## Atmosphere and Fading Group (No. 4)

There is very little to report this month beyond the fact that "routine observations have been continued." Holidays partly explain this condition.

A report on the above lines was received from 4*A*.

In 4*B* a most carefully prepared log comes from BRS209, but the secret which the observations are hiding is not easy to discover. A report comes from 4*C*, which group is dealing with thunderstorms. Very conflicting opinions as to the effect of storms is revealed, and the G.C. remarks, "It would not be fair to try to make anything out of these observations . . . at any rate this will form the basis of operations."

Group 4*D* (Isobar theory and Moon) sends in a good report, which contains convincing evidence in favour of the Isobar Theory. The G.C. calls attention to a letter in "World Radio" for June 22 under the W.R.R.L. section in which the Vice-President of the S.W. club of New York writes confirming the Isobar Theory. No reports have yet been received from the new groups 4*E* and 4*F*.

## Television Group (No. 5)

2BAW asks if members who are transmitting television can give definite times in order that others may look in; therefore a sked will be made from G2AO and G5JZ when tests are carried out in future.

G5ZT has a receiver in operation and reports good reception from the B.B.C., but, like all of us, complains that the present two programmes a week are *not* enough. He wishes to carry out tests from room to room with a television transmitter.

G2AO reported an exceptionally good reception on June 29 from the B.B.C. No tests have been done from his station lately owing to the difficulty of having the room sufficiently dark. Tests are being carried out, however, with G5JZ with a view to obtaining a satisfactory sound channel on 5 metres. G5JZ is at present rebuilding his television transmitter.

G5VO has the only television receiver in Bridlington. He has been using a disc machine, but at the moment is testing a Mirror screw. (Your reports on this will be welcome OM.—G.M.)

G5VO uses a 6-valve Superhet, and reports that at times the London National hardly drives a pair of headphones. He is very anxious to radiate television signals, and has a 1,500 watt lamp in conjunction with a 30 line disc.

No reports have been received from London. Group members are particularly anxious to know if anyone has a 120-hole receiver in operation for receiving 6.25 metre transmissions from Crystal Palace.

## Aerial Design Group (No. 9)

A fair number of reports are now to hand, and letter budgets have been started, and should have returned by now, although at least one appears to be lost! Those who have written in, but have not had acknowledgments, are asked to accept the G.M.'s thanks; it is not possible to answer each letter individually.

There are four groups operating at present, 9*A* studying 7 and 14 mc. aerials, 9*B* interested in "All Band" systems, 9*C* low frequency aerials, and 9*D* at present a rather miscellaneous group. Members are comparing their aerial systems, but it is not proposed to mention in these notes all the aerials in use, as it would take much space and make rather dull reading.

Some interesting comparisons are likely to emerge later, whilst valuable information about the effect of sloping an aerial is coming to light. This latter aspect has not received much attention so far, but theory indicates valuable gains to be obtained from skilful attention to slope and direction, and evidence is appearing in support of this.

The most popular aerial is a 66 ft. top for 7 mc. and 14 mc., with the addition of a counterpoise for the lower frequencies. End-on feed is popular at high frequencies, though we have also examples of the Zepp, the Windom, and at least one twin-flex feeder.

The aerial used by G2PL merits discussion, as the information is practically complete. The top is 66 ft. long, and points due East-West. Originally it was end-fed, which meant that the wire sloped up at about 15°.

Now it is generally assumed that a good DX signal goes off at an angle of about 20° to the horizon, and that a wire does not radiate in the direction of its length. Thus one would expect no reports from the direction of the high end, and this has been borne out in practice. On the other hand, in the direction facing the low end very strong signals were reported all over Europe, especially due East, on both bands, as the slope, together with the ground reflection, favoured high angle radiation eastwards.

By raising the wire to a horizontal position, and feeding by Windom tap, on 14 mc. good DX signals were obtained both east and west, whilst good reports were also obtained from other directions. At the same time, local and European reports were much weaker. With the height of 40 ft. used, and operating the aerial on full wave, the reflection from the ground appears to operate in such a manner as to allow reasonable low angle radiation east and west. The radiation southwards whence also good reports were received is probably due to a slight Marconi effect from the single feeder.

This is a good example of the effect of a slight slope on the aerial. The remarkable difference can hardly be attributed to the extra height, which is only 7½ ft. in the centre.

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**TRADE NOTICES.**—(*Contd. from page* 73).

giving additional ranges of 0-1 ma. A.C., and 0-1 ma. D.C. From these four ranges any number of A.C. and D.C. ranges can be obtained by the use of suitable external multipliers, which can be made up by the experimenter, or supplied by the manufacturer.

A 150 volt electrostatic voltmeter of similar diameter has also recently appeared.

An extensive range of valve testers are available, including a universal tester priced at £7 7s., complete with three adapters.

## Reports Wanted

G6AB (Holland-on-Sea) on his 7 mc. transmissions.

VK5FG (Balaklava, S. Australia), on his 7,225 kc. transmissions.

X1AI on his 14 mc. transmissions (reports *via* BRS13.56).

# HIC ET UBIQUE.

## Ninth Annual Convention, 1934—Convention 56 mc Field Day—Society Trophies—QSL Section—W.B.E. Certificates.

## Ninth Annual Convention.

The following programme has been arranged :—

*Friday, August* 24.

6.0 p.m. Conversazione and Running Buffet at Maison Lyons, Shaftesbury Avenue, W.1. Cost per head, 1s., payable on arrival.

8.0 p.m. Display of National Field Day and other films of interest by Mr. A. E. Watts.

*Saturday, August* 25.

9.30 p.m. Delegates' Meeting at Institution of Electrical Engineers. Agenda to be circulated to all District Representatives.

11.0 a.m. General Business Meeting.

AGENDA.

1.—To receive report from Delegates' Meeting.

2.—To discuss future Provincial Conventionettes.

3.—To discuss future Contests, with special reference to B.E.R.U. Contests.

4.—Any other business.

12.45 p.m. Informal lunch at Slaters Restaurant, Strand. (Members wishing to attend must advise the Secretary not later than August 22. The cost will be approximately 2s. 6d. per head, payable direct to Slaters.)

1.50 p.m. Convention Photograph. (A proof will be available and orders will be accepted by the photographer during the Dinner.)

2.0 p.m. Reception by the President.

2.10 p.m. Presidential Greetings, followed by an announcement of importance by Mr. Arthur Watts.

2.20 p.m. Presentation of Trophies.

2.30 p.m. Technical Talks.
Speakers : J. Davies, G2OA, *"A Summary of Receiving Antenna Design"*; H. J. Collin, G2DQ, *"Some Views Regarding Contests"*; E. A. Dedman, G2NH, *"Field Strength Measurements on* 56 *mc."*; H. A. M. Clark, G6OT, *"Some Notes About the Bruce Antenna"*; F. Charman, G6CJ *"The Natural Frequencies of Aerial Wires"*; D. N. Corfield, G5CD, *"Valve Voltmeters for Amateur Use,"* and *"Short-wave Frequency Changers for Superhets"*; E. N. Adcock, G2DV, *"The Future of Amateur Radio"*; A. T. Mathews, G5AM, *"The Brooke Field Valve Circuit."*

4.0 p.m. Interval for tea.

4.30 p.m. Technical Talks continued.

6.30 p.m. Convention Dinner at Florence Restaurant, Rupert Street, W.1. Tickets 5s.

*Dinner Tickets.*

Members are requested to purchase their tickets before the dinner, either from Headquarters or from the Society's stand at Olympia. Members only are permitted to attend this function, except in special cases, when the name of the intending visitor must be communicated to the Secretary, prior to Convention.

*Stand* 204, *Olympia.*

Provincial members who wish to pay subscriptions or order Society publications, etc., are requested to do so at Olympia, and not at Convention. The Secretary will be in attendance at the stand every evening and at certain hours during each day, except August 24 and 25. Appointments to meet provincial members will be made on receipt of a post card to Headquarters.

Overseas members who intend to visit Olympia on one or more occasions are invited to advise Headquarters the day and time they will be present, in order that a list may be prepared in advance. This will enable other members to arrange meetings, if desired.

Members visiting the Exhibition are warned that the Society cannot accept responsibility for goods or wearing apparel left on our stand. The visitors' book should be signed by all attending.

One corner of the stand will be devoted to a display of member's QSL cards. On arrival please hand your card in and ask for it to be pinned up to show you have been a visitor.

## Secretary's Vacation.

Our Secretary expects to be on vacation from September 1 to 17. Members are asked to keep correspondence down to a minimum during that period. Normal routine matters will, of course, be handled as usual.

## An S.O.S.

Accommodation is still required for numerous provincial members and Dutch amateurs who will be visiting Convention. London members who can assist are asked to communicate with Mr. T. A. St. Johnston, 28, Douglas Road, Chingford, *immediately.*

## A Guide to Amateur Radio.

The second edition of the Guide has been completely revised and enlarged to 80 pages, and will be available on our stand at Olympia.

We are counting on every member buying a copy, not only to support the project, but because it contains a wealth of most valuable information.

Copies will be available from Headquarters as from August 16, price 8d. post free.

