THE T. & R.

BULLETIN

THE INC. RADIO SOCIETY OF GT. BRITAIN

AND THE BRITISH EMPIRE RADIO UNION

Vol. 8 No. 11 MAY, 1933 (Copyright) Price 1/6

The Incorporated Radio Society of Great Britain.

Headquarters Society:—BRITISH EMPIRE RADIO UNION,
53, VICTORIA STREET, LONDON, S.W.1. **('Phone, Victoria 4412.**

APPLICATION FORM.

The Hon. Secretary,

Sir,—I beg to make application to be enrolled as a member, and shall be obliged if you will submit my name to your Council. I agree, if elected, to act and abide by the Rules of the Society as expressed in its Articles of Association and By-laws.

Signature.....

Name in full (please use Block Letters) .....

Address (to which all communications may be sent) .....

Nationality..... Age (if under 21).....

Call Sign.....

NOTE.—*Members not having Call Signs are allotted B.R.S. (British Receiving Station) or B.E.R.S. (British Empire Receiving Station) Numbers, which are used for identification purposes only.*

Proposed by..... Seconded by.....

NOTES.—*Applicants who do not know any member may accompany their forms by references in writing by persons to whom they are known. Such persons should be householders, and should state profession and length of acquaintance with applicant.*
The Council reserve the right to refuse any application without reason.

UNDERTAKING TO BE SIGNED BY APPLICANT.

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

Witness my hand this.....day of..... (*signed*).....

SUBSCRIPTION RATES.

Corporate Members and Associate Members (Town) ...	**£1**	**1**	**0**	**per annum.**
Corporate Members resident outside 25 mile radius Charing Cross	**0**	**15**	**0**	**,, ,,**
Corporate Members resident outside British Isles ...	**0**	**12**	**6**	**,, ,,**
Non-Corporate Members—Associates	**0**	**10**	**0**	**,, ,,**

Associates are not eligible to vote or receive individual notices of the Society.
Certificates of Membership and copy of the Articles of Association are issued to all members upon election.

NO ENTRANCE FEE.

A copy of the Articles of Association may be inspected at the Headquarters of the Society, 53, Victoria Street, London, S.W.1, by applicants upon request.

FOR OFFICE USE ONLY.

Approved by Council.....

B.(E.)R.S. Number issued.....First Subscription Paid.....

THE INCORPORATED

RADIO SOCIETY OF GREAT BRITAIN

AND THE

BRITISH EMPIRE RADIO UNION

53, *VICTORIA STREET, LONDON, S.W.I.* (*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.

May 21. District 16 Conventionette Maidstone. 12 noon.

May 28. District 10 Conventionette Swansea. 12 noon.

June 4. District 6 Conventionette Exeter. 12 noon.

June 10 and 11. National Field Day.

June 18. District 9 Conventionette Southend-on-Sea. 10.30 a.m.

OFFICERS FOR THE YEAR 1933

President: H. BEVAN SWIFT (G2TI)

Acting Vice-President - - - - - - A. E. Watts (G6UN)
Honorary Secretary and Treasurer - E. Dawson Ostermeyer (G5AR)

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A. W. Alliston (G5LA), J. D. Chisholm, (G2CX), J. J. Curnow (G6CW), E. A. Dedman (G2NH), A. D. Gay (G6NF), J. W. Mathews (G6LL), H. B. Old (G2VQ), H. C. Page (G6PA), T. A. St. Johnston (G6UT), J. C. Watts (BRS246), H. V. Wilkins (G6WN).

Secretary: J. CLARRICOATS (G6CL).

All correspondence should be addressed to The Secretary (or other officer concerned), The Radio Society of Great Britain, 53, Victoria Street, London, S.W.1. Insufficiently addressed letters may be considerably delayed.

THE T. & R. BULLETIN

Hon. Editor :—
G. W. Thomas (G5YK)

Advertising Manager :—
H. Freeman

Vol. 8 No. 11

CONTENTS.

CHECKING THE OCCUPANCY OF THE BRITISH AMATEUR BANDS

IN the spring of last year an Editorial was published in which our non-transmitting members were criticised for their apparent lack of interest in organised Society tests.

One of those who took us to task for our comments was Mr. Leslie Hill, then BRS685, of Bristol, who was emphatic in his belief that, providing interesting tasks were given them, many BRS members would offer their help.

During an exchange of correspondence with the Secretary, a scheme was outlined to Mr. Hill which would definitely prove whether some at least of these members were keen. In brief, it was suggested that organised groups of members should be invited to co-operate for the purpose of checking the activity of British stations on the amateur bands.

Mr. Hill not only agreed that this work was of the type required to interest non-transmitting members, but himself offered to take over the organisation of the scheme.

The information which he was asked to obtain was primarily required for the use of our Vice-President, Mr. Arthur Watts, at the Madrid Conference, where he expected to be asked to state how much use was being made of the British amateur wavebands. Information regarding the activity on 1.75 and 3.5 mc. was of the utmost importance in view of the threats regarding European agreements which were in the air at that time.

Mr. Hill's first and probably his most difficult task was to obtain the assistance of members who could be relied upon and who would be willing to devote many hours during the four Sundays in July to the task of logging every G station heard during specific periods on the 1.7, 3.5 and 7 mc. bands. After considerable correspondence, the following members were invited to assist : G2WS, 5ZX, 2AWJ, 2BRA (now 6YJ), 2BVN, BRS497, 624, 689 and 815.

Special log sheets were prepared by Headquarters and distributed : it remained, then, to await the results and see whether those members who had been selected were suited for this somewhat difficult task, for besides being asked to log all British calls, they were requested to indicate the position they occupied in the band, and also whether C.W. or telephony was used.

Early in August any doubts which we might have had were set at rest, for seven out of the nine co-operating members sent in full and accurate returns. The work of tabulating the results occupied Mr. Hill's attention for some weeks, but the final summary showed clearly that much valuable data had been obtained. Amongst other things we learnt that over 200

individual stations had been in operation during the check periods, data which was to prove invaluable to Mr. Watts.

It was quickly realised that no time should be lost in organising further checks, preferably during the winter periods. With this in view, Mr. Hill began work on the second series early in September, and he had no hesitation in recommending that a larger number of members should be invited to co-operate. Several members who had taken part in the earlier check had mentioned the fact to their colleagues, who now asked to be included in the list of co-operating stations.

A total of 19 members, therefore, took part in the November series, which included the following: G2WS, 5ZX, 6JT, 6RP, 6TK, 2AVU, 2AWN, 2AWX, 2BMR, 2BRA, 2BRG, BRS497, 589, 624, 644, 689, 894, 911.

It was decided to modify slightly the listening periods during this series, in order more effectively to cover the three bands.

The results which were finally obtained were even more interesting than those obtained earlier, for they showed a total of 355 stations active in November, as against 211 in July. Proof was also forthcoming that more use was being made of the 3.5 mc. band, an important fact when fears had been expressed that the use of these frequencies might be lost to us through lack of support. On the completion of the second series, a careful summary of all calls heard in the two checks was prepared, together with other information of a specialised character.

It was decided, too, at this stage that the checks should be continued bi-annually in future, it having been made apparent that occupancy information would prove of immense value in discussions with the licensing authorities.

The first of the regular bi-annual checks took place in March of this year. This month was selected because it was considered desirable to make the checks at a time when no Society contests were in operation.

Interest in the work had further increased since November, with the result that Mr. Hill found no less than thirty members willing to assist him in the third series. These members were: G2WS 5JU, 5ZX, 6RP, 6VU, 6YJ, 6ZV, 2AAZ, 2ABK, 2AHN, 2AWX, BRS157, 497, 565, 589, 624, 644, 689, 738, 803, 895, 911, 916, 948, 967 and 1040.

From experience gained in the two previous checks it was decided again to modify the method of logging. Groups of members were allotted the task of checking all stations heard on a specific band instead of individual members making observations on all bands. The summary of these checks has produced the most conclusive proof possible that interest in amateur radio is increasing more rapidly in this country than in any other part of the world, excepting North America.

The high total of 526 *separate stations* heard active during March was an increase of 171 over the November total, and is nearly three times the figure obtained in July, 1932. Additional proof has been obtained that 3.5 mc. is one of our most popular frequencies, whilst the big increase in the number of stations working on the 7 mc. band is further evidence that more and more use is being made of these frequencies by newcomers.

No less than 712 *different calls* were logged at some period during the three checks, a figure which we believe will surprise many of our older members. It should also be remembered that at least 50 other stations who work exclusively on the higher frequencies could be added to this total which, from information we have available, shows that over 60 per cent. of licensed British amateurs have operated their stations during the past nine months: figures which we can justifiably feel proud to boast about.

Some figures from Mr. Hill's report covering the March checks are worthy of consideration. They show that a total of 2,212 calls were logged by the 30 co-operating stations, of which 801 were C.W. and 379 telephony. Of the total calls logged, 584 were on 1.7 mc., 642 on 3.5 mc., and 986 on 7 mc. The London group (BRS497, 565 and 624) logged 357 calls, Bristol 343, Glasgow 258, Leeds 218, and Hull 200. The three Londoners averaged 190 calls each, whilst the one Burton-on-Trent observer, BRS589, logged 117 calls. The three Bristol members (G5JU, BRS685 and 689) averaged 114 calls. BRS497 had the biggest log with 169 calls heard on 7 mc., but he was closely followed by BRS689 with 147 on the same band. BRS624, with 96, and BRS948, with 86, had the leading totals on 1.7 mc., whilst BRS565, with 100 calls, was well ahead with 3.5 mc. observations.

The analysing of the logs presented a gigantic task, but Mr. Hill tackled this work single-handed, and has produced statistics of the highest value. Members who may be interested in this type of work are invited to communicate with him, or, if in London, to ask to be shown the records which have so far been produced.

Special thanks are due to those fully-licensed members who helped in this work, because in their case much valuable time which could have been devoted to radiating experiments, was given up willingly.

Outstanding members throughout the series were Mr. Scarr (G2WS), Mr. Stove (G5ZX), Mr. Canning (G6YJ), Mr. Mathews (BRS497), Mr. Wells (BRS 264), and Mr. Gleed (BRS689), and to them and all others we offer congratulations on the high standard of operating shown.

It is difficult to adequately convey to Mr. Hill our appreciation for his work, but it is hoped that this account of the Band Occupancy Checks which is being made public for the first time, will serve to show him that his work has been of the utmost value to the Society as a whole.

AMATEUR BANDS—OCCUPANCY CHECKS.

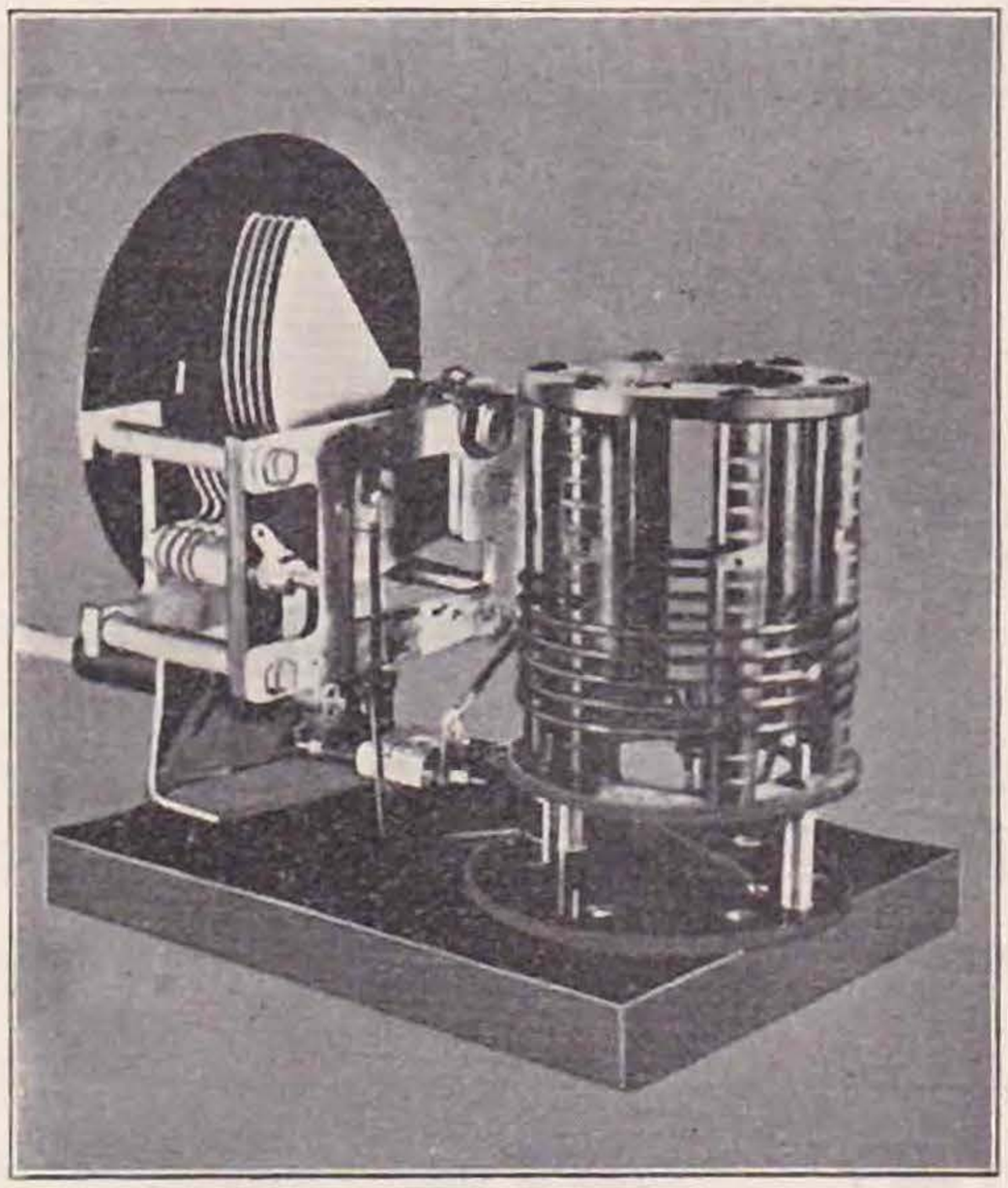
Period.	Stations active per band. 1.7 mcs.	3.5 mcs.	7.0 mcs.	Individual Stations active irrespective of bands.
July, 1932 ...	60	52	133	211
November, 1932	171	102	164	355
March, 1933 ...	153	187	331	526

Up to the end of the November checks 451 *separate calls had been heard; this figure was increased to* 712 *at the completion of the March series.*

THE WESTECTOR PHONE MONITOR.

PROBABLY all members have heard of Westinghouse's "Modern Method of Detection," the Westector, and not a few have probably used them for broadcast reception. To those who have not, we can say they are well worth using as they make a very stable detector and will handle good inputs.

In the short wave field it might be expected that the Westector would not find a good use, and as ar as short wave receivers are concerned this is



rather true. We rely so much on the careful use of reaction to get the utmost out of our detector that a non-amplifying non-oscillating detector appears to offer nothing but disadvantages.

But for the transmitting member engaged on telephony work the Westector enables him to construct a simple yet perfect 'phone monitor. The advantages of the Westector over a non-oscillating triode, or diode, are obvious, and the crystal detector can now be forgotten in the same way as we have forgotten coherers.

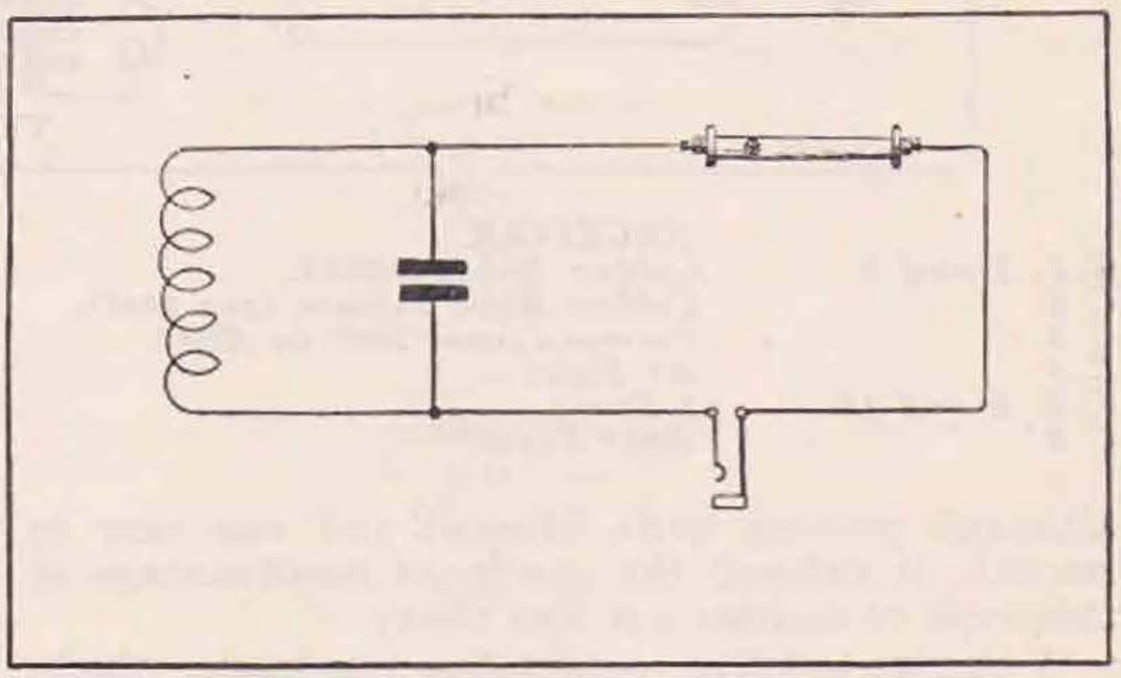
There are four types of Westectors available—two half-wave and two full-wave. The output from the former is 0·25 ma. and from the latter 0·5 ma. The latter, of course, require centre-tapped input circuits, and so we choose the W6, which is a half-wave rectifier to work with a maximum input of 36 volts.

A glance at the photograph and circuit will show that the instrument is simplicity in itself. The variable condenser is a Cyldon ·0002 mfd. Log-mid-line fitted to a standard mounting bracket. A coil holder is secured to the wooden baseboard so that interchangeable coils may be used for each waveband. Most amateurs will have these parts on their hands as spares, and by using a condenser as large as ·0002 mfd., two bands can be covered on one coil. A 'phone jack is secured through a hole drilled in the mounting bracket so that the 'phone plug is clear of the dial. The Westector can be clearly seen below the tuning condenser and wired between the condenser and the jack. It does not, of course, matter which way round the detector is connected.

A few words on the use of this monitor will be of interest.

An earth may be added, if desired, and a few feet of aerial may be used, but these are considerations applicable to the particular station using the monitor, and the power output of the transmitter and the position of the monitor with regard to the transmitter, aerial or feeders will have to be considered. With medium or high power sets the monitor, as shown in the photograph, may be placed with the coil in close proximity to the aerial lead to the receiver and sufficient pick-up will be obtained.

One word of warning. The maximum current the W6 should pass is 0.25 ma. It is quite possible to couple so closely that 1 ma. will be passed, so if in doubt use a milliammeter to check. With a 50-watt transmitter on 14 mc. modulated at about 60 or 70 per cent. the carried speech produced ·25 ma. when the monitor coil was held near one of the



(The Condenser should be shown as variable).

feeders. Upon modulating, a speech strength of about R7 was obtained. Although these figures are somewhat vague they will serve as a guide.

For 'phone workers the great advantage of this monitor lies in its extreme simplicity, the large output obtained and the very low cost. It gives a true copy of the quality being radiated, will show up distortion of any serious nature, and will give the operator probably a better idea of any hum present in his transmission than a report over the air will give. All experiments with the modulating apparatus can be conducted on artificial aerial and carefully monitored, and the resultant speech as put out on the air will then be as good as the apparatus at the operator's disposal will permit.

AN ALL-A.C. TWO.

By H. V. WILKINS (G6WN).

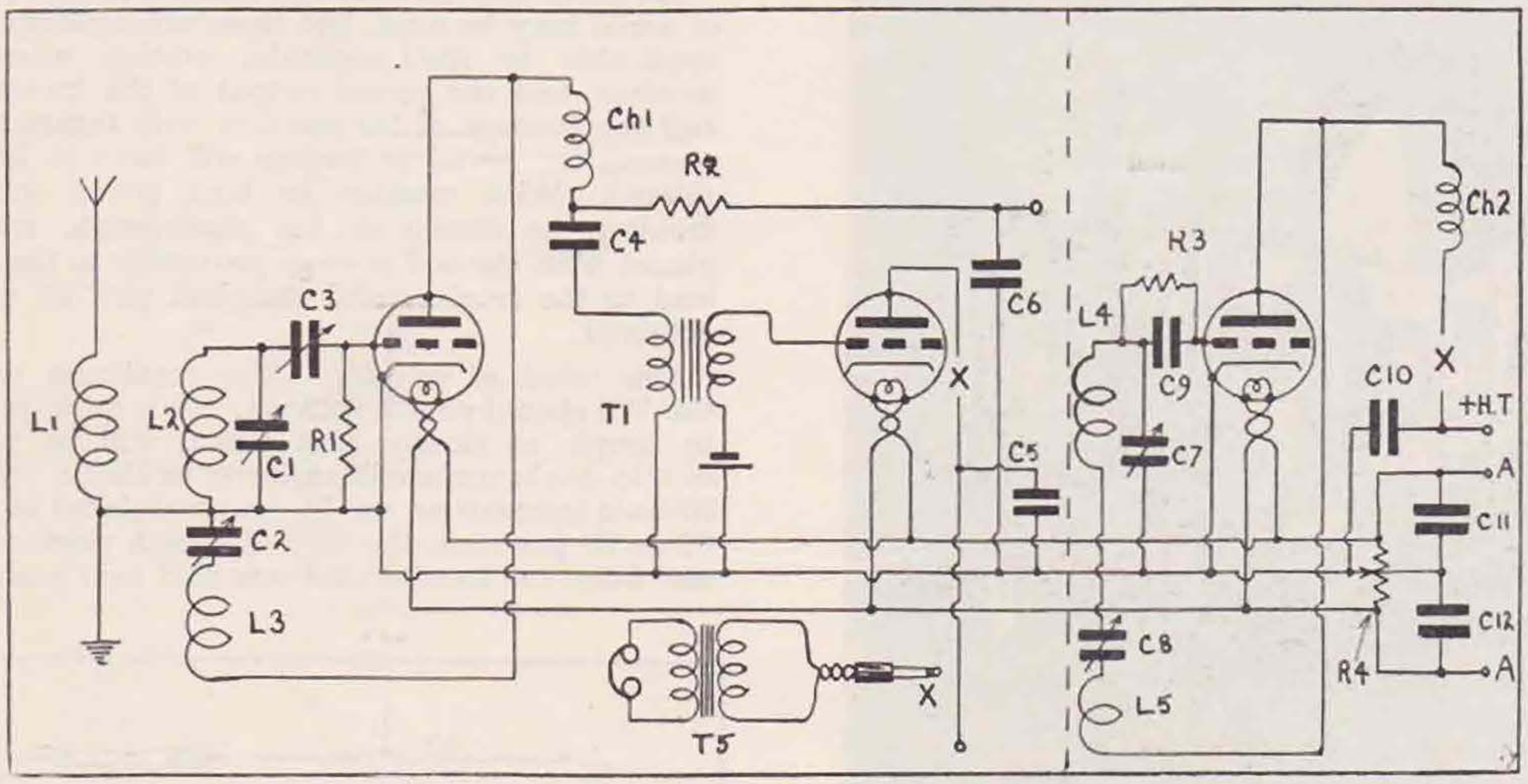
NEARLY three years ago it was decided that the upkeep of a battery type of receiver was rather high if the efficiency was to be maintained with almost continual use. The outcome of this resulted in an all-A.C. set that has justified itself ever since.

