THE T. & R. BULLETIN

OFFICIAL ORGAN OF THE INCORPORATED

RADIO SOCIETY OF GREAT BRITAIN

Vol. 13. No. 4

CONTENTS

THE NEW SEASON

NO month in the whole year brings with it more rebuilding of amateur stations than the one which has now run half its course. The coming of the dark evenings and ofttimes dreary week-ends provides the opportunity to get busy with the soldering iron and screw-driver. The creation of a new receiver or transmitter, or one of those useful pieces of measuring apparatus recently described, will bring hours of pleasure to many who have spent the summer days in open-air pursuits.

Which brings us to the bee in our bonnet—QSL cards. Probably more time has been spent and more ink spilled on QSL problems than any other offshoot of our hobby. The object of our present effusion is to draw attention to a few specific features of QSL-ing that occur to us as being of some importance.

During the past year we have examined many hundreds of cards and on frequent occasions have noticed that no information has been given regarding the frequency band used for the contact to which the card refers. Members working on 28 and 56 Mc. in particular, are desirous of obtaining definite confirmation of their contacts. Only last year we received a packet of cards from the West Coast of America confirming what were 28 Mc. contacts, but in no instance was this fact stated.

Our second comment refers to the omission of the frequency employed for the contact. Not 10 per cent. of the cards received at Headquarters give this information, yet it is certain that a large percentage of amateurs know their frequency to within a kilocycle or two.

Thirdly, why do so few British amateurs fail to confirm the power they are using ? We picked up a batch of cards recently which were intended for despatch to overseas stations. No mention was made of power but the sender was at pains to inform all and sundry that his final amplifier valve was of a well-known American type with a rating several times higher than that for which he is licensed to use.

Receivers to-day are invariably of the superhet type, but occasionally a 2-valver comes into the picture. Why not say so when you QSL if you have not done so during the QSO ? The recipient requires *information* if he is a true amateur, not a scrap of cardboard with your call sign implanted thereon.

Finally, a word about the size of cards. Those responsible for the work of sorting the thousands of cards received each year would be saved endless trouble if everyone would use standard postcard size of normal thickness. Large and thick cards make handling a major problem at the R.S.G.B. Bureau and similar Bureaux abroad.

Exercise care in sending reports and keep in mind that the card should be *informative*.

J. C.

Radiolympia and Convention

Our Twelfth Convention Breaks All Records

By John Clarricoats (G6CL).

Records.

IN this day and age when records of all types are broken at frequent intervals, the word may appear to be a misnomer when applied to a mere gathering of people, but for the want of a better expression "record" must serve to describe the truly amazing Exhibition and Convention period which we passed through a few weeks ago.

Ever since our first Convention in 1926 those intimately in touch with the Society had looked forward to the day when more than 200 of its members would be gathered in one place at one time. That day came on Saturday, September 4.

Looking back over those hectic weeks of late August and early September, we find some difficulty in deciding which incidents should have precedence in this written account. Taking the simplest course, we have decided to describe events in chronological order.

At Radiolympia.

To the clash of workmen's hammers and to the aroma of paint the 12th Annual Radio Exhibition opened its doors to the public at 11 o'clock on Wednesday, August 25. For all true amateurs the delightful exhibition of furniture on the ground floor meant little or nothing until the visitors' book on Stand 214 had been signed. They came in their hundreds from early morning until late at night, bent on examining the gear displayed and meeting old and new friends.

The illustrations which accompany this article give a fairly clear conception of what the stand looked like, but no photograph could hope to portray the intense enthusiasm shown by the public at large. Our stand, sandwiched in between those of a terminal maker and an insurance company, must have held some special appeal, for whenever there was a "crowd upstairs" it was a safe bet to say that 50 per cent. of "it" was gathered in or around No. 214.

The *pièce de résistance* was undoubtedly the radio remote-controlled transmitter and receiver loaned by Mr. J. Bryden (2BOL). As a scientific contribution it appealed to all technically minded members, showing as it did now mechanical devices can be applied electrically to the solution of a difficult problem, namely, the control at a remote point of numerous circuits. Mr. Bryden's workmanship came in for much well-deserved praise in the National Press. Mr. Arthur Milne's "nerve destroyer," in other words, his automatic morse sender, contributed in no small measure to the attractions of the stand. "Test G2MI" and other labour-saving code groups could be heard in the nether regions of Olympia, so we have been told!

Among the many interesting pieces of apparatus displayed was a beautifully constructed 11-valve superhet employing a noise silencer, loaned by Mr. E. Shackleton (G6SN), of Ben Rhydding, Yorks. In response to numerous requests we have persuaded the designer to prepare a full constructional article at an early date.

For the 56 Mc. enthusiast there was shown one of the most businesslike-looking long lines oscillators it has been our good fortune to examine. Constructed by Messrs. Pidsley (G6PI) and Reed (G2RX), this transmitter has been used successfully on many field days organised by the Kentish Town and North-West London groups. A constructional article is promised.

Mr. J. N. Walker's new superhet employing British Acorns came in for much favourable comment, being the forerunner of, we hope, many more ultra-short-wave receivers employing British valves. A description of this receiver appeared in our last issue and is continued this month.

For the newcomer, the very neat four-valve receiver loaned by Mr. R. A. Loveland (BRS2594), of Haywards Heath, fulfilled a want, whilst our Transmitter Design Manager, Mr. Seymour Buckingham, produced a simple two-valve battery-operated transmitter, which is to be described shortly.

Mr. I. B. Clark (2BIB) loaned a modern T.R.F. receiver, which is also to be described in an early issue.