## Empire Call Sign Allocations.

In the list of proposed new Empire Call Allocations published last month, the prefix for Palestine

*Have you ordered the new Guide?*

was recorded as ZC1 and for Transjordania as ZC6, these should have been reversed.

VP2 is, we understand, used by Antigua and not by Fiji, as shown in our list.

## Convention 56 mc Field Day.

A national 56 mc. Field Day will be held on Convention Sunday, as previously announced. All who have 56 mc. apparatus are asked to take part and be on the air as much as possible all day from 10.00 B.S.T. onwards.

The 56 mc. section of R.E.S. had hoped to arrange a cross-country relay for this occasion, but this has been found impossible, due to the fact that so many members will be away from their home stations attending Convention ! In place of this we intend originating five test messages from London, to be relayed as far as possible from their source, using 56 mc. exclusively. These test meassages will be in the following form : " 56 mc. Test Message de G2NH. Via G5—, G6—. This message is to test the efficiency of a National 56 mc. relay. Signed, G2NH." Each member handling the message should add his call to the preamble after " Via." Copies of each message handled should be kept in the log. BRS stations should endeavour to log as many messages as possible, and all logs should be forwarded to the 56 mc. Section Manager of R.E.S., via H.Q., as soon after the contest as possible.

Provincial members who are at home for the contest are asked to originate ONE message of their own. The message should consist of not less than ten and not more than 20 words, and must have some bearing on 56 mc. work. *Personal messages of any description are not allowed, of course.*

All London members who intend to participate are asked to send in their names to Headquarters *at once*, in order that a list may be prepared for exhibition at Convention for the benefit of visiting members who may wish to see some of the London stations in operation. The test closes at 20.00 B.S.T.

E. A. D.

## Society Trophies.

Council, at their July meeting, awarded the following trophies for the year 1934-5 :—

*Rotab.*—To Mr. J. S. Owner (G6XQ) for consistent DX work over many years, and in recognition of his success in obtaining a W.A.C. Telephony Award. (It will be remembered that Mr. Owner was the leading British station in the 1934 Junior B.E.R.U. Contest.)

*Wortley-Talbot.*—To Mr. D. Low (G5WU) in recognition of his outstanding achievements in connection with Trans-Atlantic communications on the 1.7 mc. band.

*Courteney Price.*—To Mr. A. E. Livesey (G6LI) in recognition of his numerous technical contributions to the Society's Experimental Section and to the T. & R. Bulletin.

1930 *Committee.*—To Mr. H. G. Collin (G2DQ), winner of the 1934 3.5 mc. Transmitting Contest.

*Somerset.*—To Mr. H. G. Collin (G2DQ), winner of the 1.7 mc. Transmitting Contest.

No award has been made in connection with the Somerset Goblet or the Powditch Transmitting and Receiving Trophies.

## Unlicensed Transmissions.

We have been advised by Mr. Bolton, G2OV, Mr. Holt, G5OZ, Mr. Stannard, G2YC, and Mr. Hunter, G6ZV, that their call signs have been illegally used by pirate transmitters. We again wish to state that headquarters intend to report *without warning* all cases of piracy which come to their notice.

During the past few weeks several prosecutions have taken place and in all cases heavy fines have been imposed.

We are confident that we have the full support of every licensed transmitter in our determination to cut out this canker which tends to spoil the amateur movement.

## Watch Your Step, Transmitters.

The following is the text of a letter received from the G.P.O. Transmitting members are requested to take note of the warning contained therein.

" It has been brought to our notice that a member of the R.S.G.B. recently accepted a private message from a foreign ship, for transmission to a third party. Under the circumstances, both the ship's operator and the operator of the Experimental Transmitting Station are guilty of infringement of the terms of their licences.

" It is realised that members of the R.S.G.B. in general endeavour to adhere strictly to the terms of their licences, and it is for this reason we wish to bring this irregularity to your notice."

## Licence Facilities.

Members are again reminded that all applications for increased power or the use of the 3.5 mc. band, must be sent to Headquarters *via* a member's D.R.

Instances have occurred during the past few months where members have applied direct to the G.P.O. for increased power, and have had their request declined. We wish to emphasise that Council cannot subsequently recommend such members for increased power.

Applications for other facilities must be addressed to the G.P.O. direct.

## W.B.E. Certificates.

Members are reminded that the rules governing the issuance of these certificates appeared on page 368 of the May, 1934, Bulletin.

Numerous claims have been received since that date without a guarantee being given that the power used for effecting the contacts upon which the claim was based, did not exceed that for which the member is licensed.

## QSL Section.

Manager, J. D. Chisholm, G2CX.

Once again Convention is upon us and the fact that so many members will be in London suggests to us that it will provide an excellent opportunity for the Section to gather in envelopes from those whose supply is running out. The writer will be pleased to accept same from any member present at Convention or at the Exhibition. If it is too much trouble to prepare them and bring them to

London, don't forget that we can make out and stamp envelopes for you at a cost of 2d. each.

The " DX hounds " who write up all their QSL cards in colossal yearly spasms would be rendering the Section great assistance if they would spread the cards over a period of several weeks as the receipt of bundles containing several hundreds of cards is liable to disorganize the service temporarily.

## Slow Morse Practice.

Details of slow Morse practice times for August and September are given below. Test matter will be taken from recent issues of the T. & R. BULLETIN, and the page number and month of issue will be given at the end of each test. Reports will be appreciated and are desired, in order to ascertain range of transmissions. If reply is required, please enclose stamped addressed envelope or card. Stations willing to assist on 1.7 or 3.5 mc. (or both) bands should get in touch with Mr. T. A. St. Johnston (G6UT), 28, Douglas Road, Chingford, E.4. No practice, it will be noted, has been arranged on August 26, Convention Sunday.

SCHEDULE OF SLOW MORSE TRANSMISSIONS.

| Date, 1934. | | B.S.T. | Frequency kc.'s | Station. |
|---|---|---|---|---|
| Aug. 19 | Sun. | 00.30 | 1,820 | G2OI |
| ,, 19 | Sun. | 10.00 | 1,815 | G2DQ |
| ,, 19 | Sun. | 11.00 | 1.7 mc. | G2UV |
| Sept. 2 | Sun. | 00.30 | 1,820 | G2OI |
| ,, 2 | Sun. | 10.00 | 3,630 | G2DQ |
| ,, 2 | Sun. | 11.00 | 1.7 mc. | G2UV |
| ,, 9 | Sun. | 00.30 | 1,820 | G2OI |
| ,, 9 | Sun. | 10.00 | 1,815 | G2DQ |
| ,, 9 | Sun. | 11.00 | 1.7 mc. | G2UV |
| ,, 16 | Sun. | 00.30 | 1,820 | G2OI |
| ,, 16 | Sun. | 10.00 | 3,630 | G2DQ |
| ,, 16 | Sun. | 11.00 | 1.7 mc. | G2UV |

## CALIBRATION SECTION FEES.

*CRYSTALS*, 1*s.* 6*d. each; FREQUENCY METERS*, 2*s.* 6*d. for five points, plus* 6*d. for each additional point. These prices do not cover cost of return postage, which must in all cases be remitted as a* separate amount.

*Crystals and frequency meters should be sent for calibration, at owner's risk, to Mr. A. D. Gay, 49, Thornlaw Road, West Norwood, London, S.E.27.*

## A Silent Key.

We regret to announce the death at a comparatively early age of one of our earliest Scottish members, Mr. R. D. Spence, G2JZ.

Mr. Spence saw active service during the war and was a pioneer experimenter in the years following. Although inactive during recent years, owing to business, he retained his interest in amateur radio until the end.

He passed away on July 28 in an Aberdeen nursing home.

Our sympathies are extended to his relations and many friends.

## A Notable Achievement.

In our last issue we recorded thr fact that during the Loyal Relay, Mr. Harold Chorley, G5YH, succeeded in accepting the Newfoundland message direct from Mr. Eric Holden, VO8H, our representative.

We have now obtained a photograph of the portable gear used by Mr. Holden which is reproduced herewith. The receiver is on the left and the transmitter on the right. Both sets are completely self-contained and are operated from Burgess 5308B batteries. The top section of the receiver contains measuring instruments and spare coils. The aerial is 66 ft. long, off-centre feed.

The input used was 4 watts and signals were reported R5 by G5YH.

# QRA Section.

Manager: M. W. PILPEL (G6PP).

OZWG and XOZ7T are the calls which are being used by a Danish Polar Expedition to Greenland. Transmissions will take place on 7 mc., and the operator is S. Hasselbalch (OZ7T), to whom cards may be sent.