Having had various enquiries into the working and vagaries of such a set, the writer has been prompted to pen a few lines on the subject.

The receiver has been altered very little, but the power supply has been slightly modified. Originally an eight-cell chemical rectifier was used, and

Loose aerial coupling is used, and seems to be the best for stability, ease of operation, and imposes less damping on the grid circuit than the method of direct tapping, as is so often used in amateur receivers. While signal strength may be a little less with loose coupling, the interference and background level is also slightly reduced.

The coils are all of the valve-base variety, and the aerial coil is suspended over the grid and reaction by means of a pillar. The grid and reaction windings are on one base, with the latter winding adjacent to the pins.



RECEIVER.

C 1, 7 and 8	*Cyldon Bebe, .00015.*
C 2	*Cyldon Bebe 5-plate (see text).*
C 3	*Formo-denser .001 to .0002.*
C 4	*.01 Fixed.*
C 5, 6 and 10	*2 Fixed.*
C 9	*.0003 Fixed.*
C 11 and 12	*.5 Fixed.*
R 1 and 3	*Half or Quarter Megohm.*
R 2	*50,000 ohms.*
R 4	*400 ohms Potentiometer.*
T 1	*L.F. Transformer.*
T 5	*One-to-one Output Transformer.*
Ch. 1 and 2	*Short-wave H.F. Choke.*

although proving quite efficient and was easy to smooth, it suffered the one great disadvantage of this type of rectifier—it was messy.

A change to valve rectification was made, which, although producing a little more hum, was not as bad as anticipated.

About the time this receiver was planned, some heavy iron cabinets were selling very cheaply. Two of these were procured, one for the receiver and monitor, and the other for housing the power supply. That for the former had to have the front panel removed and replaced with an aluminium one to get the holes for spindles, etc., in the correct positions. That for the power supply was not altered; both, however, needed baseboards, and these were cut from one-inch thick oak, and lined on the under-side with sheet copper.

The Receiver.

As can be seen from the circuit diagram, two valves are used in the conventional detector, L.F. arrangement. There are, however, one or two interesting points worth mentioning.

The coil table will give the approximate number of turns required, as it must be realised that with a receiver of this nature, using fairly tight coupling, the number of turns will vary to the extent of a turn one way or the other. This is especially so with aerial coupling coils if it is intended to get the greatest transfer of energy.

Both the tuning and reaction condensers are .00015 Cyldon Bébé, the one for grid tuning having been cut down to five plates, double spaced, and, therefore, only just covers the 3.5 mc. band. A slow-motion dial is, of necessity, fitted.

These condensers are bolted direct, with the aid of extra thick washers, to the front panel, which forms the earth connection.

The grid blocking condenser is a departure from the ordinary fixed one, as a Formo-denser is used in this position. This is a very decided advantage, as it is possible to "hot" the set up considerably with it in conjunction with the grid leak, which, in this case, is a half megohm. Incidentally, the value of both these components affect hum to some ex-

tent, and are well worth experimenting with. A smaller range grid condenser might be used with advantage.

The detector valve is coupled to the low frequency valve by a parallel fed transformer, as at times as much as 200 volts are used on the detector valve, and it would be inviting a burnt-out transformer primary to use series feed.

Values of resistance and capacity are those that work best with the particular transformer in use here.

Battery bias has always been used on the low frequency valve, as it is thought that trouble may be encountered with automatic.

It must be realised that the aerial, positive high-tension terminals and phone jacks must all be well insulated from the cabinet, which is at earth potential.

Monitor.

In this same cabinet, which was designed by its makers for a three-valve broadcast receiver, is installed the monitor, screened from the receiver by a vertical metal screen.

All monitoring is done on sixty metres, as this seems to be the best harmonic to listen to.

COIL TABLE.

	56 mc.	28 mc.	14 mc.	7 mc.	3.5 mc.
L1 ...	5	5	10	10	20
L2 ...	½	2½	6½	13½	33½
L3 ...	2½	4½	7½	14½	22½

L4 19½ turns (60 metres).
L5 16½ turns (60 metres).

All its power supply is derived from the same source as the receiver. It has not been too successful, and is subject at times to bad "blocking," due possibly to feed back from the transmitter through the mains, and back coupling with the receiver.

A departure from usual practice is made by allowing for the control of feed-back, as the writer has always found it advantageous to incorporate this control in the monitor.

The telephones are permanently connected to a one-to-one output transformer, the input of which can be plugged into jacks (at the points marked X in the diagram) of either the receiver or monitor.

Valves.

Several combinations of valves have been tried, and that which has proved most successful on 7 and 14 mc. is an AC/2HL followed by an AC/P. With such a high amplification valve in the detector position, it is possible to resort to a power valve in the output without losing much signal strength.

The background level is very low indeed, permitting local and DX signals to stand out clearly, and for the reception of telephony it is ideal.

There is one disadvantage to the AC/2HL on frequencies higher than 14 mc. It is inclined to "super" as soon as the oscillation point is reached, with the result one has to keep to the very fringe.

Two AC/HL valves have been tried, and while signals are of very good strength, the background is also high. This applies also with the ACHL following the AC/2HL.

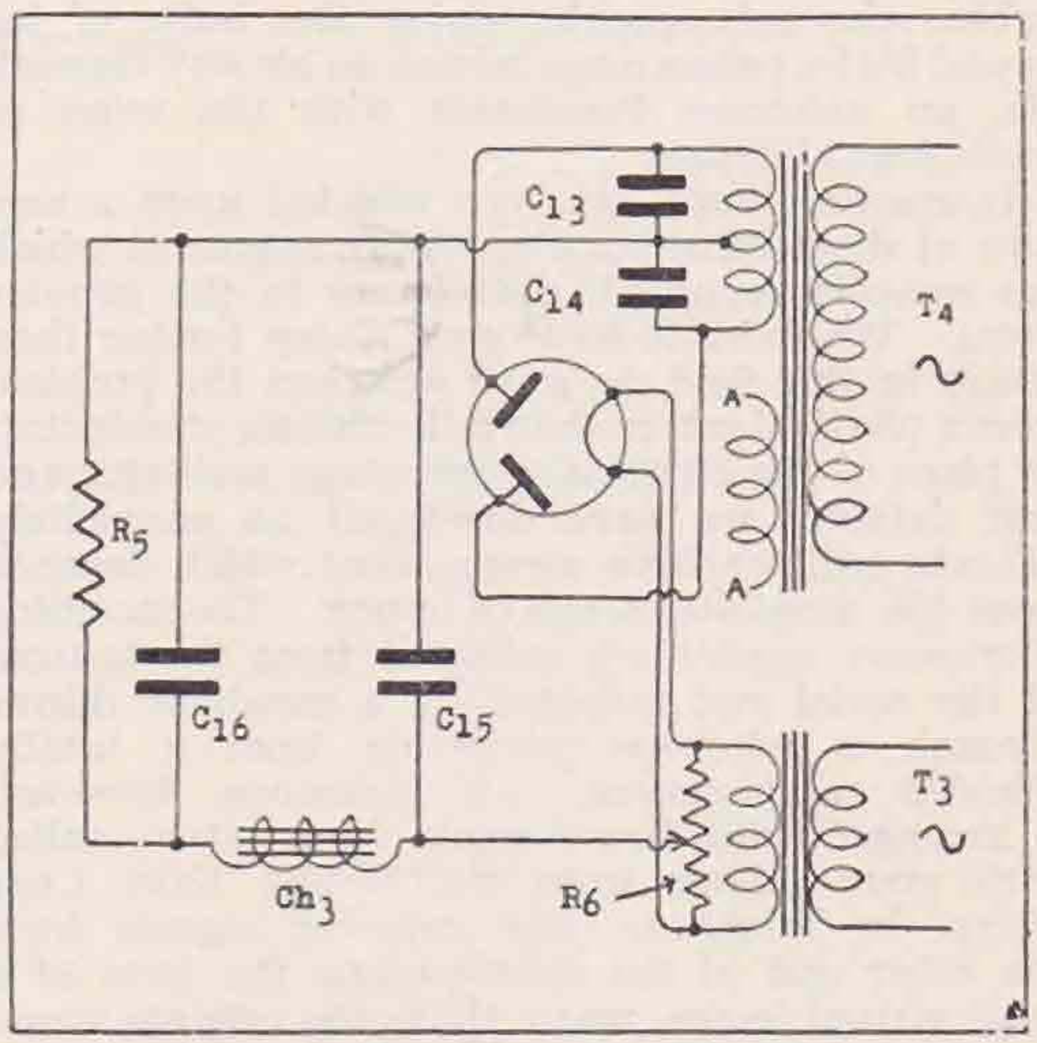
When using an AC/HL as detector and a AC/P in the output, the signal strength is rather poor.

For the monitor, either the AC/HL or AC/P can be used.

Power Supply.

The main power transformer has only two windings, for, as previously mentioned, a chemical rectifier was first used. The heaters of the receiving valves are supplied from a 4-volt, 3-amp. winding, and high tension of 200 volts or more is available from the Mazda UU/30-250 rectifying valve. Filament current for this valve is supplied from a bell-ringing transformer (which can be purchased quite cheaply) with tappings at three and five volts. This latter tapping was used, and with the 400 ohm potentiometer across, the voltage is approximately four volts. This valve has been in use since the winter of 1930, without showing signs of failure.

The circuit diagram for this part of the receiver is self-explanatory, but two items might be mentioned in passing. These are the potentiometer across the rectifier filament, and the two fixed condensers from the anodes to earth. Both these small modifications assist in reducing hum.



POWER SUPPLY.

C 13 and 14	*.01 Fixed.*
C 15 and 16	*4 mfd. Fixed.*
R 5	*20,000 ohms Potential Divider.*
R 6	*400 ohms Potentiometer.*
T 3	*Bell-ringing Transformer.*
T 4	*250-0-250 and 4-volt 3-amp. Transformer.*
Ch 3	*Smoothing Choke 20 henrys.*

Any good make of components can be used, but one warning may be useful—use only those with an adequate margin of safety. It pays in the long run.

General.

There are many factors in a mains-operated short-wave receiver which contribute towards a background of hum, and it behoves one to spend a little time experimenting with various values of resistances and capacities of condensers before condemning a set that is noisy.

The length of aerial and coupling have been found to play an important part in producing very bad hum, and the writer's receiver is almost trouble-free within the amateur bands, but the same cannot be said of waves outside these limits.

(*Continued on page* 347.)

THIS MONTH'S CONTRIBUTION TO RADIO SCIENCE.

By the "Country Greenhorns."

EVEN to the bucolic mind it is evident that much of definite value may be gleaned from researches carried out in the peace of the countryside. Much brilliant work is being achieved in the provinces, and the month of March has seen one or two epoch-making discoveries brought into the light of day. Modesty has been subordinated by the desire to benefit the struggling fellow-amateurs of the cities, and we retail with deprecatory mien the scintillating results which have been evolved in our country laboratory.

This is the era of intensive research, but, even to-day, the research worker, so little known to the public who subsequently enjoy the fruits of his fecund brain, passes unacclaimed on his way through life, an unknown benefactor with the mind of mythological deities.

Interesting work has been effected upon a new type of short-wave adaptor, an arrangement which has recently occupied much space in the popular Press. We claim to have gone a step further than others in this field, to have attacked the problem from a physical rather than a thermionic standpoint. In place of the customary two-stage oscillator and first detector we have developed an exquisitely delicate and sensitive arrangement which depends upon the simple telescope of optics. The incoming short-wave signals are collected from the bottom of the aerial and reflected by a parabolic mirror through a telescope projecting from a totally shielded compartment. The telescope, however, is arranged with lenses made from pitch—culled with great labour from the boiling Lake Laga Beera, in Trinidad. The outgoing signals from the other end of the tube assume the form of a large virtual image, many times the original wave-length, and are directed onto a small metallic screen of vertical wires, from which they are passed to the ordinary detector of the broadcast set and appear somewhere in the region of the broadcast band, the precise place depending upon the magnification of the lenses.

It is difficult, to say the least, and by no means cheap for the average experimenter to determine the acoustic response of his loud-speaker. Invaluable work has been accomplished upon this question of photographing sound waves—this has been done by the method of checking the direct audio impulses as emanated by the sound reproducer. A fine cloud of Lycopodium power is blown transversely across the orifice of the Speaker at constant velocity, onto the area of suspended powder is focussed a powerful source of illumination, and the resultant nodes and anti-nodes developed by the reproducer on the column of particles instantly become visible and are then photographed by a Magic Lantern. The expense of the Oscillagram is thus obviated. It has been found that a focussed ray of powerful Moonlight is productive of the clearest definition.

The masterpiece of the month is, undoubtedly, the Highbrow Heterodyne, a new and amazingly selective receiver just developed. The underlying principle of the terrific amplification which has been attained lies in the adaption of a special oscillator which superimposes on the incoming signal an oscillation of variable frequency and degree such that the resultant beat reaches astonishing voltage amplitude. The limit is achieved when the wave becomes as broad as it is long.

The secret of the receiver lies in a pair of bottom-bend Pentodes in Effervescent Push-Pull; from these we have been able to contrive a new method of Automatic Volume Control, which comes into operation at the Saturation point of the valves when moisture in the form of gaseous vapour is given off at the seals—this is let off *via* a special chronic-plated exhaust pipe to a small gasometer. This, in its turn, actuates a slider control on the high-tension supply, and, in the event of an excess of "gas," entirely cuts off the set. When the receiver is used in conjunction with the Short Wave Adaptor described above, the gas container operates a system of pulleys which control a Mouse Trap type of sluice gate and obscure the aperture of the Telescope. The second detector comprises a quartz crystal gate—of the five-barred variety —which is simplicity itself. The gate is centre-tapped, leaving two and a half bars on each side, and a solid platinum catswhisker makes contact with each side. Since one side is connected to earth, it will readily be perceived that one complete half of the wave is bypassed to ground and that rectification ensues. The entire equipment is thoroughly decoupled throughout with Marconi resistances.

We would direct the attention of readers to the possibilities of the new system of obtaining cheap Radio Frequency power for transmitting—a licence may be obtained at any Post Office or by direct application to the B.B.C. This is done by doubling up the 50-cycle electricity supply mains until Radio Frequencies are reached. By the use of a suitable chain of cascaded amplifiers and a number of our special Applecart coils, it is easily possible to cause most of the lights in the house to waver when the transmitter is working at full throttle.

* * *

Our experimental Observatory maintains a continuous watch on the activities of the world of short-wave amateur radio, and they are happy to forward a number of new and fascinating observations taken during the past month. Certain questions have reached the department and some of these appear below.

First and foremost—"Where is BERU?" We are pleased to say that our Special Country Department has solved the problem. BERU is, beyond doubt, the location of those elusive stations, ZOK, ZAP, ZAN and ZHC, and, of course, the high-powered station, ABC—so often called by WIZ, WIR and others. The department contend that BERU is so far away that these stations cannot ever

be heard, because (with apologies to the philosopher Zeno)—" at no moment the waves are nowhere."

What are the mysterious dots (termed reversals) which emanate from so many of our principal beam stations? Here, again, we have the clue. The department has proved them to contain a new system of secret telephony. By means of a very special condenser incorporated in the receivers all the dots are recondensed into a continuous wave and telephony, previously broken up, becomes once more intelligible.

What is the value of the 80 m. band? But why such a foolish question? It is understood that, in Holland alone, even at this slack season of the year, the purveyors of illimitable gramophone records are reaping fabulous entertainment from their equally illimitable patrons.

How many times can a Frenchman say " Allo " in one second? The figures have altered in recent years. It is understood that the now obsolete carbon type of microphone has been replaced in all the leading French telephony stations by an excruciatingly delicate instrument comprising a tin-foil diaphragm backed by fragments of broken glass. A clever band-pass filter is included in the unit to eliminate interference, and this very neatly amputates the undesirable frequencies below 2,000 cycles. Close investigation reveals that considerably greater distances are obtained by shouting into the instrument—the distance varies directly as the square of the vocal density. Now, owing to the negative inertia of this remarkable diaphragm, we learn that the possible number of " Allos " per second depends merely upon the capabilities of the operator.

Modulation as deep as 6 ft. or more has been attained and reports show that the depths are often unplumbed.

One gentleman asks us why the 80 m. band is so congested. At this season of the year huge numbers of Britishers may be heard working with the new totally suppressed system of telephony—inaudible to the average receiver—and the grid-blocking scheme is also very much in vogue. The latter arrangement is based on the principle of arranging that all audio frequency modulation on the carrier reduces the anode voltage of the output stage to zero. This accounts for the fact that many waves are to be heard " switching " rapidly across the band width—or seeming to do so. Those who know better realise the serious experiment which underlies the outward effect. In the height of the summer season—often called the " silly season "—when most operators will again be turning their attention to indoor pastimes and friendly lies over the air, kept at home by the rigorous weather conditions instead of being drawn from radio by the lure of the open air and open road, we fear that the band will be one gigantic overlap.

A lady asks " Is DX long or short? " Remarkable things are happening, no one understands how it comes about, still less why. The answer lies in the use of the Little Circle Track. Listen to the daily wonder for yourselves. America to America—the entire distance spanned by amateur telephony. It is now possible to listen to American stations calling " CQ DX " on 20 metres and establishing contact with an adjacent State. At a conservative estimate, a distance of no less than 23,500 miles. I may come from the country, dear readers, I know that there is incredible QRM in America, but we have some quite small stations over here which carry quite well into the U.S.A., and there is none so deaf as he that will not hear!

Some of our more rustic correspondents would like to know what is " the great game of numbers " which swept the world of radio in the U.S.A. during the middle of March. " Every time we rang up a W he asked us for our number, so, being generous and obliging, we gave as many as he would accept." " What would you do?—be honest, Mister! "

Who has ever been so fortunate as to possess a transmitter which radiates successful signals on 3.5, 7 and 14 mc., simultaneously? I feel sure that you, gentle reader, have never been guilty—nor has your country cousin—but a well-known station in Croydon demonstrated this on March 19—we caught him at it! Oh, for a Blattnerphone in the witness box!

Hasta Mañana, my rustic ryestraws!

(*Continued from page* 345.)

Again, it does not seem to matter whether one uses an earth or not. The metal cabinet could be left " floating " and not made the negative connection, in which case both the tuning and reaction condensers would also need bushing.

It is to be hoped that these few notes may be of help to those who have already constructed a set of this type and are finding difficulties, and act as a guide to those who contemplate building one.

The writer would be pleased to hear of the success or otherwise of anyone building a receiver such as this.

Strays.

Mr. J. Cornish (W1CV), 18, Prospect Hill Avenue, Boston, Mass., will appreciate reports and QSO's with G stations on 14 mc. All reports will be acknowledged by card and photograph.

Mr. Phillips (G5PJ) advises us that a daily transmission will be made at 12.00 G.M.T. on 28,460 kc. A preliminary warning will generally be sent at 11.50 G.M.T. on 14,230 kc., requesting stations to stand by for the 28 mc. test, which will last for five minutes.

It is expected that the most favourable periods will occur between May 16-19, June 12-15, July 10-13, August 7-10. All members are asked to report on these tests, and are urged to give them publicity overseas, as data from distant stations is urgently required. An input of 300 watts will be used.

* * *

Mr. H. Voss (W6DE), 10550, Butterfield Road, Palms, Los Angeles, one of our new North American members, is anxious to receive reports from BRS on his 7 and 14 mc. transmissions. All reports will be acknowledged by a QSL and photograph of the station at W6DE.

* * *

We regret that an error was made in the QRA of Mr. G. E. Adkins, BRS1100, published last month. This should read: " Moyvanine," Exmouth, Devon.

STATION DESCRIPTION No. 32.

VQ4CRH

RADIO Station VQ4CRH is situated in Nairobi, the capital of Kenya Colony, East Africa, and made its appearance on the air about a year ago.

The transmitter in use is a TPFG, and good work was accomplished in the first place using an LS5 valve, with 500 volts on the plate obtained from the mains.

The power supply is of conventional design, consisting of a Varley power transformer giving 500 volts each side of the centre tap. A pair of Mazda U65/550 tubes are used for rectification, followed by a 4-mfd. filter condenser, a Varley 20-henry constant inductance choke, and another 4-mfd. condenser. The Varley transformer also supplies the filament current for the rectifiers and the oscillator, the normal input being 25 watts.

Some difficulty was experienced in the first place of getting a decent note, nearly all the reports being RAC, but with a little perseverance the seat of the trouble was located, and two R.F. chokes were introduced in each of the H.T. leads. A distinct improvement was observed, and reports were now more satisfactory.