Finally, that indefatigable worker, Mr. G. McLean Wilford (G2WD), excelled himself by contributing no less than five separate items. First, the dual-channel exciter described in the July Bulletin; second, the dual-channel P.A. described in August; and, thirdly, the associated modulator described last month. His fourth contribution—the two-band transmitter—is dealt with in this issue, whilst his 56 Mc. transceiver will be described later.

To all who so kindly constructed and loaned gear we record our thanks.

Among the many interesting topical items shown was an excellent model of the Bruce Aerial constructed by Mr. Jack Paddon (G2IS). A display of amateur station photographs mounted on a large wooden frame was also a popular attraction, and our thanks are due to Messrs. W. H. Allen (G2UJ) and Lawrence in this connection.

Photographs of well-known amateur stations, kindly loaned by Mr. F. G. Wise, of the Finchley Amateur Cine Society, were also featured on the stand.

It is impossible to mention all who assisted us at Olympia, but we should be failing in our duty if we omitted the names of Messrs. A. O. Milne, W. H. Allen, H. V. Wilkins, J. B. Kershaw, P. G. Spencer, J. E. Bryden, H. R. Heap, H. O. Hawkins, R. M. Herbert, S. Buckingham, R. A. Loveland. R. Pidsley, and R. T Reed. In addition, most members of Council put in several appearances, including our President (Mr. E. Dawson Ostermeyer), Mr. Arthur Watts, Mr. Bevan Swift, Mr. A. D. Gay, Mr. Cecil Page, Mr. T. A. St. Johnston, Mr. E. Dedman, and Mr. H. A. M. Whyte.

Our especial thanks are due to Mr. A. W. Hartley (2BTZ), who again prepared the display cards and posters, which contributed so materially to the success of the stand.

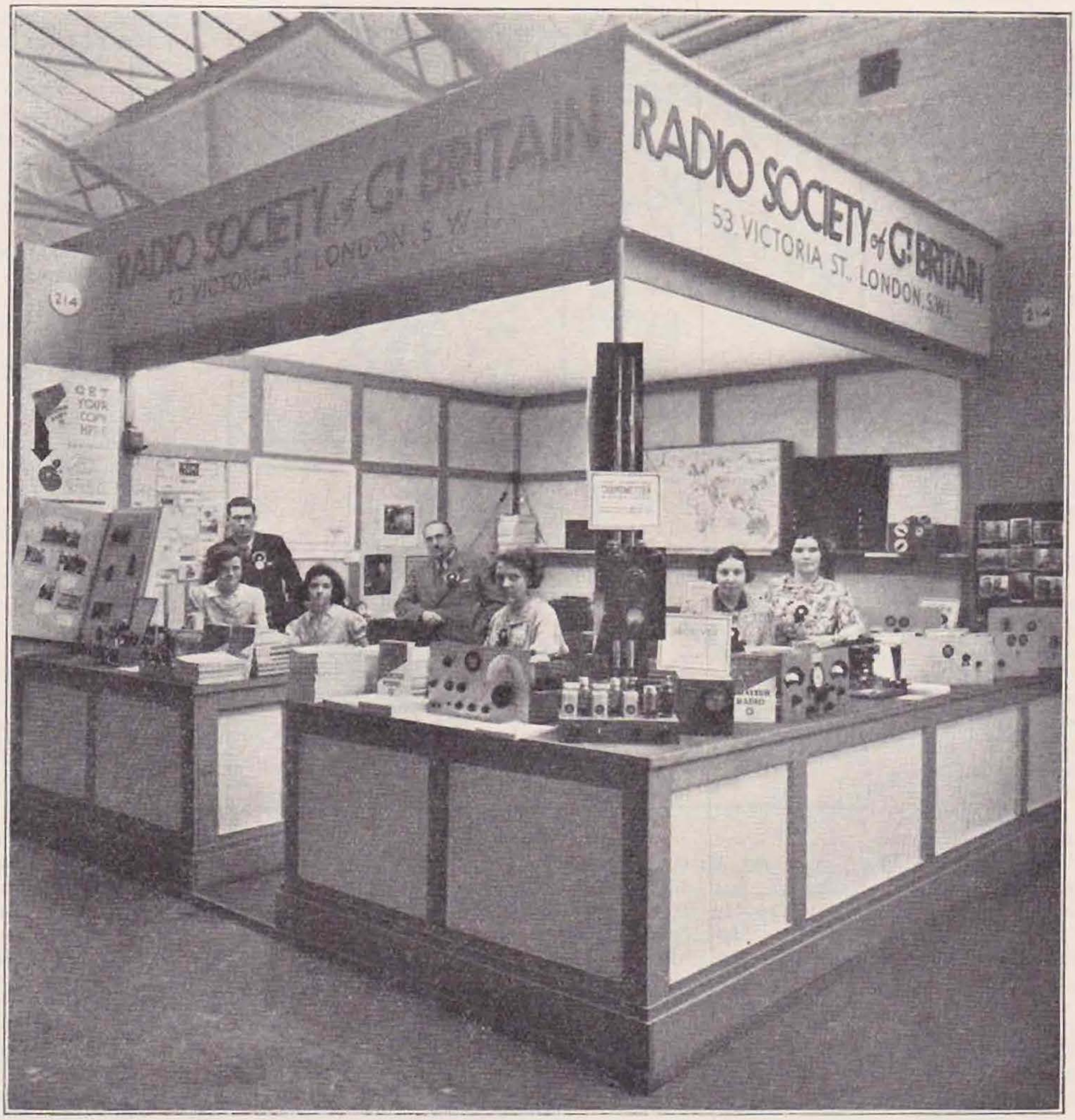
The Guide.