## NEW QRA's.

G2AS.—H. V. BOOTH, 62, Hawthorn Road, Hillsborough, Sheffield 6.
G2JO.—L. O. JONES, "Carisbrooke," Avenue Gardens, Horley, Surrey.
G2MW.—C. S. ARTHUR, 6, Brantwood Avenue, Dundee, Scotland.
G2QY.—G. P. ANDERSON, 24, Mill Way, Mill Hill, London, N.W.7.
G2SB.—J. BAKER, c/o Mrs. Lambie, 99, Irvine Road, Kilmarnock.
G2SX.—F. E. WOODHOUSE, 103, Potters Lane, New Barnet, Hertfordshire.
G2XC.—E. J. WILLIAMS, "Rochdale," London Road, Widley, Portsmouth.
G2YW.—E. O. J. WOODWARD, "Ampthill," 18, Broadmead Road, Woodford Green, Essex.
G2ZJ.—W. A. NOKES, Station Road, Wroxham, Norfolk. (The address published in the last issue is cancelled.)
G5CT.—A. C. TAYLOR, 30, Gordon Road, West Bridgford, Nottingham.
G5FA.—J. A. FARRER, 12, Ravenswood Road, Stretford, Manchester.
G5MR.—V. G. MELLOR, 18, Waterloo Mansions, Dover, Kent.
G5NI.—W. NIGHTINGALE, 3, Beaks Hill Road, Kings Norton, Birmingham.
G5TH.—T. F. Crowther, 128, South Drive, St. Anne's-on-Sea, Lancs.
G5UD.—C. D. S. UNDERWOOD, 21, Pedlars Grove, Swaffham, Norfolk.
G5UY.—D. B. FRY, "Silverhowe," The Down, Bexhill-on-Sea, Sussex.
G5YJ.—MAJ. W. H. OATES, "Beverley," Woodlands Avenue, Coombe Lane, Kingston, Surrey.
G5ZD.—C. K. DREW, 17, Raleigh Road, Exeter, Devon.
G6CA.—C. A. ALLEN, 188, St. Anne's Road East, St. Anne's-on-Sea, Lancs.
G6CH.—E. H. CLARKE, "Woodstock," Hawkinge, Folkestone Kent.

G6FI.—F. G. Ingleton, 22, Cecil Road, London, N.10.
G6JM.—J. E. McClure, Ickenham Radio Works, Swakeleys Road, Ickenham, Middlesex.
G6MI.—R. Maynard, 307, South Promenade, Blackpool, Lancashire.
G6NC.—C. C. Newman (Ex ZC6CN), 27, Ramsgate Road, Broadstairs, Kent.
GI6TK.—F. A. Robb, 46, Victoria Avenue, Sydenham, Belfast, N. Ireland.
2AJC.—J. S. Hobson, 33, Crossman Street, Sherwood, Nottingham.
2AMU.—J. T. Stuart Williams, 16, Dunstall Road, London, S.W.19.
2BFJ.—W. H. Allen, 32, Earls Road, Tunbridge Wells, Kent.
2BHJ.—W. P. Kempster, Forge Cottage, Rosside, Ulverston, Lancs.
2BHL.—W. C. Keasley, 36, Addington Road, Sanderstead, Surrey.
2BIQ.—J. Russell, The Elms, Newchurch, Isle of Wight.
2BKF.—F. G. Grainger, Eagle Lane, Thorpe-on-the-Hill, Lincoln.
2BUW.—R. R. Butlrr, 3, Avondale House, Avondale Square, London, S.E.1.
2BXT.—A. W. Lister, The Church House, Bibury, Cirencester, Glos.
2BYP.—J. W. McKay, Caledonian Hotel, Callander, Perth, Scotland.
2BYX.—S. Clark, 8, Clumber Street, Melton Mowbray, Leicestershire.
EI8F.—M. D'Alton, 75, Leinster Road, Rathmines, Dublin, I.F.S.
The following are cancelled: 2AKY, 2AMK, 2AVP, 2BAB, 2BAI, 2BBO, 2BJY, G6BC.

## NEW MEMBERS.

HOME CORPORATES.

S. E. Martingell (G2MV), "Haycott," Homefield Road, Old Coulsdon, Surrey.
C. S. Arthur (G2MW), 6, Brantwood Avenue, Dundee.
A. L. Thornley (G2NQ), 15, Parkdale Avenue, Wednesbury, Staffs.
W. G. D'Arcy (G2OF) c/o, The Bush Building Co. Estate Office, Newington Road, Ramsgate, Kent.
P. T. W. Castle (G6CS), 52, Ormiston Road, East Greenwich, S.E.10.
H. J. Merriman (G6GM), "Featherlands," Holsworthy, Devon.
A. J. Dixon (G6PD), "Winster," Elm Tree Avenue, Frinton-on-Sea, Essex.
F. H. Pemberton (2BCY), 3, Merlewood Avenue, Churchtown, Southport, Lancs.
A. G. Parker (2BGO), 37, Oxford Street, Norwich, Norfolk.
A. M. Williams (2BRK), "Highcroft," Bryntirion Drive, Prestatyn, North Wales.
J. P. Male (BRS1486), Custom House, Greenock, Scotland.
F. Capes (BRS1487), 26a, Cleethorpes Road, Grimsby, Lincs.
W. H. Coombs (BRS1488), Farnagh, York Road, Dunlaoghaire, Co. Dublin.
D. Campbell (BRS1489), Signal School Mess, R.N.B., Portsmouth.
G. R. Hirst (BRS1490), c/o E. Wiltshire, "Blaendare Stores," Blaendare Road, Pontypool, Mon.
C. W. Petch (BRS1491), Rosedale, Twywell, Near Kettering, Northants.
R. W. Rogers (BRS1492), 21, Chester Avenue, Southport, Lancs.
P. Pender (BRS1493), South Craigs, Polmont, Stirlingshire.
P. C. Heath (BRS1494), Mill House, Broad Oak, Heathfield, Sussex.
W. E. Boggis (BRS1495), Glenville, Fairfield Avenue, Scarthoe, Grimsby.
R. B. Foster (BRS1496), 62, Harlow Terrace, Harrogate, Yorks.
A. L. Bacchus (BRS1497), The White House, Theydon Bois, Essex.
D. W. Atkinson (BRS1498), 180, Haverstock Hill, N.W.3.
F. A. Jefferies (BRS1499), 93, High Street, Oxford.
E. Le Cheminant (BRS1500), 167, Botwell Lane, Hayes, Mdx.
H. C. Stone (BRS1501), 4, Leckford Road, Oxford.
H. Caunce (BRS1502), 24, Vanbrugh Road, Anfield, Liverpool 4.
P. A. B. Malvern (BRS1503), 9, Chamberlain Street, Wells, Som.
S. H. Leech (BRS1504), 54, Hawthorn Road, Gatley, Cheadle, Ches.
F. C. Palmer (A), 13, West Street, Bridgwater, Som.

DOMINION AND FOREIGN.

J. Lay (HB9RGO), Hirschmattstr. 8, Lucerne, Switzerland (temp., 51, Adolphus Road, London, N.4).
A. Bles (PK2DX), Bataafsche Petroleum Co., Tjepoe, Java, Dutch East Indies.
D. St. Marc (PK3BG), Semarang, Java, Dutch East Indies.
C. A. LeCotey (PK3LC), Talooni, Lawang, East Java, Dutch East Indies.
J. W. M. Brown (VS6AB), Imports and Exports Office, Kowloon, Hong Kong.
Miss E. M. Zandonini (W3CDQ), 3633, Everett Street, N.W., Washington, D.C., U.S.A.
F. Mika (W8UV), 53, Cooke Street, Ashley, Pa., U.S.A.
F. Carter (ZS1A), Lookout Station, Table Bay Harbour, Cape, South Africa.
J. Radeneyer (ZS6AL), 297, Persimmon Street, Malvern, Johannesburg, South Africa.
B. W. Le Sueur (ZU1J), P.O. Box 66, Cape Town, South Africa.
A. T. Law (ZU6Y), 22, First Avenue, Parktown N., Johannesburg, South Africa.
W. A. Anderson (BERS236), Executive Engineer, c/o P.W.D., Lagos, Nigeria.
H. G. Shinn (BERS237), c/o Messrs. Dickson, Anderson & Co., Ltd., 20, Abchurch Lane, London, E.C.4.
R. M. Joubert (BERS238), P.O. Box 659, Cape Town, South Africa.
J. J. Rowe (BERS239), P.O. Bukuru, Plateau Province, Northern Nigeria.
J. J. Van Ravesteyn (BRS240), 45, Waterkant Street, Noorder Paarl, South Africa.
M. G. Kekre, P.O. Thilawa, Rangoon, Burma.
R. Meissner (DE1693), Uelzen, Schmiedestr. 7, Germany.

## TRADE NOTICES.

Readers will be interested to learn that *British N.S.F.* components, which include volume controls, resistors, tubular condensers, and small dry electrolytic condensers, are now available to the public through *Messrs. Wingrove & Rogers*, makers of Polar Condensers, etc.

This firm are producing amongst other new lines, two new full vision drives, namely the V.P. horizontal and the vertical C.K., both listed at 6s. 6d.

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*Westinghouse* have a range of new components which include a special charger known as R.G.C.9. This is designed to meet the needs of all but the larger type of charging station, and is sold at a strictly competitive price.

