A MODERN HIGH-FREQUENCY RECEIVER
INCORPORATING WAVE-CHANGE SWITCHING

THE T. & R.

BULLETIN

THE INC. RADIO SOCIETY OF GT. BRITAIN

AND THE BRITISH EMPIRE RADIO UNION

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THE INCORPORATED

RADIO SOCIETY OF GREAT BRITAIN

AND THE

BRITISH EMPIRE RADIO UNION

53, *VICTORIA STREET, LONDON, S.W.1.* (*'PHONE: VICTORIA* 4412)

PATRON: H.R.H. THE PRINCE OF WALES, K.G.

R.S.G.B. CALENDAR.

Unless otherwise announced, all meetings are held at the Institution of Electrical Engineers, Savoy Place, W.C.2 commencing at 6.15 p.m. Tea is served at 5.30 p.m.

November 24. "The Magnetron Oscillator for Very High Frequencies," by Eric Megaw, Esq., B.Sc. (Research Laboratories, General Electric Co.).

December 29. Annual General Meeting, followed by a lecture "Transmitting Valves for Amateur Needs," by L. Grinstead, Esq., (Transmitting Division Mullard Wireless Service Co.).

January 26. Presidential Address, followed by a lecture "Electrolytic Condensers" by N. C. Moore, Esq. (British N.S.F.)

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THE T. & R. BULLETIN

Honorary Editor :—
H. Bevan Swift (G2TI)

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Vol. 9

No. 5

CONTENTS.

PROVING OCCUPANCY

IT seems a common failing amongst all classes to make inadequate use of rights and privileges which have been won for them by dint of hard struggles. Some four or five years ago, there was a general outcry against the restrictions which had been placed on our use of the band of frequencies around 3.5 megacycles, but for a few months after the Society obtained a relaxation of these restrictions, it found itself hard put to prove occupancy, for, to all intents and purposes, the band was completely deserted of amateur signals. This state of affairs has long since been corrected, as will be seen when the figures for the September series of Band Occupancy Checks are published, but a more serious condition of a similar nature has arisen which demands careful attention.

We have in mind the lamentable lack of active amateur work which is being carried out in that portion of our 7 megacycle band which lies between about 7,200 kc. and 7,275 kc.

This condition has been brought about almost entirely by the intrusion into our bands of commercial stations which have no legal or moral right to be there. Unfortunately their presence has made many of us fight shy of working anywhere near their frequencies, but by so doing we have failed to make full and effective use of the 250 kilocycles allotted to our exclusive use. By crowding into the lower portion of the band, the congestion has become intense. It seems to us, therefore, that an attempt should be made this winter to spread our stations out more evenly over the whole band. We have a feeling that if more activity takes place at the top end of the band in question, much of the prevailing commercial interference will eventually disappear. True this may result in some poor QSOs during the next few months, but it is our business to show that *every single kilocycle is badly needed.*

We of course realise that if crystals for top of the band working are used, they will not be suitable for frequency doubling purposes to the 14 mc. band, owing to the uneven harmonic relationship which exists between that and the 7 mc. band, but we are convinced that if our suggestion is adopted by only a small percentage of home members, improved operating conditions will result.

Mention of harmonic relationship brings our minds to a consideration of future policy at International Conferences, and although it is yet too early to express definite views, we think it should be stated that better relationship between the six amateur bands is a matter in which we are particularly interested.

A MODERN HIGH-FREQUENCY RECEIVER.

Incorporating Wave-change Switching.

PART II.

By G. A. Exeter (G6YK).

[Editorial Note.—*Continuing his article, Mr. Exeter herein gives full details of the circuit and component parts used in his new receiver.*]

Circuit.

THE complete circuit diagram for the receiver is illustrated in Fig. 3. It will be noticed that the tuned anode method of coupling the screen grid valve has been employed, as this has been found to be very much superior to other methods when working on high frequencies. The only point against using this method is that the anode tuning condensers have their rotors at high voltage potential, but this can effectively be overcome by using a fairly large capacity condenser in series with both rotors.

The condensers used are 150 mfds. for band setting, and 15 mfds. for band spreading, and in each case they are ganged together on their centre spindles for single dial control. The 150 mfd. condensers are of the type employing hollow spindles, and are ganged together with a single rod extending right through. In cases where these are unobtainable, those of the miniature type manufactured by *Messrs. Stratton* can be used with suitable couplings for end-on ganging. The 15 mfd. types used by the writer were of the *Hammerlund* type, but *Eddystone's* are suitable, and will be easier to assemble.

The potentiometer used as volume control on the bias of the H.F. valve is of the *British Radiophone* type, incorporating a switch primarily designed to control mains receivers. The switch position is used to disconnect the bias battery when not in use, but could be used to switch off the filaments if desired. The H.F. choke in series with the bias feed to the H.F. valve helps considerably in conserving the signal energy.

It will be noted that the H.T. supply to the H.F. stage is fed via the low potential end of the coupling inductance, which is "tied down" to the detector earth. This practice has been found to aid regeneration, and helps to prevent any form of "interlocking."

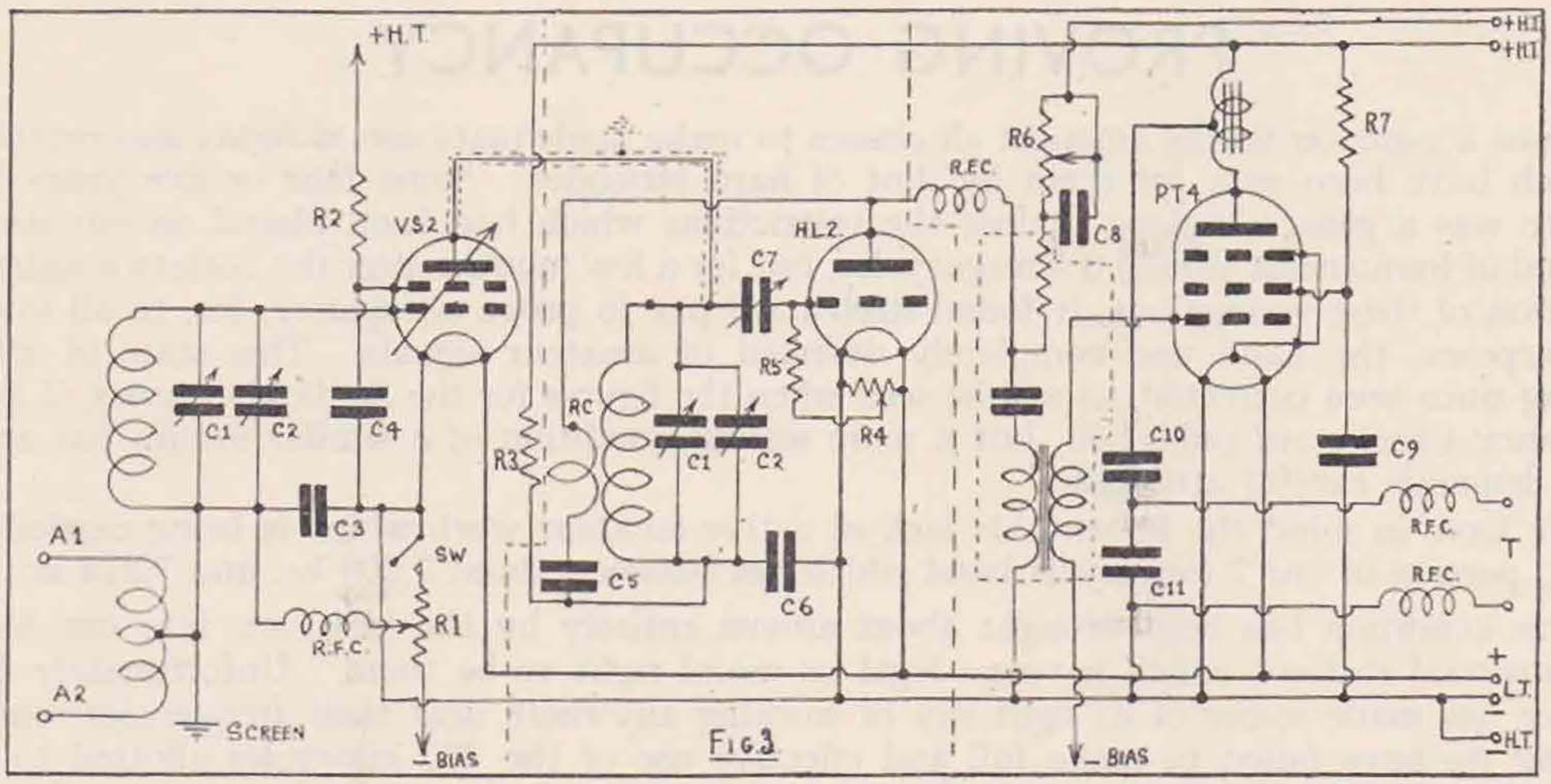


Fig. 3. Complete Circuit Diagram of Receiver.

C1 and C2 Band-spread and band-set Condensers (Eddystone).
C3, 0.05 mfd. Mica (T.C.C.).
C4, 0.1 mfd. (T.C.C.).
C5, 0.0002 mfd. (T.C.C.).
C6, 0.05 mfd. Mica (T.C.C.).
C7, Type J Formodenser (J.B.).
C8, 9, 10, 1mfd. (T.C.C.).
C11, 0.0001 mfd. (T.C.C.).
Valves, VS2, HL2 and PT2.
R1, 50,000 w. Potentiometer (British Radiophone).
R2, 3, 600 w. (Dubilier).
R4, 200 w. Potentiometer (Igranic).
R5, 3 meg. Grid Leak (Dubilier).
R6, 50,000 w. Potentiometer (Varley).
RFC Chokes (Eddystone).
RC Reaction Coil (see text).
SW Switch (see text).

Unit shown enclosed in dotted lines is a Benjamin Transfeeda unit.
Wave change device, Loomes Radio.

Needless to say, the blocking condensers completing the grid circuits of both the high frequency and detector valves should be of good quality, and of mica dielectric.

The detector circuit follows the usual practice, but care should be taken to locate and line up the various components identical with the H.F. stage, in order to preserve the ganging feature. The

The circuits described in the new Guide work—and work well.

valve holders are mounted on extension legs in order to keep the grid leads as short as possible. The variable grid blocking condenser used is of the Formodenser type, mounted on the side of the support for the wave-change switch, and the reaction by-pass condenser is assembled in a like manner on the other side.

Potentiometer control of the grid leak circuit is used in order to obtain the best degree of sensitivity in conjunction with the grid pre-set condenser, whilst resistance reaction control will keep the

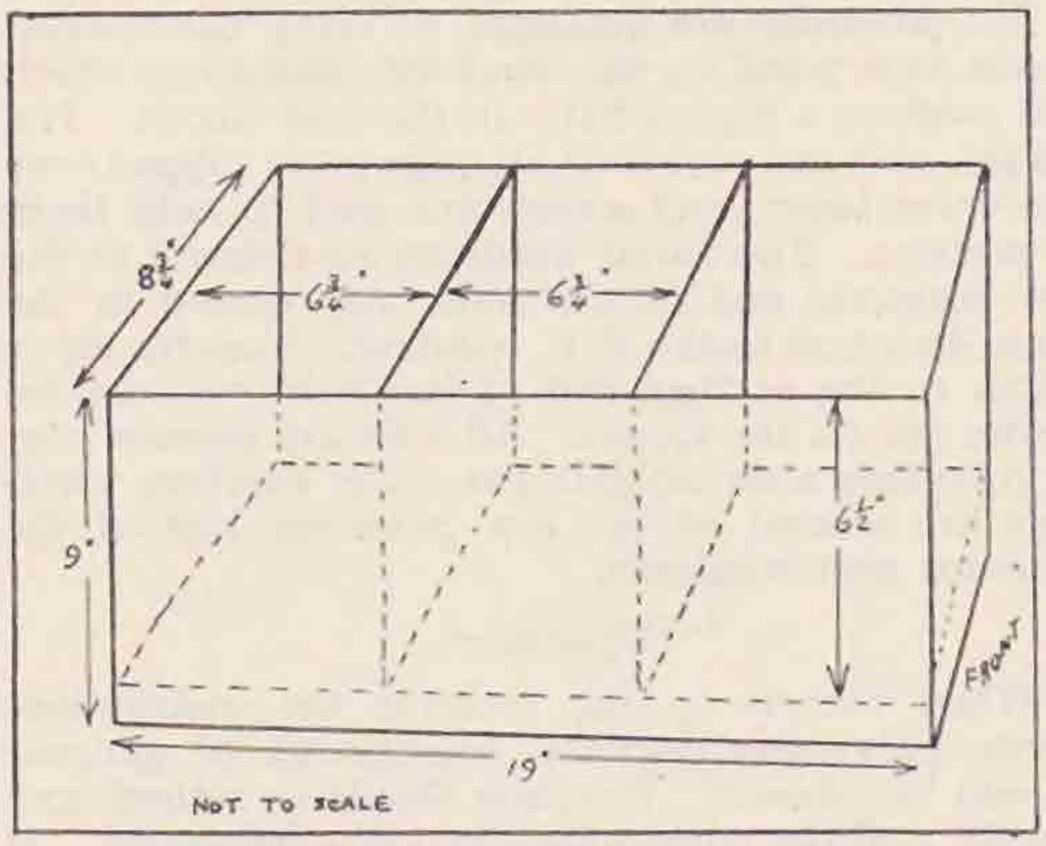


Fig. 4.

Dimensions of screened box. Dotted lines show the sub-base.

R.F. portion of the circuit in the place to which it belongs, thereby avoiding movement of a condenser carrying radio energy. This method prevents any appreciable detuning effect, and permits smooth and noiseless operation.

The remainder of the circuit follows more or less conventional design. The L.F. intervalve coupling is a *Benjamin* Transfeeda Unit, because its compactness enables it to be mounted underneath the sub-base, together with the detector anode choke. The pentode output choke is of the *Telsen* type, chosen solely for its convenient size, thus permitting it to be placed under the centre driving spindle of the wave-change switch.

Screening.

Total screening is an important factor in modern receivers, and no pains should be spared in order to achieve this result. In the receiver described, the screen box is made from $\frac{1}{8}$th aluminium throughout, the various pieces being accurately milled to size, and bolted together with $\frac{3}{8}$th by $\frac{1}{16}$th aluminium angle and 6BA brass countersunk screws. The external dimensions are 19 ins. long, $8\frac{3}{4}$ ins. wide and 9 ins. deep, and the various points regarding its construction are shown in Fig. 4. The sides of the box overlap the ends, thus giving a full $8\frac{1}{2}$ ins. inside the box.

The sub-base is also made from $\frac{1}{8}$-in. aluminium, and has been designed to give a good fit with angle on the underside, bolted through the sides of the box. The corners of the sub-base are carefully recessed to fit snugly against the side angle pieces, thus holding the box together rigidly.

The holding bolts are countersunk on the exterior of the box, and on the upper surface of the base, so that no projecting heads are left showing. The holes through the angle pieces are tapped to accommodate the screw, whilst nuts on the underside complete the job. Patience should be used when making a box of this type, as much of the ultimate success of the receiver depends on the effectiveness or otherwise of the screening. The approximate height of the wave-change gear is $5\frac{1}{4}$ ins., so the sub-base has been arranged to give a clearance of $6\frac{1}{2}$ ins. between the base and the top.

Inter-Stage Screening.

The partitions used to separate the high-frequency and detector portions need special care, as they carry the whole success of the set, metaphorically speaking, on their shoulders. Interlocking of these two stages has been mentioned earlier, and one of the chief causes of this trouble is due to electrostatic coupling existing when the stages are separated by only one partition. The best way of preventing this trouble is to use two *entirely separate boxes* for each stage, if purse and space consideration permit. A compromise can, however, be effected which will result in nearly as satisfactory a job as the ideal condition just mentioned, providing care and attention is paid to details. Interlocking will be non-existent on the usual amateur bands, and only present to a limited extent at frequencies above 16 megacycles.

This type of partition can be made by bolting together two pieces of aluminium angle similar to that used for the main box. Two pieces of $\frac{1}{16}$-in. sheet aluminium should then be cut carefully to size, and made to butt against the sides of the box and against the surfaces of the angle, thus forming a screen with the edges of the angle projecting in between the two sheets. The gap between them should be filled with a piece of $\frac{1}{16}$-in. ebonite cut flush at the top, and the whole screen held together with bolts through the angle and along the top edge.

This form of screen, which is illustrated in Fig. 5,

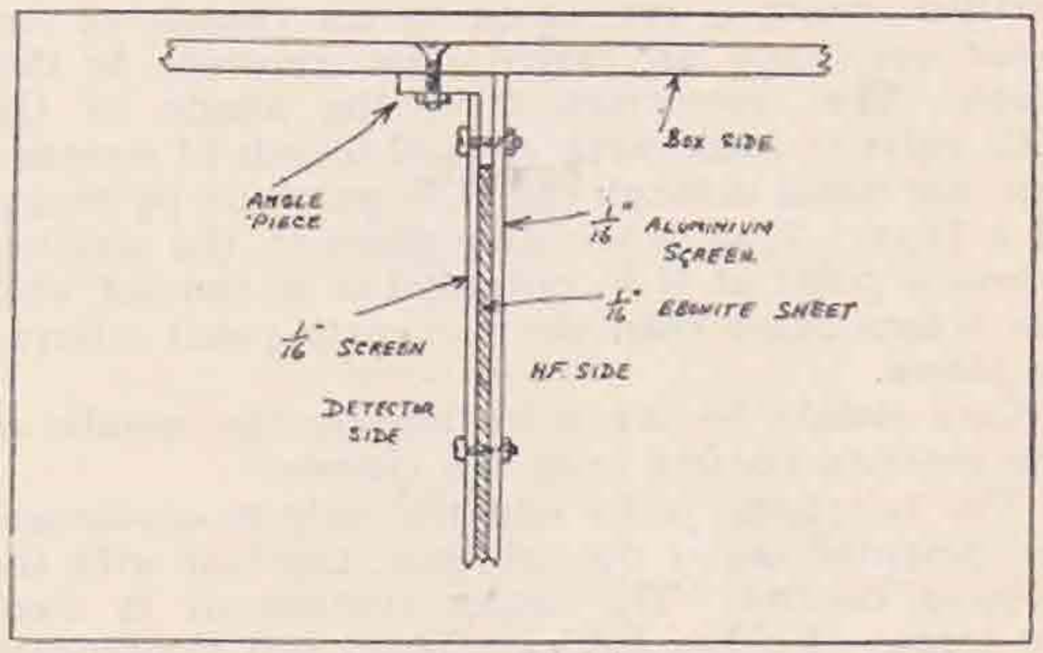


Fig. 5.

Method of constructing partitions, using aluminium sheets and ebonite separators.

has been tried by the author, and found to be quite effective, a fact which points to most of the coupling being due to the separating partition.

It should be mentioned that a screen of this type is not really necessary for the L.F. partition, although this has been used in the receiver under discussion for the sake of uniformity. Actually a piece of $\frac{1}{8}$-in. aluminium could be used with success.

The lid is made from similar thickness material,

and is cut to size and held by four bolts projecting through the lid. The bolts are made by soldering suitable brass screws to one side of small brass angle brackets, which are in turn bolted to the sides of the box. Wing nuts are used to secure the lid.

Assembly and Wiring.

Assembly operations are commenced by removing the bolts holding the partition locating angles and those of the one end piece which is to form the front in readiness for marking and drilling the positions for the various components. The two aerial feeder input plugs are fixed on the remaining end in a suitable position, insulating them from the box, and the earth plug fixed direct to the end of the box. The coil switch assembly is placed in position, leaving sufficient room for the switch to operate, and to permit the withdrawal of the coils for pre-adjustment.

The detector portion of the switch is removed, and all connecting wires soldered to the H.F. stage ; these wires should be left long enough to reach the various components. The valve holder is fixed in position, being raised from the base by means of small metal tubes which act as separating pillars. All components are secured with screws through the sub-base, and held by nuts on the underneath. The partition is marked and drilled for the coil switch spindle, and also for the band set and band spread condensers. These latter are fixed to the partition and the H.F. portion completed by bolting the screen in position.

The detector portion is assembled in a similar manner. It will be appreciated that the switch assembly and line-up of condensers must be true for smooth working, so that extreme care should be taken over this operation. All bearings for the coil switch spindle are bushed where they pass through the screens, and the variable condensers are insulated from the metal chassis. An important point to remember is that all earth return wires are taken to their associated earth points, and the *aluminium chassis must not be used as a common return.* The earthed wiring is connected to the chassis at one point only, and all earth wires converge to this point. The connection from the anode of the S.G. valve is made with a small length of screened sleeving taken through the H.F. partition by means of a bush. This is the only place in the receiver where a point at R.F. potential is in contact with the screen other than the one earth point referred to above.

Care should be taken to insulate the spindle of the reaction control from the chassis.

The telephone jacks and the output condensers are mounted under the sub-base, together with the volume control. The latter component is fixed by means of a bracket at a point just underneath the H.F. valve, and its spindle extended to the front panel by the use of an ebonite sleeve and brass rod. The dials used are *Telsen*, Midget disc drives, chosen because of their convenient size, the original blunt marking point having been filed off and a fine wire for hair-line indication soldered across the aperture. Holes are bored in the back supports, and flash-lamp bulbs fitted in order to illuminate the scales. Other dials could of course be used, providing they are small enough to clear the coil drive spindle and indicating dial.

NOTE.—The output valve shown in Fig. 3 should be PT2.

Coils.

The winding data for the coils is as follows:

Band.	5-pin.		4-pin.	
	Aerial Turns.	H.F. Turns.	De-tector Turns.	Re-action Turns.
3.5 ...	16	20	19	6
7 ...	8	10	9	5
14 ...	5	6	6	4
28 ...	4	4	3	3

The windings are arranged to bring the various bands to a point on the band set condensers which will produce a high C ratio in the grid circuit. The 3.5 mc. coils are wound on Paxolin tubes slipped over the valve bases, and screws are used to hold them in position. The aerial windings are placed at the low potential end of the coils, and wound in the same direction as the H.F. winding. A centre tap is taken to the earthed end of the H.F. coil via the centre pin on the former. All coils are given a coat of collodion after adjustment. The reaction windings are wound at the low potential end of the detector grid windings.