Little need be said at this stage regarding the 5th Edition of our *Guide to Amateur Radio*, but we think our members who were not with us at Convention will be interested to learn that over 9,500 copies were sold at Olympia, whilst the total sales exceeded the 12,000 mark within 14 days of publication date. This wonderful achievement can be attributed, firstly, to the high technical quality of the production, and, secondly, to the yeoman efforts of that group of members headed by Mr. Arthur Milne (G2MI) who gave up days and evenings to the cause of the Society.

By now we anticipate that every member has obtained a copy, but, before passing, we must relate the story of the Polish amateur who, when asked on the stand if he would like a copy, said: "No, we have a Guide in Poland." On further questioning, he came out with the startling information that a single copy of a previous edition had been handed round to, we gather, the whole of the SP fraternity! We could relate dozens of other amusing incidents, but space will not allow; suffice it is to say that every one who volunteered for duty expressed pleasure at being on the liveliest stand in Olympia.

The Visits.

To describe in detail the series of pleasant visits to places of interest would again tax the space we have limited ourselves for this report. We should, however, record that the visit to the *Mullard Valve Company* on the Thursday was one of the most instructive of its type yet arranged. The production of large and small valves was inspected in



Our Stand at Olympia.

The Misses J. & P. Clarricoats, Miss J. Buckingham, Miss A. M. Gadsden, Miss K. Mountifield, Mr. A. O. Milne, Mr. J. Clarricoats.

Needless to say this photograph was taken before the doors opened.

detail, as were numerous line processes. The test room and ageing room were also visited, as were the pump rooms and assembly shops. At the informal tea given after the visit, Mr. A. D. Gay moved a cordial vote of thanks to the *Mullard Company*.

The high spot of the Friday visit was the inspection of the Television Research Laboratories of *E.M.I.* at Hayes, when many of our members were given an opportunity of viewing television for the first time. All who were present at this visit, and that to the H.M.V. factory earlier in the day, expressed their great pleasure at being permitted to inspect at first hand such an important British radio factory.

Additional interesting visits were made to the Television Exhibition at the Science Museum and to Broadcasting House. These visits were very kindly arranged by Mr. G. R. M. Garratt, M.A., and Sir Noel Ashbridge. In addition to these gentlemen we record our thanks to Mr. Condliffe (E.M.I.), Mr. Wilberforce (H.M.V.), and Mr. Goldup (Mullard's), who were primarily responsible for the special facilities given to the Society.

Mr. W. H. Allen was in charge of the Mullard and E.M.I. visits, whilst Mr. J. M. Watson sponsored that to Broadcasting House.

The Gathering of the Clans.

Billed as an opening feature of Convention, the gathering on the stand at Olympia on the evening of Thursday, September 2, can best be described as the transfer of a couple of hundred amateurs to an area of 200 square feet. We have seen some crushes on our stand in previous years, but this year's attendance taxed our resources to the uttermost.

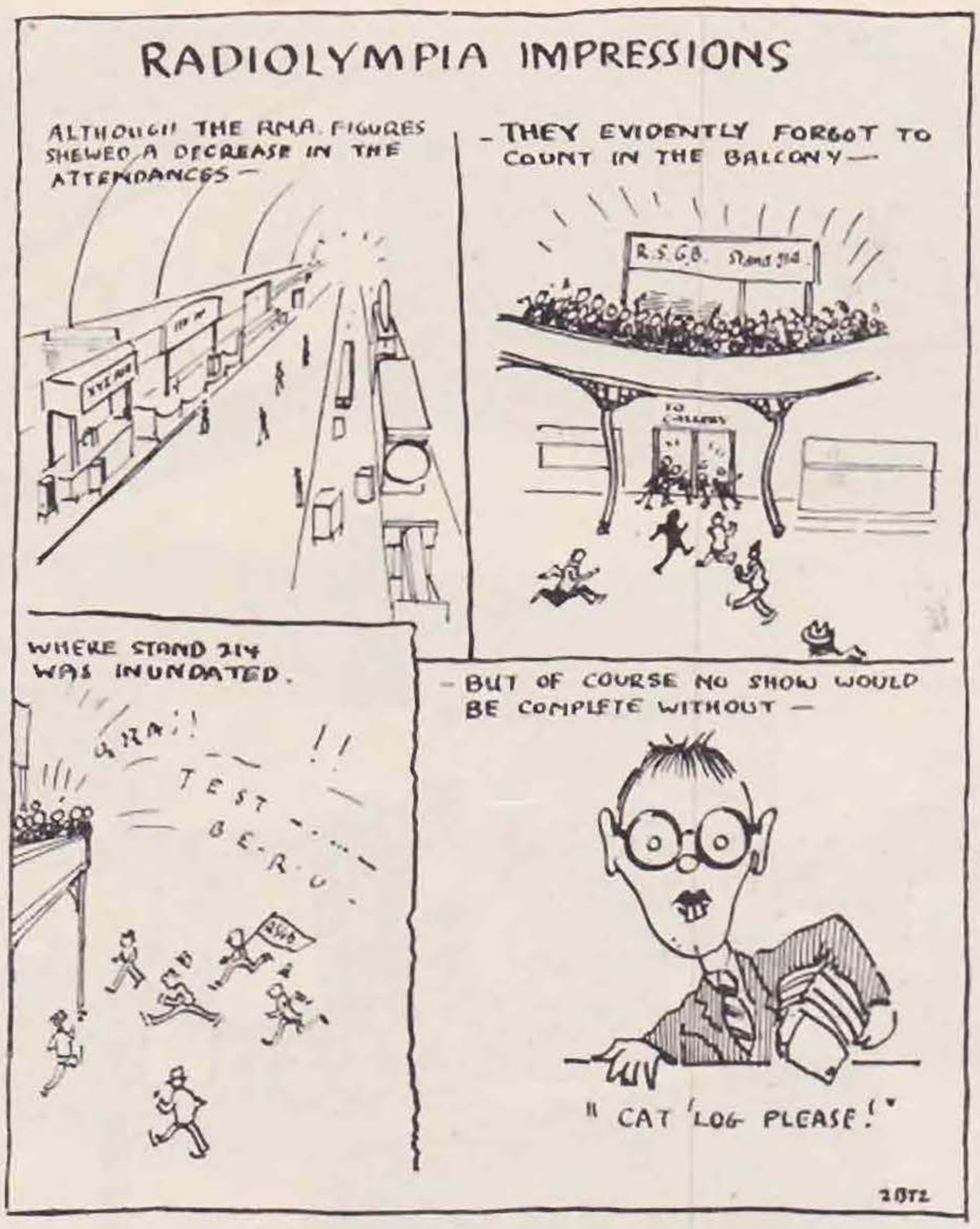
The word "Clans" described the gathering admirably, for Scotland was "down" in force, whilst Northern Ireland, the Irish Free State, Wales and every District in England appeared to be represented.