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*The High Vacuum Valve Co., Ltd.*, send advanced data of six new Mains Valves. These include a high gain S.G. amplifier (AC/SH) with an amp factor of 1,750, slope of 3.5 ma/v, and an impedance of 500,000 ohms selling at 13s. 6d. AC/SL and AC/VS are medium gain and variable mu S.G. amplifiers also selling at 13s. 6d. A general purpose triode AC/HL (9s. 6d.), an L.F. output pentode AC/7 (15s. 6d.), and a full wave rectifier giving 120 mas. at 350 volts complete the range. The latter retails at 12s. 6d., and is coded UU120/350.

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Meters are an essential part of every amateur radio station. For the transmitter or the receiver, for the frequency meter or 100 kc. bar oscillator, across the mains, or in the aerial leads, meters are required. In considering meters our mind invariably turns to moving coil milliammeters, but *Messrs. Ferranti* in a new list, WL.526, show us that beside the more usual types of D.C. instruments they manufacture moving iron meters for A.C. measurements, metal rectifier types for audio frequency work, and thermo-couple and electrostatic types which are equally suitable for use in A.C. or D.C. circuits.

It has been our good fortune to examine and use Ferranti meters, and in every case we have nothing but praise to offer a firm who are able to supply such well-made instruments at such reasonable prices.

A good meter is an investment, a cheap meter is often a dead loss to its owner. In purchasing Ferranti meters we are confident that complete satisfaction will result, as each instrument is fully guaranteed.

The latest addition to their list is a new 2½ in. A.C.-D.C. instrument, the full scale readings of which are 5V A.C. and 50 millivolts D.C. Both ranges have a resistance of 1,000 ohms. per volt,

(*Continued on page* 69).

# NOTES and NEWS from the BRITISH ISLES

## DISTRICT REPRESENTATIVES.

**DISTRICT 1 (North-Western).**
(Cumberland, Westmorland. Cheshire. Lancashire.)
MR. J. NODEN (G6TW), Fern Villa, Coppice Road, Willaston, near Nantwich, Cheshire.

**DISTRICT 2 (North-Eastern).**
Yorkshire (West Riding, and part of North Riding), Durham, and Northumberland (Middlesborough is in this district.)
MR. L. W. PARRY (G6PY), 13, Huddersfield Road, Barnsley, Yorks.

**DISTRICT 3 (West Midlands).**
(Warwick. Worcester. Staffordshire, Shropshire.)
MR. V. M. DESMOND (G5VM), 199, Russell Road, Moseley, Birmingham.

**DISTRICT 4 (East Midlands).**
(Derby, Leicester, Northants, Notts.)
MR. W. W. STORER (G6JQ), 28, Blanklyn Avenue, Leicester.

**DISTRICT 5 (Western).**
(Hereford, Oxford, Wiltshire, Gloucester.)
MR. W. B. WEBER (G6QW), 2, Balmoral Road, St. Andrews Bristol.

**DISTRICT 6 (South-Western).**
(Cornwall, Devon, Dorset, Somerset.)
MR. W. B. SYDENHAM (G5SY), "Sherrington," Cleveland Road Torquay.

**DISTRICT 7 (Southern).**
(Berkshire, Hampshire, Surrey.)
Mr. E. A. DEDMAN (G2NH), 63a, Kingston Rd., New Malden, Surrey.

**DISTRICT 8 (Home Counties).**
(Beds., Bucks., Cambs., Herts. and Hunts.)
Mr. G. FEATHERBY (G5FB), 30 Lindsey Road, Bishops Stortford Herts.

**DISTRICT 9 (East Anglia).**
(Norfolk and Suffolk.)
MR. H. W. SADLER (G2XS), Redways, Wootton Road, Gaywood, King's Lynn, Norfolk.

**DISTRICT 10 (South Wales and Monmouth).**
MR. D. Low (G5WU), "Nantissa," Westbourne Road, Penarth Glamorgan.

**DISTRICT 11 (North Wales).**
(Anglesey, Carnarvon, Denbighshire, Flintshire, Merioneth, Montgomery, Radnorshire.)
Mr. T. Vaughan Williams (G6IW), "Malincourt," Grosvenor Ave., Rhyl, Flintshire.

**DISTRICT 12 (London North).**
Mr. S. BUCKINGHAM (G5QF), 19, Oakleigh Road, Whetstone, N.20.

**DISTRICT 13 (London South).**
MR. H. D. PRICE (G6HP) 12, Hillcrest Road, Sydenham, S.E.26

**DISTRICT 14 (Eastern)**
(East London and Essex.)
MR. T. A. ST. JOHNSTON (G6UT), 28, Douglas Road, Chingford, E.4.

**DISTRICT 15 (London West and Middlesex).**
MR. H. V. WILKINS (G6WN), 81, Studland Road, Hanwell, W.7.

**DISTRICT 16 (South-Eastern).**
(Kent and Sussex).
MR. A. O. MILNE (G2MI), "Southcot," Larkfield, Kent.

**DISTRICT 17 (Mid-East).**
(Lincolnshire and Rutland.)
MR. A. E. LIVESEY (G6LI), Stourton Hall, Horncastle, Lincs.

**DISTRICT 18 (East Yorkshire).**
(East Riding and part of North Riding.)
MR. T. WOODCOCK (G6OO), 8, George Street, Bridlington.

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

**NORTHERN IRELAND.**
MR. W. GRAHAM (GI5GV), 5 Ratcliffe Street, Donegal Pass, Belfast

## DISTRICT 1 (North Western).

AN excellent talk on the subject of Cathode Ray Oscillographs was given by G5YD at the last Manchester section meeting. He described the construction and working of these tubes and the principle of the time base. He made reference to their use for television purposes, and a sample tube, kindly loaned by Messrs. Cossors, Ltd., was examined with much interest. An attendance of 16 was recorded at this meeting which, considering the fine weather, was a further indication of the keenness shown by members in this section. A visit to the Ferranti works is being arranged for September, and all interested members are requested to advise G2OI if they wish to be included in the party.

Nine members from the Manchester section attended the Leeds Conventionette, and a vote of thanks is passed to G6PY and others for a very enjoyable day.

As mentioned in the last budget, a proposal has been made to hold a joint northern Conventionette next year in Blackpool. The Manchester group have voted solidly in favour of this suggestion, and the C.R. would be glad to have a note from other members in his area giving their views.

The following report active, G2DF, 2DH, 2OI, 2WP, 2WQ, 5YD, 2KY, 5CH, 5FA, 6AX, 6QA 6GV, 6ZS, 6TW, 2AZT, 2ACP, BRS.1114.

For the first time since the Monthly meetings were started in Liverpool the attendance of members was poor as only eight turned up at the July Meeting. G6TT gave a very interesting talk on Commercial Land Line and Cable Telegraphy and the meeting concluded with the usual discussion.

Owing to lack of preparation, both in the Liverpool District and North Wales District, due mainly to the fact that many of the members are at present on holiday, it was decided to postpone the proposed 56 mc. Field Day until later in the year, and it was suggested that if possible some of the North Wales members might attend the next Liverpool Meeting in order to make detailed arrangements and fix the date of the tests.

On account of the absence of members on holiday it is essential that those who are not away from home should make a special effort to attend the Summer Meetings and the C.R. will be very glad if members will bear this in mind. If it is at all possible for you to attend, please do.

## DISTRICT 2 (North Eastern).

The last Bradford Field Day was pronounced a success and another one on a larger scale is soon to be held, and as a result of a paragraph in the local papers much interest in the D.F. hunt has been aroused.


Activity is fairly well maintained, and a visit to G6PY was made on July 21. This, together with the Convention and a visit to a cable company in Lancashire, are looked forward to with interest.

Individual reports as usual are few, but most stations have been heard at some time during the month.

G6KU has constructed an electron coupled frequency meter and finds it very good, readings to ½ or 1 kc. being easily made at a minute's notice, whilst the circuit is remarkably stable. (BULLETIN article, please OM.—ED.).

Meetings will be held in Middlesbrough at G5XT and G6CV alternately during the holidays until further notice.

Leeds and Newcastle have not reported this month.

Mr. Watson Liddell, the Sheffield sub-manager, has arranged a meeting at The Angel Hotel, Sheffield, on September 21. It is hoped that every member within reach of this town will attend, as it is intended to make plans for the coming season. New members who have joined since the last meeting are especially welcomed.

## DISTRICT 5 (Western).

The usual monthly meeting was held by the Bristol Section during July and was well attended. Field Days have been held by both the Bristol and Gloucester Sections. The Bristol 56 mc. F.D. held on the 15th was most successful. One party, G6VK, 6YA, 5UH and 6DJ, on Dundry Downs, 5JU and 5XV on top of Hawkesbury Upton Tower (96 feet high, 144 steps climbed ten times ! phew !), and 6FO mobile. Contact with G6VK was splendid, R9 plus signal each way, speech being heard yards from the phones in a 30 m.p.h. gale. G6YJ at Malvern was worked and 6FO and 5FI also at Malvern, were heard.

A direction-finding 1.7 mc. F.D. was held on July 22 by the Gloucester and Bristol Section. The transmitter G5HC was very well hidden. Afterwards 20 sat down to tea at Woodchester House and discussed results, etc. A similar event took place on August 11 and another 56 mc. F.D. will be held shortly after. Particulars from the C.R.