Recently a Tungsram PX2100 valve was acquired, which took the place of the LS5, and a further improvement in the note was observed on 7 mc. reports. This valve was in use throughout the B.E.R.U. contests, with an input of 40 watts during the senior contest, and 25 watts during the junior contest.

The transmitter is home-constructed, mostly from receiver parts, and has proved efficient beyond all expectations.

The receiver is of the 0-V-1 Reinartz variety, and is also home-constructed, with spaced vanes of the tuning condenser for band spreading. The coils are wound on valve bases, and the valves are Cossor 210 L.F.

The monitor is of the usual type, and housed in a biscuit tin. The valve is a Mullard PM1 (L.F.), with 30 volts H.T., and two 1.5 Hellesens Tiger cells supplying the L.T. through a filament resistance. The coils are also wound on tube bases.

The transmitting aerial system is a single-feeder Hertz. The top length is 66 ft. 8 ins., with the feeder tapped at 9 ft. 3 ins. from the centre. Height 40 ft., and the direction at the remote end is south-west.

A separate receiving aerial is used in the opposite direction to the Hertz, the height being 25 ft. and 30 ft. long. The transmitting aerial can also be switched over to the receiver if necessary.

Since coming on the air this station has worked all six continents (one QSL card outstanding preventing the application for the W.A.C.) and 45 countries. A Canadian OM is required for W.B.E. (Where are they these days?)

The whole station is really a simple outfit, but hours of enjoyment is obtained, and much midnight oil burnt in having a "chinwag" with lads in the far-off land.

Stray.

Mr. Orr-Ewing, G5OG, claims first 3.5 mc. contact with Iraq. This QSO was made on March 25, 1932, when his signals were received R9 by YI6WG, who was heard at R7. The input at G5OG was 14 watts to a PX4.

NOTICE!

Don't forget the

28 M.C. TESTS

May 22nd to May 28th

For full particulars see February Bulletin

BELOW ONE METRE.

THOSE who read our contemporary, *The Wireless World*, will no doubt have seen mention of the recent inauguration of a wireless telephony service between the Vatican and Castel Gandolfo on a wavelength of about 50 centimetres. On December 2 of last year the Marchese Marconi delivered a lecture at the Royal Institution on his recent researches regarding the use and potentialities of these very short waves. It is hoped that this short summary of the lecture will be of interest both to our 5-metre experts and others.

After referring to his previous work in the high-frequency spectrum, Marchese Marconi said that it was eighteen months ago that he decided to take up the systematic investigation of wavelengths

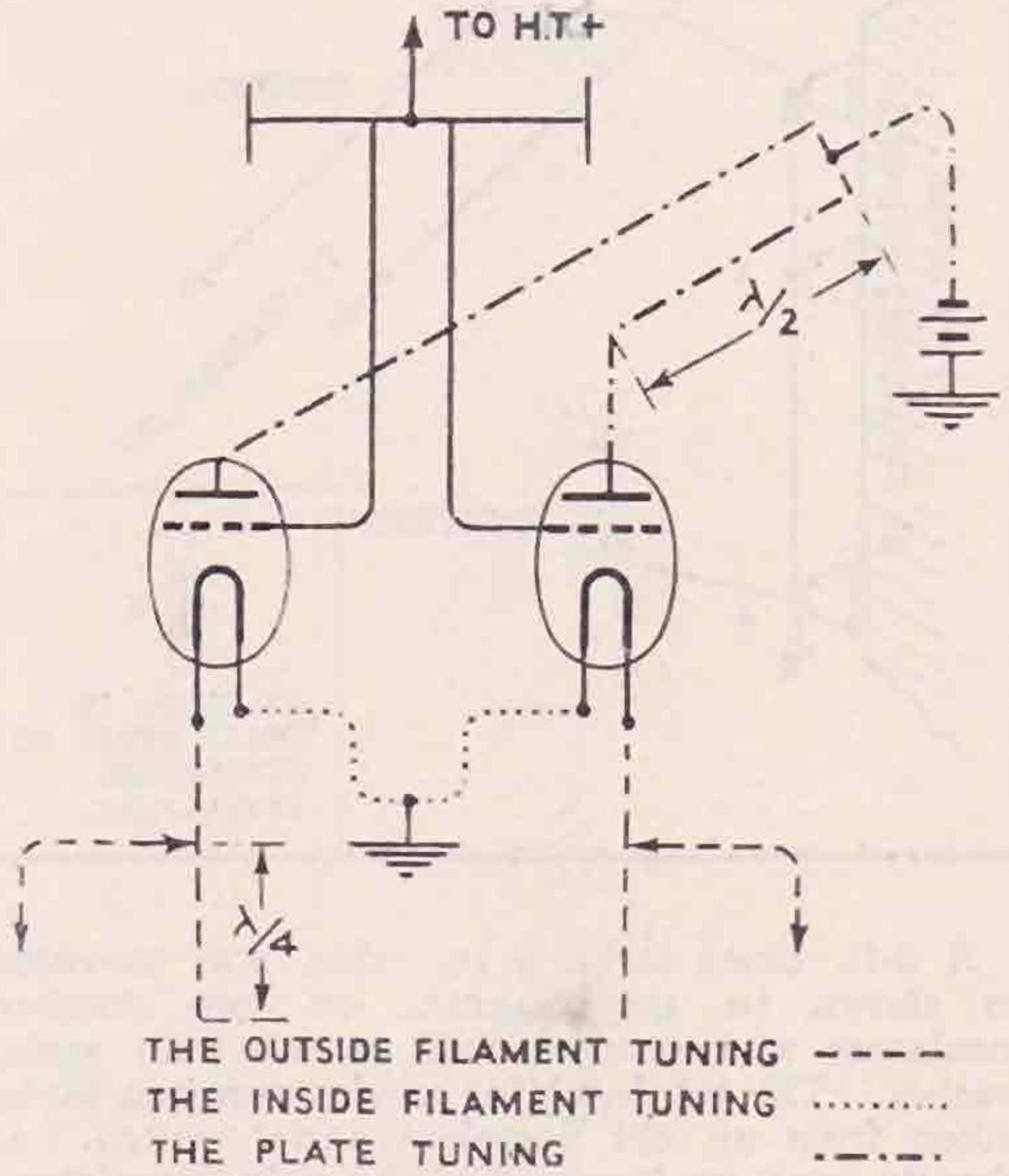


Fig. 1.—The Aerial and Feeder Impedance Transformer.

below one metre. Most of the research work was done by Mr. G. A. Mathieu, aided by the observations and suggestions of Marchese Marconi. Much valuable work was also done by Mr. G. A. Isted, of the Marconi Company.

At the beginning of the work the chief aim was a powerful transmitter. Two alternatives offered themselves, in the Magnetron and the Electron oscillator. Although at first sight the Magnetron seemed ideal for this type of work, it was rejected owing to the necessity of using high potentials with it, and also owing to other disadvantages. Doubts were also entertained as to the possibility of ensuring good modulation.

The first circuit actually tried was the Barkhausen and Gill-Morell plate grid Lecher wire type, but it proved very inadequate, and a new symmetrical two-valve circuit was therefore evolved (Fig. 1). It will be noticed that the new Electronic oscillator has three tuned circuits and a feeder-impedance transformer to match the internal resistance of the valves with that of the dipole aerial. At each end of the aerial there is a small disc, which acts as an end-capacity. This secures more radiated power, and at the same time renders the feeder-impedance transformer easier of adjustment.

To start with, it was decided to concentrate on the generation and efficient radiation of a wave of the order of 50 centimetres, and the transmitter was constructed accordingly, for the dimensions of the external circuit must bear a definite relation to the wavelength generated. The adjustment of the plate and inside filament-tuning is the most important, for on this depends the wavelength on which the transmitter will oscillate. The length of wire required, to join the plates together for plate tuning, is only 5 cms., where the wavelength is of the order of 50 cms.; but, added to this is another conductor one wavelength long, which is bent back on itself to avoid loss by radiation. The plate-tuning controls the frequency of the oscillations in a manner analogous to a steel bar vibrating with its middle point fixed. If a thermo-couple be connected in the middle of the plate-tuning conductor, and the other connections be left free, the two plates and the conductors will behave like a dipole aerial terminated by large end-capacities. The filament-tuning secures the correct distribution of potentials along and between the elements of the circuit.

The adjustment of the electrical supplies to the valves is extremely important, for it is essential that the electronic oscillations between the electrodes should be generated at a frequency which corresponds as closely as possible to that to which the external circuit is tuned. The closer the correspondence, the more stable and powerful is the transmitter. The temperature of the filament, too, is important. Starting from cold, the oscillations commence when saturation of the grid current is reached. The radiated energy will then continue to increase until a sharp maximum is reached; after which, further increase in the filament temperature causes a decrease, and finally complete cessation of the oscillations.

The Marchese Marconi also mentioned that it had been found necessary to develop a new type of valve for use in this transmitter. It was early found that the life of the valves were extremely limited—often a matter of minutes—and accordingly a new valve was designed, having a 4-ampere tungsten filament and a molybdenum grid supported on molybdenum by electrical welding. The thickness of the filament, the pitch and diameter of the grid, and the length of the plate and grid, were varied until the best results were obtained.

The radiation power of the transmitter was 3.5 watts, with a filament consumption of 30 watts, and a grid consumption of 25 watts. Therefore, the efficiency of the transmitter was 6 per cent., or 14 per cent. if only the grid power is taken into account.

When greater power was needed, several transmitters were used in parallel, with their aerials in line, and spaced so as to secure the maximum directive effect. The transmitters were kept electrically in step by linking up the outside filament-tuning by phasing links, 1½ wavelengths long (Fig. 2).

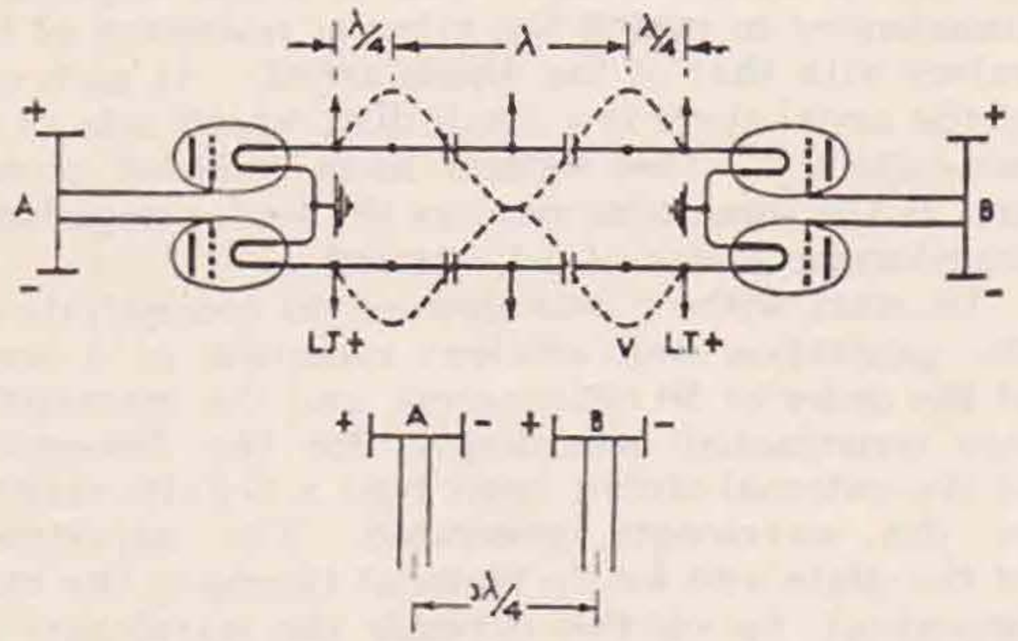


Fig. 2.—Illustrating method of keeping in step a 2-unit transmitter spaced ¾λ.

Modulation may be superimposed on the grid positive D.C. supply, or on the plate negative bias. Push-pull modulation on the plate or grid, or push-pull between two transmitting units is also possible. When several transmitters are to be used in step, the plate circuits are connected in parallel and modulated simultaneously. The plate-filament impedance of a unit transmitter at 1,000 cycles was found to be of the order of 2,500 ohms, and therefore the modulation transformer should be designed accordingly.

(*To be concluded.*)

Tuning the 2 MC. Aerial—(*Continued from p.* 351).

value of the parallel condenser, the greater will be the efficiency. This could be achieved by making the inductance of the whole coupling coil sufficiently large to necessitate using only a small amount of parallel capacity for fine adjustment.

The effect of the series condensers, as indicated previously, is to adjust the " length " of the aerial and counterpoise wires so that, combined with the parallel condenser, the whole system is made electrically symmetrical about A. Also, all disturbing factors are allowed for automatically, though the resultant field would depend upon the proximity of aerial and counterpoise arms, and that of the whole system to near-by objects. In other words, the function of the arrangement would be exactly similar to that of any properly designed radiating system, where the influence of situation and so on is outside the operator's control.

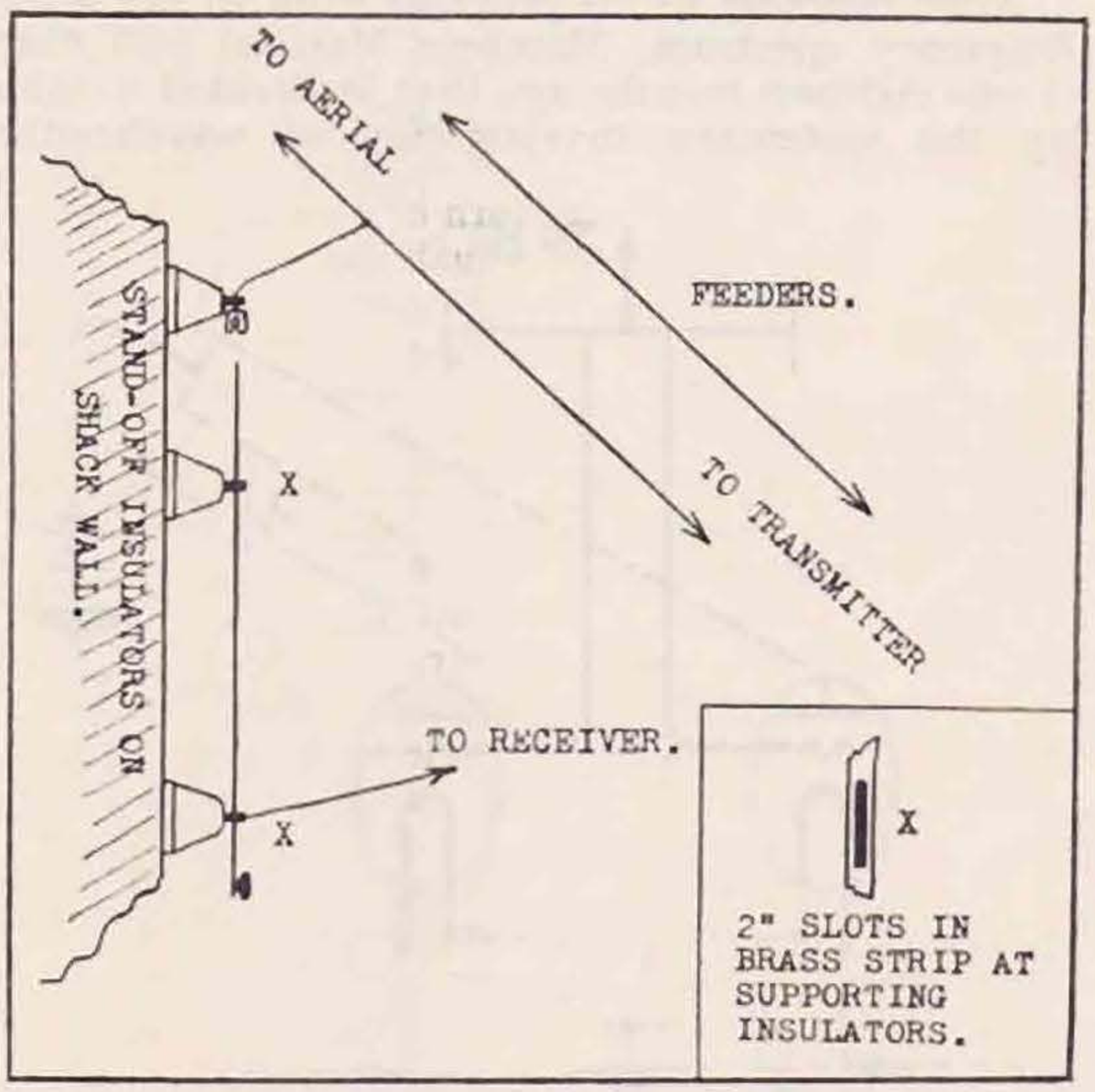
A point to note is that placing flash-lamp bulbs or meters (matched) at the two ends would also form a guide to what was happening. Indications of R.F. might or might not be obtained, depending upon whether there was enough current at the ends of the coil, where the lamps would normally be placed. One might expect a very good indication of R.F. at A, with a comparatively dull glow at the ends of the coil. If any glow were to be obtained, it should be equal in a pair of matched current indicators.

It should be added that it is quite permissible to speak of a coil and condenser having a " length " equivalent to a piece of wire, and in hammering out problems of this sort, it is easier to do so by taking a nine-turn coil with about .00025 mfd. in parallel as being approximately equal to 70 ft. length of wire (taking the coils one normally uses on 7 mc. as a basis for argument).

PUSH-PULL AERIAL SWITCHING.

By G2IO.

Many stations using the transmitting aerial for reception install the aerial switch in the feeder line to the transmitter, thereby necessitating an awkward position for quick change-over.



A 3-ft. brass strip, ¾ in. wide, was mounted, as shown in the diagram, on two stand-off insulators and secured with a nut and spring washer. The top insulator carries a switch socket taken from an old porcelain aerial switch. An ebonite knob on the base of the strip completes a simple yet effective change-over switch. Push up for reception—pull down for transmitting.

Stray.

Mr. J. D. Payne (W1CCP—1BSF), 288, Prospect Street, Norwood, Mass., is working on 28 mc., and will appreciate schedules with British stations.

* * *

Mr. Priestley (VE3HE), 87, Douglas Avenue, Toronto 12, asks us to announce that he is transmitting telephony signals on a frequency of 14,252 kc. with an input of 400 watts to the final stage. These transmissions are 100 per cent. modulated, and have already been well received in England. He is anxious to fix regular schedules with Yorkshire stations, as his home is in Huddersfield. Schedules with other stations on C.W. or Telephony are requested.

TUNING THE 2 MC. AERIAL*

By A. FORSYTH (G6FO).

ONE of the Group members raised an interesting point regarding the effect (lowered signal strength) of adding more wire to the counterpoise.

It is quite obvious that in the average "ham" arrangement, the aerial system must be loaded up for 2 mc. working, whereas to get some sort of feed to the same system on bands above this frequency, series tuning would be necessary. This is pre-supposing that one has about 150 ft. of wire out for 2 mc. working, including the counterpoise.

For a half-wave aerial (the ideal) on 1.7 mc., a total wire-length of approximately 264 ft. is required. To tune to resonance with loose coupling, the remaining length of wire to be made up is about 115 ft. With normal tuning arrangements, this would be achieved by using a coil for coupling consisting of 14-15 turns of wire, taking for a rough guide the fact that a nine-turn coil and .0005 mfd. condenser about half-in equals an "effective" length of 70 ft. of wire. This is quite an elementary treatment, of course, and is only being taken as a guide.

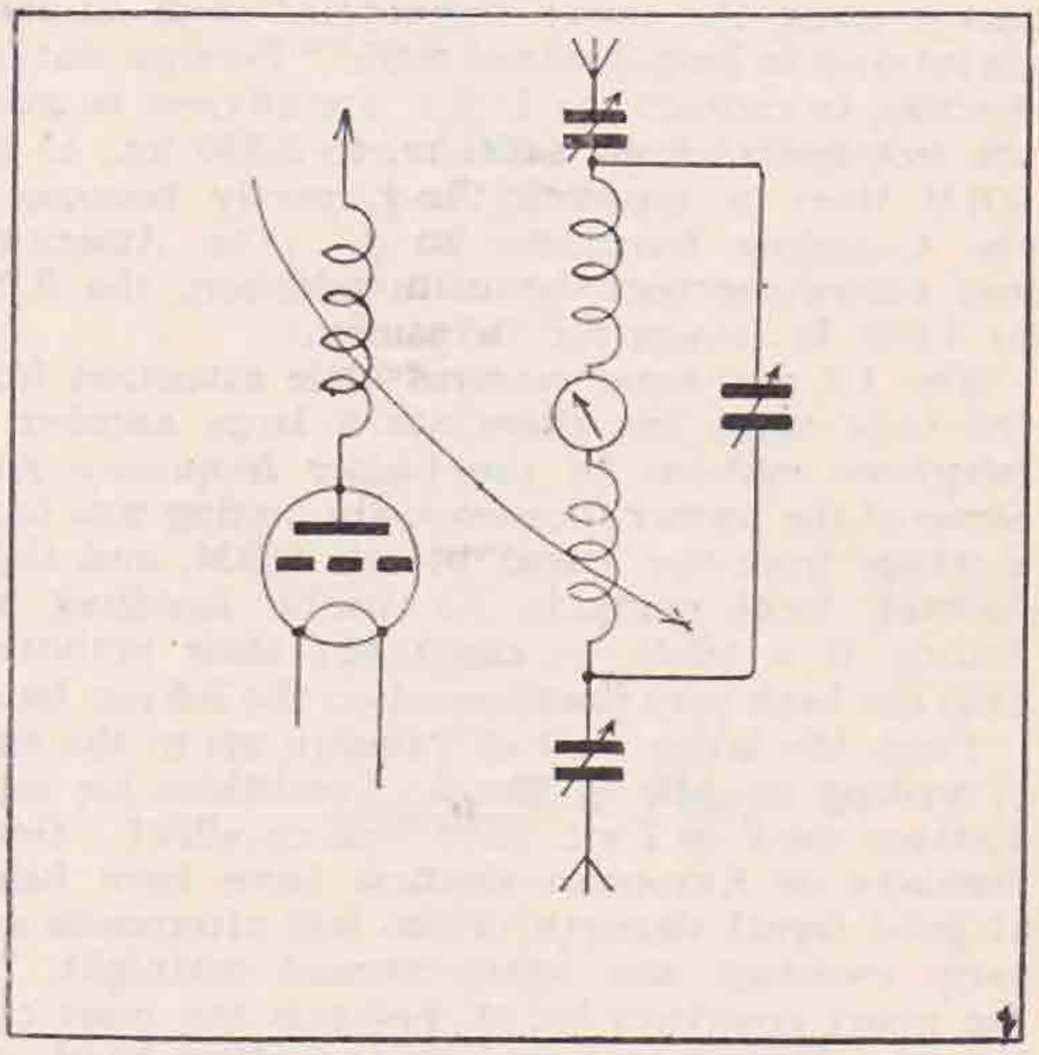
Suppose, for example, that one has 120 ft. of wire out, leaving 144 ft. to be made up in the coupling coil, which, on the basis given above, would mean a coupling coil of about 18 turns; this would bring the system up to an "effective" engath of 264 ft. approximately.