Fortunately, catering arrangements at Olympia were good, which enabled us to gently persuade some of our visitors to take a meal and thereby relieve the pressure!

The Conversazione.

One phrase sums up this not easily forgotten event—"What a jam"! Yes, "jam" is a fair word, but a miniature "Black Hole of Calcutta" was the phrase used by one of our older members after waiting an hour for his bun! Full of bright ideas, we circularised all members in July asking them to signify which events at Convention they wished to attend; 140 members said "Yes" to the Conversazione enquiry and 197 turned up! Was it really our fault the jam occurred?

However, everyone seemed to be enjoying himself or herself, and we can only assume that in true ham spirit the best was made of a circumstance beyond our control. Ragchewing continued in a warmish (!) atmosphere until the commencement of the film show. It would be futile to attempt to describe the films, but those who have not yet seen them may console themselves with the thought that they will go on tour this month. The N.F.D. film, taken by Mr. F. G. S. Wise, illustrated in graphic manner the hectic dash around the country made by Headquarters party during N.F.D. week-end, and many of the shots brought home in no uncertain manner the fact that this is *the* event of the year. The unofficial Field Day films were definitely much better than previous efforts, and we have no doubt that both these and the official films will bring pleasure and some amusement to audiences of amateurs for many weeks to come.



The third film, also produced by representatives of the Finchley Amateur Cinematograph Society, showed ten well-known London stations in operation. This film is the first of a series which will appear under the title "The R.S.G.B. Presents British Amateur Radio Stations." A noticeable feature of the stations filmed was the absence of commercial transmitters and the super-abundance of American-made receivers and valves! Only *one* station featured a two-valve straight receiver. No prizes are offered for guessing its identity!

At the commencement of the display a very warm ovation was given to Messrs. Wise and Stockon, the latter having broken his vacation to operate the projector.

We trust that the time and money spent in preparing these unique records will be appreciated by our members and that the films (all of which are 16 mm. size) will be fully booked up throughout the coming season.

The Delegates' Meeting.

The experiment was tried this year of beginning the delegates' meeting an hour later than usual, and although certain items had to be left over, we believe the later start was welcomed by all, especially those who had had a busy week.

In accordance with previous practice, all D.R.s had been invited to furnish a report covering the activities in their districts; these reports had been examined at Headquarters, and a *précis* prepared which was circularised prior to the meeting to all attending. It was thus possible to begin a discussion immediately on the important matters which had been raised.

For the purposes of record there were present:—Mr. E. D. Ostermeyer (President), Messrs. A. E. Watts, J. Clarricoats, A. O. Milne, E. A. Dedman, H. A. M. Whyte, H. A. M. Clark, representing Council, and the following D.R.s or proxies: Messrs. Noden (No. 1), Parry (No. 2), Desmond (No. 3), Walker (No. 5), Sydenham (No. 6), Dedman (No. 7), Jeapes (No. 8), Sadler (No. 9), Dell (No. 10, proxy for Capt. Price), Kershaw (No. 13), Fuller (No. 14, proxy for Mr. St. Johnston), Wilkins (No. 15), Allen (No. 16), Grieve (No. 17), Clark (No. 18), French (Scotland, proxy for Mr. Hunter), Allen (Northern Ireland), Capt. G. Noblett (I.F.S.), and Mr. R. J. Bee (Malaya). Messrs. Price, Buckingham, St. Johnston and Gay apologised for unavoidable absence.

The following were among the many points discussed:—

1. Mr. Kershaw recommended that a London Hamfest be held in London early in November.

2. Mr. Parry pointed out that certain amateurs with no code knowledge were obtaining licences by the subterfuge of a second operator to pass the code test, thereafter operating their stations continuously on telephony. Mr. Parry was asked to state a definite case for investigation.

3. Mr. Clark asked for the Standard Frequency Transmissions to be recommenced to assist new members in the checking of receivers and frequency meters.

4. It was agreed to hold N.F.D. during the week-end June 11 and 12, 1938.

5. By a small majority (8 votes to 6) it was decided to continue with the "4 stations per District" scheme for the 1938 N.F.D.

6. The dates for the 1938 Provincial District Meetings were fixed as follow:—

Date	*Venue*	*Covering Districts*
March 13 ...	Nottingham ...	... 3, 4, 17
April 24 ...	York ...	... 2, 18, 19
May 15 ...	Exeter ...	... 5 and 6
May 22 ...	Southport ...	... 1 and 11
July 10 ...	Cambridge ...	... 8 and 9
Sept. 17/18 ...	Glasgow ...	... Scotland

The dates for 1938 Conventionettes were fixed as follows:—

Date	*Venue*	*District*
June 19 ...	Southsea	... 7
July 24 ...	Hastings	... 16

The date for a projected meeting in Weston-super-Mare was not settled.