Congratulations to G5KT on qualifying for his W.B.E. Successful after taking hints from the N.F.D., eh ?

Oxfordshire members are also very active on the 56 mc. band and are making good headway.

Wiltshire with their letter budget are much alive. Activity as a whole, apart from Field Days, is quiet.

Do not forget the Ninth Annual Convention in London, om's. The D.R. hopes to see many of you there.

*Late News* :—The D.R. has just learnt that No. 5 District won the N.F.D. Trophy and wishes to convey his thanks to all who supported him on that occasion.

## DISTRICT 6 (South-Western).

It is evident that this is the slack season of the year in this district, as apparently very little is being done just at present. Once more the budget for Devon seems to have got hung up somewhere. This is rather a pity, especially as it appears avoidable. The budget has a smaller circulation now and it should be quite possible for it to get round inside the month. We sincerely hope that the individual concerned will mend his ways in future.

On this account the D.R. has to rely on individual rather than collective reports. It appears that a certain amount of work is being done, but for the most part the members are actively engaged, during their spare time, in various summer pursuits. Some DX work has been done, chief interest being centred on working W6's and W7's on the 14 mc. band.

*'WINNERS.*
***This is the gear and the personnel at G6RB, District 5 B Station.***

56 mc. still has its attractions, and several members are engaged in experiments. G5YR and 6RP are very interested in this band and hope to put up some gear that will bring along a few contacts. They have been along to see G5SY's transceiver and are hoping to do something in the same line. They have evidently been fired with enthusiasm on account of their success in working 'phone on the 7 mc. band over half-a-mile with 9 volts H.T. !

G5GD, from his new QRA on the other side of Teignmouth, has managed to hear 5SY's 'phone on 56 mc. so there are possibilities after all of renewing contacts when 5GD can manage something as regards H.T.

G5SY is hoping to be in London for Convention and hopes to meet many old friends again. He would remind members of District 6 that he would like to hear of any suggestions worth bringing up at Convention.

If any of you have decided to go up to Convention will you please let the D.R. know so that he may look out for you ?

It is noted that there has been a further increase in membership this month and that there are now a number of new BRS men in the district.

special effort to attend Convention this year, as a bumper programme has been arranged to celebrate our 21st birthday, as you will have seen from the programme printed in the July " BULL."

G2YD has post-card copies of the Conventionette photograph available, price 7½d. post free, and application for them should be made direct to him at " Melbury," Kingston Hill, Surrey.

The D.R. will be away on holiday from August 11 until Convention Friday, so please keep correspondence at a minimum !

## DISTRICT 8 (Home Counties).

Lack of material for these notes would tend to emphasise the fact that this district was suffering from the usual attack of " summeritis." But things are not quite so bad as they seem, and it might even be said, after reading the report of the St. Albans meeting elsewhere in this issue, that District 8 is still very much on the map. The D.R. wishes to thank everyone who assisted in making the fixture such a success.

By the time these notes are published we shall be very near Convention, therefore don't overlook the fact that your D.R. will be there to look after your interests. Any criticisms or suggestions will be welcome. Better still, of course, come to Convention yourselves. Although this district is called the Home Counties, we have never had a very strong contingent at the annual " rag-chew."

We welcome Lieut. Beaumont (VV2FP) to this district. He is home on a few months' leave, and is on the air with the call sign G6HB.

All C.R.'s have reported regularly but, as usual, there is nothing of outstanding interest to report.

*AN ACTIVE AFFILIATED SOCIETY.*

*Members of Kettering Radio and Physical Society at Daventry on the occasion of a visit to the B.B.C. transmitters on June 30. The chairman, Mr. Alan F. Hutchen (BRS1251), and the Secretary, Mr. Thomas H. Hall (2BXG), are seated in front of the two ladies in the centre of the group. Other summer outings include visits to Broadcasting House, London; P.O. transmitters at Hillmorton, Rugby; G.E.C. works at Coventry; and the Igranic Works, Bedford.*

## DISTRICT 7 (Southern).

A seaside social meeting has been arranged for Sunday, September 2, at Wittering. This is the third year that we have held our Wittering meeting and we hope to make this a record as far as attendance goes. Meet at Chichester Station at 10.30 a.m. If you cannot get to Chichester at this time, you will find the meeting on the beach at Wittering, right opposite the car park. Catering accommodation is poor, so please bring your own lunch and tea.

G2YL has prepared a very fine budget of photographs taken at both No. 7 N.F.D. stations, and this is being circulated on the rota, principally to all who contributed photographs. After its return from this journey, the budget will be available for any member of No. 7 District, and if you would like to receive it, please drop G2NH a post-card.

The D.R. hopes that all members will make a

## DISTRICT 9 (East Anglia).

Owing to holidays it has been decided to postpone the proposed meeting at Norwich until later in the summer.

Local activity on 1.7 is also at a standstill, until September, when it is hoped to commence regular schedules ; listening stations, please note.

A letter budget is now in circulation. Anyone desiring to receive same, who has not done so by the

time these notes are in print, should advise the D.R. Please remember that Headquarters want to know who will be present at Convention, so just get that postcard off now ; incidentally, the D.R. is hoping that No. 9 will turn up in good numbers.

Activity in Norfolk seems to be standing the summer very well ; many of the stations are doing some rebuilding including G2JS, 2XS and 5UF, so we shall hope for bigger and better signals in the autumn. The B.R.S. men are making quick strides toward full tickets ; congrats. to Mr. C. D. S. Underwood, of Swaffham, who became a B.R.S. in June and is now G5UD.

All this about Norfolk ; but what is Suffolk doing ? Surely some people are active. How good it would be if the members there would drop their C.R. a card now and then, even if they have done nothing outstanding. Try it om's, please.

The D.R. is glad to hear that G2RW has built a 56 mc Rx and Tx ; so has G2JS of Lynn. What about a little co-operation ?

See you all on the 25th ?

*Tourmaline has been reported in Cornwall. G5VL stakes his claim.*

## DISTRICT 10 (South Wales and Monmouth).

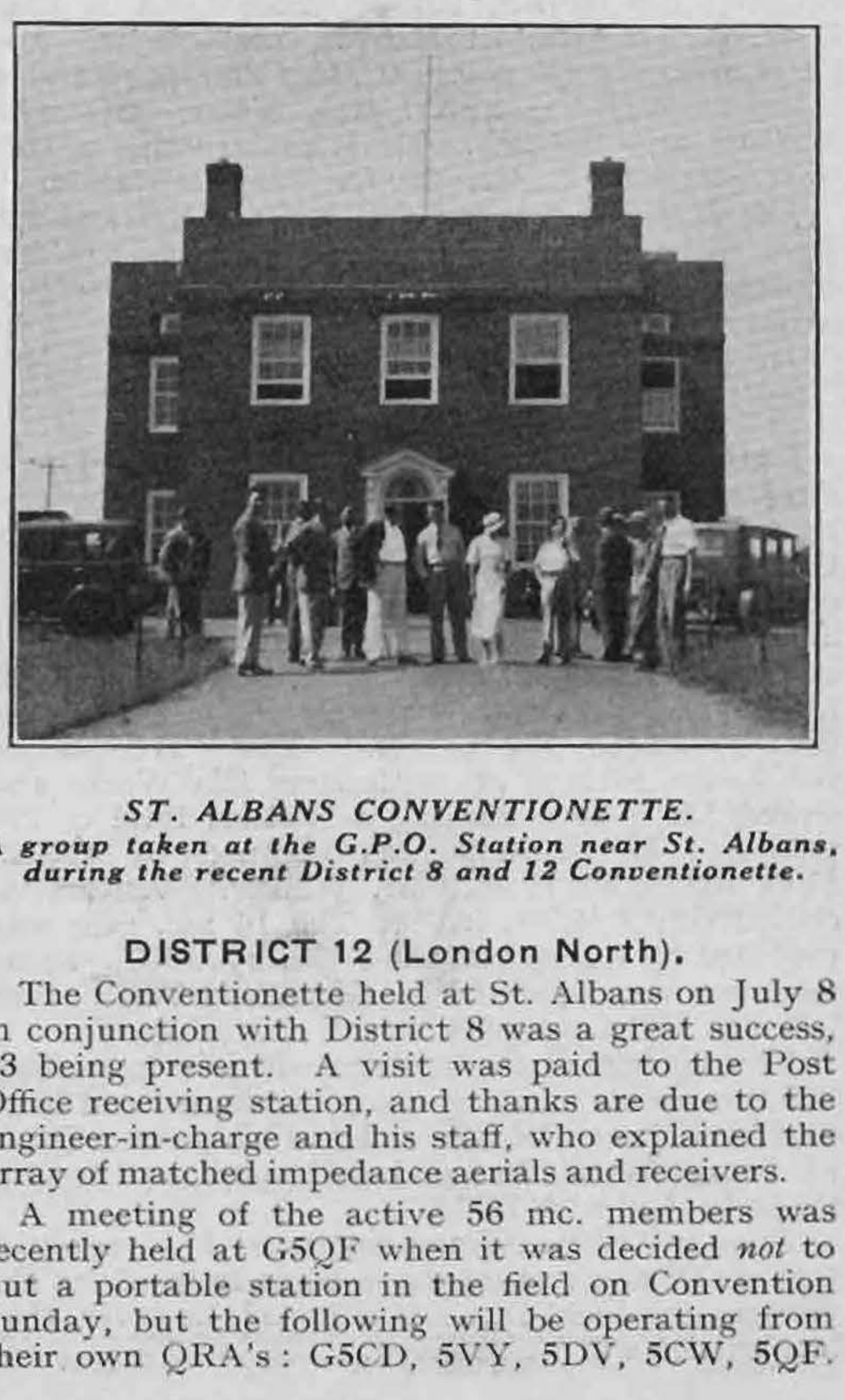
In spite of the favourable outdoor attractions the July Meeting was well attended and this enthusiastic support is appreciated by the D.R. A hearty welcome is extended to two new members in the Swansea area, 2ATD and 2BYB.