The next point to consider is the position of the coupling coil in relation to the lengths of the aerial and counterpoise. For true half-wave operation (maximum current at the centre of the system), the coil is wrongly placed, though this is the type of thing that cannot be helped in the amateur radio game! Maximum current will appear about six or seven turns along the coupling coil from the aerial end, whereas it should be in the centre. This is not allowing for the extra capacity to earth of the counterpoise, or its distorted shape, which have a definite effect on the "effective lengths" idea. However, let us assume for the moment that these disturbing factors are absent.

Twenty-five feet of wire were added by the member of the Group to the end of the counterpoise. The effect of this would be to move the maximum current point still further from the centre of the coupling coil and more towards the aerial end, thus reducing the over-all efficiency of the system, since the feed would be even more assymmetrical than it was before. Hence the drop in strength.

This may appear to be far-fetched argument, with no point of practical value. But it is, in fact, quite possible to make the most odd-shaped radiating system perfectly symmetrical electrically, though any arrangement of aerial and counterpoise (where the fields can affect one another, or be affected by neighbouring objects) will inevitably result in distorted wave-form. If the system can be made symmetrical, however, the over-all efficiency can be greatly improved, as the distortion of the wave-form exists in any case with the present arrangement.

To obtain this symmetry, one must first erect as much aerial and counterpoise as possible. Take your present coupling coil and split it accurately (within half a turn) at the centre. Put a motor headlamp bulb or high-reading aerial ammeter between the two halves. Place a variable condenser in parallel with the whole coil, and condensers in series with both aerial and counterpoise. With the parallel condenser at a given setting, adjust the two series condensers simultaneously till maximum current is indicated at the centre of the coil. They will, of course, not necessarily read the same. The



best method to adopt is first to set the parallel condenser near minimum, and then to try and find a point on the other two where current is indicated, but it must be *maximum current*. Some R.F. will be shown with the system right off tune. If the point cannot be found with the parallel condenser at a given setting, continue increasing it gradually, tuning on the series condensers each time, till a point is obtained where variation of either series condenser reduces the aerial current, the whole process being somewhat the same as that of tuning Zepp feeders.

The sketch shows the idea.

The way the arrangement functions is as follows: The parallel condenser provides any further "effective" length required consequent upon the insertion of the two series condensers. It will be seen that the combined influence of the series and parallel condensers is to bring the "effective" length of each half (measured from the central point A) to 132 ft. Though it is difficult to say definitely, a thirty-turn coil might be needed for coupling, with fifteen turns in each half. Obviously, the lower the

(*Continued on page* 350.)

*[NOTE.—*There was recently in Group* 10A *an interesting discussion on tuning* 1,750 *kc. radiating systems, and some particularly useful information was given by* G6FO, *one of the members of the Group. It is here presented in the form of an article of especial interest to* 2 *mc. transmitters.*]

NORTH AMERICA*

DURING the winter months DX conditions on the lower frequencies were very good. Some of our higher-powered 3.5 mc. stations have contacted Europe and Algeria, and from time to time we have been able to hear stations from many parts of Europe on this frequency. The furthest reception known to the writer is that of a Russian, reported R7 in W1. In addition, one amateur reports hearing seventeen different British stations on 3.5 mc. between 06.30 and 07.30 G.M.T. on January 8. Transcontinental work has been effected very easily on this band. No doubt more foreign stations could be heard were it not for the bad QRM on this side, due to the great number of amateurs who are not aware of the DX possibilities of this frequency. What is more, many using the lower frequencies seem to have no interest in long-distance work. Foreign stations desiring to contact the U.S.A. are advised to avoid the frequencies from 3,500 kc. to 3,550 kc., as the QRM there is especially bad, partly because of the Canadian telephone band. (The Americans and Canadians both have, in addition, the 3,900 to 4,000 kc. range for telephony.)

The 1.7 mc. band receives little attention from the code men, but there are a large number of telephone stations in the higher frequency half. Some of the former, however, are finding this band a refuge from the 7 and 14 mc. QRM, and those desiring local contacts for traffic handling are finding it a place to carry out their activities. Skip has been very pronounced on the 3.5 mc. band.

From the latter part of January up to the time of writing (middle of March), conditions for long-distance work on 7 mc. have been excellent. Great numbers of European stations have been heard at good signal strength in the late afternoons and early evenings and again around midnight. Of the many countries heard, Spain is the most consistent. British stations, on the other hand, are very few. During the B.E.R.U. tests, however, a great number were heard, and all the doubts held by the writer and others as to the ability of G stations to come over on this frequency were thereby promptly dispelled. Outstanding contacts known to the writer have been with SU and ZS, which are difficult to hear because of the intense QRM. In addition, one or two W stations have been heard to call Iraq, which, with the rest of Asia, is very infrequently heard in the eastern part of U.S.A. The VK's and ZL's are coming in normally at the present time. Throughout most of the year they can be received in the early mornings, when the QRM is very small. Working them, however, is considerably harder than receiving them for the majority of us, as the west coast stations take them first.

For foreign DX, 14 mc. was dead at the beginning of the year, except for a few ZS's who are occasionally audible at that season. Strange to relate, these stations are heard regularly on the west coast, some 2,000 miles further, though they are somewhat rare here. Since January conditions have been steadily improving. During the B.E.R.U. tests and at the present time British stations having been coming over quite well, but the Continentals are not nearly as numerous as in the summer months. South American stations, furthermore, who are quite consistent here, can be worked in the early evenings. VK and ZL are both strangers on this frequency, and the writer knows of none being heard recently. At times the QRM has been rather bad. On this band and on 7 mc. a great deal of the interference is due to W9 stations, who, often because of their inland location being unable to hear DX, call long CQ's, but probably we annoy them just as much.

Interest in the ultra-high frequencies seems to be low at the present time. Activity on the 28 mc. band, in fact, seems to be nearly zero and seems likely to remain so until conditions improve, unless the proposal to permit telephony on the band is carried out. Some 56 mc. work is being done, but probably much more interest will be shown, some months hence, when weather will allow outdoor work with a portable and when QRN will hinder work on the lower frequencies. In a recent issue of *QST* the 5-metre work of W1FEX on the top of Mt. Washington, in New Hampshire, is described. This station relies on 5 metres for communication with the base of the mountain. Also some fine DX has been accomplished, the furthest QSO being over a distance of 130 miles airline.

American amateur stations helped in the relief work connected with the California earthquake, which occurred recently. The writer knows that important messages have been handled through amateur stations, but cannot at the present time give anything resembling a complete account.

American valve manufacturers are producing new models at such a rate that we wonder if they themselves can keep record of all the types! One of the latest developments are valves for use in class B, L.F. amplifiers. These valves have the remarkable property of not passing anode current unless excitation is applied, even when no grid bias is used. Though designed for L.F. work, they are much superior to any other type as frequency doublers; in fact, it is claimed by some that they can obtain as much output from them when used as such as when employed as straight amplifiers. The latest valve of this type has a seven prong base, the elements being an indirectly heated cathode, three grids and a plate. By connecting it properly, it can be made to work either as a conventional triode, a class B triode, or a pentode. Other valve developments concern rectifiers with indirectly heated cathodes. These are used in voltage doubling circuits and in H.T. battery eliminators for motor-car receivers. A

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*(*In response to our invitation, Mr. Yardley Beers (W3AWH), one of our members, has very kindly contributed some notes covering North American activities. We believe these will prove of interest to many of our readers who do not subscribe to QST.*—Ed.)

further development is the duplex diode-triode, which is a conventional triode plus a full-wave rectifier, the chief use being in receivers with automatic volume controls. As a point of interest, the writer has tested some British valves and is very much surprised at the high gain obtained. In amateur circles, the electron-coupled oscillator is receiving a great deal of attention, not only as a frequency meter, but also as a M.O. and as a detector for receivers.

For several months the writer has been upholding the driven method of crystal control in an argument with some of his British friends, who support the Goyder lock. To date we have not been able to convince each other, but we have discovered that most of our dispute has been due to a difference in opinion as to what is desirable in C.C. transmitter and a difference in the definition of certain terms we have used. In America the Goyder lock is unknown, and an attempt on the part of the writer to introduce it to some 75 amateurs with whom he has come into personal contact has met with no success. Too firmly implanted on the American mind is the belief that amplifying valves are much superior to oscillating ones for feeding the antenna, excluding the all-too-prevalent exception of when the oscillating valve is the only one in the transmitter.

In concluding, the writer wishes to say that, because of the great size of the country and the large number of stations in it, to give a complete picture of amateur radio in the U.S.A. would be a task considerably beyond his ability, but he hopes that he has been able to describe some observations which may be of interest to readers of the BULLETIN. As a final word, he would like to say that he is always very glad to QSO and test with amateurs in Great Britain and in the Empire.

APPARATUS REVIEWED.

No sooner is the "B" type amplifier valve announced than Lectro Linx, Ltd., market a 7-pin chassis mounting valve holder for use with the new valve. The constructors' model, selling at 1s., employs their usual helically slotted sockets fitted with terminals. The sockets are ingeniously held by three discs of paxolin, and the fixing allows the sockets to be self-centering. The holder is a very neat job and will be in demand by everybody experimenting with the "B" valve.

For constructors, Clix now make a mains aerial strip and a shorting plug for use with it. It consists of a strip of paxolin with three sockets in line, suitably engraved.

Strays.

Mr. Cragg (YI6WG) states that he has now contacted G6RB, OK2LO, OK2VA, D4BIT and SU6HL on 3.5, 7 and 14 mc., and asks if this is a record.

* * *

Mr. C. C. Partridge (G2RT) advises us that illicit use is being made of his call sign, on the 1.7 mc. band.

* * *

An apology is due to Mr. J. N. Walker, G5JU, whose call was shown as G5TU, in the report of the above contest. This was due to a printer's error.

HIC ET UBIQUE.

National Field Day—Society Notes—Empire Calls Heard—QRA and QSL Sections—Calibration Section—Reception Tests—New Members—Correspondence.

NATIONAL FIELD DAY.

June 10 and 11.

It was our intention to publish a complete list of District portable calls and the proposed locations of all stations taking part in National Field Day, but, unfortunately, several D.R.'s have failed to provide us with the necessary information. We realise, of course, that many D.R.'s have encountered difficulties in connection with the finding of suitable venues for their stations.

The following list has been prepared from information available at the time of going to press.

District 1.	Station A, G6HG, Wirrell Peninsula. Station B, G2OI, Prestwick.
District 2.	Station A, G5SZ, Ilkley Mocrs, Yorks. Station B, G5CX, near Leeds.
District 3.	Station A, G2AK, Beacon Hill, Perry Barr, Birmingham. Station B, G5BJ, Lickey Hill, Northfield, Birmingham.
District 4.	Station A, G6MN, neighbourhood of Worksop. Station B, G6GF, Ratcliffe Aerodrome.
District 5.	Station A, G6RB, Stinchcombe Hill, near Dursley, Glos. Station B, G2OP, Painswick Beacon, Glos.
District 7.	Station A, no details received. Station B, G2NH, Walton-on-the-Hill, Surrey.
District 9.	Station A, G2LZ, Rettendon, near Wickford, Essex. Station B, G2NU, near Maldon, Essex.
District 10.	Station A, G5WU, Cefn Coed, near Merthyr, Glam. Station B, G6FO, Cefn Coed, near Merthyr, Glam.
District 12.	Station A, G5CD, King's Langley, Herts. Station B, G6CL, Welwyn North, Herts.
District 14.	Station A, G6UT, Abbess Roothing, Essex. Station B, G6LL, Abbess Roothing Essex.
District 15.	Station A, G6WN, Denham, Bucks. Station B, G6YK, no details received.
District 17.	Station A, G6IC, near Bridlington. Station B, G5FV (part time North of the Humber, part time South of the Humber).
Scotland, *District A*.	Station A, G5XQ, Eaglesham Moor, near Glasgow. Station B, G6WL, Eaglesham Moor, near Glasgow.
District B.	Station A, G6MF, Macbiehill, Peebleshire. Station B, G5JB, ditto.
Northern Ireland	Station A, Gi5MO, 10-mile radius of Belfast. Station B, Gi6YW, 10-mile radius of Belfast.

Stations taking part in this event are asked to call "Test N.F.D. De G," and are requested to add the letter "X" to the call sign, *i.e.*, G2OPX.

Arrangements will be made for a special permit to be issued to the licensed operator of each station

The same station may be worked once on each band during the Contesi.

Licence Facilities.

Important Notice.

Council have recently approved certain general rulings to assist the D.R.'s and themselves in dealing with applications from members for increased licence facilities.

One of these rules states that no application for high power, or the use of the 3.5 mc. band will be considered until a member has held an amateur transmitting licence for one year.

It has also been laid down that applications for increased facilities must be forwarded via a member's District representative, who will comment on the application and forward same to headquarters.

B.E.R.U. Contest.

We anticipated reporting the B.E.R.U. Contest in this issue, but owing to the late arrival of many overseas entries, and the work entailed in checking the enormous number of contacts, it has been impossible to prepare a comprehensive report in time for publication.

Members may rest assured that a full report will appear as soon as possible—probably next month.

New Call Signs for U.S.S.R. Amateur Stations.

We have been advised by the Society representing the U.S.S.R. amateurs that as from May 1 they will use the Intermediates adopted at the Madrid International Conference of 1932. The first letter of calls assigned to Soviet short wave radio amateurs is U (Union), the second symbol is a cipher indicating the geographical location of the station, whilst the third and fourth letters distinguish individual stations. These latter remain unchanged from present assignments. Radio amateurs throughout the world will welcome this long-awaited change.

Egyptian W.D. Convoy.

With reference to the message which was received by G2MI on March 21, referring to the Egyptian W.D. Convoy (see p. 324, April issue), we wish to record that this message was addressed to H.Q. via G6GV, who accepted it and forwarded it to London. Mr. Milne intercepted the message, and passed it on as a matter of interest two days before we received it from Mr. Vickers. Our thanks are due to both members for their help.

Kelvin Lecture.

It is seldom that we receive such unexpected praise as that given us recently by Sir Frank Smith, Secretary of the Department of Scientific and Industrial Research. During the course of his Kelvin lecture to the Institution of Electrical Engineers, Sir Frank paid tribute to the excellent pioneer work which had been done by radio amateurs, and we can do no better than quote a short paragraph from our contemporary *The Star*, dated April 28.

"The amateur wireless experimenters have received their reward in an open admission by Sir Frank Smith, that they have bowled out the theorists with their results. Amateurs have made the best of the field of short waves to which they were carefully restricted. They have continued to score ever since a Mill Hill schoolboy got through to Australia. Now their signals to New Zealand on the energy of three ordinary electric lamps are admitted to be a million million times stronger than they ought to be. We are glad to learn that the amateurs' ounce of practice has proved better than a ton of theory."

We take this opportunity of thanking Sir Frank Smith for his appreciative remarks and *The Star* for their comments.

Car Plaques.

Arrangements have been made to supply chromium-plated car plaques to members at a price of 4s. 6d. each.

These plaques will be made of bronze, and the member's call sign will be inserted in between the two horizontal lines of the " condenser " symbol.

Bentalls Kingston Schoolboys' Exhibition.

Through the courtesy of Mr. H. W. Bowen, and the management of Messrs. Bentalls, Kingston-on-Thames, the Society was permitted to display short-wave apparatus and publicity literature on a specially erected stand at the Schoolboys' Exhibition organised by that firm during the last week in April.

Several enquiries from prospective members have been already received, and we believe the exhibit which consisted of a low power 7 mc. transmitter and a short wave receiver (the latter being specially constructed by Messrs. Loomes and Read) attracted considerable attention.

It is suggested that members in the provinces may on occasion be in a position to obtain publicity in a similar manner.

SIR,—May I express our thanks to you for your great help and co-operation during our recent Schoolboys' Exhibition. Your own S.W. transmitter, Q.S.L. cards and interesting experimental apparatus were very much appreciated, and it was easy to see that many visitors to the Exhibition were held with interest at the R.S.G.B. stand.

Thanking you, we are,

Yours faithfully,

H. W. BOWEN,

BENTALLS, LTD.

TO THE SECRETARY, R.S.G.B.

An Appreciation.

We are advised by Lieut.-Col. H. Ashley Scarlett, President of the Golders Green and Hendon Radio Society, that the Annual Direction Finding Competition, organised by his Society, has been postponed from June 11 to June 18, in order to prevent clashing of dates with National Field Day. We take this opportunity of thanking Col. Scarlett and the members of the Golders Green Society for their courtesy.

W.B.E. Certificates.

The following W.B.E. Certificates have been awarded :—

NAME.	CALL SIGN.	DATE.
G. W. Wigglesworth	G2BH	March 23, 1933.
J. J. Curnow	G6CW	April 7 ,,
C. S. Taylor	VE1BV	,, 12 ,,
R. J. Denny	G6NK	,, 12 ,,
S. A. French	G6FN	,, 18 ,,
R. C. B. Barnes	G6DS	,, 18 ,,
Miss Nelly Corry	G2YL	,, 19 ,,
A. O. Milne	G2MI	,, 25 ,,
J. Alexandre	G2GF	,, 26 ,,

Mr. Marshall (G2MA), draws our attention to the fact that his name was omitted from the list of W.B.E. holders published in the August, 1932, BULLETIN. Mr. Marshall obtained his award during 1930. We can only assume that for some reason a list of members to whom the award was made during the latter part of 1930 was not published.

We shall be glad if all members holding certificates issued prior to Sept., 1932, will advise us if their name was omitted. The date on which the certificate was issued should be mentioned.

Watch for G6QB.

As announced last month, several South London members are co-operating in experiments on 56 mc. from the North Tower of the Crystal Palace on Sunday, May 21.

The call sign used will be G6QB. Transmission will be in a northerly direction, from 10 a.m. till 2 p.m., and thereafter it will be directed South or South-West.

Will *every owner* of a 56 mc. receiver and/or transmitter please be on watch on May 21 ? South London is hoping for a range of 100 miles at least.

Messrs. Varley's Advertisement.

April Issue.

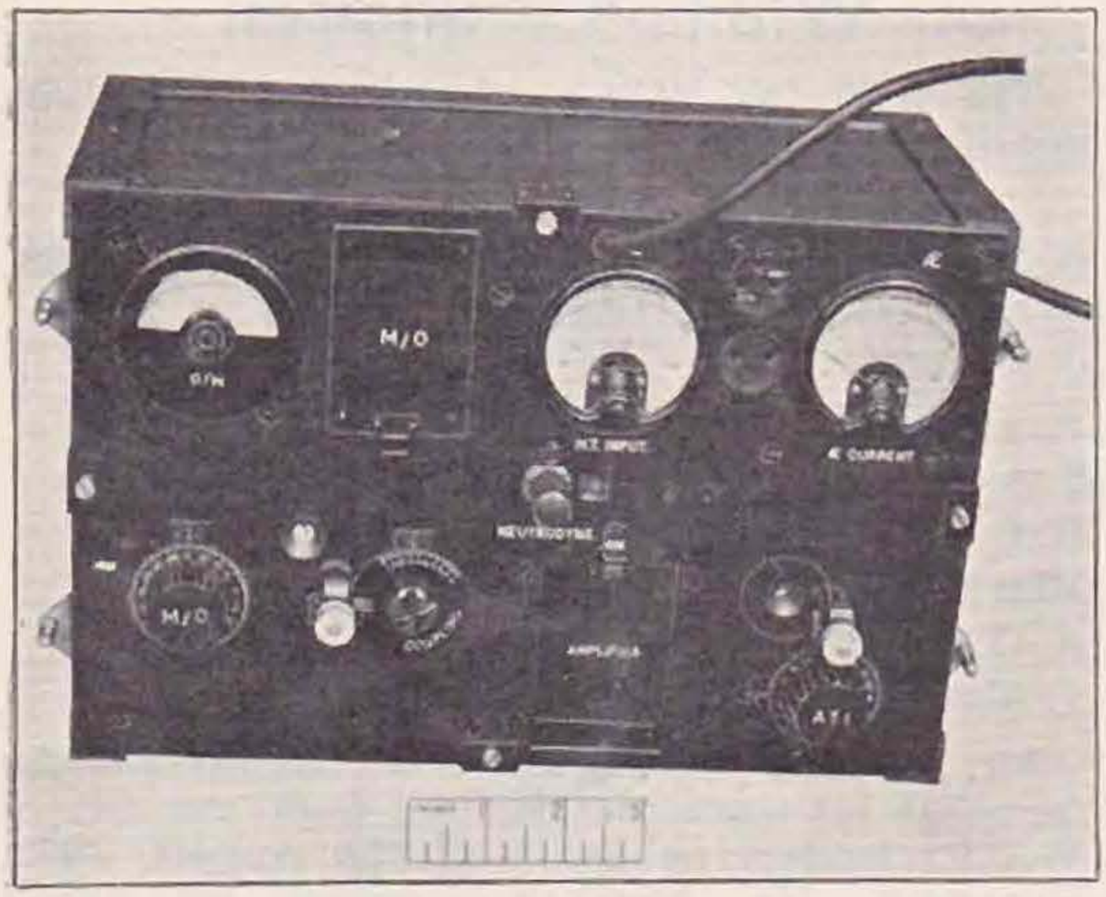
By an unfortunate error the price of Messrs. Varley's Standard L.F. Choke Type DP10 was given as 25s. instead of 15s. We trust that this error, which was outside our control, has not inconvenienced the above firm.