7. No discussion took place on the question of dividing the amateur bands for telegraphy and telephony operation; a proposal that "status quo" be maintained, made by Mr. Parry, and seconded by Mr. Desmond, being carried unanimously.

8. Mr. Walker suggested that the BULLETIN should feature a photographic interview of a well-known member each month.

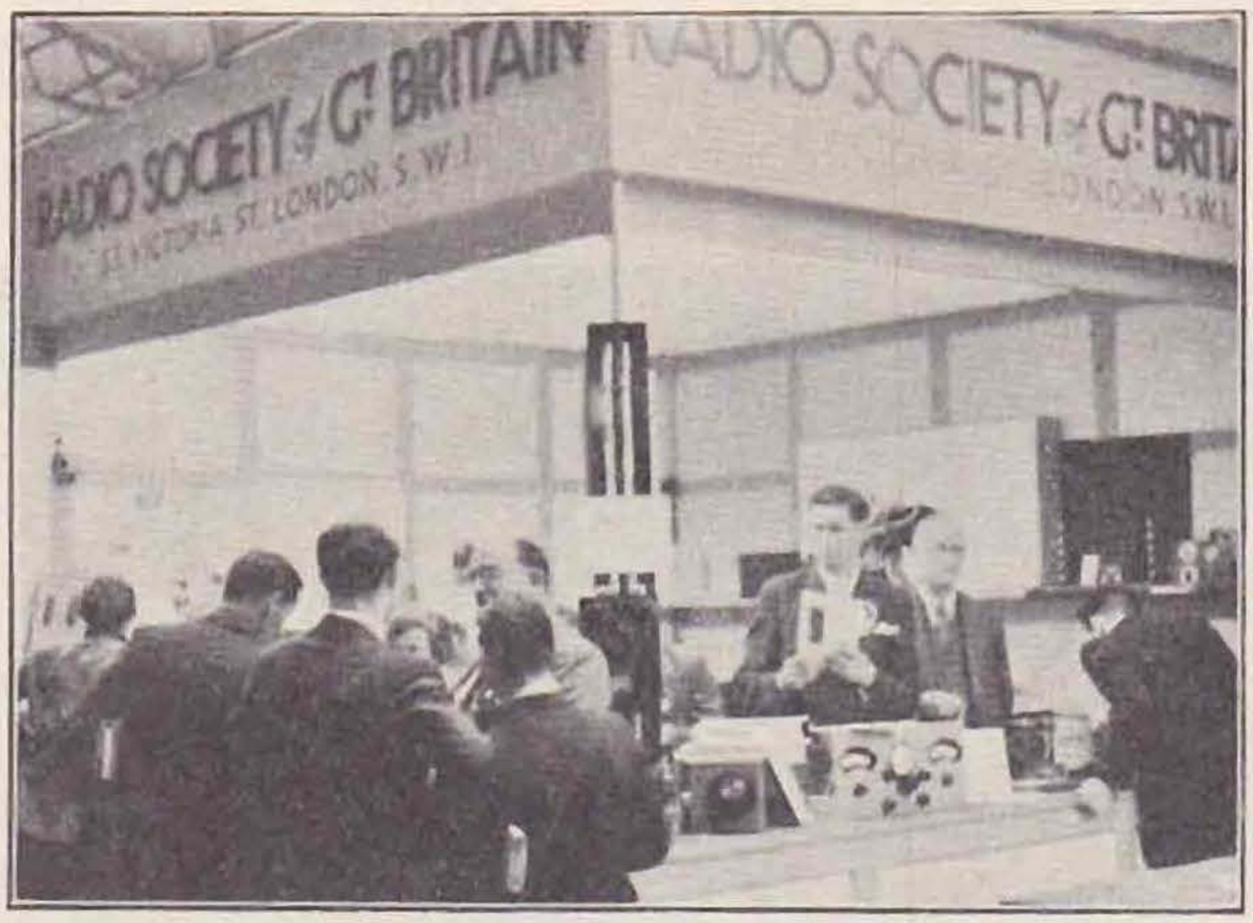
9. Mr. Dedman moved, and Mr. T. P. Allen seconded, that the rules for N.F.D. be amended to read that stations must be operated from a tent. The motion was carried by 10 votes to 5.

10. Mr. Parry asked whether a list of T.R.s could be published at frequent intervals. It was suggested that the D.R.s should include this information in their notes at least once a quarter. The suggestion was accepted.

11. The question was raised of asking the G.P.O. to fix a probationary period before a newly licensed station may be operated on telephony, but it was explained that this matter had already been discussed with the G.P.O. It was agreed that Council should again give it consideration at an early date.

12. A suggestion to transfer Monmouthshire to District 5 was not proceeded with at the request of Capt. Price.

13. It was agreed to consider transferring



[*Photo: F. G. S. Wise*

Activity on 214.

In the foreground G6CL answering questions, whilst G2MI and 6UT prepare for business inside. Mr. Bryden can be seen on the left explaining the operation of his remote control gear.

Off to visit the Mullard Factory.

Oxfordshire to a new District if the local membership consider it desirable.

The Technical Discussion Groups.

Following an experiment tried out at a recent London meeting, Technical Discussion Groups were arranged during the time the Delegates' meeting was in progress, and although the attendance was on the low side (about 30 being present), the innovation was voted a complete success. Messrs. H. C. Page, F. Charman, and D. W. Heightman were in charge of Groups, and many points of technical interest were discussed. In view of the rather dubious value of General Business Meetings, we contemplate extending the scope of the Discussion Groups next year.