All members in the Monmouth and Cardiff areas are active with G2PA, 2XX, 6YJ, 5FI and 2BPG devoting considerable time to 56 mc. On this band G6YJ and 5FI co-operated in a very successful Field Day on the 15th with the Bristol group. Both stations were operating from positions on Worcester Beacon, the former on I.C.W., the latter on phone. G6YJ made early contact with G6VK and 5UH on Dundry Hill, near Bristol (48 miles), signals R8, and subsequently worked G5JU and 5XV at Hawkesbury. G5FI, though unsuccessful from a sheltered position, had no difficulty in working 5JU and 5XV from an exposed site. G6YJ heard a weak station at the bottom of band calling him at intervals throughout the day ; if these notes are read by the station concerned, please get in touch with him.

It is suggested that Swansea members form a 56 mc. group in an endeavour to link up the District. G5WU is active and the experiments could be carried out mainly from members' own stations.

On the 1.75 mc. band 6YJ has been successful in working Leningrad R5, and it gives the D.R. great pleasure to place on record his splendid final effort of the month, that is, the installation of the first wireless set for the blind in this district.

Interesting news comes from Swansea to the effect that all members are active and that we may soon hear more stations on the 1.75 mc. band. It is stated that G5PH has recently designed and constructed a fine A.C. receiver. A detailed description would form a useful contribution for publication in the "BULL." What about it, OM ?



*ST. ALBANS CONVENTIONETTE.*
*A group taken at the G.P.O. Station near St. Albans, during the recent District 8 and 12 Conventionette.*

## DISTRICT 12 (London North).

The Conventionette held at St. Albans on July 8 in conjunction with District 8 was a great success, 63 being present. A visit was paid to the Post Office receiving station, and thanks are due to the engineer-in-charge and his staff, who explained the array of matched impedance aerials and receivers.

A meeting of the active 56 mc. members was recently held at G5QF when it was decided *not* to put a portable station in the field on Convention Sunday, but the following will be operating from their own QRA's : G5CD, 5VY, 5DV, 5CW, 5QF.

It is hoped that provincial members will avail themselves of the opportunity of visiting these stations.

The next meeting and " good Junk " sale will be held at Gordon Hall, Nether Street, adjoining West Finchley Station, at 7 p.m., on September 29. A talk will be given by 2BTZ on radio activity in the Scout movement. Visitors will be welcomed.

## DISTRICT 13 (London South).

Several reports have been received this month, mostly thanks to G5GQ, who kindly collected them. The D.R. has been doing some exceedingly long hours at work, but has managed in the mornings to work 40 W6 and W7's. G2UL (ex-2BJY) is on the air on 1.7, 7 and 14 mc. with a crystal frequency of 1,762 kc. and harmonics. He would welcome reports on his transmissions.

G2GZ is working mostly on 14 mc. Quite a number of countries have been worked but so far the States have eluded him. He is experimenting with CO.FD and PA outfit on comparativly low power. VK2NR has come to live at Blackheath, and will be on the air very shortly with a G call.

G5YH was visited by W5AUF. He is co-operating with several Arctic Expeditions.

The D.R. understands that G2ZQ and G5YH are writing an aerial article for the BULL. They are spending August in Poland. G2ZQ informs the D.R. that he is QRT almost permanently.

G5GQ has worked FB8C, whose QRA is Paul Bour, Faravohitra, Tananariva, Madagascar. The latter uses only 200 volts D.C. to a Phillips receiving valve. G5GQ has also had a 3-way QSO with W8CRA and W6EPZ. He is constructing a 100-watt telephony transmitter for a mobile station.

The D.R. hears that G6QB, 2CX, 5XH and 5IS have all been working on 56 mc. G5XH has constructed a one-valve receiver which he believes is the only cure for background noises.

## DISTRICT 14 (Eastern).

During N.F.D. station " A " was located near Rookwood Hall, Abbess Roothing, and was operated by G6FJ, 6WQ and 6UT. With the exception of G2XP, who acted as Taxi for 6WQ, visitors and other assistants were conspicuous by their absence ; 2APS helped in the transport of gear beforehand and this was appreciated. The receiver was built by G6QK and the transmitter by G6FJ. The station (G6UT) scored 139 points. The " B " station G6CT was located at Rettenden Tile Works and scored 137 points, making a District total of 276 points. " B " station was manned by G2LZ, 5VQ, 6IF, 2BWP and Mr. Walker. Visitors included G2KT, 2WG, 5VS. The 14 mc. gear was provided by G2DQ and the 7 mc. by G6CT. Spare receivers were provided by G2LZ and 2WG. Best DX was SU1A portable.

All members of the District will join in wishing G2LZ a speedy recovery from his illness, and hope that he will soon be able to leave his present QRA, 16, George Ward, the London Hospital, and resume his daily sked with ZL4AO.

There will be no August meetings. It is regretted that no 56 mc. stations have come forward for the forthcoming Field Day ; it is hoped, however, that late entries will be received.

## DISTRICT 15 (London West, and Middlesex)

The next District meeting will be held on Wednesday, September 26, at G6WN, when it is hoped to show further films of National Field Day.

Stand duty assistance is still required by Headquarters, whilst G6UT has several names of provincials awaiting to be accommodated during Convention.

## DISTRICT 16 (South-Eastern).

The heat wave and holidays are having some effect on the volume of the reports, but there is still plenty of activity in Kent.

In the Folkestone district we offer our heartiest congratulations to Mr. Clarke, 2BBO, who is now G6CH. He is already getting out well and has gone over to a self-excited T.P.T.G. rig from which he gets T9 reports. Having no mains, he uses 4 watts from standard dry batteries. 2ASC sits for his Morse test in a few days' time and hopes to be licensed by the time these notes appear. He is studying hard under the guidance of Mrs. 6XB, who also taught 6CH.

From Tunbridge Wells 5OQ reports that 2BAW and 2BFJ (ex BRS1441) have built single signal super-hets and are pleased with them.

There was a good muster at the North Kent meeting at G2NK on July 14, when G5YH demonstrated how by means of Eckersley and Tremellen charts it was possible to put an R3 signal into VK at 3 a.m. on 20 metres. Local enthusiasm is at a high level and G6WY has mentioned another local contest to be held in September. The next meeting is at G2HG, 31, Woodbastwick Road, Sydenham, S.E.26, on August 21.

A non R.S.G.B. Society has been formed in Ashford.

The members of the Medway Society recently had a visit from Mr. Nixon, of G.E.C., who gave a most interesting lecture illustrated by three films, on valve manufacture.

Gravesend is our only weak spot, and enthusiasm is hardly at what might be called fever pitch !

G2MI has recently had reports on his 7 mc. signals from ZE and ZT in the evening (G.M.T.) and a still more remarkable one from ZL giving him R5 at 20.30 G.M.T. on 7 mc. All these were logged in June !

G6AI and 2VB have joined the Air Force. 6AI expects to be operating with an SU call soon.

Sussex continues to keep up the high standard of reporting, and from this county G5JZ states that local meetings are still going strong, and another member of " The Heathfield Radio and Television Society " has joined us as BRS1471. G2AO, 2AX and 5JZ were among the R.S.G.B. party to visit PA, and all had a good time ; among the stations visited were PA0SD, PA0MM and PA0JK. PA0MM is the only P.A. ham licenced for 1.75 mc. G2AO and 2AX were greatly interested in the " shortwave receivers on push-bikes."

BRS1472 has a television receiver in operation and reports good reception from the B.B.C., and hopes shortly to be able to " look in " to G2AO and 5JZ.

56 mc. work is still taking top place, and we have about a dozen receivers ready for regular tests. G5JZ and 2AO continue to work duplex at R9 both ways, and it is possible for the two stations to modulate the other transmitter ; G2KV has been

relayed from G2AO and received by G5JZ at QSA 5. G2AX is testing out a transmitter, but at the moment has not been heard by 5JZ. BRS1173 is still logging DX.

### DISTRICT 18 (East Yorkshire).

G6OS joins the R.N.W.A.R., but is still active on 14 mc. On Sunday, July 15, 2AMM and other Scarborough members joined in a 56 mc. Field Day to track down G6OO (portable), whilst G2QO and 6OS, of Hull, listened at their home stations, without success. Nothing was heard of the Surrey or other South country 56 mc. stations during this particular Sunday. G6OY is showing interest in 56 mc. work. The country is rather against us in this district, being devoid of much high ground. The range was definitely optical during our effort on July 15, 1934, as we were spotted before being heard!