Operation.

When tuning up the receiver the instructions given previously for the adjustment of ganging should be followed. Reaction should be smooth and hardly audible when regeneration commences. If the set is working correctly, tuning the pre-set condensers on the H.F. stage coils, should increase the amount of regeneration, that is, less regeneration should be required on the detector anode. The grid pre-set condenser should be adjusted to a point where this condition is obtained. If tuning the H.F. stage pulls the detector out of oscillation, then interlocking is present, and the screening should be carefully examined for bad contact to the main box. Bad detuning of the signal when operating the volume control is also an indication of interlocking.

Valves.

The valves used in the original set were the *Osram* type VS2, HL2 and PT2. Battery valves were used for the sake of a quiet background, although mains types could be employed if desired.

Final Remarks.

The completed receiver should be finished off by cutting a piece of ½-in. hard wood to the size of the box, and mitreing pieces of oak beading round the edges to form a mount. These beadings should be tight enough to grip the sides of the box without the further necessity of securing the wooden base in any other way. A coat of varnish over the beading will put a finish on the whole job, and small rubber feet screwed underneath at the corners will enable the receiver to be raised up from table level. This will also permit a 7-way battery cable to pass through a hole in the base. All inter-connecting battery connections should be made externally.

STRAY.

Headquarters require the following back issues of *Wireless World* to bring their files up to date :— Vol. 30, Nos. 24, 25 and 26. Any member who may have these copies available is asked to communicate with the Secretary.

OSCILLATOR DESIGN.

By Anon.

IN this article the writer does not profess to put forward any new or original ideas, but wishes to draw attention to two circuits which are given little consideration in England. Amateurs in this country are not numerous enough to be specially catered for, as are our American confrères, and consequently a certain conservatism tends to creep into the matter of transmitter design. The writer's ambition is to make an attempt to induce readers to discard out-of-date circuits, and to get more out of their apparatus by the use of modern circuits and valves.

In March this year the writer decided to rebuild his transmitter on the most modern lines possible, and it was thought that the LS5B class of valve should be given a decent burial. This class of valve has a mutual conductance of the order of 0.8, and as modern valves have mutual conductances of 3 and upwards, it was considered that further use of this type of valve was not justified. After some thought it was decided that the use of a pentode would amply compensate the slightly higher initial cost. The advantages of a pentode may be summed up as follows :—

(1) It has a high mutual conductance, and consequently it permits of lower anode voltages being used.

(2) It gives a greater output than a triode.

(3) It permits of a second harmonic output from the oscillator, thus eliminating one stage of frequency doubling.

It cannot be too strongly pointed out that the use of high voltages on the oscillator valve is exceedingly bad practice, for besides putting an undue strain on the crystal, they are apt to cause unnecessary frequency variation. By using a pentode, which requires, at most, 230 anode volts, we are able to avoid both these troubles. It has been found that a pentode with 230 anode volts gives a greater output than a triode with 350 anode volts.

The third point is, perhaps, the most important. By using a special though simple circuit, we are enabled to omit one stage of frequency doubling, without any loss of efficiency. The two circuits which will be mentioned have been referred to several times in QST, but up to the present the writer has not heard of their use by amateurs in England.

Figure 1 shows the circuit which is in use at the writer's station, and which has given the greatest satisfaction. A 3.5 mc. crystal is used, as this has been found to be more stable than the 7 mc. variety; but naturally the circuit may be used with a crystal of any frequency. It will be seen that there are two tuned circuits in the anode of the pentode; L_1 C_1 is any combination of condenser and coil which will tune to the fundamental of the crystal, while L_2 C_2 is any combination which tunes to the second harmonic. One milliammeter is used which reads the combined grid and anode currents.

Tuning.

The tuning is quite simple, C_2 is set at maximum, and C_1 is rotated till a drop in current shows that the crystal is oscillating. C_2 is then rotated till the second harmonic is picked out. The output at second harmonic should be as great as that at fundamental. When it is desired to obtain a fundamental output, L_1 is replaced by a shorting plug, and L_2 by a 3.5 mc. coil. Thus the circuit is converted into the conventional straight oscillator. The circuit is quite foolproof, and no difficulty should be experienced in making it work.

Mica condensers only should be used, and these should be of good quality. High-capacity paper condensers should not in any circumstances be employed.

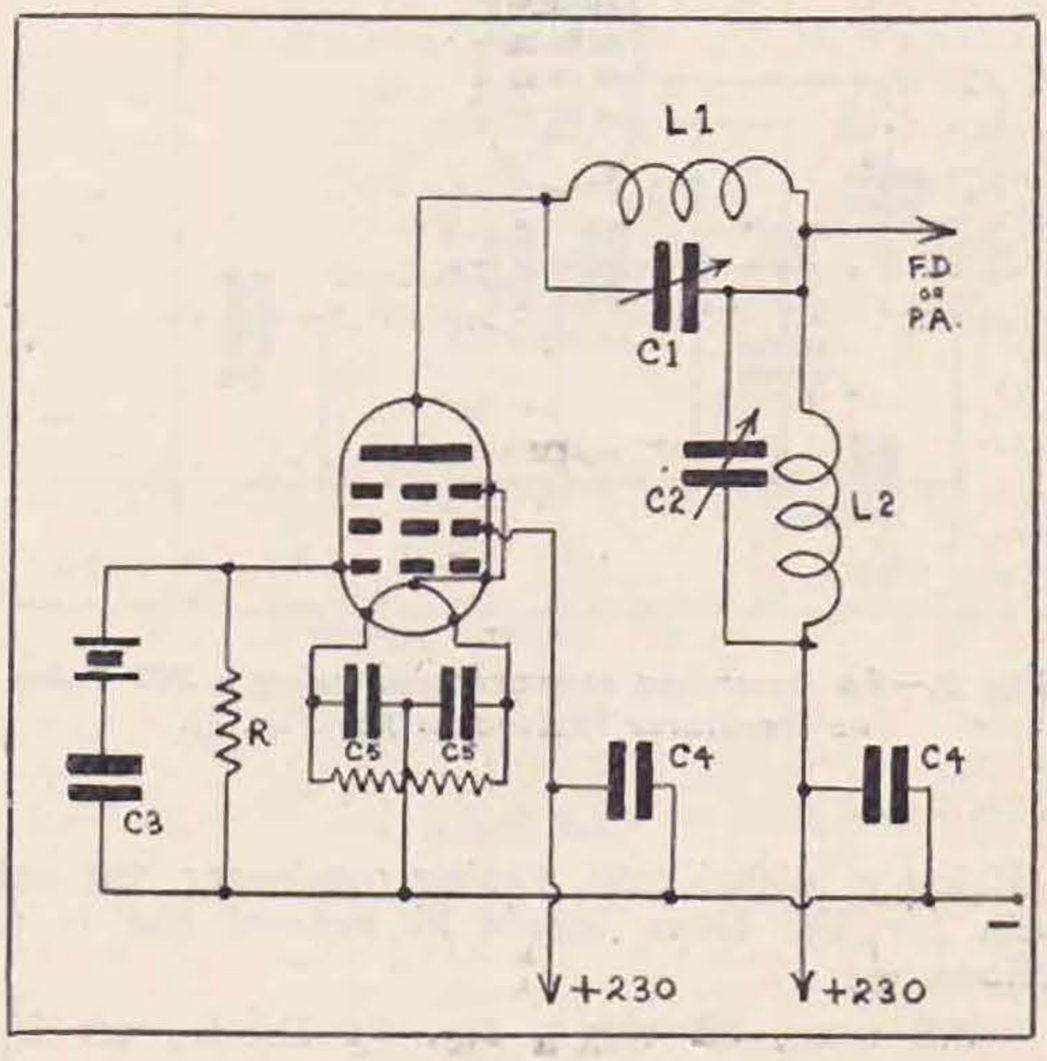


Fig. 1.—Pentode Oscillator giving second harmonic control.

R = 20,000ω, 1 Watt Type.
C3 = .006 Mfd. Mica Type
C4 = .004 Mfd. Mica Type.
C5 = .002 Non-Inductive Type.

Valves.

Both directly- and indirectly-heated pentodes have been tried, and both have given satisfaction. The PM24M and the Pen4V.A. can be recommended, and using either, ample output can be obtained to drive a 30 watt PA stage. The Pen4V.A. gives a markedly greater output than the PM24M, and thus the slight bother of running the heater continuously is amply compensated for. When using this valve, the cathode is connected to H.T., instead of centre-tapping the filament, as is the case when the PM24M is used.

With 230 volts on grid and anode, the combined current should be in the neighbourhood of 40 milliamps with the crystal oscillating.

In no case should the *anode* current of the PM24M be allowed to exceed 33 milliamps, or the filament will be destroyed.

Another Arrangement.

A different means of obtaining a second harmonic output is shown in Fig. 2, which is believed to be due to W2BFB. It is reputed to work well with the American '47 valve, but in actual practice it has been found to be very erratic in operation. When using English pentodes, there was a considerable pull between the circuits, but this may be accounted for by the lesser internal screening of our pentodes. However, the circuit is offered in the hope that others may succeed where the writer has failed.

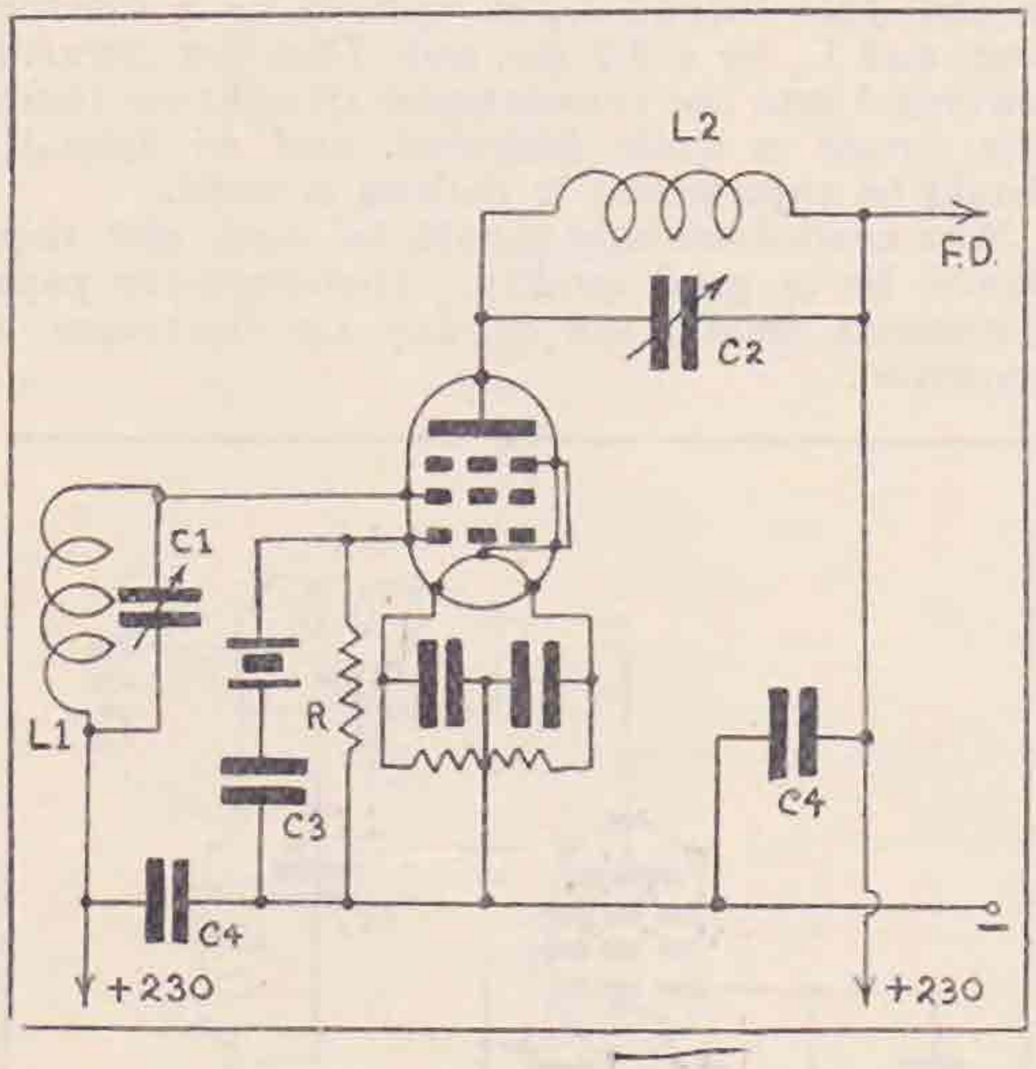


Fig. 2.—An American arrangement using a 247 Valve as Oscillator (values as per Fig. 1).

Coil Data.

Using a .00025 mfd. tuning condenser, the coil data for the three bands in general use is as follows :—

3.5 mcs., 35 turns, No. 24 D.S.C., on 1½" former.

7.0 mcs., 18 turns, No. 24 D.S.C., on 1½" former.

14.0 mcs., 9 turns, No. 24 D.S.C., on 1½" former.

Conclusion.

The two points about the above circuits are economy and efficiency. It is hoped that all amateurs who pride themselves on having efficient stations will discard obsolete valves and circuits, and try to bring their transmitters up to date. There is no point in the production of high-efficiency apparatus, if the majority of people refuse to make use of it.

STRAY.

Mr. H. W. Hamblin, ex YI6HT, sailed for G on November 12 and hopes to make personal QSO's with many friends shortly. His QRA will be Bosham House, Bosham, Sussex.

STATION DESCRIPTION No. 38.

ZS4U

RADIO station ZS4U is situated in the town of Boshof, Orange Free State, on the main road between Kimberley and Bloemfontein, names which a generation ago were on the tongues of the parents of many present-day amateurs.

The station first came on the air in April, 1931, although a receiver had been in constant use ten years earlier. The first transmitter was a midget QRP affair coupled to a current-fed Hertz aerial; the power supply ranged from a Ford car coil to re-charged H.T. batteries, and with this low power, signals were transmitted all over the Union.

Later a monitor, a high-voltage transformer and a filter were constructed, whilst the transmitter (now 25 watts) was changed to a T.P.F.G. push-pull arrangement, which was coupled to a half-wave Zepp. As experience was gained, the station gradually underwent changes in transmitting and aerial equipment, until to-day it boasts four T.P.F.G. push-pull outfits, one for each band, as well as three voltage-fed antenna systems. Telephony is used on occasions for local work.

As the town mains are only switched in circuit for ten hours a day, a 200-volt high-tension accumulator has been purchased, and this is used when the mains supply is not available.

Three receivers are in constant use, two being employed for work on the amateur bands and the third for general work covering 10 to 600 metres. Separate aerials are used for each of the three receivers.

A considerable amount of experimental work has been done recently on the 28 and 56 mc. bands.

As will be seen in the photograph, the four transmitters are mounted on a rack near the window, and a common centre tap keying system is in use, whilst double-pole double-throw switches are employed for the L.T. and H.T. supplies. This arrangement enables rapid QSY to be effected. On the operating table can be seen the transmitting keys, the receivers, a monitor wavemeter, and various instruments. The transformer and filter are suspended underneath the right hand side table. The cards on the wall speak for themselves, and up to the present thirty countries have been worked and a W.B.E. obtained. The absence of a PY card prevents an application being made for a W.A.C.

Are you contemplating applying for an A.A. call?

"FRONTS" OF DEPRESSIONS.

By C. C. Newman (ZC6CN).

[We are indebted to Mr. Newman for providing us with some authentic information on a subject little known to the average amateur. For some months Mr. Newman has been an active member of the Contact Bureau Atmosphere Group, to which group his observations have undoubtedly been of immense value.—Ed.]

ON a weather map a depression appears as a system of closed isobars with the lowest pressure in the centre and the surface winds blowing counter-clockwise round the centre (in the northern hemisphere) with the usual deviation across the isobars from high to low pressure. Depressions usually move from south of west to north of east in western Europe and are frequently associated with strong south-westerly winds on their southern sides. Depressions moving in other directions are by no means uncommon. The weather chart in Fig. 1 shows a depression centred over Northern Ireland and moving north-eastwards. The two broken lines emanating from the centre of the depression, mark the boundaries between warm and cold air currents. On the south-east side of the depression, between the two lines, is an area of relatively warm air, the surface temperatures being of the order of 50 degrees F. This area is called the "warm sector," and it will be observed that in this area the isobars are close together and the winds strong. A depression usually moves in a direction parallel to the isobars in the "warm sector." On the other sides of the broken lines are colder currents, the surface temperatures being about 10 degrees F. lower than those in the "warm sector." Remembering that the depression is moving north-eastwards, it is seen that the warm air is overtaking the cold air to the north of the broken line, which extends eastwards from the centre of the depression. This line is called the "warm front." The warm air, being lighter, ascends over the retreating cold air, forming a sloping surface. A typical section through a "warm front" is shown in Fig. 2. The slope of the surface between the two air currents varies according to the conditions existing, but it is of *the order of* 1 : 100. The ascent of the warm air gives rise to the cloud sequence shown, and as the front approaches, rain begins to fall, increasing in intensity as the clouds become lower. In advance of the "warm front" there is, thus, a wide belt of low cloud and continuous rain. The area over which rain is falling is shaded in the map. After the warm front has passed, the cloud lifts and tends to break, although since the air current in the "warm sector" is warm and moist, the weather usually remains cloudy and if there is any high ground, local rain may occur owing to the consequent ascent of the warm air. Along the "X" broken line, extending southwards from the centre of the depression, the cold air is overtaking the warm air. This line is called the "cold front." In this case the cold air being heavier undercuts the warm air causing instability and ascending currents. The upward motion is more vigorous than the gradual ascent of air at the "warm front" and usually gives rise to Cumulus or Cumulo-Nimbus clouds and heavy rain, which, however, is confined to a narrow belt, as indicated on the weather map (Fig. 1). A typical section through a cold front is shown in Fig. 3.

The picture of a depression having definite warm and cold fronts must not be taken as typical

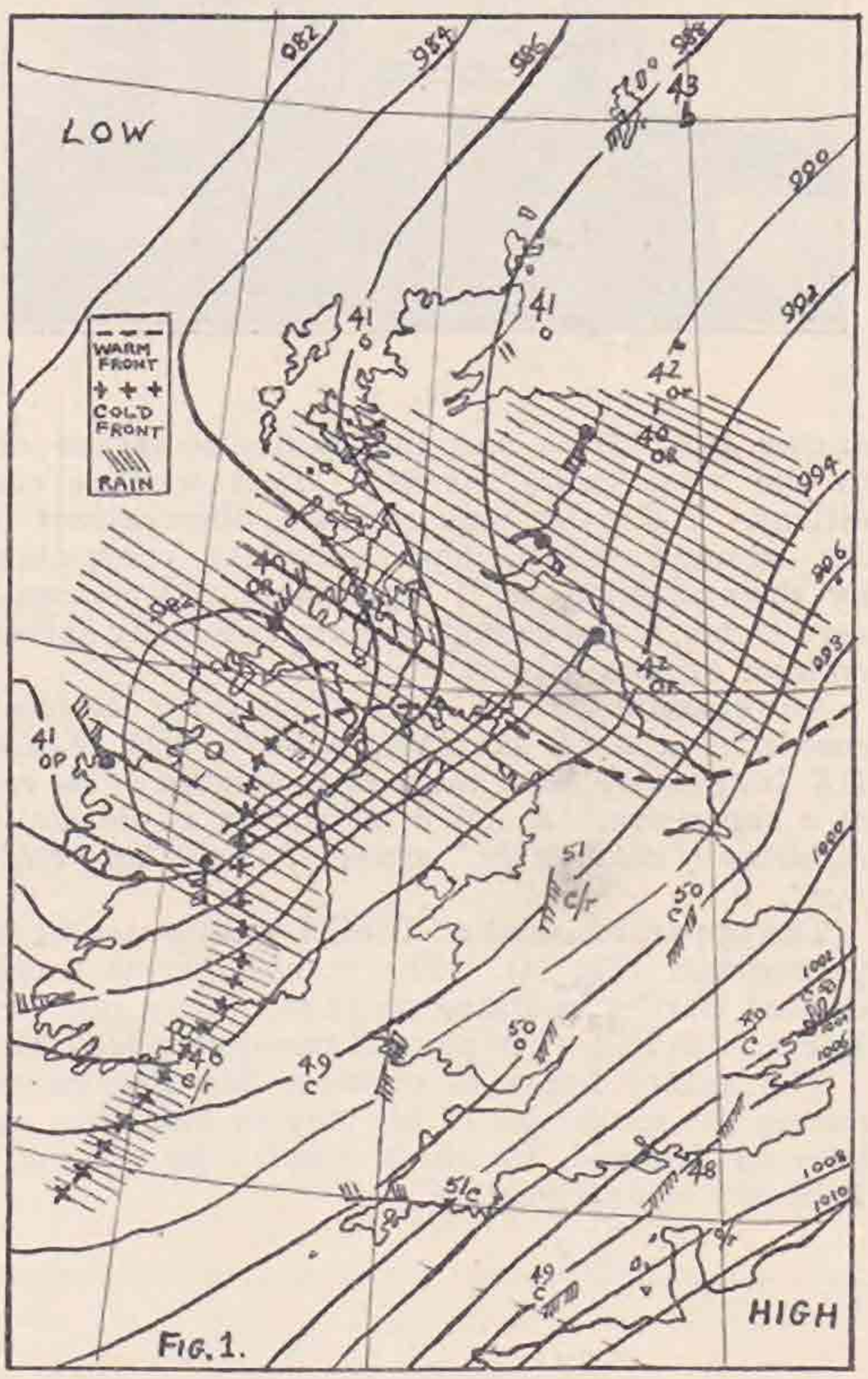
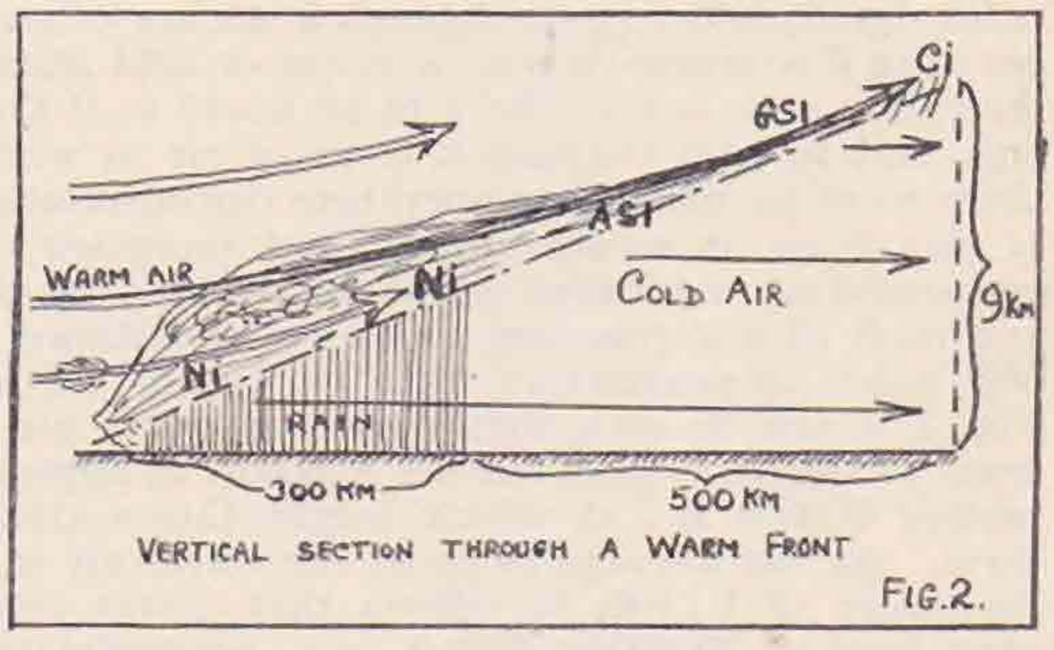


FIG. 1.