Translation Bureau.

Mr. N. van Perlstein, G5MI, advises us that he is willing to translate German, French, Dutch, Flemish and Malayan correspondence.

R.A.F. Flight to South Africa.

Through the courtesy of the Air Ministry, we are able to publish a photograph of the transmitter used on the Fairey (Napier) Monoplane, during its record breaking flight to South Africa last February. The transmitter was designed specially for the flight, and its frequency was controlled by a master oscillator. The band covered was from 9,090 to 8,110 Kc. (33 to 37 metres), and power was derived from a 240-volt dry battery. The low tension supply



was obtained from a 2-volt accumulator, and the aerial consisted of a 15-ft. trailing wire. An aerial current of 0.4 amps was obtained with a power input of between 6 and 7.2 watts. Keying was effected by breaking the H.T. supply to the amplifying valve, and the frequency variation did not exceed 100 cycles.

Short Wave Radio and Long Distance Flights.

The following letter was recently addressed to the National Press, and is reproduced herewith as an item of interest :

" With the loss of Captain Lancaster, following on so soon after the death of Mr. Bert Hinkler, we feel that steps should now be taken to legislate for the compulsory installation of small short wave transmitters on all aircraft.

" Kingsford Smith, and a few other pioneers of epoch-making flights, have realised the advantage of equipping their machines with such apparatus, but the majority have ignored this, the greatest aid to humanity yet devised.

" Radio amateurs throughout the world—and there are now nearly 50,000 of them—have devoted much time, money, and thought to the problem of low power short wave communication, and we are convinced that no pilot need commence a hazardous flight without being in possession of a simple transmitter operating from dry batteries, costing not more than a few pounds. Amateur organisations in every country are ready to put their resources to the assistance of pilots, and are willing to conduct tests before the flights commence to ensure that the radio link is working satisfactorily.

" The British radio amateur has recently rendered valuable assistance to the Air Ministry in connection with the record breaking flight to South Africa, whilst a similar service was given to Kingsford Smith during his Transatlantic flight in the 'Southern Cross.' American, South African, Australian, and New Zealand amateurs have also assisted in similar projects, maintaining touch and providing weather reports as required.

" Splendid men and machines are being lost through their failure to make use of the only means of help when disaster occurs."

EMPIRE CALLS HEARD.

In the following lists all well-known British calls have been omitted.

B.E.R.S. 59 (*Alexandria, on* 14 *mc., during March and April*).

g2an, cl, im, jh, tk, 5bv, kb, lv, rm, tl, ul, 6ai, gs, jk, ki, lm, kq, kp, wq, zs, gi5hv, qx, ur, 6yw, yi2fu, zu1d, ve2em, ei7c, 8b, c.

* * *

2AAU (*Bristol*), *during January and February* :—

7 *mc.* : ve1du, 2jb, vk3pe, gp, kr, wl, zd, vp5is, yi2fk, zl4an.

14 *mc.* : ve2fs, zl4an.

* * *

VQ4CRH (*Nairobi*), *during Senior B.E.R.U. Contest on February* 4 :—

7 *mc.* : g6fn, vk2oc, tl, 3bq, nm, uk, wl, 5mu, vs6ag, vu1aa, 2ah, jt, zs6b, zt5r, zu5b, 5h, yi2ds.

14 *mc.* : g5ml, vk2hc, oc, 4gk, vq2xd, vs7gt, zu6w, yi2ds.

February 5, 7 *mc.* : G6cw, nf, v8ac, vq3msn, 4crl, vs6ab, ah, 7gt, vu2lz, zd2a, ze1je, zs2f, zt2l, zu6a.

14 *mc.* : g2pf, vq4crl, vu1aa, zs1h, zt6r, zu5b.

February 11, 7 *mc.* : vk3ml, uk, vq4crl, vs7gt, vu1aa, ze1je, zu5b, 6w, yi2ds.

14 *mc.* : g2pf, vk2zw, 5hg, vq4crl, vs7gt, vu1aa, 2lz, zs1h, 1z, 4u, zu6w, yi2ds.

February 12, 7 *mc.* : g5np, vq3msn, 4crl, vs7gt, 6ag, vu1aa, ze1je, zt6j, zu6e.

14 *mc.* : g5sy, vk2hc, wl, xu, 3bq, vq2xd, 4crl, vs6ag, 7gt, vu1aa, 2lz, zd2a, zs2j, yi6ht.

* * *

W9GFZ (*Wheaton, Ill.*), *on* 14 *mc.*

January : g2vd.

February : g2bi, fn, oc, xh, xs, yl, 5gs, 6bj, rl, sr, uf, xk.

March : g2od, 5ru, sg, xq, 6gs, lm, oy, to, us, zs.

* * *

ZS1Z (*Wynberg, Cape Town*), *during B.E.R.U. Contests.*

7 *mc.* : g5cy, np, pl, zy, 6fn, vk3bj, 6ch, vq4crh, vs6ag, 7gt, vu2ah, jb, jp, jt, lz.

14 *mc.* : su1ec, ve2cz, vk2jz, 2zw, 5hb, hg, wb, vs6ae, ag, ah, 7gt, vu1aa, 2lt, lz, yi2bz, ds, 6ht, zd2a.

* * *

VK4GK (*Wynnum, Queensland*), *during B.E.R.U. Contests.*

Senior 7 *mc.* : vq4crh, vs6ad, ae, ah, 7gt, vu1aa, 2ah, jp, jt, lz, yi2ds, zt6x.

Senior 14 *mc.* : g2io, pf, 6iz, uf, ei8b, su1ec, ve2ew, vq3msn, 4crh, vs6ae, ag, ah, 7gt, vu1aa, 2ah, lj, lz, yi2ds, 6ht, zs1h, 5c, zu6w.

Junior 7 *mc.* : g2dz, vq4crh, crl, vs6ae, ag, 7gj, gt, yi6bz.

Junior 14 *mc.* : g5rs, 6ku, qb, vq4crl, vs6ae, 7gt, vu2lz, yi6bz.

* * *

B.E.R.S. 116 *and* 119 (*N.W. Mediterranean*), *between April* 5 *and* 15.

7 *mc.* : g2dc, df, gk, hd, zj, 5fk, lw, vh, vn, yy, 6ba, iy, jq, ku, my, os, pk, rs, tf, tm, wu.

14 *mc.* : g2zp, 5hv, yv, 6jz, zs, zu, gi5qx, 6vg, su6hl (fone), ve1eb, 2 ah, bg, dv, vg, vp2mr, yb, 5no, vu2lx.

* * *

2AAA (*Girton, Cambridge*), *during February and March.*

7 *mc.* : vk2nr, 3bj, cw, kr, ml, wl, 7ch, vs6ae, ag, ah, vu2lx, zl1gz, 2ab, gn.

14 *mc.* : ve1bv, 2ap, bg (fone), ca, ch, dq, 3cm, he (fone), kc, wa, wv, 4ea, vp2mr, 2yb, zs4m.

* * *

YI6WG (*Basrah*), *on* 3.5 *mc., April* 8 *and* 9.

g2qb, 5fb, qu *, og *, 5um *, 6ac *, ds, fn *, iz *, mn, nd, qq *, rb *, xn, yl, su6hl *.

QSO's marked with asterisk. *

* * *

G6YL (*Northumberland*), *March, on* 14 *mc.*

ve1ae, dq, dr, ea, ed, 2aa, ag, ax, bb, ca, cq,cx, ee, fq, 3bk, cm, de, gl, gt, ig, jz, kc, wv, 5jn, vk3sk, 5gt, vp2mr, 4cf, 5cc, vq4crl, vu2cw, lx, pf, zc6fo, zs1h, 2j, 4u, zt5v, zu1d.

* * *

BRS 536 (London) sends us a list of some 50 British stations heard consistently on 14 mc. during the B.E.R.U. Contest. We do not feel justified in publishing this list as we believe the majority of the stations were aware of the extent of their ground-wave.

QRA Section.

Manager : M. W. Pilpel (G6PP).

NEW QRA's.

G2BK—F. Hirst, 183, Oldham Road, Longsight, Royton, Oldham, Lancs.

G2BL.—P. Burnett, Longmead, Winscombe, Somerset.

G2CD—W. H. Mathews, 132, Hainault Road, Romford, Essex.

G2CF—W. A. Howes, Drummers, Windmill Hill, near Hailsham, Sussex.

G2CX—76, Court hill, Purley Downs Road, Sanderstead, Surrey.

G2DI—J. W. Jeffrey, Stanley, Newmains, Lanarkshire.

G2DV—E. N. Adcock, 31, Churchill Road, Little Bromwich, Birmingham 9.

G2FH—J. George, 10, Aultone Way, Sutton, Surrey.

G2FO—R. J. Bradley, 5, Roker Tce., Yarm Road, Stockton-on-Tees.

G2FX—N. Blackburne, 11, Sea Road, Bexhill-on-Sea, Sussex.

G2GB—C. S. Pollard, 19, St. Mary's Avenue, Shortlands, Kent.

G2GC—W. Field, 100, Cambridge Avenue, Whitley Bay, Northumberland.

G2GJ—R. H. Lawrence, 16, Charing Cross, St. Heliers, Jersey, C.I.

G2GU—A. E. Richards, 170, Ray Street, Heanor, Notts.

G2GZ—L. H. Shersby, 41, Reverdy Road, London, S.E.1.

G2HF—C. H. L. Andrew, 16, Mitchell Street, Wellington, Somerset.

G2IA—Miss A. J. Burns, " Alhambra," 64, Stewart Street, Carluke, Lanark.

G2IS—J. Paddon, Bussock Hill, Newbury, Berks.

G2LW—F. H. Lawrence, 13, Cintra Park, London, S.E.19.

G2TS—E. I. Low, 60, Monk Road, Bishopston, Bristol.

G2XX—F. Wilson, 26, Crow Green, Cullompton, Devon.

G5CT—A. Taylor, 5, Nab Wood Mount, Shipley, Yorks.

G5CU—J. A. Cuthbertson, " Dunromyn," Cross Lane, Burniston Road, Scarborough, Yorks.

G5DF—J. D. Pinchbeck, 6, Birchcliffe, Hebden Bridge, Yorks.

G5FU—E. G. Foulkes, Katheric, Handsworth Crescent, Rhyl, Flintshire.

G5JR—Portable station of G5SZ.

G5MI—N. Van Perlstein, Hillbrow, Belstead Road, Ipswich.

G5QR—S. Wright, Greenway, Lees Road, Bramhall, Cheshire.

G5TS—T. B. Smith, The Officers' Mess, R.A.F., Abbotsinch, Paisley, Renfrewshire.

G5UF—A. A. Barrett, 14, Cliff Avenue, Cromer, Norfolk.

G6II—J. G. E. Tinling, Gedlands, Wellington, Somerset.

G6KC—A. Hey, 39, St. Aubyn's Street, Devonport.

G6OK—W. Jones, 14, Station Road, Colwyn Bay, N. Wales.

G6PG—C. H. Targett, 184, Upper Wrotham Road, Gravesend, Kent.

G6UV—J. G. Brown, 183, Frank Street, Benwell, Northumberland.

G6WU—W. E. Brigden, Aberfoyle, Westleigh Avenue, Leicester.

2ABL—S. E. Smith, 303, Staines Road, Twickenham, Middlesex.

2ADC—S. H. Whitley, 69, Wilberforce Road, Leicester.

2AFQ—W. Brown, Hope Cottage, Carstairs Junction, Lanarkshire.

2BHA—C. L. Wright, 27, Larch Street, off Forest Road, Leicester.

The following are cancelled : G5RR, 2BCS, 2BGF, 2BLG, 2BMV, 2BTI, 2BWF.

QSL Section.

We have not yet received any definite information from the A.R.R.L. headquarters concerning the acceptance of listeners' reports by them, but there are signs that it will not be long before the system of District Q.S.L. Bureaux is working smoothly, and it is then that we hope to be able to revert to the practice of forwarding report cards to A.R.R.L. stations once more.

* * *

By the time these notes are in print I hope tc

be a long way from London on holiday, and would like to take this opportunity of thanking all those who have so kindly sent me their good wishes on the occasion of my marriage. Their interest is greatly appreciated by both my wife and myself, and we hope that we shall have the pleasure of seeing all our many "Ham" friends at the new QRA, 76, Court Hill, Purley Downs Road, Sanderstead, Surrey, as soon as they can find time to visit us.

My best thanks are due to G2NH and G6CW for their kind assistance in dealing with the foreign out-going cards during my absence.

J. D. C.

CALIBRATION SECTION.

Members are reminded that Hetrodyne frequency meters may be sent for calibration to Mr. A. D. Gay, 49, Thornlaw Road, London, S.E.27. The Society's fee for this service consists of 2s. 6d. for five points, taken on any amateur band, and 6d. per additional point as required. Crystals are calibrated for the sum of 1s. 6d. and return postage on all apparatus must be prepaid. Cheques and postal orders should be made payable to "The Incorporated Radio Society of Great Britain," and postage preferably remitted separately. The time required for this work is usually two days. Apparatus for calibration is accepted at owner's risk.

Frequencies measured during the R.S.G.B. 3.5 m.c. tests:—

G2DQ	...	3582.0	G6AC	...	3529.7
G2LZ	...	3602.1	G6BT	...	3583.9
G2OC	...	3600.3	G6CD	...	3559.6
G2QB	...	3556.5	G6CL	...	3576.3
G2WS	...	3548.9	G6FN	...	3559.5
G2XN	...	3572.5	G6FV	...	3707.2
G2XS	...	3573.2	G6MN	...	3703.1
G5CX	...	3531.0	G6NF	...	3725.0
G5FV	...	3644.9	G6OM	...	3569.5
G5JU	...	3650.3	G6PA	...	3700.0
G5MP	...	3715.7	G6QQ	...	3545.4
G5QU	...	3520	G6SO	...	3566.2
G5UH	...	3559.3	G6XN	...	3525
G5UM	...	3598.4	G6XN	...	3530
G5YK	...	3706.4	G6YL	...	3602.9

In view of the lessened activity on the amateur bands during the summer months, we shall not be publishing these lists so frequently.

A. D. G.

R.S.G.B. Reception Tests.

Below will be found the dates and periods fixed for the next series of reception tests. BRS and A.A. members are finding these tests invaluable as a means of improving their morse, and as an aid to operating procedure, whilst transmitting members find the logs which come from all parts of the country, and from two or three European countries, a useful means of obtaining information regarding their transmissions. New participants are referred to the February issue of the BULLETIN for further details, and are notified that all logs are circulated to participants in budget form. Logs in connection with series 18 should be posted to Mr. T. A. St. Johnston (G6UT), 28, Douglas Road, Chingford, E.4, not later than June 24.

Test Letter.		Date. 1933.		Period. B.S.T.		Band. Mc.
A	...	May 21	...	0000-0100	...	1.7
B	...	,, 21	...	0900-1000	...	3.5
C	...	,, 21	...	1100-1200	...	56
D	...	,, 21	...	1830-1930	...	14
E	...	,, 28	...	0000-0100	...	7
F	...	,, 28	...	1000-1100	...	28
G	...	,, 28	...	1130-1230	...	1.7
H	...	,, 28	...	1830-1930	...	3.5
I	...	,, 28	...	2230-2330	...	14
J	...	June 4	...	1100-1200	...	28
K	...	,, 4	...	1800-1900	...	7
L	...	,, 4	...	1900-2000	...	56
M	...	,, 4	...	2230-2330	...	7
N	...	,, 11	...	0000-0100	...	3.5
O	...	,, 11	...	0800-0900	...	14
P	...	,, 11	...	1030-1130	...	56
Q	...	,, 11	...	1830-1930	...	28
R	...	,, 11	...	2230-2330	...	1.7

New Members.

HOME CORPORATES.

R. C. SCRINE (G2CB), 8, Millicent Road, West Bridgford, Nottingham.
H. F. SMITH (G2DD), 112, Earlsdon Avenue South, Coventry.
S. C. CLARK (G2FC), 47, Logan Road, Bristol 7.
F. A. HOLMES (G6AI), 39, Swinburne Avenue, Broadstairs, Kent.
C. V. WOOD (G6NN), 48, Westfield Road, Barnehurst, Kent.
H. V. COOK (G6XR), Brentwood, Stoke Green, Coventry.
J. MILLIKEN (2ABT), 3, Somerton Road, Belfast, N.I.
C. K. DREW (2AFM), 84, Laurel Road, Leicester.
A. E. LAMBOURNE (2AGK), 43, Bramshaw Road, Norcot, Reading.
R. BANKES (2AGN), Kingston Lacy, Wimborne, Dorset.
H. F. M. BAKER (2AXX), 4, Priors Terrace, Tynemouth, N. Shields.
A. W. ATKINSON (BRS1122), 4a, Beresford Avenue, Beverley High Road, Hull.
H. W. BOWEN (BRS1123), Kampar, 105, Princes Avenue, Tolworth, Surrey.
P. E. H. DAVIES (BRS1124), 55, Wesley Street, Bradley, near Bilston, Staffs.
C. F. GARNER (BRS1125), 180, Bedford Road, Kempston, Beds.
A. M. LEWIS (BRS1126), Le Chalet, Wern Road, Skewen, Glam.
L. METCALFE (BRS1127), 114, Telford Road, Shirley, Birmingham.
R. T. MATHEWS (BRS1128), 20, Maughan Street, Penarth, Glam.
A. MILLIGAN (BRS1129), 26, Sinclair Street, Clydebank, Scotland.
A. H. MCKENZIE (BRS1130), Collingwood, Victoria Avenue, Westgate-on-Sea, Kent.
L. W. OSMOND (BRS1131), 3, Hill Terrace, Penarth, Glam.
J. J. PAINE (BRS1132), 38, Alpha Street, Slough, Bucks.
H. G. G. CHANDLER (BRS1133), Queen, Blackwater, Hants.
A. CUMMING (BRS1134), Dullan Brae, Dufftown, Banffshire.
G. C. BARKER (BRS1135), 7, Lower Hill Street, Wisbech, Cambs.
L. E. H. SCHOLEFIELD (BRS1136), 2, Balmoral Road, St. Annes-on-Sea, Lancs.
R. E. PIDSLEY (BRS1137), 9, Sharpleshall Street, Regents Park Road, N.W.1.
W. W. HUMPHRIES (BRS1138), 2, Danescourt Road, Tettenhall, Wolverhampton.
A. W. ATKINSON (BRS1139), 18, Prospect Crescent, Scarborough.
E. EGGLETON (BRS1140), 1, Plantation Road, Oxford.
A. CATTANACH (BRS1141), Kirkton, Grantown-on-Spey, Scotland.
A. G. HAYLES (BRS1142), 23, Station Road, Bromley, Kent.
A. J. WOIWOD (A), 78, Goldsmith Avenue, Manor Park, E.12.

DOMINION AND FOREIGN.

MARJORIE HUTCHINGS (VK3HQ), Bryn Avon, Callawadda, Victoria, Australia.
H. W. WHEELER (VK5HW), Wilpena Street, Eden Hills, S. Australia.
P. DE STE CROIX (VU2LX), No. 1 (Indian) Group, R.A.F., Peshawar, N.W.F.P.
M. MORGAN (SU1MM), W/T Station, Mustapha Barracks, Alexandria, Egypt.
F. H. PETTITT (SU1SG), Mustapha Barracks, Alexandria, Egypt.
K. C. FANE (—), Wireless Station, Mahe, Seychelles.
G. C. F. WHITAKER (BERS169), The Kailan Mining Administration, Tientsin, China.
W. T. ELDER (BERS170), 3, Oakley Road, Ranelagh, Dublin, I.F.S.
C. R. HANDBY (BERS171), P.O. Box 5, Warri, Nigeria.
J. W. PEACOCK (BERS172), Wireless Station, Pishin, Baluchistan, India.

CORRESPONDENCE.

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

Choke Control Modulation.

To the Editor of T. & R. BULLETIN.

DEAR SIR,—I have read with great interest the article on choke control modulation in the April "BULL," by G5AW, and I must say I feel that the article fills an important gap in published information on this subject.

However, there is one point explained by G5AW and numerous other writers at various times with which I disagree—that is, the assumption that a P.A. or oscillator valve behaves as a pure resistance and that its equivalent resistance value or impedance is determined by dividing its anode voltage by its anode current according to ohms law.

This assumption has no theoretical justification and unfortunately does not hold good in practice, as the impedance of a P.A. or oscillator valve is not a function of its equivalent D.C. resistance but is determined by the dynamic impedance of the valve under oscillating or driven conditions. I will explain in a moment why I say unfortunately. Let us first take a specific case of an L.S.5 valve as a driven P.A..

Anode volts, 400; anode current, 26 m.a.; modulation by double choke method, with an impedance matching transformer between chokes, each choke being 40 henries; modulator valve, 4211E; anode volts, 900 at 60 m.a.; optimum working impedance, 3,250 ohms; aerial current, with no modulation, 0.7 amps; grid current of P.A., 16 m.a., with grid bias of —120 volts.

The anode impedance of the P.A. valve when driven was measured by two methods at 1,000 cycles frequency, one method by an impedance bridge, and the other by a substitution method. Both results agreed and gave a figure of 8,000 ohms., whereas the equivalent D.C. resistance was $\frac{400}{26} \times 1{,}000$ ohms = 15,000 ohms.—nearly double. The impedance matching transformer stepped up from 3,250 to 7,500 ohms, *i.e.*, a ratio of 1.52-1.

In order to modulate 100 per cent. the secondary voltage of the transformer was adjusted to $400 \times \frac{1}{\sqrt{2}} = 280$ volts of 1,000-cycle tone as measured on a high voltage diode valve voltmeter; under this conditions the aerial current rose to 0.87amps, being an increase of 1.24—1, this being in agreement with the theoretical proof in the appendix to the article.

In order to produce this 100 per cent. modulation an audio output from the modulator of $\frac{280^2}{7500} = 10.4$ watts was required, whereas had the impedance been the equivaent D.C. resistance $\frac{280^2}{15{,}000} = 5.2$ watts only would have been required; hence the term unfortunately used above, as it is evident that 100 per cent. modulation in the above case is far beyond the capabilities of an L.S.6A.