Afternoon Meeting.

Following an informal lunch and the Annual Convention group photograph (reproduced in this issue), our President personally welcomed each member as he entered the Lecture Theatre at the I.E.E.

The presentation of trophies and awards brought forth well-deserved ovations as each winner went forward. We are happy to reproduce for the first time a photograph of the actual presentation ceremony in process. Mr. Wise very kindly photographed each trophy holder accepting his award, and we understand that copies are available at the nominal price of 1s. 6d. each.

Immediately after the presentations, Mr. Maurice

Presentation of Trophies. [*Photo: F. G. S. Wise*

An unusual photograph taken inside the Institution of Electrical Engineers, during the presentation of the Society's Trophies. For the information of members interested in photography the exposure was 1/10th second.

The General Business Meeting.

We are firmly convinced that Convention Business Meetings are a waste of time. The meeting held this year (attended by only 50 members) was little worse, and certainly no better, than its predecessors. We believe that a far more useful purpose would have been served if the Delegates' Meeting and Discussion Groups had continued until lunch-time. A certain amount of interesting discussion took place in connection with a projected Low Power N.F.D. Contest (suggested by Mr. James Hunter, GM6ZV), whilst useful views were given concerning other contests. The Tests and Awards Committee benefited from this part of the meeting, but, due to prolonged effusions on the ethics of amateur radio, several important matters of policy had to be left over.

Mr. Watts drew particular attention to the danger of off-frequency operation and piracy, whilst Mr. Milne also touched on these and other matters connected with the operation of British Amateur stations.

We regret we are compelled to write off this meeting in such peremptory fashion, but our recollections of what took place are, to say the least, rather hazy. We believe others share our view!

Child delivered his lecture on the subject of "Direction Finding." Without question, the information given was fully appreciated by the 200 odd members present, whilst the excellent series of lantern slides assisted materially in the clarification of many important features of the subject. As most of our readers know, Mr. Child has been engaged on D.F. work for many years in connection with the Golders Green and Hendon Radio Society. Before concluding, Mr. Child indicated several ways in which members can participate in this important work, and we hope that offers will materialise.

Mr. Milne, Mr. L. W. Jones and several other members joined in the discussion. At the conclusion of the meeting, Mr. Bevan Swift proposed a cordial vote of thanks to the lecturer, which was passed amid applause.

The meeting then broke up for informal tea.

The Annual Dinner.

Knowing interest in this event was increasing, we had catered for an attendance of around 220 (the reserved figure), but when another 30 odd members arrived without previous booking, the resources at The Florence were severely strained. The experience gained this year has, however, taught us a lesson, and in future we intend to

[Photo by Lincoln

Twelfth Annual Convention.

Front row.—From left to right: W. Grieve (G5GS), J. Noden (G6TW), A. O. Milne (G2MI), H. A. M. Clark (G6OT), E. A. Dedman (G2NH), W. H. Allen (G2UJ), H. C. Page (G6PA), M. Child, J. Clarricoats (G6CL), A. E. Watts (G6UN), E. D. Ostermeyer (G5AR), Miss M. Gadsden, H. Bevan Swift (G2TI), S. A. French (GM6FN), L. W. Parry (G6PY), G. A. Jeapes (G2XV), W. B. Sydenham (G5SY), H. V. Wilkins (G6WN), G. Noblett (EI9D), T. P. Allen (GI6YW).

devise a method which will effectively avoid the great inconvenience which was caused to those who had paid in advance.

We imagined that the arrangements which had been made were reasonably sound, but it became apparent before the dinner commenced that the most carefully laid plans can go astray if members fail to notify us previously of their intentions.

Forgetting the delay at the start, and the inconvenience caused as a result, the assembled party very soon settled down to a convivial evening.

Informal toasts were introduced for the first time, and it was interesting to notice how few of those present rose to the one given by Mr. Bevan Swift to those who had attended every Convention. The President's informal toast to those who had held a full permit for over ten years brought forth a little more response, but that given to " The G8's " put the previous pair to shame!

After the loyal toast, Mr. Geoffrey Parr, of *Messrs. Ediswan, Ltd.*, proposed the toast of " The Society at Home." In witty vein, he mentioned the increased use being made of foreign material in British amateur stations, pointing out that as time went on the British manufacturers would become more and more aware of their responsibility to the experimenters of the old country.

Mr. Clarricoats, in his reply, thanked all members for their support and expressed his regret that, owing to the intense pressure of Convention, he had been unable to devote more time to informal discussions with his provincial friends. He announced that the heavy cost of producing the 5th Edition of the Guide had already been met, thanks to the overwhelming sales at Olympia and to the generous support of advertisers. He drew attention to the record attendance present, emphasising that never before in the history of amateur radio in Great Britain had so many members been gathered in one place.

A Visitor from India. Mr. T. O. Cadell (VU2EB) at the Dinner.

Prior to the next toast messages of greetings were read from Messrs. P. P. Eckersley, G. F. Gregory and Leslie McMichael (Vice-Presidents), Mr. Hugh Pocock (editor, *Wireless World*), Mr. E. R. Martin (G6MN), Mr. J. Witty (G5WQ), Mr. G. C. Price (GW2OP), Mr. F. Pettitt (SU1SG), Mr. W. E. Marsh (SU1WM), Mr. J. S. Nicholson (VU2JP), Mr. G. Pollock (VK2XU), Mr. C. R. Emary (G5GH), Mr. W. E. Dunn (ST2LR), Mr. W. E. Lane (VQ4CRH), Mr. C. Gratten (LU9BV), Mr. C. Cleland (G2CN), Mr. J. Hunter (G2ZQ), Mr. W. Stirling (GM6RV), and Miss Burns (GM2IA). In addition a charming letter of greeting was read from Fritz Haas (OE1FH) and Willy Blaschek (OE3WB), representing the Austrian amateurs.