VERTICAL SECTION THROUGH A WARM FRONT

FIG. 2.

If so, consult the new Guide.

of every depression. The well-marked structure described is only characteristic, as a rule, of recently formed depressions. As a depression advances, the cold front gains on the warm front, and eventually overtakes it. The warm sector then disappears and a single front remains on the surface. This front, which is called an occlusion, may partake of the character of a warm or cold front, according to whether the advancing air mass is warmer or colder than the air in front of the depression. The majority of the depressions reaching the British Isles from the Atlantic have reached this stage of development.

As far as the author can recollect, the suggestion was put forward in the January BULLETIN that if

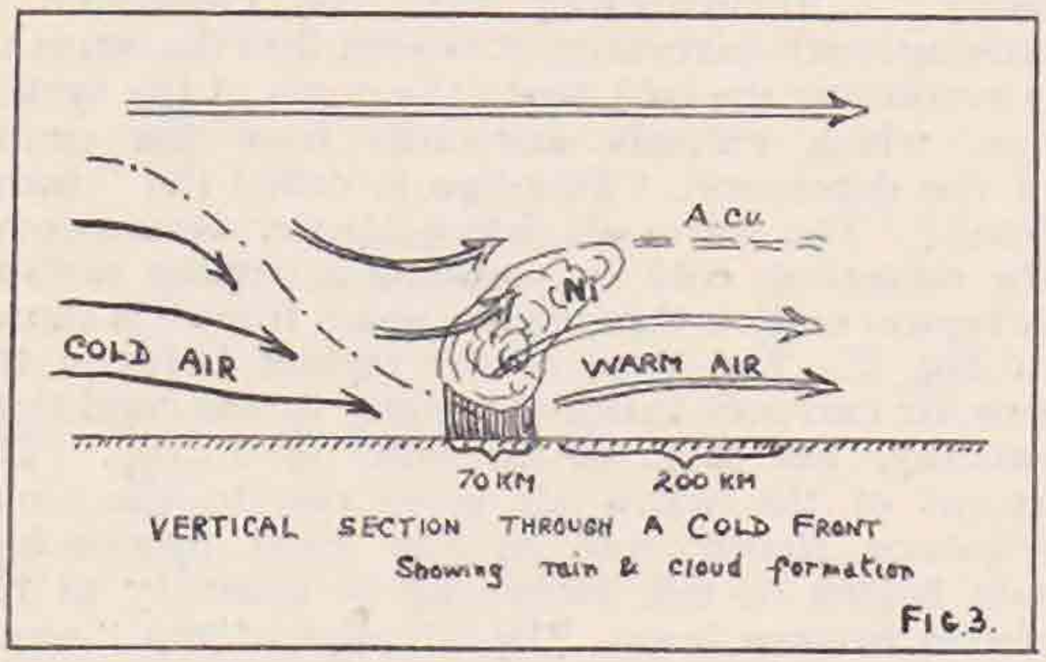


FIG. 3.

radio signals had to pass through a surface of temperature discontinuity (*i.e.*, a warm or cold front), then they were not so likely to be heard as if they only had to pass through a layer of air in which there were no marked temperature discontinuities. If this is so, it would appear that reception (or transmission) conditions would be affected by the approach of a depression up to say a distance of 500 miles (approximate) from its centre. From Fig. 2 it can be seen that the rising warm air in front of the depression reaches a height of approximately 30,000 ft., at which height Cirrus clouds form. As the average slope of the warm air is of the order of 1 : 100, it follows that Cirrus cloud may form at 30,000 x 100 ft., *i.e.*, approximately 500 miles in advance of the centre. Any station situated in the path of the approaching depression, up to say 500 miles, would, therefore, have its signals passing through a surface of temperature discontinuity.

It is very difficult in Palestine, to check radio conditions against pressure distribution with any great accuracy. First, owing to the lack of well-formed depressions in the summer months and secondly, owing to scarcity of meteorological information. The writer, however, kept a record

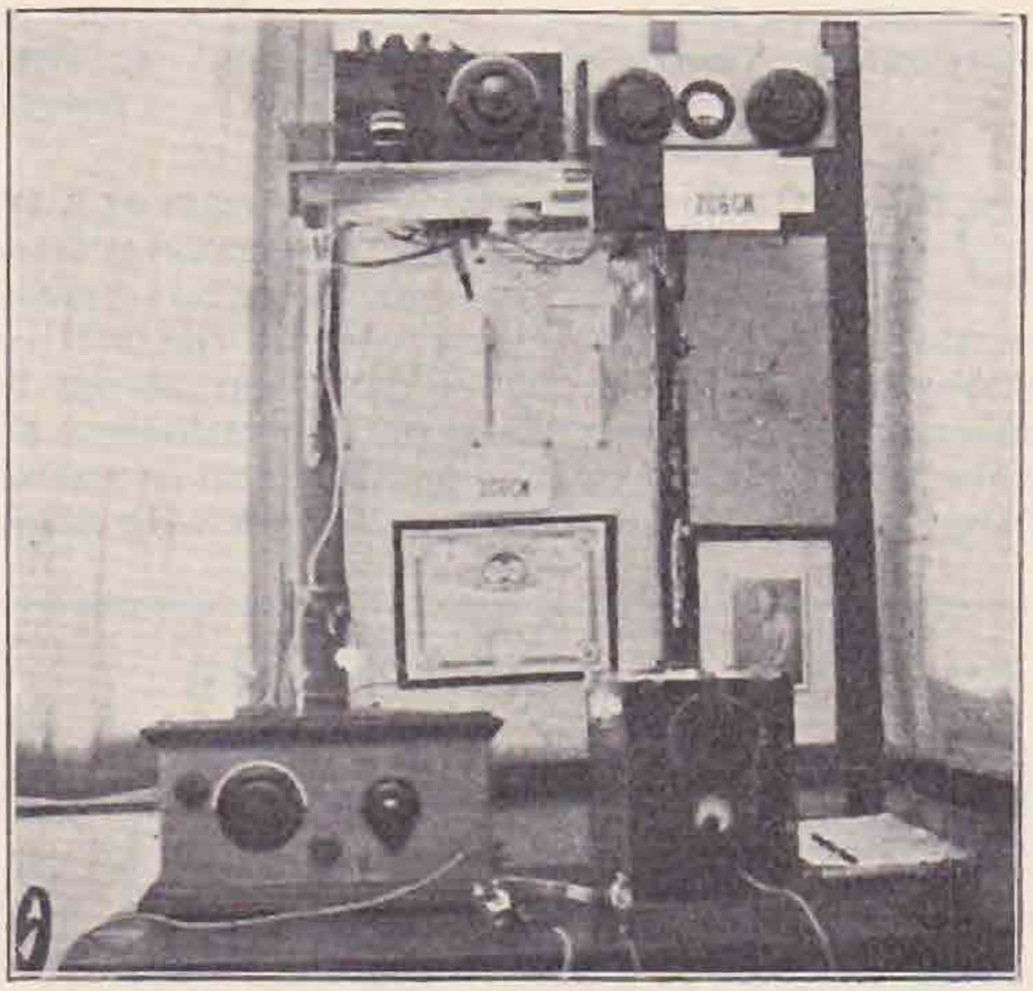


Fig. 4.

during June, 1933, and the results do incline one to the view that "fronts" affect wireless conditions. Naturally, one month's observations, in the summer, when depressions are conspicuous by their absence, or if they do exist are usually very feeble, is not enough to form any really definite opinion on the subject.

An examination of the writer's log certainly convinces him of one fact, namely, *that Western DX is definitely better when he is situated at the rear of a depression, i.e., when the station is outside the influence of not only the "warm" but also the "cold" front.*

The apparatus used at ZC6CN will be seen in the photograph (Fig. 4). The transmitter is a self-excited Hartley, working on 14 mc. into a full wave Hertz, with half-wave parallel tuned zepp feeders.

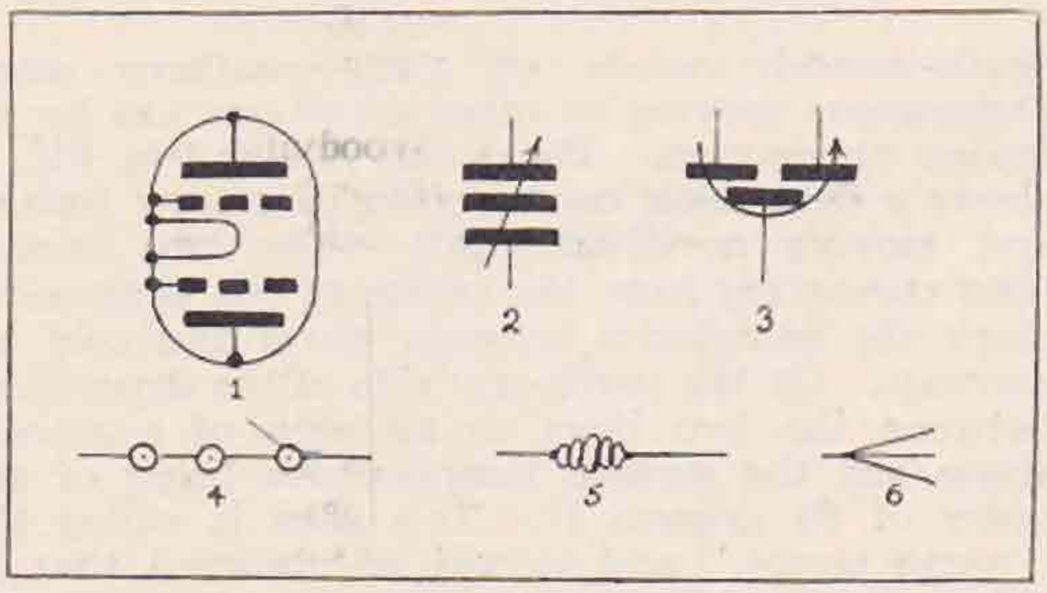
The author hopes to continue his observations during the remainder of his stay in Palestine, and later in England, to which country he returns in February of next year.

Standard Conventions.

We are indebted to Mr. E. J. Scudder (BRS981) for suggesting several additional standard conventions for BULLETIN circuit diagrams.

The references are as follows :—

1. Class B valve.
2. Series gap condenser.
3. Differential condenser.
4. Aerial insulators.
5. Ribbed insulator.
6. Counterpoise.



"An Amateur Speaks" was written for your benefit.

HELPFUL HINTS.—No. 3.

GETTING READY FOR DX.

THE season of the year is at hand when we turn a thought to the coming of the winter's DX.

Almost everybody has been doing a little transmitting during the summer, without bothering particularly about the performance of the receiver, and the faithful servant, bleached by the summer sunlight, has probably developed all sorts of malignant ailments.

At the author's station the severe strain of hot days had left its mark on numbers of batteries and insulated parts. With the coming of the rainy weather we decided to hold an inspection afternoon. The 20 m. coils were inserted, and the dials passed over the band to the accompaniment of horrible grating and crackling with weak signals in the spaces and a tendency for overlap and threshold howl on the reaction control.

The receiver is the original version of the "All-wave Amateur Receiver," which appeared in the Bulletin in October, 1932, and is fairly representative of the type likely to develop noises, etc., on account of the all-metal construction.

In order of rotation, the following points were inspected :—

(1) Valves.
(2) Supplies.
(3) Variable condensers.
(4) Switching.
(5) Ganging.

(1) The first part found to be responsible for noise was the metal valve cover for the detector. A milliammeter inserted in the H.T. — showed the correct drop in current as the valves were removed one by one, but upon re-inserting them, the screen-grid refused to work. This was traced to slight weakness in the valve-pin itself, and a cure was effected by opening the pins, which treatment was delivered to the other valves.

(2) The H.T. and bias batteries being in order, attention to the L.T. showed that there was only 1.8 volts at the terminals of the valves, under load. Since the battery showed its correct voltage, every item of the L.T. circuit had to be traced, and the cause of the drop was found to be due to oxidation of a connection to the aluminium box coupled with general terminal corrosion. Even then, the jack switching was open to suspicion of possessing variable resistance.

(3) The small ganged band-spreading condensers and both of the main tuning condensers were found to emit noises. Accordingly, the ganged condensers were removed entirely from the set. The Polar drum dial was taken apart, and every part of the friction drive cleaned and re-assembled with a little clean gun oil on the working bearings. It was found that the dial then worked much more smoothly. The little condensers were then pulled down, and the spindles, ball-bearings, pigtails cleaned and examined. After refitting with clean vaseline, play was taken up on the spindle of one and the vanes re-centred. Both were replaced and re-centred in the driving drum. The main tuning condensers were found to have end play, which had to be taken up. The slow-motion dials for these had become slack, and were removed and fitted up centrally again.

(4) The switching jacks were given the once-over for resistance drop and the points cleaned out. This resulted in the reduction of a slight steady hiss.

(5) When all the parts had been set up again, we proceeded to re-align the tuned circuits for true ganging. Small noises were still persisting when this was tried. They were traced to the framework of the drum dial, and its condensers touching the metal dividing shields in the box and the projecting tab on the drum which holds the strip of celluloid catching on the bottom of the box as the dial revolved.

After the alterations the ganging was found to be a little affected. The small adjustment needed was obtained by bending the condenser vanes slightly.

The H.T. voltages were checked finally, and the lid closed down after adding the aerial. Within a few minutes it was found that no noises of any description could be traced to anything in the set even by banging it smartly. Signals appeared where none had previously existed, and, within ten minutes we were working with India.

A. E. L.

Strays.

Mr. F. A. Robb (GI6TK) would appreciate QSO's or reports on his 7 or 14 mc. signals from overseas amateurs. His station works on 14 mc. from 18.00 G.M.T. every evening, when low power is used. All reports will be acknowledged.

* * *

Mr. Walker (G6QI), 18, Woodville Road, New Barnet, Herts, asks for reports on his 7 mc. signals. He will be operating 21.00 G.M.T. onwards on Friday evenings.

* * *

Mr. J. W. Tyrrell (VU2BM, ex-BERS153), B Corps Signals, Rawalpindi, has recently been licensed and works daily from 12.00 to 17.30 G.M.T. on 7 mc. and from 17.30 G.M.T. onwards on 14 mc. He is anxious to work G stations on his low-power set.

Mr. Knowles (G2XK, ex-2BVD) is anxious to obtain reports on his 7 and 14 mc. Mr. Knowles was not 17 years of age until September 27 last.

* * *

Mr. N. Van Perlstein (G5MI), Hillbrow, Belstead Road, Ipswich, transmits on 56 mc. every Sunday, between 10.00 and 12.00 G.M.T. He seeks co-operation from other members, particularly those located in Suffolk. Visitors will be welcomed at this station.

* * *

Mr. E. L. Owen (G2OW) suggests that instead of adopting a "Wx Code" on the lines mentioned last month, it would be advisable to make use of the existing international codes used by meteorologists. He quotes the Stationery Office publication M0252, price 1s. 6d.

R.N.W.A.R. Notes

THE Reserve has now been in existence one year, and the following notes are published to give an outline of the progress made.

The membership has increased to 225 from 110 in February. Included in this number are 60 members of the Radio Society of Great Britain of whom 44 are transmitters. The total number of transmitters in the Reserve is about 95 and of this number over 70 have sufficient knowledge of procedure to have been given call signs allowing them to go on the air as a R.N.W.A.R. station. There are many others who are steadily advancing in knowledge of procedure and who, when they own transmitting sets, will soon be on the air.

The training has been continued systematically both by verbal instruction and by W/T. Of all the districts, No. 1 (London) has the greatest advantage in that most of its members are able to attend at the Admiralty for instruction on Monday and Thursday evenings. The method of training other districts has been much more difficult. Early in the year, as soon as a number of members had passed out in naval procedure at the Admiralty, some were selected to become unit petty officers and were put in charge of London units to train them. At the same time they were asked to train members in certain districts by W/T.

It must be realised that this training on the air is a slow process for many reasons, and it was considered that it was better to concentrate on certain districts to start with to endeavour to get a few members ready in each so that these could then administer to the needs of their own district members.

Captain Courtenay Price (G2OP), District Commander No. 2 District, was the first district commander to be trained, and he was able to spend a fortnight in London and to do intensive work at the Admiralty.

Dr. W. H. Marston (G2PD) and Mr. Ellison, District Commanders No. 3 and 4 Districts, came next, shortly followed by Mr. T. P. Allen (GI6YW), District Commander No. 7 District (N. Ireland).

All these three officers have been to London and made use of the Admiralty instructional classes.

In the meantime, Section Lieutenant Howell (S. Wales) and the unit petty officers in London, *i.e.*, Messrs. Kirlew, Exeter, Stopher, Warren, Brown and Came, together with Unit Petty Officers Wetherill (Yorkshire), Turner (Kent), Hamilton (Gloucester) and Rylatt (Suffolk), were slowly but surely training their units and at the same time paving the way in unorganised districts by training prominent transmitters by W./T. and correspondence.

Mr. F. L. Stollery (G5QV) and Mr. H. H. Burrows have had great success in recruiting in East Anglia, and owing to the number of enrolments from Southend, it was possible to form a class which is run on similar lines to those in the Admiralty, and the Chief Officer Shore Wireless Service on the Admiral Commanding Reserves' staff was able to give them their preliminary training. This officer also visited groups of members at Clacton and Colchester.

The value of a number of members living close together was thus very apparent. Dr. Marston and Mr. Ellison have been able to start classes at Birmingham and Harrogate respectively.

It has been difficult to start the Scottish district owing to the absence of any transmitters in Glasgow, but the situation has been eased by the enrolment in an honorary capacity of an ex-R.N. member who is willing to instruct the members there and will also be erecting a transmitting set shortly. Two members in Aberdeen, both transmitters, have, however, been under training from Mr. Wetherill, of Yorkshire, and are proceeding very satisfactorily.

The situation in No. 5 District (Northern) was similar, as there were no transmitters enrolled. There was, however, no necessity to enrol many members in this district until there were some well-qualified transmitters in other districts who had the time to take on their training.

The Newcastle Radio Society has now been approached, and their secretary has expressed himself as most interested in the scheme, and it is hoped to obtain two or three units of keen members in this city.

Northern Ireland, under the command of Mr. T. P. Allen, have made a start, and two more members have been given call signs, and a number of men have lately enrolled.

In general, the progress is considered very satisfactory, and great assistance has been rendered by the majority of members by their keenness and helpful co-operation.

The general opinion is that the work is most interesting, and it is hoped that shortly it will be more so by enlisting the aid of the ships of the Home Fleet in a scheme which is being designed whereby R.N.W.A.R. stations are used as links in service communications. H.M.S. *Pangbourne* is already taking part in certain exercises with No. 1 District. Further schemes will undoubtedly follow as the Reserve expands.

Although all members are naturally expected to take an interest in the work, allowance is always made for those who for business reasons cannot take part in as many exercises as others, and exercises are always arranged as convenient to the majority.

Amateur experimental transmitters are in no way discouraged from their work in connection with their experiments when they join the Reserve.

It is as well to have in mind the ultimate object of the Reserve, which can be summed up by saying that those radio enthusiasts to whom service in the Navy in the telegraphist branch appeals will feel that, in the event of hostilities, they will give of their best to their country by exercising their hobby, and thus avoid the possible wasting of their talent.

MORE ARTICLES ARE NEEDED—PLEASE

"SOLILOQUIES FROM THE SHACK."

By Uncle Tom.

(In which our moth-eaten friend produces yet another rabbit from his slightly shop-soiled but capacious hat.)

SALAAMS, O readers! You have had a very, very narrow escape. I have written what is vulgarly known as a *tirade* against all sorts of unpleasant things, and had it returned with a polite but very firm note from the Editor. "No, Uncle," expresses the gist of his remarks. "Admirable, no doubt, but, you see, there are people who might mistake your undoubtedly well-meant thumps on your tub. Now, if you could be just a *leetle* more polite . . . ."

So this month I have to be polite; the perfect little gentleman, in fact. I can say what I like and what I don't like, but it has to be quite clear that these are my own personal feelings only, and that, as I am (as everyone ought to have found out by now) a bit of a crank—well, *cum grano salis*, as our old Chinese schoolmaster used to say.