The impedance of a P.A. or oscillator valve follows approximately a linear law with variation of anode watts, *e.g.*, the L.S.5 mentioned above has an impedance of 8,000 ohms with 10 watts input, 6,000 ohms with 15 watts, and 4,000 ohms with 20 watts, so that from this it would seem that doubling the input requires, as one would expect, twice the output from the modulator (20 watts input. Z = 4,000 ohms and watts = $\frac{280^2}{4{,}000}$ = about 20 watts).

In the case of two L.S.5 valves in push-pull with 10 watts total input, the impedance was again 8,000 ohms, or equal to one valve alone having the same input. The impedance has not been found to be affected by the grid current of the valve except where changing the grid current changes the input watts.

One interesting point noticed whilst taking measurements has been that, although the aerial current increases with modulation, the R.F. voltage on the aerial is sensibly constant, which appears peculiar.

The impedance of the valve to modulation is quite unaffected by the radio frequency at which it is oscillating or being driven, measured figures on 1.7 mc., 3.5 mc., and 7 mc. bands being identical.

Hoping that this explanation of the practical case may clear up any misconception of the power required for modulation.

I am, your sincerely,
D. N. CORFIELD (G5CD),
D.L.C. Hons. Grad. I.E.E.

Advice to QRP.

To the Editor of T. & R. BULLETIN.

DEAR SIR,—That hardy perennial, the desirability or otherwise of QRO, has been raised again in the usual way by the provocative letter published in your April issue over the signature of G6JX. While on the face of them Mr. Keir's contentions are both sound and reasonable, there are other aspects to be considered.

First, the use of high power is just as essential to the furtherance of the art as any other line of investigation, and the intelligent handling of QRO apparatus demands both experience and a wider understanding of fundamental principles than most QRP people realise. Briefly, with 2,000 volts on the plate, one has to know what one is doing.

Second, there seems to exist a general idea, which no amount of persuasion will eradicate, that the be-all and end-all of the average amateur lies in DX QSO-ing. Actually, the best type of amateur is he who makes the best use of his opportunities, whether he be a rich or a poor man. Admittedly, the existence of a large number of QRO stations does not make the problem of QRM any easier, but to limit power in the way Mr. Keir suggests would be analogous to restricting all motor vehicles to one engine rating because the man in the 8 h.p. car cannot get along as fast as the stock-broker in his super-charged Rolls-Royce.

While there is undoubtedly an unnecessary degree of selfish operating evident on all bands, the remedy for QRM as it affects low-power stations

lies to a great extent in their own hands. In other words, the prevalence of the use of C.C. among such stations is to be deplored for the reason that they are unable to avoid interference by shifting frequency. In this country C.C. for QRO stations is compulsory, apart from the fact that with high power satisfactory results cannot be achieved without controlling the output stage in some way, so that the strong making way for the weak cannot be held to apply.

Now, it should be more widely known that with inputs not exceeding about 10 watts, a self-excited oscillator in the hands of a competent operator can be made to produce signals of crystal-control quality with no loss of R.F. output and the added advantage of frequency flexibility. This, in turn, requires that the QRP station should be equipped with a frequency meter calibrated to an accuracy of at least ± 1.0 per cent. (quite an easy matter) and which can be used either with or as a listening monitor. Such an instrument should be designed to give audible beat-notes in the receiver on all working bands. This will enable the oscillator frequency to be adjusted to the quietest part of the band where the QRM is least. It is this point of frequency control and variation which is the crux of the matter. There is no doubt that a large number of QRP C.C. stations spend most of their time under the blanket of QRM from high-power stations, as in the case of the enthusiast with 10 watts plus who bought a crystal of the same frequency as that of a well-known amateur not a hundred miles from Coventry.

And what about the master-oscillator power-amplifier arrangement, which is the intermediate between C.C. and a self-excited outfit? Does no one use MO-PA nowadays? With either QRP or QRO, this can be arranged to give completely both frequency stability and frequency flexibility.

In this year of grace, no QRP operator who blindly continues using C.C. and is unable to fulfil the conditions required in connection with frequency control and adjustment has the slightest grounds for complaint, for the reason that the first steps towards removing the beam from his own eye have not been taken.

This letter is not intended as either a vindication of QRO as such or a condemnation of the methods of QRP operators, but is simply a plea for a more intelligent appreciation of the situation on all sides. I write as one who has had several years' experience with QRP, combined with an interest in QRO from the practical and experimental point of view. Unlike Mr. Keir, I hold the view that the aim of the amateur transmitter is to make himself proficient in the handling of his apparatus, whether it is QRO or QRP, and does not lie in "advancing the ease and certainty of moderately long-distance communication."

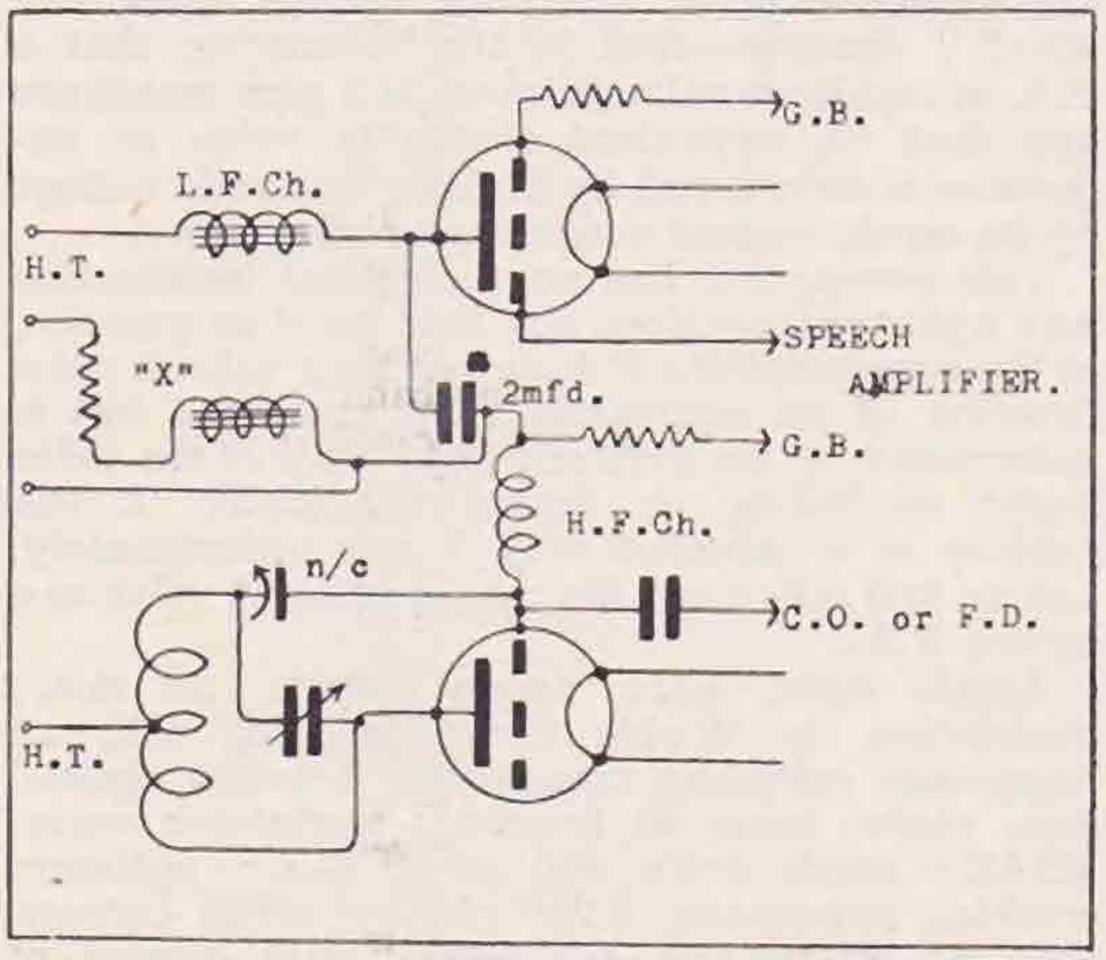
I am, yours, etc.,
AUSTIN FORSYTH (G6FO).

Low-Power Modulation.

To the Editor of T. & R. BULLETIN.

DEAR SIR,—Following on the articles on modulation that have recently appeared in the BULLETIN, here is a method which any station now having a choke control modulator for 1.7 mc. can use, to modulate a high-power outfit without much, if any, alteration.

The results obtained here are definitely good, and when adjusted correctly, all stations worked reported excellent quality 'phone. Assuming that the usual 10-watt 1.7 mc. output with choke control is being used, the method is to grid modulate the final P.A. on the higher frequency bands by connecting the fixed condenser from the modulator valve plate to the grid of the P.A. transmitting valve. The method here gives very much better results than a transformer. Also, this can be recommended to QRP stations, those who have to depend on dry batteries for power.



"X."—Other L.F. choke and resistance disconnected if double choke control is used.
It is very important to double the grid bias on the P.A. from cut-off point.

A C.O.P.A. on 1.7 mc., with 4-5 watts on the P.A. and smaller valves in the modulator with the circuit shown, is at present being tested here, and judging from reports, results are very good: stations up to 40 miles reporting 'phone quite O.K. in daylight.

Hoping this will be of use to somebody, either QRO or QRP.

Yours faithfully,
J. F. STANLEY (G6SY).

Commercials on Amateur Bands.

To the Editor of T. & R. BULLETIN.

DEAR SIR,—Can nothing be done in order to stop the very serious interference which is at present being caused to amateurs by stations RPK and RPA operating in the 7 mc. band? For some considerable time we have had to tolerate RPK, who transmits well inside the amateur band complete with many parasitic transmissions, but within the last few days RPA has started up with a power which appears to be much in excess of RPK, and according to my calculations, is at present operating on a frequency of 7,200 kc.

During considerable periods of listening to both of these stations I have failed to find any justification for either of them using this or any other frequency. A few nights ago RPA was calling RPK for several hours continuously and the only message which passed was "ZHC, ?" repeated

hundreds of times. Why it is necessary to use kilowatts in order to transmit this utterly useless message over a period of many hours passes my comprehension. Even if these two stations can find any reason for amusing themselves in this manner, I suggest that there is ample room for them between 7,300 and 7,400 kc.

I am told that the Soviet Government is not a party to the International Convention and does not therefore recognise the amateur frequency bands, and if this is so, it makes the matter all the more serious. I therefore suggest that the matter is one which we can probably best deal with ourselves in the following manner :—Amateurs authorised to use the 7 mc. band are allowed to transmit between the frequencies of 7,025 and 7,275 kc., but I believe it is the practice when purchasing crystals to have them cut in the centre of the band. The reasons for this are threefold : firstly, in order that the crystal may be suitable for frequency doubling into one of the higher amateur frequencies ; secondly because it is thought that the Postmaster-General views with disfavour any station working many cycles from the centre of the band ; and, thirdly, because many amateurs are " scared stiff " by these Soviet stations. The first reason is to a certain extent understandable, but of course the obvious result is to lead to interference amongst ourselves. With regard to the second reason, I have never heard this put seriously, and I cannot think that it is so. I am sure the Postmaster-General would approve of our making the fullest use of our frequency bands provided care is taken to avoid frequency drift when working very near the edge of the band. If crystal control is employed and the C.O. is not overloaded, this is very unlikely to happen. With regard to the third reason, surely this is pure " funk" I am quite sure that had we made full use of our frequency bands in the past the Soviet authorities would never have put their stations inside the 7 mc. band unless they had been put there for the sole purpose of causing interference, and I suggest that it is because the edges of our bands are so little used that we are now suffering these encroachments. In the present instance we appear to have lost nearly 100 kc.s which are practically of no use to us by reason of the operation of RPK and RPA. The same sort of thing is taking place at the other end of the band, and if we do not take care we stand a very good chance of being narrowed down to a few cycles or perhaps entirely squeezed out of existence ! I therefore appeal to my brother amateurs to make the fullest use of the bands allotted to them if we are to preserve what has been given to us.

In conclusion, I would like to say that I have written this letter after very careful consideration, and my opinion is supported by investigations which I have carried out which show that not only do many amateurs use only the centre of the band for transmitting, but many of them never tune their receivers very far from the centre of the band because of the interference from the stations I have referred to, with the result that a station experimenting on a frequency towards the edges of the band stands a very good chance of not being picked up.

Yours faithfully,
F. W. Hitchcock (G5HC).

[*We are in entire sympathy with Mr. Hitchcock's views that the two Soviet stations appear to be doing little effective work in our 7 mc. band, but as has been pointed out repeatedly in these columns, and at District Conventionettes, the British Government is powerless to take action, as the Washington Convention is still operative, to which Convention the U.S.S.R. were not signatories.*

Correspondence has recently passed between the I.A.R.U. headquarters and the Soviet Government in which an appeal has been made to the U.S.S.R. to remove the offending stations, prior to the date on which the Madrid Convention becomes law. The U.S.S.R. were of course signatories to the Madrid Convention.

Mr. Hitchcock is incorrect in suggesting that our authorities view with disfavour stations who work at the edges of the amateur bands.—Ed.]

The Editor, T. & R. Bulletin.

Sir,—As British amateurs share with the Services the 3.5 mc. band, many must have heard calls containing an accentuated letter, and generally containing three letters.

Many seem to read these accentuated letters as spacers, but why should a transmitter give all the rest of a call correctly, and then " spacer " the same letter each time ?

A search of the bands will reveal lots of calls having only a spacer on one letter, and the obvious solution is that a study of accentuated letters, and the language used, may show that at least one section of the British nation has use for accentuated letters.—Yours faithfully,

A. M. Houston Fergus.

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

Uncle Tom! What Have You Done?

To the Editor of T. & R. Bulletin.

Dear Sir,—Uncle Tom's " Provocative Statement " in the April " Bull " must be made simply to draw the fire of we more modest members who hesitate to rush into printed provocatives unless under the stress of great insult.

He, without any exception, designates all stations who have difficulty in receiving adequate signals as the possessors of " punk receivers."

I'm sorry the Editor cut out one of his words, but I have great pleasure in saying, " the same to you, U. T."

If one analyses the statements, the futility of the proposition becomes manifest. Even Uncle Tom's Tom cat would know that every layout will receive signals from some part of the globe at greater strength than those from other directions. This alone shows that locality has a bearing upon reception conditions. Does Uncle intend to tell his little nephews that his receiver will bring in all signals ? In all places ? Irrespectively of local conditions and optimum reception direction ?

If not, Uncle's thesis is faulty.

I remember a letter from this very Uncle, many years ago, in which he assured me that his QRA was very bad for reception, due to electric trains, I think. Yet he now states, without reservation, that " bad locations " do not exist.

And, Uncle, dear, you were then advocating, through the public Press, the use of six-valve super-

(*Continued on page* 366.)

THE MONTH ON THE AIR.

By Uncle Tom.

(The lesser spotted wozzle, returning from his nocturnal pub-crawl, utters a strange mixture of sense and nonsense.)

WELL, my nephews and nieces, how are we? Do we behave ourselves, having due regard to regulations, frequency-stabilisation, UCS, and general horse-sense? Yes, we do. The more I listen in, the more I thank the powers that be that I'm a *British* ham—a member of a section of the ham fraternity which is disgraced by black sheep less than most, at any rate.

One may say that we hear more raw A.C. from the Continent and the States than we do from lil' ole England simply because there are more hams in the other places; but that argument doesn't hold water, since we don't hear *any* of it from our own green and pleasant land.

Yes, boys and girls, your old Uncle, temporarily recovered from his gout, is in a strangely benevolent frame of mind—just for the moment. You don't often earn pats on the back from him, but he feels that right now (the tumult and the shouting, so to speak, having QRT'd, what you might say) he will show his unbounded love for you all and lay off the rough stuff.

Nice little letter to hand from Bro. Somerset, 'way in Mombasa. He mentions the fact that a certain R. O. Davidson, of Nairobi, has the finest stock of all-British gear that he has ever seen—and blow me if the first sig. I heard after reading that wasn't VQ4CRL himself! And its general effect *was* pretty British, too; nice clean CC note, not over-strong, but all there.

Said Bro. Somerset says that there is a great 5-metre craze in Durban, for three reasons: (*a*) Keenness aroused by himself; (*b*) average of 160 thunderstorms per year; (*c*) preponderance of Scotsmen in that city.

Friend Cox (whom I remember from the FK4MS days) has had the distinction of rigging up a couple of ships on Lake Albert Nyanza with short-wave transmitters and receivers.

'Nother letter from an anonymous correspondent in the South-East contains a lot of highly questionable information. Certain ham under grave suspicion, but nothing will be done about it just yet. Says he: "A QRP man, singly fortunate in long-distance working, is alarmed at the few remaining DX prefixes he has yet to work, and is turning his thoughts to the extra-terrestrial system.

"He is pondering on the idea of erecting a slightly directional aerial, pointing to the moon, and transmitting a message to that genial orb. On changing over to the receiver, all being well, he will hear the transmission reflected back.

"Headquarters are being petitioned to include the moon in B.E.R.U. scores next year."

'Myes—I should think probably the moon *has* got something to do with the above suggestion.

Lastly, in the category of Things We Want to Know: Is the record for long broadcasting hours held by the B.B.C. or by certain Essex amateurs?

I have been reminded that the title at the head of this page does not always describe my disconnected ramblings. Pardon, everybody! But all the thoughts that come pouring from my remarkable brain have been directly occasioned by "The Month on the Air," and so there may be said to be some small connection.

What can we talk about? 7 mc. 'phone from the North Countree giving a more faithful imitation of sausage-frying that anything hitherto conceived? No, shame! (Besides, my friend Pillworthy wouldn't like it.)

South Americans arriving on 14 mc. late at night, with the whole band after them and nobody hooking a thing? No, let us not brood on that, either. Let us find something nice to think of—like G5YH's talk of bringing home "oodles" of 852's from the States, if, and when, he goes there (also if, and when, they let him come away from Ellis Island).

Or even G6WY working South Americans on phone in the early mornings and getting R7's and 8's (or was it 9's?).

Or, again, the ham who was recently heard to announce that he was modulating a DET1 with an LS5b, getting 100 per cent. modulation and no distortion. (Father, I did it with my little 'atchet.)

Or, *yet* again, the glorious junk-sale held by the South London gang, as a result of which all and sundry are now erecting 100-watt CC outfits at a total cost of approximately 3s. 7½d.?

No, we won't do anything of the kind. We'll address an envelope and stop talking bilge. Cheerio, everybody, till next month.

STRAY.

Mr. J. N. Smith (GI5QX) advises us that he established contact with W6BYB at 2030 B.S.T., April 27, using an input of only 10 watts. His signals were reported QSA 5 R 5.

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CONTACT BUREAU NOTES.

By H. C. Page (G6PA).

THERE seems to be very little of note to comment on this month, so I will content myself with one or two notices I have been asked to publish.

The first comes from G5UM, who asks me to state that members of Group 10A are extremely anxious to receive careful observations on their signals, as they will be testing numerous types of aerials during the next few weeks. All BRS and AA members willing to co-operate by listening for them are requested to write to G5UM for details of the schedules.

G6ND, the G.C. of 3B, is asking for a few more members for the group. While any members would be welcomed, he would particularly like one or two men with high power licences. While on the subject of new members for C.B., I would like to remind all members of the Society that there are always vacancies for new men in the various groups, and all recruits will be made welcome. If we have not enough groups to accommodate you all, more will soon be made.

28 M.C. Group.

G6VP, Manager.

There is very little to report this month.

Group 1*B*, with G5SY as centre, seem to be doing the best work at the moment. G5SY has been sending test calls regularly, with G6RP, of Tavistock, standing by, but so far without results. He is using a crystal-controlled outfit, consisting of 7 mc. C.O., 14 mc. F.D., and 28 mc. P.A., this latter being a DET1SW. G5QA is also active, being on every Sunday afternoon. He uses a self excited Ultraudion, with 8 watts input. G2FN has also a crystal-controlled transmitter in operation. He finds it advantageous to use a power frequency doubler as output. He is co-operating with SU6HL, who will be on each Sunday from 12.00 to 13.00 G.M.T. AC2BHH is also now listening for G signals every Sunday from 02.00 till 14.00 G.M.T., first quarter of every second hour.

Group 1*A*.—G5MP writes that, beyond ground-wave tests, his group have nothing to report.

Group 1*C*.—G6VP has listened at odd intervals most days, but beyond fleeting harmonics, has heard nothing. He has a C.C.T. ready using a power frequency doubler. G6BC has joined this group, and is heartily welcomed, as he has had considerable experience of high-power short-wave apparatus. He has only logged one station this month, and whether a harmonic or fundamental is to be congratulated. On April 13 heard W3A?D—(W3AJD, a very efficient and well known W signal.—VP)—calling " CQ Europe," QSA 3/2, R4-2, T4.

Fading, Blindspotting and Skip Group.

G6MB, Manager.

A new group to take the place of the old 2B is now being organised under the leadership of G6ZU, of Stockport, and they will be working on meteorological effects, but will be tackling the subject from a different angle to 2A.

Group 2*A*.—BRS589 reports that intensive listening during the B.E.R.U. Contests showed patchy conditions existing on 7 mc., with a marked periodicity of three to four hours. The same effect, but to a lesser degree, was noticed on 14 mc. He also notes that when VK and ZL were being worked by Southern G none were audible at his station (Burton-on-Trent), while an hour or two later he heard numbers of them, but they were not working Southern G. These facts being considered worthy of further investigation, a detailed examination of his log is being made.

Group 2*C*.—The possible effect of meteors on wave propagation was discussed, and a negative decision reached. An interesting theory of fading is put forward which seems worthy of further experimental consideration.

Group 2*D* are chiefly on 14 mc. routine observation work and W2XAD. BRS780 has put forward a rather startling theory that Heaviside Layer does not exist! We hope to hear more of this at a later date.

3.5 M.C. Group.

G6OM, Manager.

The outstanding item to report this month is the wonderful response to the call of 3.5 mc. during the tests just completed. I myself logged 30 odd G stations on the air, and there must have been many more.

One thing seemed to stand out, and that was that no DX of any note has been reported, and none was heard being worked.

W stations came over from 23.00 onwards, and several were heard calling C.q G, but none were heard calling any G's individually. (G5YG was QSO W8UV.—Ed.).