G5VO is having success with mirror screw on television from N. Regional, and is now buiiding a "Tritet" oscillator unit and complete new transmitter. 2APU is building a modified single signal super-receiver for all higher frequency bands. G2KO has PA0UB and other Dutch "hams" paying him a visit before coming on to Convention.

G2QO has had some fine contacts with J and other remote places. He is working on a new s/w D.F. receiver and hopes to evolve a useful and practical instrument soon. G5FV has had the pleasure of assisting in tests with same on Sunday mornings. G5FV has been appointed 28 mc. R.E.S. group manager. Contacts at G5FV have been good on this frequency. Other known active stations are as follows:—G2KM, 2NP, 5GC and all A.A. and B.R.S. stations in Hull. The Hull Short Wave Club still flourishes. G5FV has had good DX contacts with W6, W7, J and CE on 14 mc.

We were rather surprised, and not a little disappointed, to note higher scores than our own for N.F.D., but look out next year! Congratulations to this year's winners.

### Northern Ireland.

GI2SP reports having made contact with PY1AW on the 14 mc. band, his signals being R5W4; Asia is only required to qualify for W.A.C. Considering that 2SP uses only about 5 watts, the performance is very good. We will shortly welcome a new transmitter in the person of BRS1454, who is now waiting for his licence before he commences building operations.

Amateur radio is very quiet just now, due, no doubt, to the holiday season. The D.R. hopes that the vacation will give GI members sufficient strength to report regularly through the following winter. (If the cap fits, OM's, put it on!)

No notes will be published next month as the D.R. will be on holiday.

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### SINGLE SIGNAL SUPER-HET.—

(*Contd. from page* 54).

It is particularly stressed that all exposed leads carrying high frequency currents must be run through copper braiding.

Coil Holders.

The placing of coil-holders is given in Fig. 2. Connections are as follows:—

1. Grounded end of L1.
2. Aerial end of L1.
3. Bottom end of L2.
4. Grid end of L2.
5. Bottom end of L4.
6. Top end of L4.
7. Tap on L4 to C2.
8. Blank.
9. H.T. end of primary winding L3.
10. Plate end of L3.
11. Tap to C6.
12. Grid end of L5.
13. Battery end of L6+winding.
14. Ground end of L5.
15. Filament end of L.T.+winding.
16. Filament end of L.T.—winding.

List of Components Used in Addition to Those Shown in Circuit Diagram.

1 *Polar* drum drive; 2 *Ormond* R360 dials (¼-in. bush); 1 *Colvern* S.G. type valve shield; 1 *Colvern* plain valve shield; 1 7-pin chassis type valve-holder (*Clix*); 1 7-pin baseboard type valve-holder (*W.B.*); 1 4-pin. chassis type valve-holder (*Eddystone*); 1 5-pin chassis type valve-holder (*Eddystone*); 4 4-pin baseboard type valave-holders (*Eddystone*); 2 6-pin baseboard type valve-holders (*Eddystone*); copper braid (*Lewcos*); battery cable and plug (*Bulgin* P9); 1 4-pin and 2 6-pin coil-formers (*Eddystone*) for each band.

(*To be Continued*)

### SOLILOQUIES.—

(*Contd. from page* 66).

Thank you, Miss Winterbottom. Coo, look at this! I am quoted in Australian Radio News; one of my less original versifications. Fancy getting right round there, *and* back. Such fame goes to my head. Now for a parody of that famous song, "All of Me," which commences "Pure D.C.; won't you use pu-er D.C.?" (No, not good enough.)

Let's go to the classics. Hiawatha, à la Albert Hall (*not* Henry Hall).

*"You shall hear how Vibrophobia*
*(He the king of all the wobblers,*
*Speedy, snappy, noisy wobblers),*
*Started up on twenty metres,*
*Overcrowded twenty metres,*
*With a note just like a hack-saw*
*Hard at work on aluminium,*
*Calling W's, K's, VS's,*
*Burst his cursing Uncle's eardrums*
*With his vile and raucous racket.*
*You shall hear how Uncle Tomin*
*Rose in all his wrath and smashed him,*
*Like the East wind 'mid the onions*
*In the pleasant moon of raspberries*
*Broke down all the new potatoes*
*On the cabbage-patch of Hoozit.*
*You shall hear how Vibrophobia,*
*Leaping to the door to meet him,*
*Found his Uncle Tomin waiting,*
*Waiting with a rapt expression,*
*Armed with Gugglespitz and Wouffhong,*
*Ready to commit a murder . . ."*

But not this month.

(The one and only original Gugglespitz has now reached Headquarters.—Uncle Tom has yet to see it!—Editor.)

# Empire B.E.R.U. News.

## B.E.R.U. REPRESENTATIVES.

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

*Bahamas, Bermuda and the Eastern Part of the West Indies.*—P. H. B. Trasler, (VP4TA) No. 2 Mess, Pointe à Pierre, Trinidad, B.W.I.

*Burma.*—W. G. F. Wedderspoon (VU2JB), Government High School, Akyab, Burma.

*Canada.*—C. S. Taylor (VE1BV), Stewiacke, Nova Scotia; R. Prissick (VE2CX), 27, Bellevue Avenue, Westmount, Montreal, P.Q.; S. B. Trainer (VE3GT), 4, Shorncliffe Ave., Toronto, 5, Ont.; A. E. Howard (VE4CJ), 2401, 25th St. West, Calgary, Alberta; and A. L. Cusden, (VE5HJ), 1465, 17th Avenue, New Westminster, British Columbia.

*Ceylon and South India.*—G. H. Jolliffe (VS7GJ), Frocester, Govinna, Ceylon.

*Channel Islands.*—Capt. A. M. Houston Fergus (G2ZC), La Cotte, La Moye, St. Brelades, Jersey.

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

*Hong Kong.*—A. P. Rosario (VS6AN), P.O. Box 391, Hong Kong.

*Irish Free State.*—Col. M. J. C. Dennis (E12B), Fortgranite, Baltinglass, Co. Wicklow.

*Jamaica, British Honduras, Turks Island and Cayman Island.*—C. M. Lyons, (VP5MK), P.O Box 36, 12, Port Royal Street, Kingston.

*Kenya, Uganda and Tanganyika.*—R. O. Davidson (VQ4CRL), P.O. Box 31, Nairobi.

*Malaya.*—T. G. Laver (VS3AC), Government Electrical Power Station, Johore Bharu, Johore.

*Malta.*—H. G. Cunningham (BERS.161), H.M.S. "Royal Sovereign," c/o G.P.O., London.

*Newfoundland.*—E. S. Holden (VO8H), Box 650, St. John's, Newfoundland.

*New Zealand.*—C. W. Parton (ZL3CP), 69, Hackthorne Road, Cashmere Hills, Christchurch.

*North and South Rhodesia.*—J. W. Mavis (ZE1JE), P.O. Box 160, Umtali, South Rhodesia.

*North India.*—J. G. McIntosh (VU2LJ) Baghjan T. E. Doom Dooma P.O. Assam.

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

## Canada (First District).

By VE1BV via G6XQ.

Conditions were very good on 14 mc. during June and July. A number of J stations were heard but no contacts made. QRN was very heavy on 3.5 mc., the popular VE1 band. VE1DE has moved to Montreal and hopes to be on with a VE2 call shortly. VE1EA is testing Class B modulation and expects to be QRO before long. The local Radio Club is going strong and membership is increasing. A great many new VE1 calls have been issued this year and things look good for a very active fall season.

## Ceylon and South India.

By VS7GJ.

During June conditions on 7 mc. were practically useless, static being about R8. The 14 mc. band was erratic with no two days alike, QSC and QRN being bad, with periods for DX very short.

VU7AB is now inactive and preparing to change QRA. VU2FY who has been on a holiday in Ceylon, paid a visit to VS7RA, 7EB and 7GJ. We were glad to see him and exchange ideas.

VS7GJ has been using telephony with good results. Reports will be welcomed.

Stations to the south of VS7, are still conspicuous by their absence. The South-West monsoon is very mild this year, with an absence of heavy winds, especially in the low country.

## Hong Kong

By VS6AX, via VS6AQ and G6CJ.

Conditions on 14 mc. have been fairly good, but G's are the only Europeans heard. On 7 mc. static is less and DX occasionally very good. Active stations are VS6AG and 6AQ.

## Irish Free State.

By EI2B.

The following stations are active:—EI2B, 5B, 3C, 4D, 9D, 5F, 6F, 7F, 8B, and 9F; BRS1348 and BRS1429 have also reported.