Now, under the heading of "Things I don't Like" comes a certain unhealthy atmosphere that tends to surround these contests that are so dear to Amateur Radio.

Contests are all very well. They are officially smiled upon by the People Who Matter, whatever a mere mitwit like your old Uncle might think of them. But some people treat them in quite the wrong way. There are parts of this country where the ham who works away quietly and unobtrusively at some genuine experimental work is absolutely *despised* because he doesn't enter contests and work dozens of W6's and the like.

Take the B.E.R.U. Contest. We all like it and we most of us enter for it. It is called a Good Thing because it "makes for Empire Friendships." But why wait for a fortnight or a month to make our Empire Friendships? Why not make them all the year round instead of playing about with formula-QSO's?

There are too many people who lose all sense of proportion when the word "Contest" is mentioned. Don't think I am throwing cold water on the B.E.R.U. Contest, whatever you do. It's a fine business all through; but I have no use whatever for the man who thinks it is the be-all and end-all of amateur radio to be able to work more stations in a given fortnight than anyone else can.

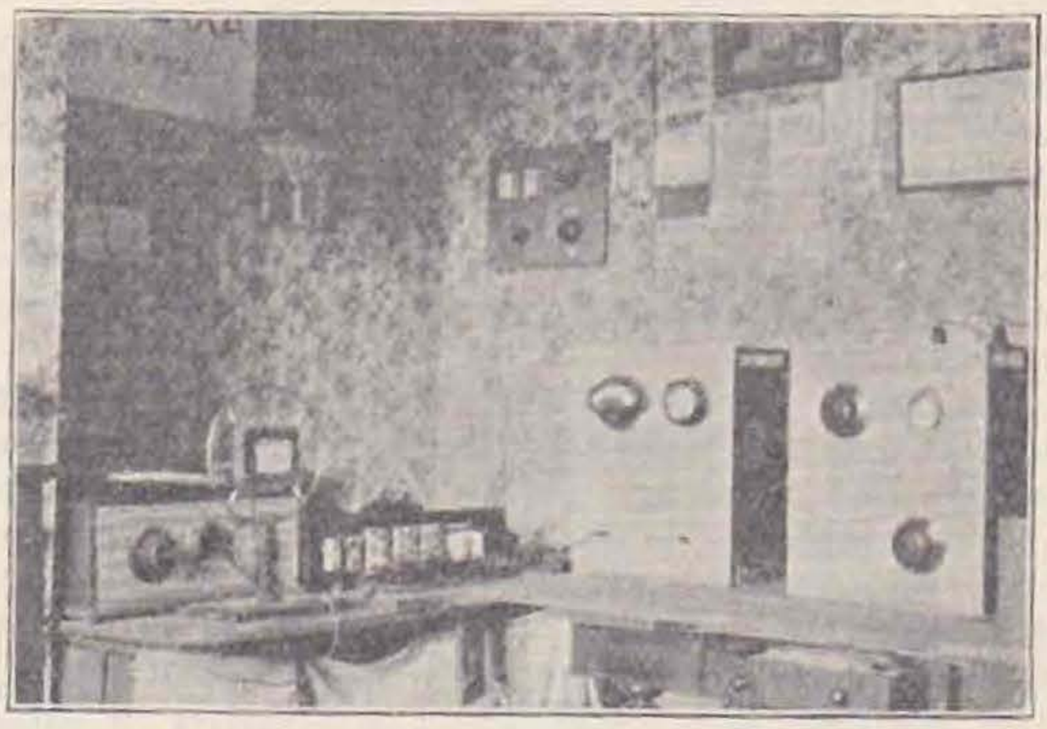
Neither am I sneering at the high-power people who carry off prizes. They work hard for them and they deserve them. I am attempting, in my veiled way, to tread on those hams (fortunately not very numerous in our country or in the Empire) whose whole outlook on amateur radio is curdled by the beastly spirit of "beggar-my-neighbour." They are just playing at radio. They have no great technical knowledge (no discredit in itself), but, what is worse, they have no ambition to acquire any. All they want is a transmitter that gets out further than that of their nearest ham-neighbour.

Now I hear that there is a nasty unsporting spirit showing up among a few people. Scotland has been subjected to abuse and insinuations, having amassed a considerable number of pots during the last year. "G5—" was using full power all the time; "G6—" had too many operators, and so on.

For the love of Mike, don't start *that*, any of you. Give full credit to the man who wins a prize for being as much of a gentleman as you are, and don't grouse, even if you *have* a faint suspicion.

Now here goes Brick No. 2. I think some R.S.G.B. members are about the most apathetic lot that it has ever been my misfortune to meet. They go to meetings, grumble about the dull programme arranged, and go home, still mumbling in their beards.

Do they ever do anything to brighten up the show? No! Do they ever vote for anyone when the Council election forms come round? No! But do they grumble when their particular friend hasn't got in? Not half, they don't. And they haven't even got the spirit to write rude letters to me when I start abusing them like this. They just go back to their holes and call Test.



A Challenge to "Uncle Tom." Mr. A. H. Bruce (2AXA) shows his method of laying out an A.A. station.

Wake up, brothers! *Do* something, for the sake of the Cause. As a concrete example, let me help you to think. The broadcast transmission now continues through what used to be the silent period—6.30-8 p.m. on Sundays. If 50 London members would transmit telephony on the 160-metre band during that period, something might happen. (It probably would.—Ed.)

The trouble is that if 50 hams got together and agreed to do that, at least 48 of them would forget all about it. The two still small voices would fight like anything, but wouldn't do much good.

No, Uncle isn't suffering from dyspepsia this month; he merely feels that a little more plain speaking and a little less soft soap is what Amateur Radio needs just at present.

Just to cheer you all up after this sermon, here is a true incident. A certain ham of Folkestone, to wit G2IC, is in the habit of announcing himself as G2IC—G2 Italy Canada. A certain Bright Spark living in *the same road* addresses a report to him thuswise: The amateur broadcasting station G2IC, Italy, *Canada*. But the omniscient G.P.O., knowing, among one or two other things, that Italy wasn't in Canada, re-addressed it properly.

NOTE SELECTION.

By "Anonymous."

"SRI Q.M. ur sigs FB, but QRM pse rqt all." How often we hear this, especially during week-ends, when the 7 mc. band is really congested! Again, most transmitters must have experienced the annoyance, when, having "hooked" a station which is real DX for the set in question, whether it be 1,000 or 10,000 miles away, a 'phone or R.A.C. station starts up and the weaker distant signals are completely lost. It seems, therefore, rather surprising that, whilst the majority of high-frequency receivers are designed to be ultra-selective so far as radio-frequency is concerned, little attention has been paid to selectivity after detection, which, although by no means a complete cure for interference, is a considerable help towards its elimination.

The principle of note-selection is exactly similar to that of tuning in radio-frequency circuits. We may obtain single-note frequencies, or bands of frequencies, by the use of acceptor circuits, rejector circuits, or note filters. It is proposed to consider only the selection of a single note, as this is the problem most generally applicable to morse receivers on the amateur bands. The two most usual methods employed are (1) tuned transformer, and (2) "tuned grid circuit" coupling between two valves.

In case (1) a special intervalve transformer with low resistance windings has a tuning condenser across one winding, usually the secondary. The circuit employed is shown in Fig. 1. A resistance may be inserted at R for the purpose of flattening the response curve if such is desired. The condenser may be made variable to admit of varying the audible note, but more frequently a small variable air gap is placed in the transformer core. Variations of this gap alter the inductance of the transformer windings, and so vary the note selected. This method is widely used, but is rather more costly to construct than method (2). The amplification, however, is greater. A special "peaked" transformer giving optimum magnification on 1,000 cycles was advertised some time ago in the Bulletin.

In case (2) the ordinary "resistance capacity" circuit for audio-frequency amplification is used, but a tuned circuit is substituted for the grid-leak. The circuit is shown in Fig. 2. As before, a variable resistance may be inserted at R to admit of a flat response curve being obtained, and condenser C may be variable to alter the note frequency. It should be noted that the capacity of C_1 is small, in the neighbourhood of 0.0001 or 0.0002 mfd. This value must be changed according to the valves in use, and other circuit conditions. If it is too large, "ringing" will occur. This means that the tuned circuit is set into oscillation by an incoming signal, and the oscillations persist after the signal has ended. Certain effects of "feed-back" to the previous stage also occur. If it is too small, a decrease of signal strength will result.

Theoretical value for the tuned grid circuit for selection of a 1,000-cycle note are as follows: C = 0.003 μF.; L = 8.3 H. Actually, owing to the self-capacity of the choke, this latter value must be somewhat reduced, say to 5 henries.

On further investigation it will be seen that, when receiving a note frequency somewhat lower than that to which the LCR circuit is tuned, this circuit becomes inductive and may be replaced by an inductance L^1, of value considerably less than L,

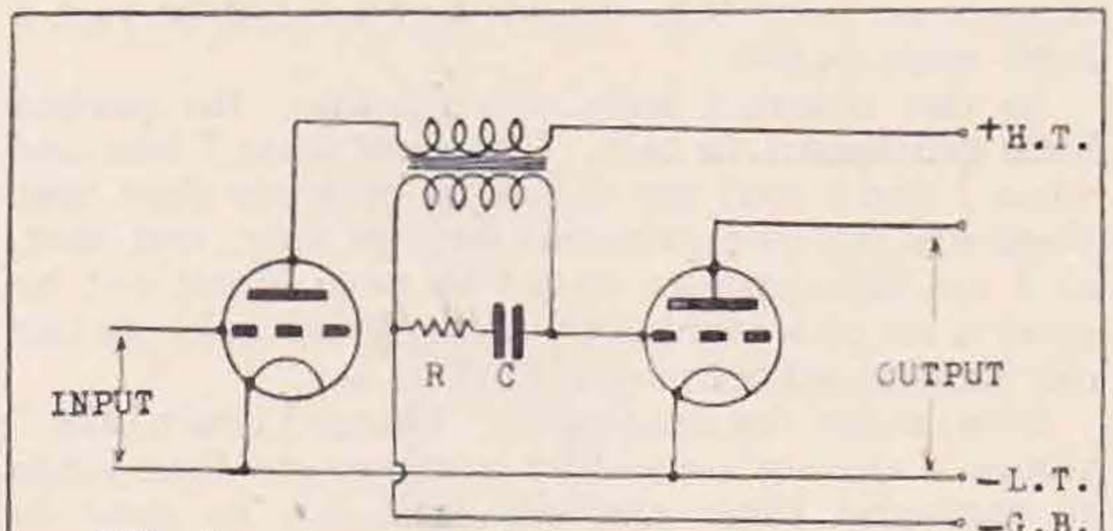


FIG. 1.

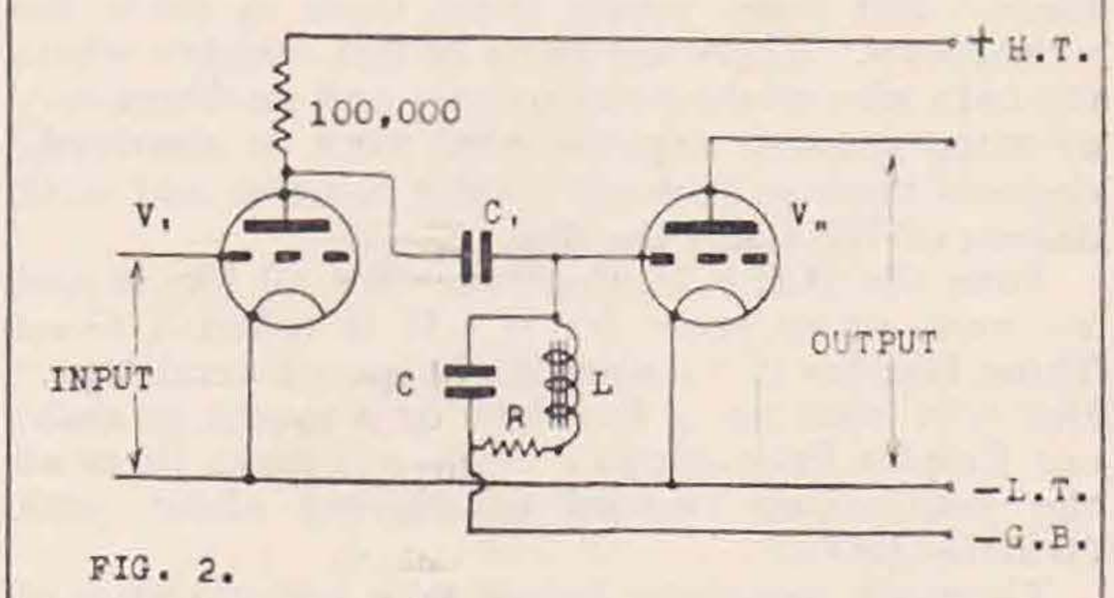


FIG. 2.

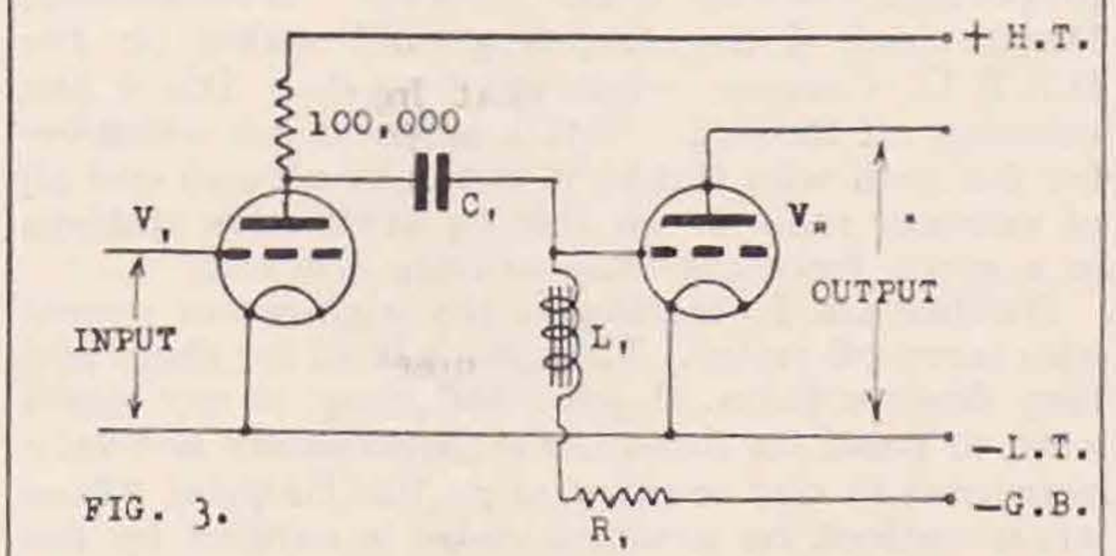


FIG. 3.

and a resistance R^1. (Both of these values will vary for any change of frequency.) The circuit may now be drawn as in Fig. 3. For a frequency to which the reactances of L^1 and C_1 are equal i.e., when $2\pi f L^1 = \frac{1}{2\pi f C_1}$, the circuit will behave, as an "acceptor circuit," and it can be shown that a voltage, much greater than that when the note frequency is resonant with circuit LCR, is applied to the grid of V_2.

An experimental curve, showing voltage applied to the grid of V_2 for various frequencies, is given in Fig. 4. It will be seen that the " peak " of the curve occurs at a frequency slightly lower than that to which the LCR circuit is tuned. The values in this case were: L = 14.8 H.; C = 0.0035 μF.; R = 90 ohms; C_1 = 0.001 μF. (This value of C_1 would probably be much too large for wireless reception, but was chosen in order to exaggerate the frequency difference between the peak of the curve and the resonant frequency of the LCR circuit.)

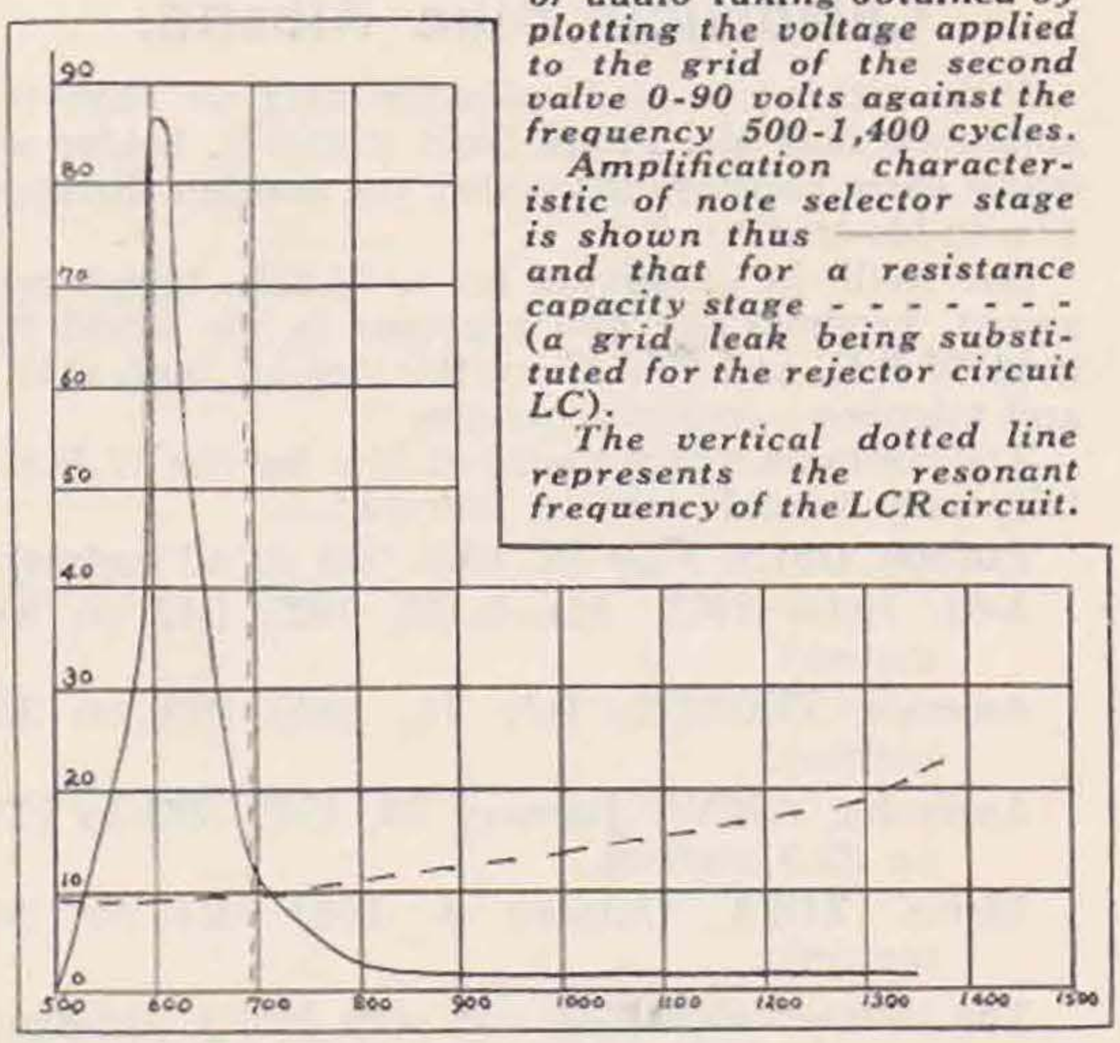


Fig. 4 showing the degree of audio tuning obtained by plotting the voltage applied to the grid of the second valve 0-90 volts against the frequency 500-1,400 cycles.

Amplification characteristic of note selector stage is shown thus ——— and that for a resistance capacity stage - - - - - - - (a grid leak being substituted for the rejector circuit LC).

The vertical dotted line represents the resonant frequency of the LCR circuit.

Operation.—In practice it will usually be found that at least two stages of note selection are necessary. The amplification per stage is seldom more than 2 or 3, so it should not be used instead of an audio-frequency amplifier. A change-over switch should be incorporated, so as to throw in or out the note-selector at will.

With the note-selector cut out, the required station is tuned in, the beat frequency of the heterodyne valve being adjusted for a note similar to that of the selector. The switch is then put over to the " selector " position. A slight adjustment of heterodyne note may be necessary. The valves of the selector are left on, whether the instrument is in use or not, so as not to upset tuning adjustments when it is switched in.

The note-selector cannot be used for the reception of telephony, R.A.C. stations, or stations with a chirpy or wobbly note. However, T8 and T9 notes come in very well indeed. A station having a slight creep can easily be read, though the tuner or separate oscillator dial must be varied continuously to keep the note-frequency correct. Atmospherics are considerably reduced, and come through with a " ringing " note instead of their usual harshness.