Next month should bring some very interesting reports on aerials, as two or three members are making definite strength comparisons on different types. I am trying the 133-ft. AOG against the 67-ft. variety. Up to 100 miles the 133 ft. is definitely better, pointing at first to a stronger ground wave. From 100 to 700 miles there appears to be no difference in results. In each case the aerial is definitely tapped to the tank coil and power input is the same.

G2QB is again active, and here is an example of what freak aerials can do. He uses two 33-ft. aerials fed by 33-ft. feeders—total height 25 ft.—and with this and an input of 125 watts he has been heard in W5, VK and ZL on 3.5 mc. Will those interested in 3.5 mc. aerial systems get into touch with me, as we have quite a lot of data now which wants sifting out into something definite, and we want regular reports on group stations working on aerials, viz., G6OM, G2QB and G6LI?

The BRS membership continue to pull their weight, and give useful contribution to the budget each time it comes round.

Atmospheric Group.

G2GD, Manager.

A beginning has been made by this group with their investigations. The present object is to prove or disprove a theory that short waves, say below 25 m., are received best when the paths of transmission and reception (at any rate at low altitudes in the air) pass through uniform barometric pressure. This would be true when the isobars are parallel with the path in the region of transmitter and receiver, or when the isobars are very widely spaced, but at right angles it would be nearly true. 2BRT had a case of very striking confirmation on Wednesday, April 5, at 18.00 G.M.T., when Azores came in at great strength. At this time barometric pressure was very uniform the whole way from South-East England to the Azores.

G2GD has also had some confirmation of the theory.

BRS943 has sent in a report, with some interesting results, giving substantial backing to the theory.

Ultra High Frequency Group.

G6XN, Manager.

There has been rather a scarcity of reports during the last two months.

BRS77 has been successful in generating 50 to 60 cm. waves with a D.E.Q. valve. Grid power was 15 to 17 ma. at 180 to 250 volts. The valve was used as a bright emitter, and filament current was found to be very critical.

G2KB has conducted further experiments with a portable receiver. With the receiver near 5XX, nine miles from the transmitter, a signal strength of R2 was observed. The respective heights of transmitter and receiver were 300 ft. and 600 ft. A curious observation was that descending the hill on which 5XX is situated produced no change of signal strength! G2KB is now working on a portable "transceiver."

2 M.C. Group.

G5UM, Manager.

The three Number Ten groups, occupied on 2 mc. work, have been reorganised to a minor degree. Group 10C, devoted to telephony, with G2CT as Group Centre, is concentrating its members within the London area so that they may be in easy touch with one another. Group 10B, headed by G6OO, are investigating various phases of 2 mc. activity, telephony being by no means ignored. G2CI, of South Devon, has joined them. Group 10A, of which G5UM is the Group Centre, are concentrating mainly on long-period DX observations, with several other branches of research—particularly as regards aerials—in the running.

Group 10*A*.—This group are fortunate in having secured the membership of G5WU, who co-operated with them in their recent Transatlantic test on 2 mc. Situated at Penarth, G5WU is at present engaged on working out a polar diagram for his antenna. He has obtained some very remarkable results already, and though he can obtain very good reports from most parts of the country, particularly to the West, there is a pronounced "shadow" effect eastwards; G5UM hears him at low strength even with 10 watts.

G5RX has tried no fewer than twelve types of aerial during the past few months, but with little difference to QRK on 2 mc., where the Marconi type appears unexcelled. He has, however, made arrangements to erect one after the style of that of W1DBM, illustrated in the BULLETIN recently, namely, two wires at 90 degrees fed at the right angle. Further details of the results obtained from such an antenna are awaited with exceptional interest. He describes parenthetically the excellent results he has secured with a 99-ft. direct-coupled Hertz aerial on 14 mc.

After five years' use of a 30-ft. twin aerial, G5UM has at last been able to expand somewhat, and is now using a 66-ft. single wire with a 33-ft. downlead running at right angles to it. Signal strength with loose coupling to a push-pull transmitter has risen surprisingly. He wonders whether there is any "shadow" effect with this system, since it is fed at the end in A.O.G. style, and not at the right angle. In another direction, G5UM has during the past four months been testing locked TPTG *versus* driven COPA. For single-ended sets he prefers the former, but for push-pull transmitters he finds the COPA superior in practically every respect.

Group 10*C*.—This Group, concentrating on telephony, has been reformed by G2CT with a strong body of leading North London phone stations, all of whom are especially interested in the 2 mc. band.

G2CT himself keeps regular schedules with one of the other members, G5VT, of Bishop's Stortford, at 08.45 hours every Monday and Friday morning. He is at present testing a Reisz microphone. G5VT is making extensive alterations for quality transmission experiments. G5JV is testing a condenser microphone with illuminating results.

One of the oldest-established of London stations, G5VY, of Tottenham, has also joined Group 10C, as has 2AQW, who works in close co-operation with G2CT, being situated near him at Golders Green.

Antenna Group.

G2OP, Manager.

G5ML sends a report on work during the B.E.R.U. tests, and says his E and W Zepp is definitely good, except due east, and is very directional for South Africa. His NW-SE is good all round, but very good in W6, VK and ZL. This latter aerial does not appear to support the 45 degree angle of radiation theory. On the other hand, the E and W aerial supports the theory, as East is in line and no good for QSO. The experience of others on this theory is sought. G5FI is still getting good results on 1.7 mc. with his A.O.G. An interesting report comes from VR1MA, of Mauritius, who says that, after many tests with various types, often cutting off or adding on an inch at a time, he has now settled down to three types: (1) current-fed ½ wave vertical; (2) the same, but horizontal; and (3) the voltage-fed Zepp. He finds that there is very little to be gained by giving preference to either. He has all three in action, and can use either at will by a system of switches for comparative tests. The feeders are ¾ type.

Reports for the group are far too few, and now that conditions on the higher frequencies are improving it is hoped that all those with useful reports will get into touch with G6GV.

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.—H. B. Trasler, No. 2 Mess, Pointe à Pierre, Trinidad, B.W.I.

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

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

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

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

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

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

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

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

Jamaica, British Honduras, Turks Island and Cayman Island.—C. M. Lyons, (VP5MK), 68½, King Street, Kingston, Jamaica, B.W.I.

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

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

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 India.—T. C. Pratley (VU2AH), Aircraft Depot, Drigh Road, Sind.

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

Canada.

By VE2BB (via VE1BV and G5VL).

Conditions on all bands improved considerably during March. The Senior B.E.R.U. contest was a great success, but very few stations were heard in the Junior event. A suggestion has been made that the first Sunday each month should be recognised as a day for Empire contacts.

Ceylon.

By VS7GT (via G2ZQ).

With two of our most active stations, VU2JP and VU2KT off the air, local activity will be greatly restricted. VS7GT recently had a visit from VU2JP and accompanied him to Colombo to assist in laborious preparations for the reception of amateur signals *en route* to England. Whilst in Colombo VU2JP and VS7GT waylaid VS7AP and secured a promise from him to resume activity. In a lengthy report VU2FY states that conditions were good on all bands except 3.5 mc. at the beginning of April, the 7 mc. band being particularly good. VU2FY and 2KH have been studying directional effects, and the former states that the maximum fade out occurs from the direction in which the aerial is pointing, and furthermore, that fade out does not affect all points of the compass simultaneously. (Mr. Hunter advises us that this report is not quite complete owing to the fading out of signals from VS7GT.)

Channel Islands.

By G5OU.

Conditions on 3.5 mc. were good for European DX during April. G2GJ (ex 2BCS) is active on 7 mc., together with G2ZC, 5OU, 2BDP, 2BUT, 2BYO and BRS1047. It is hoped to arrange field days in the Islands during the summer.

Iraq.

By YI2DS (via G6CW).

Conditions on 14 mc. during March and early April were improving rapidly, but on 7 mc. DX was erratic. YI6WG has moved to Hinaidi and 6HT is experimenting on ultra high frequencies.

Irish Free State.

By EI2B.

Activities have been very quiet here recently and for that reason no reports have been forwarded. It is to be regretted that many of the older stations have either closed down or relinquished their permits. We have, however, two new stations on the air, EI4F, Mr. A. C. Riall, "Clonlost," Killiney, and EI5F, which is being operated by Mr. H. Hodgens. QSL cards for this station should be addressed to him at the Technical Schools, Dublin, as his present private address is only temporary. Mr. Hodgens was for many years Secretary of the old W.S.I. and was also the operator of the Society's station, GW12B.

EI8B is now using high power and has built a very up-to-date station. He is, we believe, the only QRO station in the Free State.

The writer had the pleasure recently of a visit from G6NF, when details of the R.S.G.B. frequency measuring system were discussed and the methods demonstrated by Mr. Gay. As a point of

interest this is only the second occasion on which a G station has visited EI2B.

EI2B has resigned from the presidency of the I.R.T.S.

Jamaica.

By VP5MK.

Considerable assistance to the members of the Valentine Expedition was rendered by VP5CC and 5MK, when a complete transmitter was built for them during their stay in Jamaica. VP5NH recently worked G5VL and has now a daily schedule with VP4AA in Belize, British Honduras. VP5PZ expects to start work in the near future.

Newfoundland.

By VO8AW.

We have pleasure in announcing that Mr. James Moore, VO8AW, has accepted the position of B.E.R.U. Representative for Newfoundland in succession to the Rev. W. P. Stoyles. Mr. Moore mentions that VO8Z maintains a daily schedule with VO8WG in Labrador and keeps him in touch with the world. Mr. Moore's transmitter is crystal-controlled, uinsg 45 watts to a UX210 in the final stage on 3.5, 7 and 14 mc.

New Zealand.

By ZL3CP (Via ZL4AO and G2ZQ, April 25).

Amateur radio continues to boom in N.Z., many new stations coming on every month. The 3.5 mc. band is uncomfortably crowded with poor phones; this band has been fairly good for DX, a number of ZL/W contacts having been made recently.

The 7 mc. band is good, Europeans being heard both mornings and evenings. The 14 mc. band was quite good during January, February and part of March, but seems now dead. There is nothing doing on 28 mc., but a lot of interest is being taken in 56 mc. In Wellington recently, a 56 mc. portable phone set was used to relay a running description of a golf championship match.

At NZART Headquarters an accurate frequency meter has been built and standard frequency signals are transmitted on the 3.5 mc. band every Sunday evening; this service is much appreciated.

Many ZL stations are going over to crystal control, and recently electron-coupled oscillators have come into favour.

The various sections of the REC have held many field days, and much good work with low-power portables has been accomplished.

Northern India.

(In the absence of notes from our official representative we publish some comments made by Lieut. Beaumont, VU2FP ex BERS1.)

The following VU stations have recently been active:—2AH, 2JP, 2JT, 2LJ, 2LZ, 2JB, 2AC, 2FP, whilst VU1AA, 2LT, 2LX, 2CS and 3CW are heard occasionally. BERS74 and 79 are the most active of the large receiving membership in India. Conditions during March were good on 7 mc., but poor on the higher frequencies. Best times for G contacts on 7 mc. are between 12.30 and 16.30 G.M.T. and from 00.30 to 02.30 G.M.T. The former times are also good for 14 mc. work.

A letter budget run by VU2AH is fairly well supported, but more contributors would be welcomed.

VU2FP after taking A.C. gear out from G, discovered on arrival that D.C. mains were installed at Jhansi, consequently considerable replanning has been necessary. He is using 50 watts on 7 and 30 watts 14 mc. TCO4/10 valves in parallel are employed. He has now W.A.C.

Correspondence (*continued from page* 361).

hets. I presume that, as the whiskers have grown, the valves have suffered senile reduction.

Whatever the cause, the present advocacy of one or two-valve receivers is rather a change, isn't it?

Do you not think, Avuncular, that the use of three valves, worked well below their limit, leads to less set noise than is the case with one or two valves worked at their capaclty? I have not forgotten that you say that with only two valves, you have to use the volume control to reduce signal strength, but you do NOT say on what signals this was required. Was it 7 mc. French "spitch"? (your phrase: I prefer "Hugo's with Hum" as a description).

Anyhow, as a counter-provocative, I prefer, after recently testing one of the most popular two-valve high-efficiency receivers, using batteries, against my own three-valve (2L.F.) all A.C. "punk" outfit, to retain the three valves on the score of quietness, easy handling, lack of background and equal signal strength.

Yours, etc.,
"One of the Nephews."

To the Editor, T. & R. Bulletin.

Dear Sir,—There can be no shadow of doubt that "Uncle Tom" has very definitely made up his mind about the efficiency of amateur receivers, judging from "The Month on the Air," on page 317 of the April issue of the "Bull."

As "Uncle" is so emphatic, one of his "nephews" would venture to suggest that he writes a series of articles for the "Bull" on "What do do and how to do it," in order to increase the efficiency of detector valves, especially for short-wave work.

Yours sincerely,
R. Kirlew (G6KW).

Pernicious Piracy.

Mr. L. T. Dixon (G2XZ) advises us that he has received a number of QSL cards which are supposed to refer to contacts made with his station. Mr. Dixon has not operated G2XZ for over two years, and, therefore, asks that the person to whom the cards are intended should apply to him for them!

Mr. Dixon incidentally has been advised by the Post Office that his transmissions have been heard off wave. A more pernicious and impertinent piece of piracy would be difficult to find.

* * *

Will the member who sent us anonymously a message from OK1AB please communicate with the Secretary. The handling of messages which refer to Society affairs is recognised by the authorities.

NOTES and NEWS from the BRITISH ISLES

DISTRICT REPRESENTATIVES.

DISTRICT 1 (North-Western).
(Cumberland, Westmorland, Cheshire, Lancashire.)
MR. S. HIGSON (G2RV), "Hebblecroft," Egremont Promenade, Wallasey, Cheshire.

DISTRICT 2 (North-Eastern).
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.)
MR. H. B. OLD (G2VQ), 3, St. Jude's Avenue, Mapperley, Nottingham.

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

DISTRICT 6 (South-Western).
(Cornwall, Devon, Dorset, Somerset.)
MR. H. A. BARTLETT (G5QA), "Donbar," Birchy Barton Road, Exeter, Devon.

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

DISTRICT 8 (Eastern).
(Cambridge, Huntingdon, Norfolk, Suffolk.)
MR. S. TOWNSEND (G2CJ), 115, Earlham Road, Norwich.

DISTRICT 9 (Home Counties).
(Bedfordshire, Hertfordshire, Essex, Buckinghamshire.
MR. F. L. STOLLERY (G5QV), "Kingsmead," Lancaster Gardens East, Clacton-on-Sea, Essex.

DISTRICT 10 (South Wales and Monmouth).
(Monmouth, Glamorgan, Breconshire, Carmarthen, Cardigan, Pembroke.)
MR. A. J. E. FORSYTH (G6FO), "St. Aubyns," Gold Tops, Newport Mon.

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

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

DISTRICT 13 (London South).
MR. 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. C. MORTON, (GI5MO), 27, Bristol Avenue, Belfast.

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

DISTRICT 1 (North-Western).

Arrangements have been made for two stations to take the air during the National Field Day event; Station A will be in charge of G2RV, using his portable call G6HG, and Station B will be in charge of G2OI. The exact sites for these two stations have not yet been fixed. A string of operators capable between them of maintaining watch for a period of 27 hours are required, together with liberal supply of food, water (!), tents, caravans, and cars. All members in the district who are interested in this event are asked to communicate immediately with either the D.R. or Mr. Lucas, advising whether they can provide any of the above requirements.

The C.R. for the two Northern counties reports that BRS1043 is busily studying the code, and that G6JZ is doing good work with 6 watts on 14 mc., a contact with VU being his best DX for the month. The C.R. himself, G2YN, is active again on 7 and 14 mc., using a new Zeppelin aerial with 50 ft. feeders, and an input of 30 watts. Meetings are regularly held at his QRA, and hopes are high that many new members will be enrolled.

The Cheshire and Lancashire C.R.'s state that no reports have come to hand, probably due to the after-effects of the Conventionette, report of which follows.

Never before in the history of the Society have so many members living in the North of England been gathered together in one spot, as was the case when the above Conventionette took place in Liverpool on Sunday, April 9. The attendance exceeded our most optimistic expectations, a total of 74 members and friends being present.

The business meeting was opened at mid-day by the D.R., who, after welcoming the visitors, mentioned that the most important achievement since the last Conventionette was the formation of the Merseyside Amateur Transmitters Society, which had recently obtained headquarters at 6, South Castle Street, Liverpool.

The Secretary was then asked to contribute a short talk on Society affairs generally. In opening his remarks, he complained that this was the first meeting he had been compelled to deliver a speech on an empty stomach! He congratulated the members on the formation of their local Society, and expressed the hope that everyone within easy reach of Liverpool would support the organisation. He made reference to the interference from the Russian commercial stations, and mentioned that an appeal had been made to the Soviet Government,

asking them to change the frequencies of these stations as soon as possible.

He reported that the membership of the Society had now reached a total of 1,850, and hoped that the 2,000 mark would be passed before the end of the current year. He stressed the importance of individual publicity, and recommended that endeavours be made to display short-wave gear at exhibitions held in large general stores.

Some outspoken remarks were made regarding the prevalence of illicit transmissions. He stated that whenever a case of pernicious and persistent piracy was brought to the attention of HQ's, action would be taken without delay.

Several members contributed to the general discussion which followed Mr. Clarricoats' talk.

Plans for the next Conventionette were discussed. It was decided that Districts 1 and 11 should combine for this event, which would take place in or near Chester.

DISTRICT 1 CONVENTIONETTE.
Liverpool, April 9.
The above photograph was taken by G6ZU on one of the Mersey Ferry boats after the meeting and shows the following members: Left to right, G2II, G5ML, 2BAQ, G6CL, G2RV, G5OZ, G5WG, BRS1054, G6KI, G5OL, BRS—.

After an excellent lunch, toasts were proposed by Messrs. V. M. Desmond (G5VM) ("The President"); A. M. Ralli (G2II) ("The Society"); and J. Davies (G2OA) ("The Visitors"). Responses were made by Messrs. Chisholm, on behalf of H.Q.'s; and Mr. G. Brown (G5BJ), on behalf of the Visitors.

Following the luncheon, an interesting visit was made to the Seaforth Radio station, where the inner workings were ably and patiently explained by the officers on duty. It is believed that the convoy of cars caused considerable interest and wonder along the route!

On returning to the hotel, tea was served, and general "rag-chewing" continued until 6.15 p.m., when station visits were arranged to G2OA, 2RV and 5CN.

Our thanks are due to all those who helped in any way to make this event an outstanding success, especially to those visitors who made long journeys from other Districts. No less than 14 District 3 members put in an appearance; whilst the newly-formed District 11 provided a contingent of five. London and Nottingham were both represented by three members. An especial word of praise is due to G2CX and G6HP, who left London at 3.30 a.m. in order to be with us. The following is a complete list of members and friends who were in attendance: G6CL, G2RV, G2OA, G2OI, G5PX, G6OM, G5WG, G5KL, G6TT, G5CN, G5YD, G2DH, G5WR, G6GV (and two friends), G6ZU, G2RA, G5MB, G6JN, G2BK, G5XF, G2GA, G5OZ, G2VQ, G6IW, G2IO, G5OL, G2CX,, G6HP, G5UT, G2HD, G2FF, G5FU, G2MY, G2II, G5VM, G5TL, G2AK, G6KI, G5BJ, ex SU8RS, G5NI, G6NJ, G6JT, G5ML, G6HW, G6GL, G5GY, 2ABS, 2BMJ, 2ADG, 2AGT, 2BMX, 2BAQ, 2ACK, 2AWV, 2AHS (and two friends), BRS 1041, 1119, 916, 969, 589, 984, 77, 484, and Messrs. Robinson, Mallard and friend, and two gentlemen whose names are not obtainable, who were with BRS 1041. The *Liverpool Daily Post and Mercury* representative was also present.

DISTRICT 2 (North Eastern.)

The fourth monthly meeting of the North Eastern Amateur Transmitters' Society, which is composed mainly of R.S.G.B. members, took place at Gosforth, on April 16, when 20 members attended, with G6FC in the chair. Discussion took place on the elimination of key clicks, the efficiency of neutralised power amplifiers and aerial systems. It was decided at this meeting to compile a register of local station crystal frequencies. The following stations report active: G2CO, 2GC, 2TJ, 2XT, 5DI, 5LH, 5QY, 6AY, 6BC, 6GC, 6HV, 6YL, 2AWA, 2ARQ, 2AUB, 2AWX, BRS 999, 1057, 1109.

Activities in the Middlesbrough area are still making good progress. The building of the local Club's receiver is practically completed, and will be in operation before these notes are published. Regular meetings are held fortnightly, on Friday evenings, at the Royal Hotel, Durham Street, Middlesbrough, when members and friends are welcomed. The following stations report active: G5XT, 5QU, 6CV, 2AVM, BRS 922, 1016.

DISTRICT 3 (West Midlands).

A party of 14 from this district spent a most enjoyable day at the Liverpool Conventionette.

Great interest is being taken in the National Field Day, not only by the licenced members, but by many B.R.S., and the apparatus is in the course of construction.

All the usual stations are active, but reports are lacking.

DISTRICT 4 (East Midlands).

Nottinghamshire members are asked to note that the monthly meetings in Nottingham have been discontinued for the summer period. They will, however, be resumed on the second Saturday in September.

During National Field Day, G6MN, and members of the Worksop Radio Society, will instal portable transmitters and receivers on the highest hill in the county, which they plan to work on the 1.7 and 3.5 mc. bands. Interested members are invited to communicate with either G6MN or G2IO, whilst offers of gear and cars will be appreciated.

G2CB, of West Bridgford, and G2GU (ex 2BGF, of Heanor) are welcomed as new call signs in the county, whilst the following report active:— G2CB, 2GU, 2HD, 2IO, 2OC, 5VU, 5YP, 6CD, 6DS, 6FP, 6KQ, 6KX, 2BMR, 2AWC, BRS595 and 726.

The Leicester Experimental Short-Wave Society is making very good progress. On May 7 a field day is being held, and on May 14 members are

visiting the Empire Short Wave Station at Daventry.

The Leicester members will be operating the 7 and 14 mc. transmitters for District 4 on National Field Day. The call G6GF will be used, and the station will be located on one of the high spots of Leicestershire.