A humorous note was struck when the following message was read: " *Uncle Tom presents his compliments to members. He is in the shack enjoying the clearest bands he has heard for years, all the potential QRM makers being safely off the air.*"

It was, we think, fortunate that the " old gentleman " was not present, for surely his beard would have gone all hay wire 'midst the QRM from those wishing " to take it away "!

In a very sincere speech, Mr. Arthur Watts welcomed the B.E.R.U. Section members who were present, and on behalf of the Council assured them that it would at all times be their pleasure to give helpful advice on matters affecting the welfare of the overseas groups.

Mr. R. J. Bee (VS2AG), of Malaya, replied, and spoke of the warm welcome he had received from everyone during his first visit to England since taking up amateur radio as a hobby. He paid tribute to the friendly atmosphere created by Headquarters in their correspondence with those living abroad, and on behalf of all B.E.R.U. Section members offered best wishes for the future success of the Society.

Mr. G. Parr proposing the Toast of " The Society at Home."

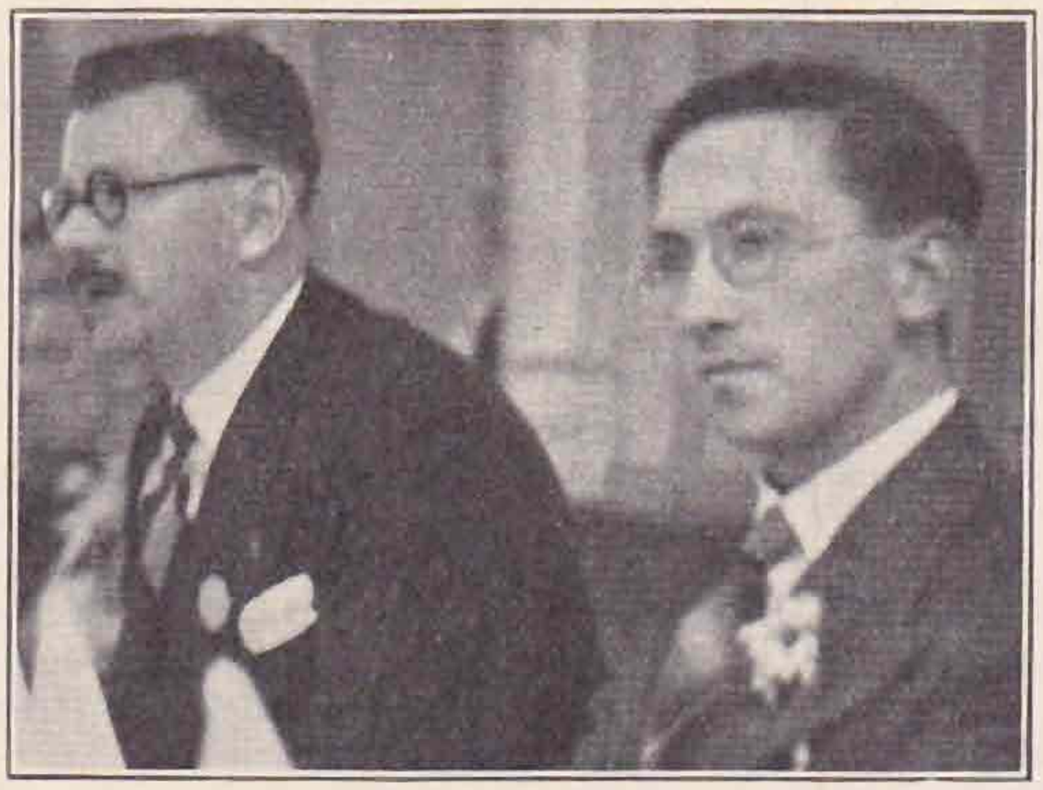
Mr. Horace Freeman, our popular Advertising Manager, sheltering under the call sign of " Ad. Man," proposed the toast of " The Radio Trade," and in doing so conveyed the Society's thanks to all who have in any way contributed to the advance of British amateur radio by taking advertising space in the Society's publications.

Mr. Higginson, of the *Dubilier Condenser Co.*, replying on behalf of the Radio Trade, made some amusing comments on " profits " and " amateur demands." He assured the company that the British radio manufacturer was at all times ready to meet a demand provided a reasonable amount of business was assured. He concluded his speech with a humorous story concerning the Radio Amateur and the Manufacturer who were both

Calendar 1938

Jan.	8-9	1.7 Mc. Contest.
Feb.	5-6	Senior B.E.R.U. Contest.
,,	12-13	,, ,, ,,
,,	19-20	Junior ,, ,,
,,	26-27	,, ,, ,,
Mar.*	13	*Nottingham P.D.M.
Apr.	24	*York ,,
May	15	*Exeter ,,
,,	22	*Southport ,,
June	11-12	N.F.D.
,,	19	Southsea Conventionette.
July	3	56 Mc. N.F.D.
,,	10	*Cambridge P.D.M.
,,	24	Hastings Conventionette.

*The Secretary will attend these meetings.