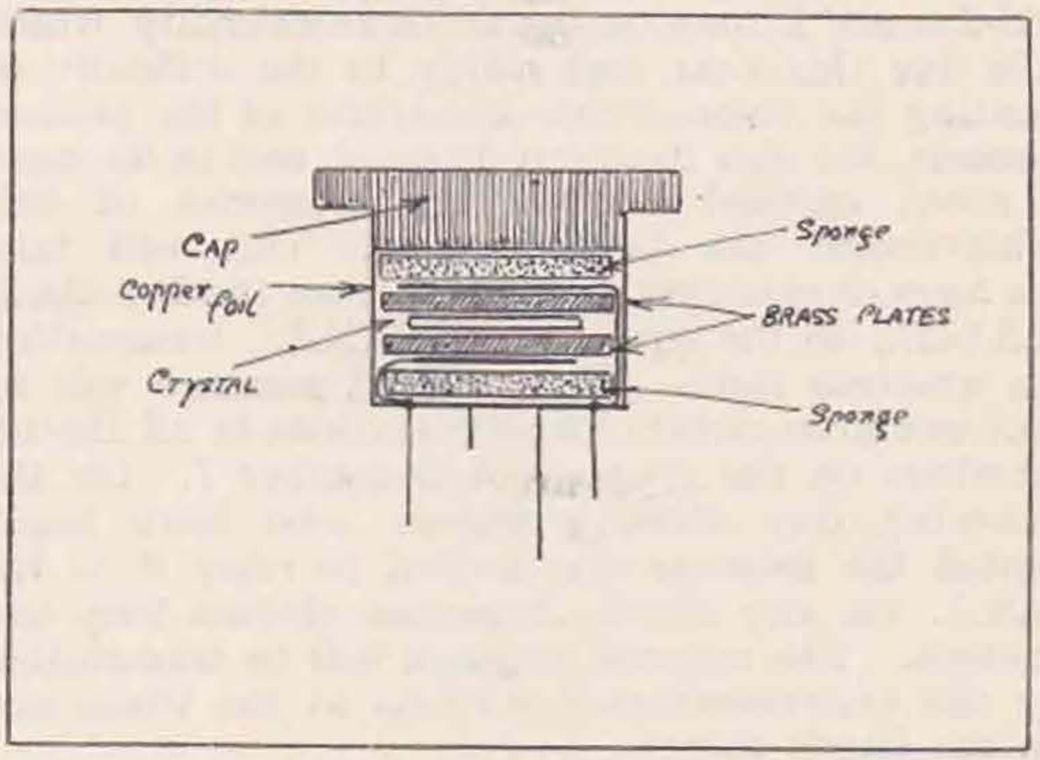
This system has been used on about 100 kc. to read a distant station, differing only 0.5 kc. from a 5 kw. transmitter only 2 miles away. Of the latter, only key clicks could be heard, through which the distant signals could be easily read, whilst without the note selector reception within 5 kc. of the local station was impossible.

A PLUG-IN CRYSTAL HOLDER.

By J. C. Runge, G2RJ.

SINCE multi-band crystal control is becoming ever-increasingly popular, a description is here given of a simple plug-in crystal holder which may be new to some, though perhaps by no means novel to others. The holder is very inexpensive to construct, and provides a way of quickly changing crystals without handling them. It may be regarded as being almost completely dust-proof, so that little attention need be paid to the crystal once it is fitted.

As the diagram is almost self-explanatory, the actual design need not be dealt with at great length. The holder is made from the base of a burnt-out valve (any " dud " valve will do which has a cylindrical base), and the crystal rests between two brass plates with their inner surfaces ground flat. The connections to the plates are effected by two small discs of copper foil, both of which are soldered to separate pieces of insulated wire leading to one



pair of legs on the valve base. A nick is made in the edge of each brass plate to enable the connecting wire to the top disc to pass through to the respective leg of the valve base. Immediately below the lower and above the upper discs are placed circular pieces of some springy material, such as rubber sponge, felt, wadding, etc., for the purpose of obtaining even pressure.

We now come to the construction of the holder cap and the brass plates. If the member possesses a lathe both these tasks are easy. The cap is turned down from a solid block of ebonite so that it can be wedged fairly tightly into the holder, and the brass plates are turned down from $\frac{1}{8}$ in. (or any other convenient thickness) sheet brass. The " non-lathe " man need not, however, despair, for a suitable cap can be cut from a large flask-cork (obtainable from a chemist) and the plates made by grinding down two pennies on a grindstone and finishing them off with a grinding-paste on a flat block of iron. Plate-glass can, of course, be used, but is not recommended owing to the time taken in grinding, and to the concave nature assumed by the glass after a few minutes' handling. This also applies to the grinding of the brass plates.

In conclusion, it should be mentioned that some difficulty may be experienced in getting the inner surface of the valve-base smooth owing to the adhesion of the glue-like substance employed by valve makers, but this may be overcome by standing the valve base in acetone.

Is your subscription due?

HIC ET UBIQUE.

An Historical Anniversary—B.E.R.U. Zone Circulars and Letter Budgets—First Holder of Quadruple Blue Riband—County Representatives

An Historical Anniversary.

December 8, 1923, will long be remembered in the annals of amateur history, for it was on the morning of that day that the first two-way amateur radio communication took place between this country and the North American Continent. The central figures were Mr. Jack Partridge (G2KF) and Mr. K. B. Warner (A1MO). The full story of this achievement was fully recorded in the *Wireless World* dated December 27, 1923, and those who are interested are recommended to read the personal account which was written by Mr. Partridge.

We had in mind the possibility of organising an Old-Timers' Dinner on the tenth anniversary, which falls due this year, but owing to the difficulty of locating the whereabouts of certain of the pioneer workers, the idea has been dropped, and in its stead a novel method of reviving memories of this achievement has been evolved. This will take the form of messages of greeting from the President, R.S.G.B., to the President, A.R.R.L., transmitted via amateur radio. The original message will be sent out from certain London stations to all British members on the evening of December 7. On the following day, those members who have intercepted the message are invited to relay it to the U.S.A. via any North American station they can contact. The original message will be transmitted by the undermentioned stations at the times and on the bands shown.

3.5 mc.:	21.00 G.M.T.	...	G6LL.
	22.00 G.M.T.	...	G6CL.
	23.00 G.M.T.	...	G6NF.
7 mc.:	21.30 G.M.T.	...	G6WN.
	22.30 G.M.T.	...	G6CW.
	23.30 G.M.T.	...	G6VP.

The transmitting station will call "test message for U.S.A. de....."

It is hoped that as many British Amateurs as possible will take part in this celebration.

B.E.R.U. Zone Circulars and Letter Budgets.

We would commend to the notice of all overseas representatives and members a practice which has been adopted by our representatives in Northern India and Kenya.

Mr. W. E. Lane, VQ4CRH, sends us the first two issues of a Zone Circular which is being distributed regularly to all B.E.R.U. members in the Kenya, Uganda and Tanganyika Zone. This contains up-to-the-minute news of local and general interest and should prove of inestimable value in keeping our members together. Details of the Davidson Cup Competition, held on November 11 and 12, are included in the second of these circulars.

In India, Lieut. Beaumont, VU2FP, has inaugurated an excellent letter budget, and we trust that those members in VU who are not yet contributing will do so immediately.

Our congratulations are extended to the sponsors of these pioneer efforts.

Mr. Frank Neill First Holder of Quadruple Blue Riband.

It is with very much pleasure that we have to announce that Mr. Frank Neill (GI5NJ), holder of many early records, has added yet another distinction to his credit.

Mr. Neill, in qualifying for a W.B.E. telephony award, becomes the first amateur in the world to hold W.B.E. and W.A.C. certificates for both C.W. and telephony communications.

The contacts which qualified him for the W.B.E. telephony award were as follows:—

Europe, G5LS, May 18, 1926 (R8 on 40 metres).
Asia, India 2KX, March 26, 1927 (R7 on 33 metres).
America, GX6MU, July 16, 1926 (R6 on 32 metres).
Australia, A7CW, January 23, 1927 (R3 to R7 on 32.8 metres).
Africa, ZD2A, October 8, 1933 (R4 on 20 metres).

The contact with Asia was with Mr. J. Drudge-Coates, now G2DC, whilst that with GX6MU was with Mr. Eric Megaw, on board s.s. *Antrim* when lying in Sydney Harbour, Nova Scotia. Many members will remember having contacted these two stations in the early days.

New Representative for District 8.

Considerable reorganisation has been found necessary in connection with the grouping of the counties forming Districts 8 and 9. We have pleasure in announcing that Mr. G. Featherby (G5FB), 30, Lindsey Road, Bishops Stortford, Herts, has accepted the appointment of representative for the new No. 8 District (Home Counties), which comprises the counties of Cambridgeshire, Bedfordshire, Buckinghamshire, Hertfordshire and Huntingdonshire. It is hoped to appoint C.R.'s for these counties in the near future.

Mr. Stollery (G5QV) continues in office as representative for District 9 (Eastern), which comprises the counties of Norfolk, Suffolk and Essex.

Small Trade Advertisements.

With reference to the notice published in our last issue, referring to rates for small advertisements, we feel it desirable to point out that these increased rates applied only to strictly TRADE advertisements.

Members' personal advertisements will be charged for at the old rates, viz., 1d. per word, or 2d. per word if in capitals.

Prefix Zone Chart.

The credit for first suggesting the B.E.R.U. Contests Prefix Zone Chart goes to Mr. W. E. Lane, VQ4CRH.

Mr. A. E. Livesey, G6LI, was responsible for the final table, which is roughly based on an allowance of one point per 1,000 miles (G.C.D.) of contact, taken between centres of zones.

County Representatives.

Apathy on the part of home members has again been shown in connection with nominations for County Representatives.

Although a notice soliciting names was published two months ago, nominations have been received from only a handful of members.

The following having been duly nominated will take office as C.R.s from January 1, 1934 :—

DISTRICT 1.
Lancashire ... Mr. W. Lucas (G2OI).
DISTRICT 3.
Warwick ... Mr. G. Brown (G5BJ).
DISTRICT 5.
Oxford ... Mr. H. J. Long (G5LO).
DISTRICT 6.
Devon ... Mr. J. J. G. Taylor (G6XD).
DISTRICT 7.
Hampshire ... Mr. R. C. Neale (G6GZ).
Surrey ... Mr. R. J. Denny (G6NK).
DISTRICT 8.
Essex ... Mr. M. Buckwell (G5UK).
Norfolk ... Mr. H. W. Sadler (G2XS).
DISTRICT 9.
Cambridge ... Mr. B. Scudamore (G6BS).
DISTRICT 10.
Monmouth ... Mr. F. T. Wilson (G2XX).
Glamorgan ... Mr. R. W. Hall (2AHN).
DISTRICT 16.
Kent ... Mr. G. A. Chapman (G2IC).
DISTRICT 17.
Lincolnshire ... Mr. W. Grieve (G5GS).

As will be seen, the vast majority of counties will be without a representative during 1934, unless Council again assume the onus of appointing members to undertake these duties.

In general present C.R.s who have not been nominated will be asked to continue in office, but in certain cases changes will be effected.

We think it advisable to stress the point where no nominations have been received that the members have themselves to blame if their local interests are not catered for properly.

ELECTIONS.

Messrs. W. E. Corbett (G5WG), and J. Davies (G2OA) have been nominated for Cheshire. Colonel W. S. Palmer (G2BI) and Mr. R. A. Hiscocks (G6LM) have been nominated for Wiltshire. Members in these counties are asked to record their vote, and forward same to Headquarters not later than November 30.

VOTING FORM.

The Secretary, R.S.G.B.,
53, Victoria Street, London, S.W.1.

I wish to record a vote in favour of Mr. ..... for the position of ..... County Representative.

Signed .....

Date .....

R.S.G.B. Reception Tests.

Below will be found Bands and Periods for the Series 22 Reception Tests. B.R.S. and A.A. members should enter these interesting tests, which will help them to speed-up their Morse and also obtain first-hand information relating to sending procedure direct from the ether. All amateur stations heard should be logged and the sheets posted to Mr. T. A. St. Johnston, G6UT, 28, Douglas Road, Chingford, E.4, by December 20, when they will be circulated in budget form to all participants. Fuller details of these tests will be found in the September issue of the BULLETIN.

LIST OF PERIODS AND BANDS.

Series 22.

Test Letter.	Date. 1933.	Period. G.M.T.	Band. mc.
A	Sun., Nov. 19	00.00-01.00	7
B	,, ,, 19	09.30-10.30	1.7
C	,, ,, 19	11.00-12.00	56
D	,, ,, 19	22.30-23.30	3.5
E	,, ,, 26	07.00-08.00	14
F	,, ,, 26	10.00-11.00	28
G	,, ,, 26	11.30-12.30	56
H	,, ,, 26	19.00-20.00	7
I	,, ,, 26	22.30-23.30	14
J	,, Dec. 3	00.00-01.00	3.5
K	,, ,, 3	11.00-12.00	1.7
L	,, ,, 3	19.00-20.00	28
M	,, ,, 3	22.30-23.30	7
N	,, ,, 10	00.00-01.00	1.7
O	,, ,, 10	09.00-10.00	3.5
P	,, ,, 10	11.00-12.00	56
Q	,, ,, 10	19.00-20.00	14
R	,, ,, 10	22.30-23.30	28

Slow Morse Tests.

At the request of new members resident in District 14 slow Morse sending has been arranged on the bands and dates shown below. In order to discover if this service is appreciated, will members taking advantage notify the stations mentioned, also send stamped addressed envelope if they require matter checked ? If it is found this service is filling a want, then it may be extended. Practice will be for approximately 10 minutes. Will any transmitting station willing to give practice transmissions communicate with Mr. T. A. St. Johnston, G6UT, 28, Douglas Road, Chingford, E.4 ?

Date. 1933.	G.M.T.	Band. mc.	Station.
Nov. 15	22.00	1.7	G6FJ
,, 17	22.00	3.5	G6LL
,, 19	18.30	7.105	G2LC
,, 20	22.00	1.7	G6FJ
,, 22	22.00	3.5	G6LL
,, 24	22.00	1.7	G6FJ
,, 26	18.30	7.105	G2LC
Dec. 3	18.30	7.105	G2LC
,, 10	18.30	7.105	G2LC
,, 17	18.30	7.105	G2LC

QRA Section.

Manager : M. W. Pilpel (G6PP).

NEW QRA's.

GI2CN.—C. B. Cleland, "Lensfort," 17, Fourth Avenue, Baylands, Bangor, Co. Down, N. Ireland.
G2CS.—E. J. Martin, "Dalkeith," Woodlands Road, Gillingham, Kent.
G2CY.—H. W. Stewart, 47, Dynevor Road, London, N.16.
G2OS.—J. W. Ostens, 41, Sandringham Gardens, North Shields, Northumberland.
G2OX.—G. W. McDonald, "Oakroyd," Woodburn Avenue, Aberdeen.
G2PP.—J. S. Knight, 28, Rectory Avenue, Prestwich, Manchester.
G2UL.—E. Dell, "Morlais," Dowdeswell Place, Upper Loughor, Swansea.
G2UV.—W. E. F. Corsham, "Harrow View," 143, Abbots' Drive, Wembley, Middlesex.
G2WV.—J. B. Kershaw, 6, Quentin Road, Lewisham, London, S.E.13.
G5CL.—M. Shaw, 6, Brian Road, West Smethwick, Staffs.
G5CT.—A. Taylor, 30, Highfield Terrace, Shipley, Yorks.
G5FA.—J. A. Farrer, 39, Harold Road, Harlesden, London, N.W.10.
G5IM.—E. Black, 361, Brook Street, Broughty Ferry, Dundee.
G5JK.—L. R. Harper, 112, Seafield Road, Aberdeen.
G5MJ.—Capt. G. St. J. Martin, "Claremont," Westville Road, Thames Ditton, Surrey.
G5QV.—F. L. Stollery, Beaumont Hall Hotel, Marine Parade, Clacton-on-Sea, Essex.
G5UM.—J. Hum, 8, Long Row, Sudbourne, near Orford, Suffolk.
G5VS.—V. A. Sims, 14, Kilworth Avenue, Southend-on-Sea, Essex.
G5VU.—S. W. P. Henton, 8, Eton Grove, Wollaton Park, Nottingham.
G6CY.—A. S. Clacy, 490, Portland Road, West Hove, Sussex.
G6KI.—R. W. Kidner, 114, Dell Road, King's Norton, Birmingham.
G6SC.—S. H. Chapple, "Howarth," Rutherwyke Close, Stoneleigh Park, Ewell, Surrey.
2BBA.—L. E. H. Scholefield, 2, Balmoral Road, St. Annes-on-Sea, Lancs.
2BGD.—F. J. Caton, 32, East Acton Lane, London, W.3.
2BGU.—M. J. Heavyside, 325, New Hey Road, Bradford, Yorks.
2BHI.—H. W. Leonard, 7, Stadium Road, Westbury Park, Bristol 6.
2BIT.—J. Clough, 1017, Leeds Road, Bradford, Yorks.

The following are cancelled: 2BDF, 2BJH, 2BXJ.

QSL Section.

Manager : J. D. Chisholm (G2CX).

A recent overhaul of the Section has convinced us of the necessity of bringing the rules of the Bureau, as printed in the September issue, once again to the notice of every user. The particular points we wish to stress this month are those concerning the size of envelopes, and the insufficient stamping of QSL packets addressed to the Section.

It will be readily appreciated that at the best of times it is a difficult proposition to keep some thousands of envelopes filed in order, but when these envelopes vary in size from the smallest "commercial" type to those of the "paper bag" variety, the difficulties are increased a hundredfold.

Regarding the matter of excess postage which we are continually being asked to pay on packets of cards sent by members, we can only say that whilst occasional lapses can be forgiven, we do object very strongly to paying large sums each week as a result of carelessness. We therefore ask everyone to weigh all heavy bundles of cards before sending. We have not demanded the excess in the past and trust there will be no necessity to do so in the future.

It is with great pleasure we have to record that Mr. Martin (Gi5HV) has been appointed official QSL Manager for Northern Ireland by the R.T.U. At the request of the latter body the Council of R.S.G.B. has approved this appointment with satisfaction, and we are confident that Mr. Martin in every way deserves recognition for the sterling work he has done in the past. Will Gi members please note, all envelopes to Gi5HV, please ?

Calibration Section.

Manager : A. D. Gay (G6NF).

A number of commercial stations operating in the 7 mc. band has again been reported to the G.P.O. This number includes RPA 7,200 kc., RPK 7,226 kc. and RTZ and LCP, both on 7,276 kc. It is no doubt due to the activity of these stations that the portion of our band from 7,180 down to 7,276 kc. has been deserted. Even on Sunday mornings, when the above stations are silent, no amateur stations utilise this portion of the band, neither do those who cram themselves between 7,025 and 7,180 kc. ever seem to listen down there. G6NF has been operated on 7,266 kc. on several occasions, and from the results obtained, except for BRS reports, the writer has been forced to conclude that full use is not made of the 7mc. band. Sunday morning frequency measurements on the active stations reveal that nearly 100 per cent. are located between 7,025 and 7,180 kc., which means that almost 100 kc. is wasted in this band during a period when the QRM is at its worst.

During the past twelve months we have had to write to no less than eight of our members on the subject of off-frequency operation. Two of these errant amateurs were as much as 100 kc. off-wave. We have heard one or two others, but they were not members, so that if they get caught it is an affair between them and the P.M.G., and we know that vigilance is being strictly kept. The carelessness of a few amateurs can easily jeopardise our band allocations. Great Britain has smaller allocations than the U.S.A., but they were widened recently on our show of good operation during past years. We want the full limits of the band, and the only way to get them is to make sure that our transmissions are accurately monitored so as to make off-frequency operation impossible.

Order a copy of the Guide when paying your sub.

R.S.G.B. Standard Frequency Transmissions.

By the time this issue reaches our members arrangements will be completed for the transmission of standard frequencies from G6NF covering the 3.5 mc. band. The accuracy will be within 0.10 per cent. and maintained by a temperature controlled oven on three frequencies of 3,525, 3,625 and 3,725 kc. Transmission will commence on Sunday, November 25, at 09.30 G.M.T. calling R.S.G.B. de G6NF for eight minutes, interspersed with ten second dashes and statement of frequency. The following schedule will be adhered to on the last Sunday in each calendar month :—

09.30	...	...	...	...	3,525 kc.
09.40	...	...	...	...	3,625 kc.
09.50	...	...	...	...	3,725 kc.

An input of 100 watts to the final amplifier should be adequate to cover the British Isles. Reports of reception will be appreciated from those making use of the transmissions.

(Foreign journals please copy.)

NEW MEMBERS.

OCTOBER.

HOME CORPORATES.

H. A. MUSGRAVE (G2JM), Baymead, North Petherton, Som.
J. R. SEABROOK (2AFK), 36, Elliott Road, Brixton, S.W.9.
K. M. DUNSFORD (2AUF), West Winds, West Street, Reigate, Surrey.
I. M. AYLIFFE (2BPG), Fernside, Clytha Park, Newport, Mon.
S. ROBERTS (2BQS), Moor View, Belmont Grove, Rawdon, near Leeds.
H. DUCKWORTH (BRS1221), 175, Oldham Road, Royton, Oldham, Lancs.
F. WARDLE (BRS1222), 50, Dean Road, Cadishead, Manchester, Lancs.
S. P. DE LASZLO (BRS1223), 6, Stanhope Place, Paddington, W.2.
H. L. GIBSON (BRS1224), 50, Oundle Avenue, Bushey, Herts.
C. F. HABERER (BRS1225), 75, Addison Road, Kensington, W.14.
D. L. RICHARDS (BRS1226), 3, Manston Avenue, Southall, Middlesex.
H. H. WILD (BRS1227), 1, Elm Street, Middleton, Lancs.
R. NORRIS (BRS1228), 8, Hylton Drive, Manor Road, Cheadle Hulme, Cheshire.
F. W. HOLDEN (BRS1229), 29, West Park Road, Smethwick, Birmingham.
P. G. HESTER (BRS1230), Ystrad, Southern Road, Thame, Oxon.
C. F. W. SUFFOLK (BRS1231), 258, Roman Road, Bow, E.3.
J. T. ROBERTS (BRS1232), 19, Cheyne Gardens, Chelsea, S.W.3.
LANCE-CORPL. L. A. HILL (BRS1233), R.A.O.C., Att. 2nd Div. Signals, Aldershot.
E. F. WARREN (BRS1234), 18, Aultone Way, Sutton, Surrey.
G. A. RAEBURN (BRS1235), Sunnybank, Portsoy, Scotland.
T. M. FLOCKHART (BRS1236), The Laurels, Acton Bridge, Cheshire.
R. L. CASTLE (BRS1237), 7, Caxton Road, Wimbledon, S.W.19.
R. C. STONE (BRS1238), 907, Wimborne Road, Bournemouth.
D. N. BIGGS (BRS1239), Eastrop, Pooley Green Road, Egham, Surrey.
N. K. ADAMS (BRS1240), 35, Manor View, Finchley, N.3.
K. L. HOWELL (BRS1241), 121a, Broadway, Leigh-on-Sea, Essex.
P. J. MARSH (BRS1242), 10, Brunswick Gardens, Campden Hill, W.8.
J. F. ISAAC (BRS1243), Grasmere, High Town Road, Maidenhead, Berks.
J. C. WALTON, B.A. (BRS1244), 140, Albert Road, Stechford, Birmingham, 9.
R. E. FRIEND (BRS1245), 74, Putney Road, Enfield Wash, Middlesex.
G. HUTSON (BRS1246), 11, Wide Bargate, Boston, Lincs.
J. GODDARD (BRS1247), 33, Park Avenue, Potters Bar, Middlesex.
E. G. ARTHURS (BRS1248), 13, Walton Well Road, Oxford.
H. A. STOCKS (BRS1249), 5, Charles Street West, Lincoln.
R. E. HIGLETT (BRS1250), 89, East Street, Farnham, Surrey.
A. F. HUTCHEN (BRS1251), 75, Rockingham Road, Kettering, Northants.
R. G. WILSON (BRS1252), 4, Upper Berkeley Street, W.1.
J. DAVIES (A.), 95, High Street, Hampton Hill, Middlesex.