Several members are busy rebuilding, otherwise Leicester is 100 per cent. active. G5VH and 6JQ are working very successful duplex fone on 40 and 80 metres with low power. We welcome one new member this month, 2AFM.

The following are known to be active: G5VH, 6GF, 6WU, 6JQ, 2ADC, 2AFM, 2BVN, 2BHA, BRS866 and 884.

DISTRICT 5 (Western).

The summer programme is now being framed, and consists of activities in connection with National Field day, and a series of D.F. tests in finding the hidden transmitter. These were most popular last year, and as many as ninety sometimes sat down to tea after these events. The final takes place on May 14.

The chief event of the month is the receipt of an experimental message by G5HC from NX1XL, who is up in the Polar regions. The message was relayed on to W by G2OP.

We have been particularly fortunate this time in getting permission to visit the H. H. Wills Physics Laboratories of Bristol University during our Conventionette, and to witness demonstrations. The opportunity is unique, and everyone is looking forward to it with great interest. A full report of the Conventionette will appear in the next issue.

It has been suggested that the Wilts letter budget shall close down during July and August owing to holidays, as last year the continuity of discussions was broken and some lost the threads of arguments. The budget is most popular and well supported. No report has again been received from Oxfordshire, but I understand it is still on the map, and I hope the flag is still flying.

DISTRICT 6 (South-Western).

Conditions for April were good, and as a consequence most stations have been extremely active. G2ZP has now become a devotee of the Windom, and it looks as if someone will have to put up a Zepp, just for the sake of saying that all No. 6 are not Windomites! I have to record the sudden passing of Mrs. Bradley, and we all extend our deep sympathy to G5QS in his loss. Both G5QS and 5WY are experimenting with mush filters in their respective receivers, the former with triode detection, and the latter with S.G.; G5WY is finding the Mullard D.O.24 an excellent valve for F.D. work. G6HQ is welcomed back as an active member, and is at present on 14 mc. G2BL, of Winscombe, is another newcomer to whom we extend a cordial welcome. This month has seen a deluge of visitors to G5SY, but he is always ready for more, and they can depend on a good "ragchew" and a feed from Mrs. SY! All the 28 mc. stations in the district have been trying to get across to AC2BHH, but it is too early yet to know whether any have succeeded. G6RP and 5YR are carrying out experiments with the tapping point of the Windom, and promise some tabulated results in the near future.

Another point worthy of mention (arising out of our monthly budget) is that G5VL shows how direct

No. 6 District Conventionette

GLOBE HOTEL,
CATHEDRAL CLOSE, EXETER.

SUNDAY, JUNE 4th, 1933

Lunch 1.30 p.m. Business Meeting 3 p.m.

Tea 5.0 p.m. Station Visits 6 p.m.

tap can be worked from a push-pull output. G5SY is our star station from a DX point of view, having worked all continents except ZL and VK, whilst W6's and W7's have been worked by both G5QA and G5SY. Active stations reporting are: G2BL, 2FN, 2ZP, 5QA, 5QS, 5SY, 5VL, 5WY, 5YB, 5YR, 6QH, 5RP, BRS836, 958, 1088, 1089 and 1100.

The conventionette for this district will be on Whit-Sunday, June 4, and a hearty welcome is extended to all. Full details will be found elsewhere.

DISTRICT 7 (Southern).

The National Field Day formed the chief subject of discussion at the last monthly district meeting held at G2NH, and the 14 mc. and 7 mc. station for No. 7 District has been definitely fixed to be operated from a field at the rear of Mr. Jones' farm, High Street, Walton-on-the-Hill. The site is a very good one, and Mr. Jones has promised us plenty of facilities for the erection of tents, etc., and there is room to garage cars on the site. The site of the 1.7 mc. and 3.5 mc. transmitters has not yet been fixed, but if enough support is forthcoming it will probably be located in the Epsom district, within four miles of the other site, so that visits can be conveniently made to both stations. Fuller details should be available for the next issue of the BULLETIN. The next important item of news is that all the arrangements for the Conventionette on June 25 have now been completed. The meeting will assemble at 12.30 B.S.T. at the Café Royal, Palmerston Road, Southsea, for lunch at 13.00, the business meeting following, of course, during the afternoon. The accommodation is strictly limited to 80, and it is therefore *essential* that all in the district who are coming should notify their C.R. at the earliest possible moment, and those outside No. 7 district, who will, of course, be most welcome, should advise G2NH by post card at least a week before the date.

The date of the 5-meter RX field day has been altered to Sunday, May 21, in order to coincide with G6QB's experiments from the Crystal Palace Tower, and some useful results should accrue, as we hope to have at least five receivers in the field. The meeting place for No. 7 District members will be G6GS, Warren Road, Guildford, Surrey, and parties will leave from here to different points on the Surrey Hills.

Activity during the month has been normal, and the usual amount of DX appears to have been worked, although the seasonal falling off of con-

ditions on 7 mc. has caused this band to be neglected by most of the DX men ; 1.7 mc. seems to be almost dead in this district, and the possibility of a Sunday morning sked for No. 7 on this frequency has been mooted to try and revive activity. Will those who are interested in this scheme please let the D.R. have their views as to the feasibility of the idea and any suggestions as to the best time ?

There will be no monthly meeting in June, as it has been decided that it is unnecessary in view of the fact that we shall all be meeting at the Southsea Conventionette.

DISTRICT 9 (Home Counties).

Arrangements have now been completed for our Conventionette which takes place on Sunday, June 18, at the Palace Hotel (facing pier), Southend-on-Sea. An excellent luncheon will be served sharp at 1.30 p.m., followed by a business meeting and tea *ad lib* (4s. 9d. inclusive). Accommodation is provided for a large number of visiting amateurs and their friends, and we can assure all those coming from London, Kent and elsewhere of a very cordial welcome. The D.R. is expected to be resident there for the week-end and a programme will be arranged for those arriving early.

District 9 Conventionette

Sunday, June 18, 1933

To be held at

PALACE HOTEL, SOUTHEND-ON-SEA

(Facing Pier)

10.30 *a.m.*	*Program to be arranged. Station visits, etc.*
1.15 *p.m.*	*Reception at Palace Hotel.*
1.30 *p.m.*	*Luncheon. Followed by Business Meeting.*
4.30 *p.m.*	*Tea.*

Come London ! Come all ! and welcome M.A.T.S.
Shake out your sheets ! Hoist up your slacks !
'Tis pleasant down from Chatham Town
To abreast o' the Jenkin Buoy,
By the mark seven or a quarter less six
You'll bring up off the pier, Ahoy !
So avast there ye men of Kent
As in the days of yore,
Let's splice the main brace again
At Southend, by the Essex shore.

(G5QV).

And the date is Sunday, June 18. Please make a note ; and it would be very helpful to notify the D.R. beforehand by postcard if you can. Next month's notes may not give sufficient time.

A few reports are in for the month. The following are consistently working :—G2DQ, 2HJ, 2NU, 2KT, 2WG, 2CD, 5FB, 5QV, 5VS, 6DH, 6KV, 6SG, 6QX, also 5UK now back from his trip to N. Africa. G2AF is on calibration work. Two new amateur stations are expected to be operating in Clacton shortly. G2LZ is putting 100 per cent. readable 'phone through to ZL4AO (Mr. Shrimpton, of Dunedin) and on Easter Monday was able to include speech received by land line from G6KV, of Laindon Hills. A few minutes later G2KT, G6KV and G2MI were able to effect a QSO with ZL4AO by morse. Altogether it was a good piece of work and all seemed very elated at having accomplished their best DX on 7 mc. Conditions were extremely good. G5UK was very unfortunate, for owing to a period of bad local QRM in the vicinity of ZL4AO no contact could be established at that time.

DISTRICT 10 (South Wales and Monmouth).

Though there are few individual reports this month, the CRs give the following stations as being active :—G2PA, 5BI, 5FI, 5KK, 5PH, 5TW, 5WU, 6FO, 6YJ, 2AHN, 2AKG, 2AWN, 2BJH, 2BVB, BRS727 and BRS1094. We also welcome as new members Messrs. Matthews and Osmond, of Penarth, while special congratulations are due to 2BVB (Newport), who will be on the air by the time this appears. He has obtained his full licence at the early age of sixteen, and is probably the youngest holder of a two-letter call in the country. Any challengers ?

G2PA entered for the 3.5 mc. tests, and though a large number of Gs were worked, he found 5 watts of little use against the QRO stations which seemed to monopolise the band.

The Swansea S/W Club is busy making its new quarters habitable, and there is a suggestion that some outside work should be carried out locally with receiving gear for the Field Day, since circumstances make it impossible for more than two members to make the week-end trip in connection with the District arrangements.

The Blackwood Radio Club, under the direction of Messrs. Pond, Mudford and Moore, is making excellent progress, and the enthusiasm of the membership is indicated by the fact that at a recent meeting all those present voted for a continuance of the weekly meetings during the summer. With two members available for the purpose, Morse classes are to be started and an application made for an A.A. licence, while excursions with portable apparatus are planned for the summer. The D.R. has had the pleasure of attending two meetings of this society, and on Monday, April 10, he was able to give a short talk on amateur radio, illustrated by the R.S.G.B. collection of lantern slides kindly loaned by HQ. Individual members are listening on the amateur bands, and the club possesses its own S/W receiver. It is hoped shortly to arrange some visits to the R.S.G.B. member-stations in the District.

The two matters of immediate importance to No. 10 are, first, the Conventionette and, secondly, the National Field Day. I look forward to meeting every member at the District Conventionette, which is to be held at Swansea on Sunday, May 28. Accommodation has been booked at the Mackworth Hotel, High Street, Swansea, for from mid-day till 7.30 p.m. The inclusive charge for lunch and tea is 4s. 6d., and I am hoping that the minimum number of 25 will respond to the special notice which all will receive, so that we may secure HQ. attendance. Please make every effort to come, as it is the one opportunity in the year which we in a District the size of this have of getting together. Car parties will be made up from this side of the District, and I hope thereby to arrange lifts for all those who are

some distance from Swansea. Needless to say, we shall also be very glad to see visitors and R.S.G.B. members from other Districts.

With regard to our participation in the National Field Day, all members will have received a notice on the subject, and tentative arrangements have already been made. Revised rules for N.F.D. appear on p. 324 of the April BULLETIN. The site for the Field Station is to be on private land kindly offered by G5FI, up on the Brecon Beacons and an ideal situation. The transmitter and power supply are already available, and two or three members have suitable portable receivers in mind. The final details will be settled when it is known who and how many will be coming out for the week-end June 10-11, and I think we may expect to have both an enjoyable and an instructive trip.

District 10 Conventionette

on

Sunday, May 28, Noon to 7.30 p.m.,

at

THE MACKWORTH HOTEL, HIGH STREET, SWANSEA

Tickets (inclusive of Lunch and Tea), 4/6.

Apply G6FO.

Visitors will be welcomed.

A Crystal Register is to be compiled for the District, and I should therefore be glad if all those possessing calibrated crystals would kindly drop me a postcard immediately giving the necessary data, since the list is to be published in the BULLETIN.

Finally, may I ask all members who receive notices from the CRs to reply to them promptly. They are always important and, curiously enough, are not sent out to waste a few stamps, but because we want to know what *you* want.

DISTRICT 11 (North Wales).

There are very few matters of interest to mention this month, but the five members of the District who attended the Liverpool Conventionette returned with happy memories of an enjoyable day. G5FU, the C.R. for Flintshire, has now moved to " Katheric," Kinnard Drive, Rhyl, and invites all members in his county to send a report each month. G2FF, who is a newly licensed member, is testing with a T.P.T.G. on 14 mc., whilst G2II reports conditions on that band have been very poor during April. A display of the Aurora Borealis was noted during the month. Mr. Ralli is keen to see the establishment of a chain of 56 mc. stations throughout the country. Plans are being made for the District to take part in National Field Day, and all offers of help will be appreciated.

DISTRICT 12 (London North).

Arrangements for the N.F.D. are now well in hand. Station A will be under the control of G5CD and G5UM, and will operate in the vicinity of Kings Langley, whilst Station B will be erected at Welwyn, Herts, through the courtesy of Mr. Vickery (G5VY).

The first named station will work on 1.7 and 3.5 mc., and the Welwyn station on 7 and 14 mc. The latter station will be operated by G5QF, 6CL, 6YH, 5SG, 6PP and others. Already some fifteen members have offered their services for duty at one or the other stations, but further volunteers are required. Offers of cars and gear should be made immediately to either G5CD or G5QF.

At the April meeting held at G6CL, it was arranged to invite every member in the district to contribute some small amount towards the expenses of the event. A fair response has been received to date.

The next meeting will be held at 7.30 p.m. on May 20, at 24, Woodside Park Road, North Finchley N.12, when BRS497 will act as host. On the occasion of this meeting a Junk Sale will be held, 25 per cent. of the proceeds will be devoted to N.F.D. expenses. All members are asked to either attend personally or send apparatus for sale direct to BRS497.

Apparatus offered for sale must be workable; that is the only condition.

It is hoped that G6CL and G2IM will act as auctioneers. Members attending are asked to notify the D.R. or BRS497 two days beforehand.

Activity in the district is well maintained, and the usual group of stations report active. There are, however, many new members who have yet to make themselves known to us; may we invite them to attend on May 20? The letter budget continues to be the most important link in the district, but there is still room for more contributors.

DISTRICT 13 (London South).

The venue of the stations and the personnel for the National Field Day is not yet fixed, but offers of H T. and assistance are urgently required.

Although the summer is on its way, there seems to be no falling off in interest in radio, judging by the attendance at the April meeting of the South London and District Amateur Transmitters' Society. This was devoted to a junk sale, and as members came not only to dispose of their surplus apparatus (lots of it was far from junk), but also to buy, it was a great success, and some extremely good bargains were obtained. At this time of the year our thoughts turn to 56 mc. work with low power transmitters. By having stations standing by in London for other portable stations in the country, useful work will no doubt be done again. Members are asked to be on the look-out for G6QB on 56 mc. from 10.00 B.S.T. onwards on May 21, 1933. There is a chance to make some records.

DISTRICT 14 (London, East).

At the last District meeting further details were discussed relating to arrangements for the National Field Day. Two stations will be fielded, G6LL and G6UT, and the QRA will 'probably be at Rookwood Hall, Abbess Roothing. BRS565 has been assisting with the R.S.G.B. occupancy checks. The next meeting will be held at 28, Douglas Road, Chingford, E.4, on Tuesday, May 23, at 7.30 p.m.

DISTRICT 15 (London West and Middlesex).

Ten members attended the April meeting when the discussion centred around the National Field Day arrangements which are nearing completion.

We are, however, in need of H.T. batteries, and should be glad to hear of anyone willing to assist in this direction.

The next meeting will be held at G6WN on Thursday, May 18.

Very few reports have come to hand this month, and if more are not receved in the future G6YK will only be wasting his time running a budget under these conditions.

G6CO, a new member, has reported for the first time and it will be a pity if he does not see a letter budget in return for his efforts in reporting. G6WN has been on the 7 mc. band mostly with a few excursions to 14 mc. A fair amount of DX has been workable on both bands. G6VP reports working W5 on 14 mc. and has handled a lot of E.L.S. messages. Has built a two-stage amplifier for telephony and hopes to get busy soon with it.

Will all members please note that letters for the budget should be sent to G6WN first, so that extractions may be made for the BULLETIN.

It is with regret that we have recently learned of the death, last November, of Mr. C. Joyce (G6JY).

No. 16 District Conventionette

ROYAL STAR HOTEL, MAIDSTONE

Sunday, May 21, 1933

Lunch 1 *p.m.* *Meeting* 2.30 *p.m.*

Afternoon Tea 5 *p.m.*

(4/6 *per head Lunch and Tea*)

DISTRICT 16 (South-Eastern).

Arrangements have now been made for the District Conventionette to be held at the Royal Star Hotel, Maidstone, on May 21; the full programme is set out elsewhere.

All members in the district are cordially invited to attend. The meeting starts at 12 noon, and lunch will be served at 1 p.m.

The Sussex C.R. reports that G5AO and himself are making steady improvements in connection with their television experiments.

DISTRICT 17 (Mid-East).

The District held its inaugural Conventionette at the Grosvenor Hotel in Hull on April 30.

In spite of most unfavourable weather, we were pleased to welcome to our midst Mr. Clarricoats, representing London, Mr. H. B. Old, the P.D.R., and visitors from London, Liverpool and Nottingham. Although many members came from remote corners of the District, the general attendance was below estimate, being a total of 34 persons.

As a preliminary feature, Mr. Clarricoats and the D.R. motored from Lincoln to Bridlington on the 29th, encountering on the way a most perilous sea voyage over the Humber. With the aid of experienced navigators, the s.s. *Cleethorpes* sailed gracefully into Hull after an exacting half-hour leaning against the lifebelt cupboard.

On Sunday morning visits were paid to G6OO, G5VO and G6OF.

Towards noon a party of three cars departed for Hull, calling at G6UJ on the way.

The official proceedings of the day opened at 1.30 p.m., with luncheon at the Hotel Grosvenor during the course of which toasts were proposed, being "The King," "The Society" "The District" and "The Visitors."

In proposing the toast to the Society, Mr. H. B. Old pointed out some of the ways in which the BRS membership have proved their worth to amateur radio.

During the afternoon, the business meeting took place. This commenced with the C.R.'s reports. Mr. Grieve (G5GS) outlined his work and policy in Lincolnshire, and Mr. Clark (G5FV) likewise for the East Riding of Yorkshire. Rutlandshire was not represented, having no C.R. Mr. Clark commented upon the success which has attended his formation of local groups in his area.

Mr. Clarricoats then gave his Secretarial address, during which he covered all the important points of the district and especially made comment upon the way in which the River Humber prevents Lincoln from reaching Yorkshire as and when desired. He stressed, however, that this could not, at present, be obviated by any change in the methods of representation. He spoke of the Madrid Conference and the work of headquarters towards eliminating commercial interference on the amateur bands.

In summing up, the D.R. raised the question of the transmitters to be used in National Field Day, and it was decided that Northern Yorkshire should operate a 160 and 80 m. portable, whilst Lincoln and Hull district should each have a transmitter for the two lower bands, but would divide up the time of the test between them. This overcame the objection to the cost and inconvenience of crossing the Humber.

Tea was served at 5 p.m., and during this period the photographs of the members, taken at the opening of the proceedings, were passed round for inspection and orders.

After tea parties visited most of the leading stations in Hull and also that of the C.R. at Keyingham (G5FV). The Secretary was afforded the opportunity of examining an amateur transmitter coupled to a REAL ARTIFICIAL aerial, and some exquisite instruments for detecting pirates and other offenders of the law!

The day was far spent when the survivors finally shook hands, and so concluded a happy week-end.

The D.R. extends his sincere thanks to all those who helped in the success of our first venture.

SCOTLAND

The writer is afraid that these notes will be somewhat brief for the next month or two, as, owing to business, he is likely to have little time for radio matters.

Apart from the 3.5 mc. contest, the period March-April has not been particularly eventful, very much the reverse in fact. General conditions, while still on the mend, are inclined to be patchy and unreliable, but the gradual ascent from the "trough" of 1932 is, nevertheless, evident.

Five Scottish stations took part in the 3.5 mc. contest, and with varying fortunes. G5XQ and

G6ND were unable to finish, the former owing to B.C. QRM, and the latter as the result of an accident. Conditions during the first week-end were very good, but during the second not so good. In the course of the first period, G5YG succeeded in working W8UV, and in the second period, G6IZ, G6FN, and G5YG all contacted with YI6WG.

So far as the Scottish stations were concerned, the following were the scores : G5YG, 202 ; G6FN, 161 ; G6IZ, 150 ; G6ND, 90 ; G5XQ, 60. "YG's" total comprised 119 contacts, of which 52 were "G" stations.

In this connection, he desires to thank the hosts of BRS and A.A. members for their report cards, which will be acknowledged eventually, but meantime the clearing off of the contact confirmation cards is taking a lot of time, and is far from completion.

Three new crystals fall to be added this month. G2DI, 7167 kc., 2AHZ, 7142, 2AZM, 7053.

NORTHERN IRELAND

Conditions on 14 mc. have been poor here since the good spell during the A.R.R.L. tests. GI5HV and 6YW were active then, and made many good contacts, the latter "hooked" VE5. GI5HN found a matched impedance feeder a great improvement on 14 mc., and would like to hear from anyone else using a similar system. GI6VG was also QSO the U.S.A., and is busy with secretarial work for the R.T.U. He wins the R.T.U. cup for highest score in the Gi transmitting contest. GI6YW and 5HV visited EI7C and EI8B in Dublin, and report that the latter's new QRO transmitter is very fine. We are very pleased to hear that GI6TK has recovered from his illness, and wish him good luck and DX. We hope to run stations in the Field Day contest, and GI6YW, 5DU and 5MO have been selecting sites. Gi stations are asked to keep off the air on June 10 and 11, so that no interference may be caused to the two portable stations.

Around Europe.

Mr. Sawell (CT1BK), our representative in Portugal, advises us that the R.E.P. have recently elected the following new officers: President, Dr. Tovar de Lemos (CT1BB) ; Vice-President, J. Paulo Galhardo (CT1GI) ; 1st Secretary, Julio M. Machado (CT1DC) ; 2nd Secretary, J. Brotas Cardoso (CT1JV) ; Treasurer, Mario Pinheiro (CT1AO).

He also mentions that in the recent telephony contest, organised by the R.E.P., CT1ET was adjudged the winner, with a total of 31 QSO'S, CT1CQ with 23 and CT1FU with 22 were runners up. The results of the International R.E.P. Contest are also to hand, and show that UN7CC was the winner of the Gold Medal and Diploma, OK1AW was the winner of the Silver Medal, whilst Mr. Hunter (G2ZQ) succeeded in finishing 3rd, and thus qualifies for a Bronze Medal and Diploma. Contacts with over 90 British stations were recorded.

We learn from the latest Bulletin of the U.R.E., Spain, that they have found it necessary to find larger premises for the headquarters. The new address is U.R.E., Avenida pi y Margall 5, 2, Madrid (P.O. Box 262, as before). The U.R.E. are organising their first Contest from 00.01 G.M.T., May 16, until 24.00 G.M.T., May 23. All British stations are invited to take part in this event.

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