EI5B, after a long absence, is now on the air again with CC. EI5F, though at present on holiday and rebuilding both his TX and RX, has been getting good DX on 7 mc., amongst others an R5 report from VK. He tells me that he is pretty certain that in some cases our legs are being pulled by certain European stations making use of DX calls. He quotes W5 and LU as examples of this, and adds that during the recent B.E.R.U. contest a station, believed to be SM, tried to "bait" him by using a ZL prefix when replying to him. If he is correct in his surmise, which knowing him as I do I have no reason to doubt, it is to be hoped that such silly and unsportsmanlike practices will not become prevalent. It would be interesting to hear whether any other stations have had reason to suspect this sort of thing. EI7F is now active

on 14 mc. at his new QRA which is 25, Fortfield Terrace, Upper Rathmines, Dublin. EI9F, whom we welcome as a new station, is on the air on 3.5 and 7 mc., and would welcome reports. His QRA is, W. McIlwaine, 4, Lr. Elmwood Avenue, Ranelagh, Dublin. Another new station recently licensed is EI2G, but so far I have received no details of his QRA. BRS1348 is busy at Morse practice and BRS1429 hopes for his licence in the near future.

EI4D has been chiefly occupied in organising the I.R.T.S. DF "hunt," reference to which was made in last month's Notes. This was held on July 14, the hidden transmitter being in the neighbourhood of Celbridge, about 12 miles west of Dublin. There was a good attendance in perfect weather but, whilst at the end of the day everyone expressed himself as having thoroughly enjoyed the outing, DF results fell below expectations, and nobody succeeded in definitely locating the transmitter. The failure to do so was largely attributed to the mountainous nature of the country in which the receivers operated, causing false bearings. The "hunt" started at 15.00 B.S.T., and most of the hunters gave up at about 19.00 B.S.T., though one persevered till about 20.30 B.S.T., and finally gave up when within half a mile of the transmitter. The transmitter was operated by EI4D and others and, owing to tyre trouble, their car did not reach home until nearly midnight. It is hoped shortly to arrange another outing to investigate the cause of the false bearings obtained in this part of the country.

## Northern India.

By VU2LJ via VU2BN, SU1SJ and G6HB.

The honour of having formed the first organised Group in India is held by Karachi, VU2BL is G.M.

The group activities are mainly directed upon the higher frequencies, 28 and 56 mc., due to the excessive fan QRM on the other bands. Tests on 56 mc. are being carried out by VU2BL, VU2BN and BERS231, using various types of aerials, and so far the full-wave (Windom) has proved the best.

It is with regret that the scheme of forming groups in other districts has had to be abandoned owing to lack of support.

Grid modulation has been tried out at VU2LJ with good results, the best DX being W6 and J1. The latter giving a QSA 5R6 report. The power used in all cases was under 5 watts input. Is this a record ?

Conditions were very variable during June, and signals were very weak on all bands. Usual R8/9 signals were only R4. This corresponded with a very bad spell of rain, giving a very high humidity percentage.

## NO VOLT GAS MAINS

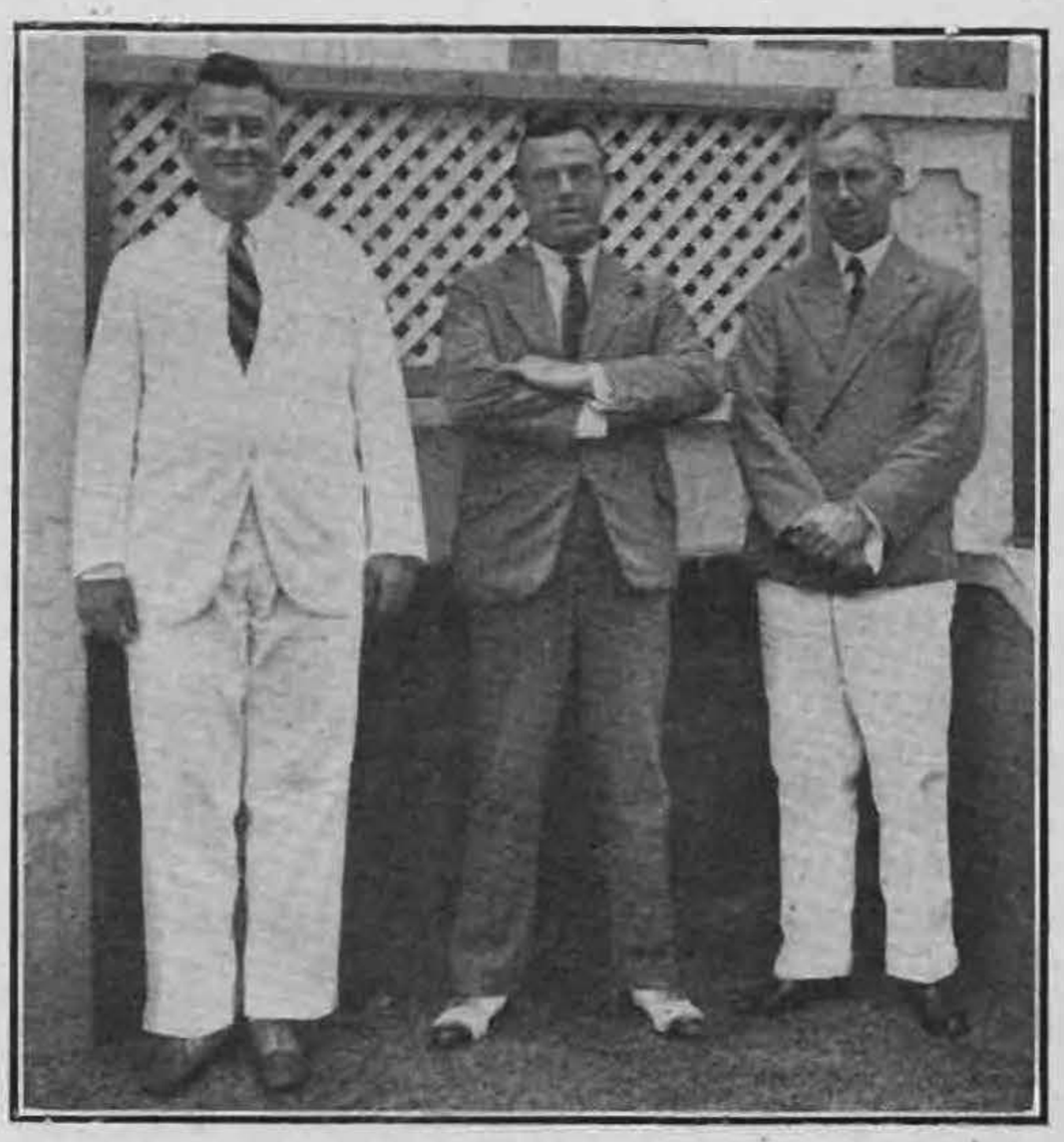
### An Epilaugh

*Here lies the remains of a "Gi" ham,*
*Mourned by all his relations.*
*He found a gas leak with a lighted match,*
*And was picked up by all DX stations.*

B.O.B. (GI6W?).

## VP5PZ Joins Jamaica Wireless Examining Board

Our photograph shows Mr. John Grinan, VP5PZ (left), with the other two members of a new Wireless Examining Board set up by the Jamaica Government. An important application of the functions of the Board will be that operators possessing certificates issued by the Jamaica Government will be qualified to fill the position of wireless operator on any British ship or shore station.



## Empire Calls Heard.

*E. W. Trebilcock* (*BERS*195), *Moonta, South Australia, April* 29, 1934, *to May* 31, 1934 :—

3.5 mc. : zl1jq, 1kc, 2cp, 2cw, 2fr, 2ni, 2pm, 2po, 2qt, 3ag, 3ja (fone), 3jc, 3jd, 3jp.

7 mc. : g2ai, 2as (2), 2ax, 2by, 2mi, 2nm, 2pt, 2qo, 2wd, 2zj, 2zx (2), 5cu (2), 5ds (2), 5nf (4), 5pj, 5pv, 5xt, 5yy, 6ds, 6fn (2), 6ih, 6lj (2), 6xx (2), su1sj, 8ma (2), ve2bb, 2ew (2), 2hg (2), 3eu, 3si, 3ig, 4dj (2), 4fv, 4lh (2), 4ro (2), 5dd, 5cd, 5fh, 5fv, 5hc (2), 5hs (2), 5ig, 5jc (2), 5jx, 9sj, vk9ba, vp1am, vp1an, vp5jb, vs2af, vs6an, 6aq (3), 8ab, vu2fy, 2lz, zs6c.

14 mc. : g2dl, 2oa (2), 2wq, 5bd, 5wp, ve3jt 3wa, 4jh, vp5pz (2), zl1ap (2), 1fe, 1gx, 2aj, 2bn (2), 2bw, 2bz, 2gq, 2ha (2), 2ki, 2kk (2), 2nt, 3dj, 3dk, 3fl, 4ai, 4ao (2), 4bq, 4bt.

Figures in brackets denote number of different days each station was heard.

*By W6CXW.*—g2gf, 2dc, 2nm, 2ax, 5jh, 5vm, 5ni, 5qu, 5vq, 5fv, 5qa, 5mz, 6ir, 6uj, 6qx, su6hl.

## W.B.E.

Our attention has been drawn to the fact that a W.B.E. was issued to Mr. H. J. Buckley, ZS5U, during July, 1932. Owing to an oversight his name has not appeared in this journal as a certificate holder.