DOMINION AND FOREIGN.

J. SMITH (AC8JS), 670, Yangtszepoo Road, Shanghai, China.
F. C. G. VAN BAERLE (PA0HI), Obrechtstr 451, The Hague, Holland.
W. S. BLIGH (VE1BC), 120, Beech Street, Halifax, N.S., Canada.
G. H. SAUNDERS (VE1CW), Bedford, N.S., Canada.
C. E. ROACH (VE1EA), Box 384, Windsor, N.S., Canada.
W. EDGLEY (VE3OU), 1013a, Saint Clarens Avenue, Toronto, Canada.
W. L. WOOLNOUGH (VK2GW), 8, Park Avenue, Gordon, N.S.W., Australia.
W. H. HOEY (VQ4KTA), P.O., Endebess, Kenya Colony.
S. CONWAY (VS6AQ), R.A.F. Base, Kai-Tak, Hong Kong.
A. M. BRAATEN (W2BSR), Box 979, Riverhead, L.I., New York, U.S.A.
MISS MARGARET CHAPMAN (ZL4GB), Rosebank, Balclutha, Otago New Zealand.
ING. ROBERTO OGNIBENE, 45, Corso Magenta, Milano, Italy.
R. M. TATE (BERS190), 19, Surveyor Street, Queanbeyan, N.S.W., Australia.
H. J. WALKER (BERS191), Box 79, Nairobi, Kenya Colony.
J. H. STEWART (BERS192), P.O. Box 773, Rangoon, Burma.

NOVEMBER.

HOME CORPORATES.

A. EBURNE (G2DK), 60, Chandos Street, Stoke, Coventry.
R. S. MARTIN (G2IZ), 41, Mayfield Road, Gravesend, Kent.
A. K. HASLEHURST (G5HT), 20, Arboretum Street, Derby.
S. K. LEWER (G6LJ), 17, Norval Road, N. Wembley, Middlesex.
J. COWAN (2AFO), 18, London Road, Belfast, N.I.
F. HALDEN, 46, Charlton Road, Kenton, Middlesex.
K. K. GHAZAROS, University College Hall, Queen's Walk, Ealing, W.5.
A. J. GREENWOOD (BRS1253), 89b, Tettenhall Road, Wolverhampton, Staffs.
H. B. SHIELDS (BRS1254), 39, Hardman Lane, Failsworth, Lancs.
J. E. E. ISABEL (BRS1255), 26, Russel Road, Grays, Essex.
C. M. WINTON (BRS1256), The Point, Stenhousemuir, Scotland.
A. P. WEBER (BRS1257), 7, Grosvenor Road, Westcliff-on-Sea, Essex.
J. G. R. RIDDLE (BRS1258), Galloway House Gardens, Garlieston, Wigtownshire.
R. V. SALMON (BRS1259), 1b, New Park Road, Chichester, Sussex.
A. T. KINGSTON (BRS1260), 22, Oakfield Gardens, Beckenham, Kent.
J. R. ADAMS (BRS1261), 22, Wellhall Road, Hamilton, Lanarkshire.
C. R. DUNN (BRS1262), 174, Broom Road, Teddington, Middlesex.
F. P. THOMSON (BRS1263), 4, Walpole Gardens, Chiswick, W.4.
G. A. SPENCER (BRS1264), 37, Brisbane Street, Greenock, Scotland.
J. W. RUSSELL (BRS1265), The Elms, Newchurch, I.O.W.
H. G. WHEELER (BRS1266), 5, St. John's Road, Folkestone, Kent.
T. J. BROWN (BRS1267), Manor House, Nettlebed, Henley-on-Thames, Oxon.
T. F. E. COX (BRS1268), 88, Oldfield Road, Hampton, Middlesex.
T. E. AMIS (BRS1269), 77, Murray Road, Rugby.
H. WHALLEY (BRS1270), 3, St. Albans Road, Darwen, Lancs.
E. W. ESPENHAHN (BRS1271), Caynton Wood, Glebelands Road, Prestwich, Manchester.
G. HAWKSWELL (BRS1272), Bank Buildings, Barnoldswick, Yorks.
J. A. BAILEY (A), 19, Chatsworth Road, Chiswick, W.

DOMINION AND FOREIGN.

E. LOOMER (VE1BW), Falmouth, Hants County, Nova Scotia, Canada.
C. E. ROACH (VE3DE), 1880, Delaware Avenue, Niagara Falls, Ontario, Canada.
C. E. YIP (VE5GO, VE5GP), 445, Abbott Street, Suite 119, Vancouver, B.C., Canada.
R. HENWOOD (VK6RL), 31, Clieveden Street, North Perth, W. Australia.
C. F. WOOD (VU2LX), H.Q. No. 1 (Indian) Group, R.A.F., Peshawar, N.W.F.P., India.
W. H. GIBBINS (ZU5V), King's Rest, P.O., Fynnlands Bluff, Durban, S. Africa.
R. G. YOLLAND (BERS193), Royal Signals Mess, Rawalpindi, India.
R. S. TREW (BERS194), Post Office, Harvey, W. Australia.
E. W. TREBILCOCK (BERS195), 784, Hare Terrace, Moonta, S. Australia.
J. J. WATT (BERS196), Westward Ho! Estate, Nuwara Eliya, Ceylon.

With reference to the stray published on page 81 of the September issue, Mr. Gleed asks us to mention that he did not claim his reception of W3MD as being the first U.S.A. signals heard in Great Britain on 28 mc. for some years. The comment stated that this was believed to be the first signal, but no definite assertion was made. The call should have read W3MD and not W3ND.

CORRESPONDENCE.

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

MODULATION.

To the Editor of The T. & R. Bulletin.

Dear Sir,—If I may impose on your kindness once again, I would like to reply to Mr. Canning's letter under the heading "Modulation" in the September issue.

In my original letter, where the terms "ohmic resistance" and "radiation resistance" were used, they were not intended to convey any other meanings than those normally accepted. The ohmic resistance of the usual type of shortwave aerial is considerably higher than that of the usual longwave aerial as the resistance of a copper conductor increases with increase of frequency. Then also, an average shortwave aerial of dimensions, say, a half-wave long and a half-wave high, is physically easily obtainable, but imagine a longwave aerial of relative size. 5XX would need masts half-a-mile high! The cost of masts prohibits the erection of efficient longwave aerials, and where the shortwave aerial has excellent radiating properties owing to its effective height (probably 75 per cent. of the energy put into being radiated) the longwave aerial, having such poor effective height, radiates only a low proportion of its energy. I think it is clear, then, that as the shortwave aerial radiates such a lot of the energy put into it, the energy does not remain in it, to the detriment of modulation.

Regarding aerial coupling, if a self-excited oscillator is used, coupling may be increased to a point where maximum current is shown in the aerial, but if the coupling is further increased the oscillator will shift to a different frequency or else tend to stop oscillating. Obviously the aerial current will decrease with such close coupling. The frequency shift is the instability effect to which I referred, and the aerial coupling must be kept at a value below that at which it takes place if a stable signal is to be radiated. In the case of a P.A. this effect is not present and aerial coupling can be made tighter with advantage. I should imagine that, for longwave working, it would be good practice to couple the aerial sufficiently tightly to cause double-hump ("square-peak") tuning, rather than to add resistance to flatten the tuning. Considering shortwave aerials, their inherent ohmic resistance flattens the tuning sufficiently.

Mr. Canning queries whether the conditions I outlined for the operation of a 100 per cent. modulated transmitter ever prevail. I can assure him that if distortionless operation (within commercially practicable limits) is desired, these conditions *must* be obtained.

I would like to correct Mr. Canning's error regarding Series Modulation. A.C. mains are not essential for its operation. If he wishes to use a generator or battery for filament lighting of his oscillator, then it is only necessary to see that it is insulated from earth to stand the modulator's maximum anode voltage. Regarding comparative costs, his statement that the cost of a speech choke in comparison with the total outlay is unimportant, is evading the point. The original comparison was the speech choke's cost against transformer insulation.

If. Mr. Canning will consider the last paragraph of my letter, he should see that there is a definite advantage in the use of series modulation compared with choke control, in that it is possible to use a greater length of modulator grid base. A further advantage, not previously mentioned, is that there is no loss of amplitude of bass notes due to the falling off of impedence of a speech choke at low frequencies, and as far as high note is concerned, it will be no worse with the filament transformer's capacity to earth than with the self capacity of the windings of a speech choke. It would be the simplest matter to make a filament transformer with a secondary of considerably lower capacity to earth if the retention of very high audio frequencies is necessary. I think this advantage of series modulation will be of considerable importance to the designers of television transmitters.

Perhaps I was not entirely correct when I referred to the B.B.C.'s use of series modulation, but I speak with authority when I say that the new 500 k.w. transmitter being erected at Droitwich, Britain's most up-to-date and highest-powered broadcast transmitter has been tested with and will use series modulation.

Yours faithfully,

P. Johnson (G5IS).

ELECTRON COUPLED OSCILLATOR ARTICLE.

Mr. J. Hunter (G2ZQ), who, it will be remembered, was responsible for receiving the article on electron-coupled oscillators, published in our last issue, asks us to mention that this was transmitted to him by the author, Mr. Samson (ZL4AI), and not by Mr. Shrimpton (ZL4AO) as stated. Furthermore, he desires us to state that Mr. Chorley (G5YH) originated the idea of asking ZL4AI for the contribution.

In connection with this achievement, we have been asked by several New Zealand amateurs to convey, *via* the Bulletin, their congratulations to Mr. Hunter. We understand the article was copied solidly at 20-25 w.p.m., without a request for a single repeat.

THAMES VALLEY AMATEUR SHORT-WAVE RADIO AND TELEVISION SOCIETY.

The first convened meeting of this new Society was held on Wednesday, October 4, at G2NN.

After the Secretarial report, during the course of which the Society's future programme was outlined, apparatus exhibited by members was examined, and an interesting paper read by Mr. F. J. Wadman (G2GK) on "Station Lay-out and Design."

All who are interested are cordially invited to apply to the Hon. Secretary, Mr. Richard K. Sheargold (G6RS), Glenmore, Manygate Lane, Shepperton, Middlesex, for full particulars.

SOME FURTHER NOTES ON 28 mc. CONDITIONS.

By Capt. F. Rodman (G2FN).

ON July 9 and from July 15 to August 25, observations were made on 38 days. As a result, some of the notes made on the May-June period, published in the Bulletin for August, require modification. As far as possible the same hours were kept. On three days work was carried out before 16.00 G.M.T.

During the period conditions gradually fell off for fundamental frequencies and were poor in comparison with the previous period, fewer stations were logged and worked and conditions were unsteady and variable. On the other hand harmonic activity increased during the earlier part of the period under review. From August 4 onwards, conditions for both fundamentals and harmonics were bad, except for August 14 and 15.

A comparison of conditions obtaining in the south-west of England and in other European countries (notably F, D, and OK), showed that experimenters in these countries experienced very similar conditions to those which obtained in England. In the earlier period (June) the same stations reported vastly different conditions. The period under review was good up to August 4, but hopeless afterwards.

Additional notes to those already published may be of interest.

(*a*) Barometer.—A barograph record of local pressure has been maintained, and, on examination, shows the following :—

1—Good conditions obtained on a falling barometer on 11 days.
2—Good conditions obtained on a rising barometer on 2 days.
3—Good conditions obtained on a steady barometer on 1 day.
4—Bad conditions obtained on a falling barometer on 9 days.
5—Bad conditions obtained on a rising barometer on 14 days.
6—Bad conditions obtained on a steady barometer on 1 day.

From the foregoing it may be inferred that a falling barometer is most likely to coincide with good conditions. This inference held good during the period June 7-16.

Good conditions existed for two or more days on four occasions; in each case the barometer was falling gradually and steadily; again the June 7-16 period conforms.

A contrast is afforded by FM8IH, who, between July 15 and August 3, was heard on 14 days; the barometer was rising on 8 days and falling on 6 days.

(*b*) Local Weather.—The period is a difficult one to report upon, owing to lack of comparative material; out of the 38 days on which observations were made, only on 9 days was the weather bad or unsettled. Good conditions obtained on 5 of these days.

The incidence of fair or fine weather and poor conditions was as previously reported; the ratio connected with the incidence of bad weather and poor conditions suffered a reversal during the period under review, the ratio being changed from 1 : 2½ to 1½ : 1.

Considering the May-August period as a whole, it would appear that the balance of probability is in favour of good conditions coinciding with bad or unsettled weather and that the probability of effecting contact with another station is greater when the weather is bad or unsettled.

(*c*) Time and Season.—Stations heard have been reasonably constant in the hour of their appearance. Occasional contacts have been made after darkness had fallen.

Good conditions obtained on the following dates: July 9, 15, 17, 18, 19, 20, 24, 25, 26, 28, August 3, 4 14 and 15. The remaining days (24) were poor or bad.

(*d*) Fading.—Fading was worse in this period than in the previous one; on many occasions, when harmonics faded badly, fundamentals did not and *vice versa*.

(*e*) Strength.—The average strength was lower in this period, weak fundamentals were few and far between, stations were heard at good strength or not at all, an exception being FM8IH.

(*f*) Harmonics.— A dislike of strong harmonics was incurred.

(*g*) Distance.—The persistence of FM8IH was remarkable in spite of conditions obtaining.

Results subsequent to July 9 are summarised as follows: G stations logged on 28 mc.: G2OA and G6BC; G stations being called on 28 mc.: G2YL, G5VB, G6WN; Commercial station harmonics identified: PCT, PCR, PCG, FZH, FYQ, IBF, IRM, LCP, EAM, CTH, RUP, HAS2, and WIY; Amateur harmonics heard: OK1WF, OK1WX, OK2MA, EAR185, EAR226, EAR227, HB9X, ON4GW, I1XX, and G2BM

28 mc. stations logged, the figure in brackets denotes the number of QSO's made with the station concerned: F3AR (2), F8CT (4), F8UU (2), F8RQ (1), F8RJ (1), F8YP (1), F8HS (1), D4TEN (5), D4ALC (1), SM6WL (3), SM6VR (1), OK1AW (6), OK1AB (2), OK2VA (1), PAOAPX (2), HAF4D (1), ON4DJ (1), and FM8IH (13), a total of 48 QSO's, making a total of 97 for the May-August period.

Of the above-named stations the following were logged on days other than the days on which QSO's were made, the figure denoting the number of days: FM8IH (2) and F8CT (1). The following stations were heard but not worked: F8GQ and F8NY.

It would appear that, judging by C.B. Notes, the south west of England has been regarded as a dead area for 28 mc. during the past summer. For the rest of the S.W. G2FN cannot vouch, but the S.W., as represented by the environs of Plymouth, has been very much alive.

STRAY.

We are advised that VK2HC will call " Test 10 " on 28 mc., at 12.10 and 12.30 G.M.T., on the first two Saturdays in December. Power will be 125 watts crystal controlled.

CONTACT BUREAU NOTES.

By H. C. Page (G6PA).

IT has been suggested that the names and addresses of group managers should be published from time to time for the benefit of newcomers, and the forgetful. Below is given a list of such men, and it is hoped that anyone interested in joining a group will apply direct to the manager concerned, instead of to H.Q. or to C.B.

C.B. Manager.

G6PA, Plumford Farm, Ospringe, near Faversham, Kent.

Group Managers.

Group 1.—28 mc.: G6VP, 12, Ferrers Avenue, West Drayton, Middlesex.

Group 2.—Atmosphere and Fading: G2GD, Aethelmar, Seabrook Road, Hythe, Kent.

Group 3.—Theory: BRS865, 71, Tintern Avenue, Westcliff-on-Sea, Essex.

Group 4.—3.5 mc.: G6OM, The Gables, Well Lane, Gayton, Heswall, Cheshire.

Group 5.—Receiver Design: BRS981, Telegraphist Scudder, H.M.S. *Vanquisher*, c/o G.P.O., London.

Group 7.—Ultra High-frequency: G6XN, 14, Meadow Green, Welwyn Garden City, Herts.

Group 10.—1.75 mc.: No group manager at present. All enquiries to C.B. Manager.

I have a suggestion to make this month that should be of interest to all genuine experimenters. The DX fiends need not read this part of my notes, as they probably will not be able to follow it! DX has its place, but I think a great many members let it override everything else.

My suggestion is that we should form a group, or groups, to consider what work of an experimental nature can be done with an artificial aerial. No doubt many are hazy as to the exact nature of this useful piece of apparatus, judging by some of the horrible attempts at telephony heard on the air. Would it not be a good idea if we were to organise a group to study different designs of A.A. systems, and see how they can be best used for different types of aerials? For instance, how should one couple (*a*) an A.O.G., (*b*) a current-fed Hertz, and (*c*) a matched impedance feeder system to an A.A. system? These are only three examples: there must be many more. Then, again, how should such an aerial system be designed for testing out 100 per cent. modulation systems?

Has it ever occurred to you that a few hours' testing your latest 'phone set on an A.A. would make it possible for you to go on the air with it for the first time practically perfect in quality, and so impress everyone with your skill, not only as a designer, but as an operator also? To suggest a parallel. Do you suppose that when a new broadcasting station is built it is put straight on the air? You can be sure it is not. Many hours, even months, may be spent on non-radiating tests before ever a sound is allowed on the air. Therefore, we should do well to take a leaf out of the professionals' book, and show everyone that we also can use scientific methods of adjustment when testing a new TX.

Here, then, is a good chance for all. The man with the high-power permit, the 10-watt man, and the A.A. man, to pool their knowledge on the subject, and show the world that they are qualified to hold their permits, by doing true experimental work. Will anyone interested please write to me at once? My address is at the beginning of these notes.

The following article was taken over the air from G6IZ during a QSO on 3.5 mc. The aerial system about to be described is suitable for work on 1.7, 3.5, 7, 14, and 56 mc., and consists of a single wire end-fed Hertz which can be adjusted for exact resonance on all of the above bands.

This aerial was first erected for testing on 3.5 mc., but, with some extra adjustments, was found to be excellent for work on the other bands. It consists of a half-wave 3.5 mc. Hertz, the length being about 130 feet.

Having adjusted the TX for 3.5 mc. operation, adjust the aerial length by tapping it on to the tank coil until there is no de-tuning of the tank circuit when the aerial is clipped on and off. To attain this state of affairs the aerial must be cut very carefully a few inches at a time.

Now adjust the TX for operation on 7 mc. without the aerial being connected. On connecting the aerial it will be found that the tank has to be re-tuned in order to get it back to resonance. On adding a certain length of wire, found by experiment, the condition obtained on 3.5 mc. will be repeated. This can be repeated for 14 mc. by adding a further short piece of wire. The approximate lengths required will be between 4 and 7 feet for 7 mc. and another 5 feet for 14 mc. Great care must be taken to get the exact length, and not more than an inch or two must be cut off or added at one time.

These extra lengths can easily be mounted in the shack on stand-off insulators, or the like, and no loss in efficiency should occur by so doing.

For 1.7 mc. a double, or better still, a three-wire counterpoise is recommended not more than 100 feet long from the extreme end to the coupling coil, and about 6 feet from the ground. On 1.7 mc. tuned inductive coupling must be used, but for the other bands the aerial is tapped straight on to the plate coil, and on 56 mc. can be coupled via a small condenser. This aerial system has been tested very carefully, and was in use during the last 1.7 and 3.5 mc. tests, when excellent results were obtained with low power.

Since then all continents that have one have been worked with an input of not more than 3 watts, and on 7 mc. good reports have also been received.

On 56 mc. experiments are in progress, and already signals from G6IZ have been read at R8 up to a distance of 40 miles. Using a one-valve RX in a car, and a short aerial over its roof, a distance of five miles has been covered.

If there is anything wrong with this description, please blame G6PA and not G6IZ, as it was received late at night, and even then "spitch" was pretty bad on 3.5 mc.!

28 M.C. Groups (No. 1).

G6VP (Manager).

If we judge from the lack of reports, the past month seems to have been one of the worst yet encountered.

I understand that another article is appearing under the pen of G2FN, who is again analysing the conditions of the last two months, so will pass on the activities of individual group members without further comment.

Group 1*B*.—G5SY states that he has spent most of his time on purely experimental work in the shack, preferring this to chasing phantom DX. (See G5SY'S report under District 6 notes !—Ed.) The ultraudion circuit seems to hold out some promise at his station, and he thinks it will be possible to crystal control on the lock principle. So far he does not know of a single efficient crystal-controlled station on 28 mc. (?)

Group 1*C*.—G6VP has done some experimental work with a parallel-fed ultraudion and finds it easier to handle than the series version. So far attempts to crystal-control this circuit have failed. No amateur DX signals have been heard during the last month. G5VB reports nil. Has tried a M.O.P.A. with little success.

Group 1*F*.—BRS25 has heard no amateur DX signals, but reports that G2WD has joined the group, although he will not be active for another couple of months.

Atmosphere and Fading Groups (No. 2).

G2GD (Manager).

I had hoped to be able to give an account of the reorganisation and amalgamation of Groups 2 and 6 in this issue, but on investigation it appears that the " Twos " are practically extinct, as only one report has been sent in from the old 2A group. Reference was made in the last issue to the lack of support for C.B., so I think it will be well for us to pause for a moment and consider what is the true function of C.B. in general, and Group 2 in particular.

In C.B. research of a true scientific nature is recorded from month to month, and surely more than 5 per cent. of the Society's membership are interested in the real problems which confront our investigations in this fascinating game we are playing—Amateur Radio !

Turning now to Group 2, let us see what is the scope of our investigations. *Briefly it is a study of all questions relating to the wave from the moment it leaves the TX (either man-made or natural) to the moment of reaching the RX.* This is fairly comprehensive, and includes such matters as ionisation, sun spots, magnetic effect, moon, cosmic radiation, fading, blind spots, skip, weather, atmospheric pressure, atmospherics, echo, scattering, polarisation, among others.

I should like to see many sections started up by real enthusiasts who have the mind to tackle some of the numerous problems mentioned above. Please send in your names to the G.M., and state what particular branches of the subject are of interest to you.

Coming now to detailed reports, these have been received from 2A, 2E, and 2F, and are given below.

Group 2*A* (G.C., G6MB).—This report consists of a letter from G2HJ in which he criticises the suggestion in the last issue that the conjunction of Venus and Jupiter was responsible for extraordinary ionisation. He attributes the facts mentioned to increase of ionisation thereby reducing the effective height of H.L., and says : " Can the conjunction have caused an increase in ionisation ? " He then points out that the distances and dimensions render this extremely improbable.

Group 2*B*.—The only matter of interest here is a strong denial by G2LR, via 2BCM, of BERS165's statement as to reduction in QRK as the 'planes in Iraq leave the ground. I understand that he is to carry out some tests with Group 2E, and the results will be awaited with interest.

Group 2*C*.—Fading. No report.

Group 2*D*.—Moon. No report.

Group 2*E* (G.C., 2BCM) : Late 6C.—Isobar theory. Routine reports have been sent in by the G.C., 2AGR, BRS1093, 1151, and G5OQ, and the quality and manner of reporting is again excellent. Although on the whole the theory has been supported, it has received one or two nasty knocks during the month which will require careful watching.

Group 2*F* (G.C., G5AM) : Late 6B.—Isobar theory and propagation of 28 and 56 mc.waves. Routine reports have been sent in by G2IC and 2ASC in confirmation of the Isobar theory. G2IC found the best conditions lately on 3.5 mc. were on September 24, when a severe thunderstorm occurred. AP was also uniform on this day. The G.C. points out that the increase of ionisation due to thunderstorms would be most effective on 3.5 mc.

The group is investigating the possibility of a further H.L. above the F layer, which might cause refraction of 56 mc. waves, and this will be awaited with interest.

The G.C. is looking into any possible theoretical grounds for the truth of the Isobar theory.

Receiver Design Group (No. 5).

BRS981 (Manager).

Group 5A has been concentrating on the detector stage and work has been carried out on three unorthodox detectors. It is hoped that we shall soon have an interesting circuit for an amateur receiver and one that will, literally, make even " Uncle Tom " sit up and take notice !

BRS1006 has been working on a class B detector transformer coupled to the output, a small power valve, and some interesting data has been acquired, although the tuning coil presents some difficulty. The set gives results far better than most orthodox detectors, and damping is greatly reduced, whilst selectivity and sensitivity are in consequence superior to that of normal receiver. Further, distortion is easily avoided.

2AAH has rigged up an oscillator to investigate the relative efficiency of various detectors.

G2NK has obtained his licence, but will still carry on receiver group work. He has been using a similar arrangement to BRS1006, but with a pair of valves in push-pull instead of the class B valve. Trouble is once again caused by the coil. This detector gives far better results than a single valve, especially on 14 and 28 mc.

We again appeal to all members for co-operation, so, if you are interested in better reception, send a card to the G.M.

Ultra High-Frequency Groups (No. 7).

G6XN (Manager).

Judging from the scarcity of reports, this month has witnessed a falling off of activity on the ultra-shorts, no doubt seasonable. Although the winter is not the best time for portable work, much can be done without leaving the house, particularly in connection with the development of apparatus and aerial systems. The band is also ideal for local work. How about some serious work on micro-waves this winter ?

7A.—Mention was made last month of some good work done by G2JH ; now follow some details which were omitted from the published report. G2JH formed a link with G2IG over 25 miles, and at 10 miles obtained R9 signals. He was also heard by G2NU at Laindon Hill, Essex, 37 miles, at R8. Although G2JH and G2NU were, respectively, 700 ft. and 400 ft. above sea-level, there was no direct air line.

G2JH finds his signals generally disappear within a mile to the north, but go out well to the south, being audible in valleys as well as on hills for six miles, and much further on high ground with or without air-line. His signals were just audible 25 miles to the east, at Charing Hill. The directional effects cannot be attributed to the aerial and G2JH wonders whether they are connected with the varying nature of the subsoil.

G5MG has improved his signal strength at G5VY from R4 to R8, as a result of experiments with aerials. Using two quarter-waves with a coupling coil in the centre, he has been heard at G6XH, 25 miles.

Both G5VY and G5MG consider the best all-round system is a half-wave top with 3/4 or 5/4 wave feeders tuned. The power loss with twisted flex feeders was considerable.

The field day arranged at the beginning of October by G6XN was marred by a mysterious accident to the valves in the receiver, which curtailed operations. Prior to the disaster, however, R9 signals were heard from G6CJ, 12 miles, and R7-8 signals from G5FK, King's Langley. G6XN, accompanied by G6WN, was located at an altitude of 400 ft., near Elstree. BRS1132, on Egham Hill, heard G6CJ and G6XN at R9 ; the latter's input was 3 watts and the distance 18 miles. Tone from G6XN was reported QSA-5R-7 by G6CJ.

Apart from the foregoing, the 56 mc. band has been completely dead recently at G6XN. A schedule is badly wanted with someone about 6 to 12 miles away for the purpose of carrying out aerial tests.

7B.—Centre G2KB reports that G2IC—2ASC find the ultra-audion receiver described by G6KU very good and they are using this circuit in the new receiver they are building.

G5JU-2IP consider full-wave aerials better than half-wave ; they have been doing some good portable work with R8 contacts at 18 miles, using a PV625A as oscillator.

G2KB has compared the strength of signals at Coventry from a half-wave and a full-wave vertical aerial and the former was found best.

7C.—G6MF has been trying various types of valves in push-pull, and finds that they vary the frequency a lot. He has been doing some interesting inside work on receivers and transmitters and has found that along an imaginary line projected from the ends of the transmitting aerial, no signals are audible, yet at any point off this line signals are average strength. This may account for dead spots reported during outside tests, as the " projected line " may be crossed on a number of occasions in outside work. (See *7A*, August report—G6XN).

No reports were received from G6XM or G6DO. (Please report for next month.—G.C.) BRS1082 has been testing a new shunt-fed Hartley receiver, and finds it a good circuit ; he is also experimenting with different values of quench coils.

2AGM has been busy with B.O.C., but hopes to find some new members for the group.

BRS877 heard Gi6TK at R8 (modulated CW) 3½ miles across town, and has been experimenting with Lecher wire systems. He has also proposed a new scheme for collecting data from group members which he hopes will bring to light some reliable data on 56 mc. Gi6TK was using P2's in push-pull with 120-volt H.T. when heard by BRS877. The aerial used was half-wave vertical, but when a matched impedance type was tried no signals were audible. Fone was also tried and received at great strength in the neighbourhood ; the transmitter during these tests being operated in an attic.

The G.M. would like those members of groups who have not reported to do so as soon as possible, and not let their interest fall off because winter is here.

THE TYPE 59 VALVE IN AN ELECTRON-COUPLED OSCILLATOR.

By G. G. Samson (ZL4AI).

(By Radio *via* ZL4AI and G2ZQ.)

A more powerful electron-coupled oscillator may be constructed by employing the American type 59 tube (or its English equivalent), which is a screen-grid indirectly-heated power audio tube. For electron-coupled operation grids 2 and 3 are connected together and used as the screen in the circuit shown last month. This tube with 300 volts on the plate will give an output on the second harmonic of about 4 watts and hence need not be followed by a high gain stage. Since the shielding is not as good as with a proper screen, the tube can be used only on comparatively low frequencies, say, 3.5 mc. and lower, 2nd and 4th harmonics being used for 7 mc. and 14 mc. work. The grid-leak should be about 50,000 ohms (the same as for type 24 or 57 tubes) and the screen volts half the plate volts.

This oscillator may also be locked by the fundamental frequency of a crystal and the strong harmonics generated used for the high frequency bands. In this case the fundamental frequency may also be used as well as the harmonics, since the crystal will hold the oscillator steady. With such crystal lock a higher value of grid-leak is desirable. The addition of the crystal, however, does not seem to be any advantage since the harmonics of the electron-coupled oscillator are as constant as most amateur crystals.

For 56 mc. work, locking such a 14 mc. electron-coupled oscillator with the 3rd or 6th harmonics of a crystal and using the 4th harmonic of the electron-coupled oscillator, may have possibilities, though it has not been tried by the writer.

NOTES and NEWS from the BRITISH ISLES

DISTRICT REPRESENTATIVES.

DISTRICT 1 (North-Western).
(Cumberland, Westmorland, Cheshire, Lancashire.)
MR. S. HIGSON (G2RV), "Arvie," Ford Road, Upton, Birkenhead, Cheshire.

DISTRICT 2 (North-Eastern).
(West Riding, Durham, Northumberland.)
MR. L. W. PARRY (G6PY), 13, Huddersfield Road, Barnsley, Yorks.

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

DISTRICT 4 (East Midlands).
(Derby, Leicester, Northants, Notts.)

DISTRICT 5 (Western).
(Hereford, Oxford, Wiltshire, Gloucester.)
CAPT. G. C. PRICE (G2OP), 2, St. Anne's Villas, Hewlett Road, Cheltenham, Glos.

DISTRICT 6 (South-Western).
(Cornwall, Devon, Dorset, Somerset.)
MR. 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 (Eastern).
(Essex, Norfolk and Suffolk.)
MR. F. L. STOLLERY (G5QV), Beaumont Hall Hotel, Clacton-on-Sea, Essex.

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 (G6IV), "Malincourt," Grosvenor Ave., Rhyl, Flintshire.

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

DISTRICT 13 (London South).
MR. A. D. GAY (G6NF), 49, Thornlaw Road, West Norwood, S.E.27.

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

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

DISTRICT 16 (South-Eastern).
(Kent and Sussex).
MR. H. A. M. WHYTE (G6WY), Killiney, Worsley Bridge Road Beckenham, Kent.

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

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

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

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

DISTRICT 2 (North Eastern).

THE Leeds group is now organised under Mr. Scarr (G2WS), and all members in that area should keep in touch with him so that they may be advised of meetings.

At a meeting held in Sheffield on October 17, Mr. P. J. Watson Liddell (BRS1067) was appointed Sub C.R. for that area. His address is 54, Victoria Street, Sheffield 3. BRS1067 and G6LF are active on 56 mc.

Monthly meetings under the auspices of N.E.A.T.S are arranged by Mr. Hornsby (G5QY) in Newcastle.

Mr. J. A. Cuthbertson (G5CU) has aroused interest in the Scarborough area, and a local club has been formed. Over a dozen members were present at the inaugural meeting.

Mr. Rayner (G5TQ) reports that the Bradford stations working on 56 mc. are experiencing valve troubles, and are anticipating a lecture on the subject by the Marconi Co. Mr. Knowles (G2XK) is welcomed as a newly licensed member, whilst Mr. Clough is now 2BIT. G2BH, 5TQ, 5YV, 5ZI, 6BX, 6KU, and 6PL are all active on 56 mc.

The D.R. takes this opportunity of wishing all his representatives (county and local) every success in their efforts, and hopes that regular reports will be furnished monthly. He especially appeals for items for the new District Calendar, which he considers an excellent innovation.

DISTRICT 4 (East Midlands).

The members in Leicestershire appear to be very active, although not one single report has been received this month.

The Leicester society will in future be known as the Leicester Amateur Radio Society, and will cater for all classes of radio both short wave and broadcast. A big effort is being made to increase the number of members and public lectures will be held during the coming winter.

Most members have rebuilt their gear recently, and several new calls will be heard in and around Leicester shortly.

Interest in 56 mc. work has fallen off, but it is hoped that members will carry on with the experimental work during the winter.

The following stations are known to be active: G2JW, 2CZ, 5VH, 6JQ, 2ADC, 2AFM, BRS884, 1190, and 1191.

The Leicester Radio Society meeting, held on October 31, was attended by over 60 members and friends. Mr. Maskell (G.E.C.) lectured on the development of the short-wave superhet, and discussed the technical difficulties involved in obtaining a satisfactory circuit for all needs. Numerous receivers were demonstrated and finally questions were invited and answered by the lecturer. Members' short-wave apparatus was also on show. As a result of the meeting nearly 20 new members were enrolled.

DISTRICT 5 (Western).

The winter programme has started and 33 attended the October meeting at Bristol, where a very active 56 mc. group has been formed. The group has held three successful field days, and information regarding these activities is given on the 1.7 mc. band Sunday. It is hoped to find a new headquarters at Bristol, and particulars may be given about this next month.

The Gloucester group has commenced its fortnightly winter meetings at The Wessex, Gloucester, on the first and third Wednesdays in each month.

The Wilts letter budget has more life in it now the fine weather has gone. Contributions should reach G2BI on the last day of each month.

The D.R. takes this opportunity of extending a very hearty welcome to G2CJ and G6FO, both of whom have come into this district.

DISTRICT 6 (South-Western).

With the approach of winter, it seems evident that there is an increase of activity in the district. To start with, the missing Budget turned up after a while, and as the following one reached the D.R. up to schedule, we are once more going on serenely. It was decided not to send out the latecomer again —contributors please note.

The current issue of the Budget is full of good things, and shows that the members in the district have a lively interest in the experimental side of amateur radio. This is as it should be, but it is particularly noticeable now, owing to the greatly increased circuit of the Budget. Keep it up, OMS.

While on the subject of enthusiasm in amateur radio, what about those nomination forms? The D.R. hopes that members in all four counties have done their duty, and sent in nominations. It is so much better for *you* to select your own representatives than for Council to be forced to appoint them.

In order to overcome one of the greatest difficulties in running this large district, that of getting the members together personally, the D.R. is trying to arrange two informal meetings round about Christmas time. It is suggested that they be held in Bodmin and Taunton. In case members in other districts wonder why all this fuss, it is, perhaps, as well to point out that from end to end, this district covers practically 200 miles, as far as from Torquay to London!

The D.R. would welcome any helpful suggestions regarding these meetings, particularly from members in other districts, who might be near either of those towns at the time suggested. It might help us to fix the dates!

G5QA'S many friends will be glad to hear that he is much better in health, though he still has to take things easy. We sincerely hope he will now keep free from trouble. No DX after 8 p.m. OM!

If early rising is supposed to be good for the health, the D.R. will have done good to some members by persuading them to turn out o'mornings when DX has been workable. G2FN has put in some useful work on 28 mc. during the past few months, and has now tabulated his results for the "BULL." G6BW is now on his way to Australia on a visit, he will spend some time in Ceylon, Egypt, and some European countries, and hopes to meet many amateurs.

G5SY has worked a fair amount of DX, and during one evening had a remarkable spell, when he raised VQ4, PY, W5, and W6 inside an hour. Several ZS stations and a ZD have been worked. The following are definitely known to be active: G2BL, 2FN, 2HF, 2ZP, 5GD, 5QA, 5SY, 5VL, 5WY, 5YB, 5YR, 6II, 6KC, 6QH, 6RP, BRS836, 1089.

DISTRICT CALENDAR
November/December, 1933.

November 18. Number 12 District, 7.30 p.m., at G5VY, 274, Mount Pleasant Road, Tottenham, N.17.

November 21. Number 16 District, 8 p.m., at G6WY, "Killiney," Worsley Bridge Road, Beckenham, Kent.

November 22. Number 15 District, 7.30 p.m., at G6VP, 12, Ferrers Avenue, West Drayton, Middlesex. "Radio Experiences in Canada," by Mr. Starr (ex VE2AE).

November 28. Number 14 District, 7.30 p.m., at G5AR, 59, Gordon Road, S. Woodford, E.18.

December 3. Number 7 District, 2.30 p.m., at G5WP, Wych Dell, Oak End Waye, West Byfleet, Surrey.

December 7. Number 13 District, 8 p.m., at West Norwood Brotherhood Hall.

DISTRICT 7 (South-Eastern).

The October District meeting was attended by 23 members, who first visited G6GZ and then adjourned for tea at the "Tumble Down Dick" Hotel, Farnborough. A lively discussion on aerial problems followed, and the meeting was concluded by a visit to G2DC, for "rag chew" and coffee.

The letter budget shows that good progress continues to be made in all counties of this district. G6NZ is fostering a small group of new members in the Portsmouth area, and has been busy explaining the intricacies of 56 mc. work. Mr. Spooner (2AJA) has been appointed a sub-C.R. for the Bournemouth district of Hampshire, where there is a welcome increase in membership. The letter budget seems to get more and more interesting, and an average of 18 to 20 letters a month is now being maintained. This month's issue contains an interesting description of G6BU's portable transmitter, some details of a 56 mc. transreceiver from G6NZ, and an interesting letter from G2YL, who has been visiting amateur stations as part of

an Italian holiday. The next meeting will be held at G5WP (W. E. Russell, "Wych Dell," Oakend Way, West Byfleet, Surrey), on December 3, at 14.30. All are welcome, and we would especially appeal to all new members to attend if possible, as these meetings are always very instructive and provide an excellent opportunity for a new man to become acquainted with his co-members of the district. In view of the increased attendance we now obtain, it is not fair to expect any member to provide tea, so we hope all will make their own arrangements in this direction.

DISTRICT 9 (Eastern).

Although reports are scarce, there is every indication that members are preparing for winter conditions. G6NW has been dong some extremely good work on ultra QRP from flash lamp batteries, but is hoping for mains. G6GG is also using low power on 1.7 mcs. G5UK is now collecting reports from Essex, and members in that country are asked to send him a note by the 25th of each month. He is arranging for periodical meetings during the winter.

Outstanding work has recently been effected by G2LZ, who has put consistent phone to ZL4AO most mornings. G5MI is working on 7 mc. and 56 mcs. G6BT and 5UF are also heard fairly regularly. G5QV is (for special service on Trinity House wavelength) working in conjunction with the shore station of H.M. Coastguards at Walton-on-Naze. He also operates phone on 159 metres.

DISTRICT 10 (South Wales and Monmouth).

We have recently bid au revoir to our late D.R., Mr. Austin Forsyth, G6FO, who has left this area to take up a business appointment in Bristol; we miss his energetic and enthusiastic support, and although the District regret a real loss, one and all we sincerely wish him every success in his new surroundings.

Your new D.R., G5WU, appreciates the honour of his appointment and was glad to open his first monthly meeting with 2BPG, G6PF, 2JL, 2PA, and 5KK in attendance; G5FI and 6YJ reported unable attend.

Most encouraging reports as to real activity this winter have been received from the Swansea Short Wave Club, and Blackwood Radio Society, and it is hoped that the members of both these affiliated societies will at some future date take full advantage of membership in the Parent Society.

It is pleasing to note that winter activity has set in throughout the District, and from reports to hand, G2PA, 2XX, 2JL, 5BI, 6PF, 5KK, 5FI, 6YJ, 5WU, 5PH, 5TW, 2UL, 2BPG, 2AWN, 2AHN, BRS727, 735, 1128 and 1131 are active.

In spite of the volume of work done by 2AHN in the interests of Swansea members, he has found time to re-erect masts and overhaul his aerial system in readiness to celebrate his "coming on the air," a Morse test completes his application for a two-letter call-sign.

Will those members interested in 5-metre work make a special effort to attend the next meeting, when it is proposed to discuss methods of co-operation?

DISTRICT 11 (North Wales).

The D.R. apologises for the absence of notes for the last three months, which has been brought about through business activities. Interest seems to have been at low ebb recently, the only bright spots being G2II, 6OK, and the Prestatyn group of BRS men. On several occasions in the past, the D.R. and C.R.s have addressed communications to members, and in many cases no replies have been received. It will be appreciated if in future attention is paid to this matter. Reports should be addressed either to the D.R. or C.R. not later than the 25th of each month.

G2II has made arrangements to send out a morse practice every Sunday morning at 11.00 G.M.T. on a wavelength of 168 metres. Initial practices will be transmitted at about 8 w.p.m., increasing later, if necessary. Members who are interested in this scheme are requested to communicate with Mr. Mitchell.

DISTRICT 12 (London, North).

The October meeting at G6CL resembled a London "hamfest" much more than a district meeting, for no less than 29 members were present including all London D.R.s. The congestion was so intense that several members were unaware of the fact that their pals had been present until after the meeting! Although little in the way of District business was discussed, the meeting proved an unqualified success. Rumour hath it that G6CL spent some hours after everyone had gone making his Tx work again!

The next meeting will be held at 274, Mount Pleasant Road, Tottenham, on November 18, when Mr. Vickery (G5VY) will act as host.

The district membership is active on all bands from 1.7 to 56 mc. On the latter band G5VY, 5CD, 5MG and 5QF continue experiments.

The new style letter budget started off badly with only four contributors, but it is hoped that more response will be received in future. All reports must reach the D.R. by the last day in each month.

As no nominations for sub-D.R.s were received, it is proposed to discuss this matter at the next meeting, when N.F.D. plans will also be considered.

DISTRICT 13 (London South).

These notes will be discontinued until further notice.

R. I. P.

DISTRICT 14 (London, East).

At the last District meeting held at Chingford, items discussed were the forthcoming field day at Abbess Roothing, "interference," slow Morse practice, etc. Congratulations were extended to PA0FY—ex G6FY—whom we were pleased to hear had obtained a Dutch permit. In addition to the new members attending the meeting, an old-timer, G2AU, put in a welcome appearance. The next District meeting will be at the QRA of Mr. E. Dawson Ostermeyer, G5AR, 59, Gordon Road, Woodford, E.18, on Tuesday, November 28, at 7.30 p.m.

DISTRICT 15 (London, West and Middlesex).

The seventeen members present at the October meeting had the pleasure of entertaining 2AMM and 2AUN, both of Scarborough.

Mr. C. H. Starr (ex VE2AE) will give a short talk on " Radio Experiences in Canada," together with illustrations, at the meeting to be held at G6VP, 12, Ferrers Avenue, West Drayton, on Wednesday, November 22. Please make an effort to be there and, if possible, drop a postcard in advance.

Only three reports have come to hand. G6CJ has now got going at his new QRA and managed to WAC and WBE in the first fortnight. G6VP implores more members to contribute to the budget as he at least finds it interesting. 2BFQ reports the loss of the rectifier in his power pack, but found he could replace it with a P256 and still eliminate hum. G6WN has been on 7, 14 and 28 mc., but managed little DX.

DISTRICT 16 (South-Eastern).

Monthly meetings have been arranged for members living in the north portion of Kent, as this part is so far removed from the rest of the District. The first meeting took place at G2GB of Shortlands on Saturday October 7, when 8 members came from Beckenham, Shortlands and Bromley. The next will be held on Tuesday, November 21, at 8 p.m. at G6WY, when it is hoped that many local members will be present.

News from the District is scarce. Now that 56 mc. is not enjoying the same popularity as during the summer, it is suggested that 28 mc. be given greater prominence, as this is a frequency that can be worked from our homes. G6WY is transmitting a series of tests on 28 mc. during December and January on Saturdays from 12.00 G.M.T. to 13.00 G.M.T., with calls at 10-minute internals, to determine whether it is possible to work any reasonable DX. Full co-operation is requested by District 16 members, for the more there are active the more chance there is of some definite results being obtained. (VK2HC is also to be on schedule at about the same time.—Ed.)

Northern Ireland.

Mr. Cleland (GI2CN) has taken unto himself a wife, and we take this opportunity of wishing them 73 and happy times, a wish which will be endorsed by all Gi hams.

GI6WG is QRP with 2/4 watts, and reports many European contacts. 6TK reports contacts with UN, ZS and W4, using QRP, the ZS contact was made at 14.00 G.M.T., on October 18, using two watts. Since the erection of his end fed hertz, as reported, 5UR has worked 26 countries. 6YM reports great activity, and intends to apply for a 56 mc. permit. 6VG has returned from VK as W/T, and reports that VK4GK and VK4KH gave him a fine welcome. He comments on the fine stations they possess, and will probably pay them another call on his next visit in two months' time. BRS877 is working for an examination. 6YW is very busy with Reserve work, but has again raised ZS. 5QX hopes to be using 50 watts shortly, and reports (as does everyone else) that conditions on 14 mc. have been very poor, and DX has only been heard on rare occasions. On the 7 mc. band the only stations heard were Continental " microphone murderers "—an earthquake would do a lot of good there! The 1.7 mc. band is improving, and it is now possible to QSO G.

So far, only 5QX has supplied the DR with his crystal frequency. Please note, ye other slackers!

The response to the request for reports has been very poor, and the DR would urge all Gi stations to report their activities before the 24th of each month, so that these notes will contain some useful information.

SCOTLAND.

This month interest still appears to centre round 56 mc., as all districts, with the exception of " C," report work on this band.

In " A," G6WL, 5XQ, 6ZX, 5ZX, 6VI, 6RV, and 6ND are all active on the transmitting side, while there are a host of others on the receiving side.

During the month G6WL, 5ZX and 5YG carried out duplex phone between a fast moving car manned by G6WL and 5YG and a fixed station G6YG (G5YG's mobile call, which will meantime be used exclusively for 56 mc. work), operated by G5ZX. Contact was maintained for over one and a half hours around the circumference of a circle 6 miles in diameter, with fixed station G6YG at the centre.

" B " District report activity by G6IZ, 5FP and 6JX, who have also carried out " duplex " from a car up to 3 miles.

In " D " District G6FN and 6SR are known to be involved, but a report of their work has so far not come to hand.

Two new stations took the air during the month, namely, G2OX and 2SP. The former call was allotted to Mr. G. W. McDonald (2BDF), Oakroyd, Woodburn Avenue, Aberdeen, and the latter to Mr. J. W. B. Baker (2AUR), c/o Halliday, 19, Brisbane Street, Greenock.

During the month the writer had the pleasure of receiving visits from G6KO, 6RT, OM2HB, G2DH, and the " B " District gang *en bloc*.

The usual District meetings are still being held in all Districts except " C," which I know little about at the moment. " A " District held the second of its monthly meetings under the new conditions on Wednesday, October 25, when a very interesting lecture on Diathermy was given by Mr. Wilson (G2WL).

The month has been marked by a gratifying inflow of members, particularly in " A " District, where the total new members for the month is eight. A good deal of the credit for these new members may be attributed to the new " Guide," which has proved very acceptable and a very excellent incentive to those who are—to use a Scotch expression—" swithering."

Stray.

The Secretary of the Kentish Town and District Radio Society asks us to mention that the members of his Society are always willing to stand by for 56 mc. signals. North London amateurs are welcomed to the Society, whose Headquarters are at Holmes Road School. The Secretary is Mr. E. A. C. Jones (2BOC), 46, Lady Margaret Road, Kentish Town, London, N.W.5.

Empire B.E.R.U. News.

B.E.R.U. REPRESENTATIVES.

Australia.—H. R. Carter (VK2HC), Yarraman North, 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 (VS1GJ), Frocester Govinna, Ceylon.

Channel Islands.—H. J. Ahier (G5OU), 4, Roseville Street, St. Helier, Jersey, C.I.

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

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

Iraq.—S. A. Rance (YI2DS), A Bungalow, 203 Squadron, R.A.F., Basra.

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.—W. E. Lane (VQ4CRH), Box 570, Nairobi, Kenya Colony.

Malta.—E. A. Haskell (BERS134) H.M.S. "London," c/o G.P.O. London.

Newfoundland.—James Moore (VO8AW), Carbonear.

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

Nigeria.—Capt. G. C. Wilmot (ZD2A), Depot Nigeria Regt., Zaria, Nigeria.

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

North India.—2nd Lt. T. H. Beaumont (VU2FP) 1st Batt. Beds & Herts Regt. Jhansi, India.

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

Australia.

By VK2HC *via* VK3WL, ZL4AO and G2ZQ.

There was an improvement on both 7 and 14 mc. during October, but conditions are still irregular. European signals are coming through fairly well between 20.00 and 21.00 G.M.T. (early morning here). The 3.5 mc. band is holding up well, but QRN is bad. The VK five point relay contest took place during October.

Canada (First District).

By VE1BV *via* G6VP.

Conditions in VE1 are below normal for this time of the year, but 7 mcs. is picking up and a few European stations are now heard on this band.

African stations have been heard on 14 mcs. during the month.

The M.A.R.A. had a booth at the Provincial Exhibition held in Halifax, and the public showed great interest in our stand. Several hundred messages were handled for their edification.

VE1ED worked PA on 3.5 mcs. It is wondered that more G's do not use the band and become members of the Three Bands Club.

Canada (Fifth District).

By VE5HJ.

Mr. Cusden, in his monthly letter, gives some interesting statistics regarding activity in his district. There are, he states, about 250 licenced stations with calls ranging from 5AA down to 5JT. The 7 mc. band is mostly used by beginners, whilst 14 mc. is in general frequented by more experienced operators.

The 3.5 mc. band is popular, and several VE5's have received reports on their 'phone transmissions from great distances. VE5EF has been heard in G, using, it is believed, two 50-watt valves in the output stage. Approximately 85 per cent. of the licenced stations are generally active.

VE5HJ has arranged schedules with VK4GK, our Australian sub-representative for Queensland.

Ceylon.

By VS7GT.

No reports are to hand again this month, although several VS7 amateurs are active on 7 mc., including our newest members. Conditions on this band have been patchy, but local working and medium DX has not been difficult. Deep fading has been noticed on 14 mc. The B.E.R.U. membership here is still increasing, and before long we should be able to show the benefits of combined working.

Egypt.

By SU1EC *via* G5YH.

Conditions have been fair on both 7 and 14 mc., with occasional very bright patches on the latter band. SU6HL is away as wireless operator on

the R.A.F. West Africa flight, and his set is being operated during his absence by two others, under the call-signs of SU2NP and SU3RX. The following stations are active :—SU1AA, 1AQ, 1SK, 1SG, 1MM, 2GA, 2NP, and 3RX. SU7VR hopes to be on the air soon. SU1EC is active again, using 140/200 watts, and hopes to renew acquaintance on the air with those amateurs at home whom he met during his leave in G.

Hong Kong.

By VS6AG *via* VK3WL, ZL4AO AND G2ZQ.

The VS6 amateurs are busily engaged in designing and building portable transmitters and receivers for a field day to be held in the near future. This is the preliminary step towards the formation of an amateur radio emergency corps in the Colony. Conditions on 7 mc. have improved recently, but QRN still imposes a handicap on reception, with the result that VS6AG and VS6AN are the only two active stations. The winter months should see increasing interest amongst the other Hong Kong stations. Several G's have been heard recently on 14 mc., but no contacts have been effected.

Irish Free State.

By EI2B.

Conditions continue to be very variable on all bands, but especially on 14 mc., which seems to be quite dead at times. The most active stations are 8B, 5F, 3C, 2D and 8D, all on 14 mc., and the first two named have been getting out very well when conditions have been at all favourable. The I.R.T.S. stand at the Dublin Radio Exhibition attracted crowds of interested enquirers and resulted in a very satisfactory increase in membership. The exhibits consisted entirely of amateur-built apparatus. More interest is now being shown in the two lower frequency bands with a view to encouraging friendly chats between EI stations all over the country.

Kenya, Uganda and Tanganyika.

By VQ4CRH.

Conditions during the month of September were more or less the same as reported for the last two months. The only DX appeared to be W's, on the 14 mc. band, of which all active stations here had their fair share.

From reports sent in by BERS175, it would seem that we are not the only ones affected by these uninteresting conditions if the number of stations calling CQ and Test for hours on end is any indication !

Very bad QRN was experienced throughout the month, and the local mains QRM seems to be visiting all in the Nairobi district, and causing great annoyance.

We extend a hearty welcome to Mr. Gilfillan (VQ4CRO) and Mr. Fisher (VQ4CRP) on joining us. VQ4CRM is well ahead with the building of his station, and hopes to kick off on 14 mc. early next month. VQ4CRE expects to reappear on the air some time during October, despite heavy business QRM. VQ4CRL has been QRT rebuilding, but will be back at the key again shortly. VQ3CTR is proceeding to England on leave, and will therefore be off until about next September. VQ3BAL is Mr. Ball, with a new call-sign. Owing to the fact that the mains in his location are D.C. he has to make other arrangements, and a converter is on the way out from home.

New Zealand.

By ZL4FD *via* ZL4AO AND G2ZQ.

Our 1933 Convention is to be held in Auckland, which will probably be N.Z.A.R.T. H.Q. for 1934.

" Break-in " for October contains a review by Mr. Collett, ZL4BP, of the research work being carried out at the University of Otago on ultra-high frequencies.

A second district ZL station reports hearing 14 mc. harmonics of 7 mc. European stations.

Northern and Southern Rhodesia.

By ZE1JE.

During September the terrific static bombardment which heralds our rainy season has caused both local and DX conditions to become very erratic, and on some days utterly impossible on the 7 mc. band. The two lower frequency bands are out of the question. The 14 mc. band is much quieter, but few stations are heard. W6 and VK stations continue to come in after 16.00 G.M.T. on 7 mc., but few contacts are reported. G and Europeans are also heard after 20.00 G.M.T., but repeated attempts to QSO have failed. G2BM and G2ZQ are the most consistent, usually QSA3 R4.

ZE1JF still continues to work DX, despite adverse conditions, and has been QSO W6 on most days, but reports QRN too bad for QSO VK stations. He has worked a few South Africans on 14 mc., but reports all signals weak, and band practically dead. He can be heard most evenings on low-power fone 6 to 9 watts input (depending on mains), and has succeeded in working W6QD, who reported his fone R4. He has also received very good reports on his fone transmissions from VK. He requests G stations to look out for him on 7 mc.

The writer understands that ZE1JH has also been QSO W6QD on fone during the month. This is good going, and both ZE1JF and ZE1JH are to be congratulated on their fine achievements.

ZE1JH, ZE1JJ, VQ2XD and BERS128, all active stations, have failed to report. ZE1JE is suffering from a temporary drastic curtailment of spare time owing to business demands. ZE1JM reports possibility of early activity on low power.

Please note : Any member who would like a copy of the new " Guide to Amateur Radio " to show to their uninitiated radio friends, may obtain one from ZE1JE, *gratis*. This offer speaks for itself !

Northern India.

By VU2FP.

There has been a slight increase in the number of stations reporting this month. Conditions appear to be rather erratic, both on 7 and 14 mc. VK's and ZL's have been fairly consistent, whilst a few W6's have been heard on both bands.

The following stations appear to be active : VU2AR, 2LJ, 2CS, 2JB, 2LZ, 2JT, 2BM, 2LT,

2FP. The latter has just succeeded in consigning two TC 04/10's to the cemetery, so will be QRP for a few weeks. He regrets having missed numerous G contacts due to Europeans replying to his "Test G" calls. VU2LZ has been doing well with telephony lately, much to VS7GT's disgust, but we hear that he is taking steps to remedy the fault. VU2LJ is leaving for well-earned leave in G, and our best wishes go with him.

Notes from Europe.

We have received from D4BUF (Foreign Department of D.A.S.D.) a copy of their Annual Report, which has been forwarded to the I.A.R.U. The outstanding point of interest centres around the fact that at long last our colleagues in Germany are permitted to operate individual licensed amateur stations. This important event took place as recently as August 27, when about 180 German amateurs received official licences. The event was celebrated by a special "meeting" on the 3.5 mc. band. In future the call-signs of licensed German stations will appear in the Radio Amateur Call Book. Our congratulations are extended to D.A.S.D. on achieving recognition from their Government.

At the Tenth German Radio Exhibition, the D.A.S.D. were able to exhibit for the first time as an official amateur Society. Arrangements were made during this event to operate their Headquarters station, which is located 10 miles from the centre of Berlin, by means of a remote control system. Morse examinations were also a feature of their stand.

Steps are being taken to provide an instruction course for members of the Society.

The call-signs allotted to the Headquarters Staff of D.A.S.D. are as follows :—

D4BAF	...	Headquarters station.
D4BUF	...	Foreign Department.
D4ADF	...	Inland Department.
D4CCF	...	Traffic Department.
D4BGF	...	QSL Section.
D4BYF	...	Press Section.
D4BLF	...	Press Section.

* * *

The Polish Short Wave Radio Club (L.K.K.) advises us that an international contest, organised by them, will take place from December 17 to December 30. Polish amateurs will be allowed only one contact with a specific foreign station, and they will transmit a different control group consisting of two cyphers and three characters for each QSO. QSL cards bearing these groups must reach the L.K.K. QSL Bureau not later than April 30, 1934. One point will be allowed for each QSO with England, Scotland and Wales, and two points for contacts with Ireland (I.F.S. and N.I.).

Awards will be granted to the leading station in each foreign country.

Stray.

The Cambridge University Wireless Society's station, G6UW, is on the air again on 3.5, 7 and 14 mc. bands, and would greatly appreciate reports.

With Our Contemporaries.

The October issue of *The Royal Signals Quarterly Journal* contains a contribution on the subject of Ganged Condensers, written by Lt.-Col. G. D. Ozanne, M.C., M.I.E.E., and Sergt. R. Jefferies. The authors deal with the mechanical and electrical considerations of modern ganging, and proceed to explain the principles underlying the matching of the various sections.

In this same issue Mr. A. F. Blackcock, M.Sc., contributes an article on the Propagation of Wireless Waves. After summarising the work of Appleton, Heaviside and Kennelly, he deals with the phenomena of short-wave propagation, and states that "The great ranges obtained with short waves are probably due to the atmospheric waves performing multiple journeys between the ionised region of the upper atmosphere and the earth. The attenuation of the atmospheric waves is very small on very short waves, and they frequently have greater range by day than by night, when the re-combination of electrons may reduce the number of electrons to such an extent that insufficient bending is produced to return the waves on a first journey to earth."

The *R.S.Q.J.* can be obtained from Signals Association, 95, Belgrave Road, London, S.W.1.

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Q.T.C., the "South African Radio Relay League" journal for September, contains an interesting treatise by Mr. A. Everett (ZT6U) on the subject of Oscillations, Waves and Wave Motions, which we hope to reproduce at a future date in this journal.

* * *

Radio for September, published in San Francisco, living up to its tradition of providing sound technical advice on all amateur problems gives a useful practical article on a 28 mc. telephony transmitter. "Neutralising the Stubborn Amplifier" is contributed by the well-known short-wave writer, Robert Kruse, and in this article methods of neutralising a push-pull stage by the Ballantine method are explained. Tube Queries, Ham Hints, R.C.A. Tube Characteristics, an Old-Timer's Corner and the Radio Note Book are all features of interest and usefulness. The Radio Note Book deals with doubler circuits and gives the values and arrangement of four circuits employing Number 10, 46, 47 and 59 valves as doublers.

Trade Notices.

At last a catalogue exclusively devoted to amateur Transmitting Valves has made its appearance. This effort is due to the Mullard Company, who have set out in attractive booklet form full details of eleven small, medium and large transmitting valves and their three full-wave rectifiers, DW4, DW5 and DW6.

Full technical data is given for each valve, together with individual characteristic curves.

The transmitting valves covered are the PM256, PM24M, T25D, DO40, D040A, T61D, SG3, SG1, D025, D060, D075.

This catalogue is available to members, who are asked to mention this Journal when applying for a copy.

EXCHANGE AND MART.

NOTICE TO ALL ADVERTISERS.

Notice is hereby given that as and from the NOVEMBER issue of the "T. & R. Bulletin," the rate for "Small" TRADE advertisements will be 2d. per word, minimum 3s. Additional words 2d. each. If desired, first line will be printed in CAPITALS.

AUTOPLEX BUG KEYS, 10s. 6d., c.w.o.; money returned if not satisfied.—MARSHALL (G2MA), 8, Boclair Gardens, Hillfoot, Bearsden, Glasgow.

AUTUMN SALE OF SECOND-HAND TRANSMITTING GEAR.—Helsby 1 mfd. oil-filled Condensers, 2,000 v. working, 10s. each; 8 mfd. 400v. working, T.C.C., 5s.; 4 mfd. 400v. working, T.C.C., 3s.; 6 mfd., 1,000v. A.C. test, Hydra, 4s. 6d.; 6 mfd. 1,000v. working, 7s. 6d.; one only, .0025 mfd. 20,000v. test, by pass, Dubilier, 10s.; 450v. 100 m.a. Transformer, 10s.; 150 m.a. 30 H. Choke, 10s.; Varley 75 H. 70 m.a. Choke, 8s.; 30 H. 200 m.a. Choke, 15s.; Rich & Bundy 300 m.a. Choke, 8s. 6d.; 0-10 amp. Switchboard meter, 5s.; 0-600 volt Switchboard Meter, 8s. 6d.; Osram VT5B 250 watt, bottle, 25s.; Mullard 0/150, 30s.; Mullard M/150 Modulator, 30s.; 2 Cyldon .00025 Transmitting, 5s. 6d. each; Zenite 10,000 ohm tapped Resistances, 300 m.a., 6s.; DW3 Rectifier, 8s.; PX 25 new, 10s. 6d.; UU60/250 new, 8s.; large Transformer tapped input from 100v. to 250, sec. 500-0-500, 1250-0-1250, 2v., 4v., 6v., 10v., £4; Speech Choke, 100 H. to work at 200 m.a., 20s.; Forster Filament transformer, 12v. 12a., 10s., and primary resistance for same, 5s.; New UX 210's, 12s. each; Several 80 and 40 m. Xtals. 12s. each. Postage on above extra. We have the entire Gear used by the Oxford University Arctic Expedition for disposal. Two Portable S.W. 2-valve Receivers in teak cases; one QRP Portable Transmitter; one Xtal-controlled transmitter, CO and PA for 80 and 40 m.; one McMichael Supersonic Receiver and valves; one Philips Speaker; one Ferranti Meter, 1,000 ohms per volt, 0-250, 0-50, 0-10; 3-DM256, 3-DFA8, Headphones by Western Electric, Foster Transformer, 200v. Input 2000-0-2000v., Tapped 1500-0-1500v. 250 mas. output, £3. Two M.R.1 Rectifiers to suit, 7/6 each.—LOOMES RADIO, 32-34 Earls Court Road, W.8.

G6DS.—For neat and snappy QSL Cards, Log Books and Pads. Send for samples.—QRA, "Inglenook," Orlando Drive, Carlton, Nottingham.

G6VP.—'Phones, Transformers Rewound; Brown's "A" a speciality; any resistance; 24-hour service. Lowest terms in the trade.

MORSE INSTRUCTION.—Day or Evening. Easy terms. Special course for beginners; faulty formation; and advanced students.—TELEGRAPH SCHOOL, 29, Talfourd Road, Peckham, S.E.

QUARTZ LENSES, 2s. 6d. Guaranteed to oscillate without reaction.—SMITH, Bryn Rodyn, Colwyn Bay.

SUPERHET BURNDEPT 7v., excellent condition; complete valves, 2 frame aerials, etc.; hardly used; £10 or nearest offer.—BRS1007, Tudor House, Tenby, South Wales.

TANTALUM AND LIONIUM.—Make your own Battery Chargers for alternating current. Simple, reliable. Lionium Rectifying Electrodes, 2-4 amps., 10/-, 4-10 amps, 15/-. Also Transformers, Blue Prints, 1/- each, and complete Chargers.—BLACKWELL'S METALLURGICAL WORKS, LTD., Liverpool.

TELEVISION. — Members experimenting, send for list of components supplied by JOHN SALTER, 13, Featherstone Buildings, High Holborn, W.C. Pioneer maker since 1927 of Television Apparatus.

WANTED.—DO4OA, G2WD, 33, Bibury Road, Hall Green, Birmingham.

WHAT OFFERS?—10-watt W.A.C.; C.C. TX, with power, etc.; also Ferranti 0-150 ma., bottles, P.O. mike, etc.—G6BB, 31, Court Lane, Dulwich, S.E.

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