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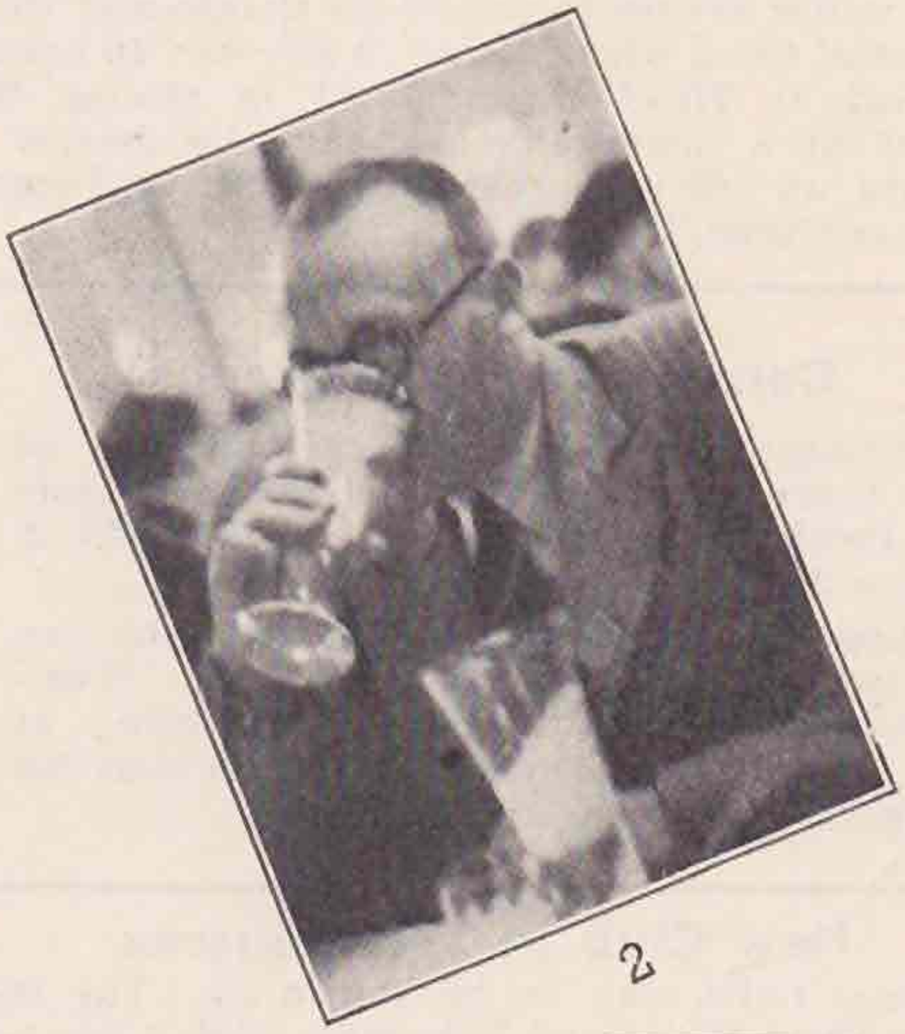

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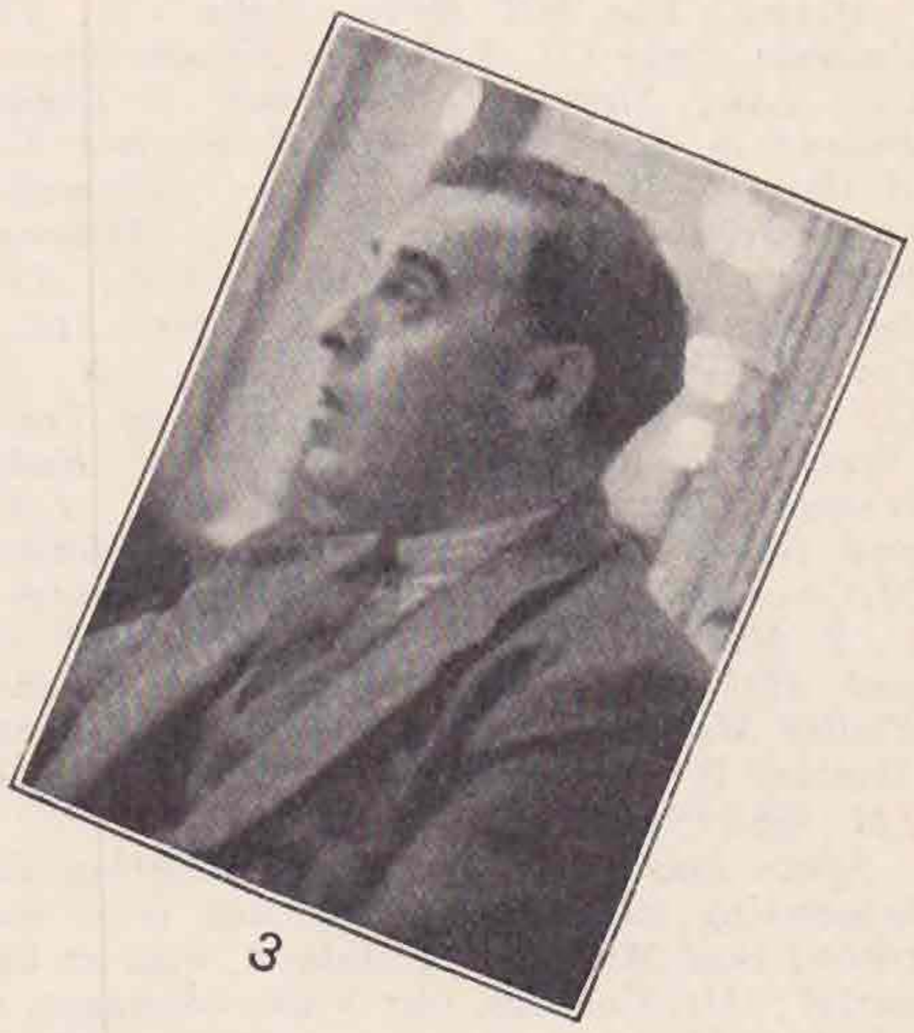

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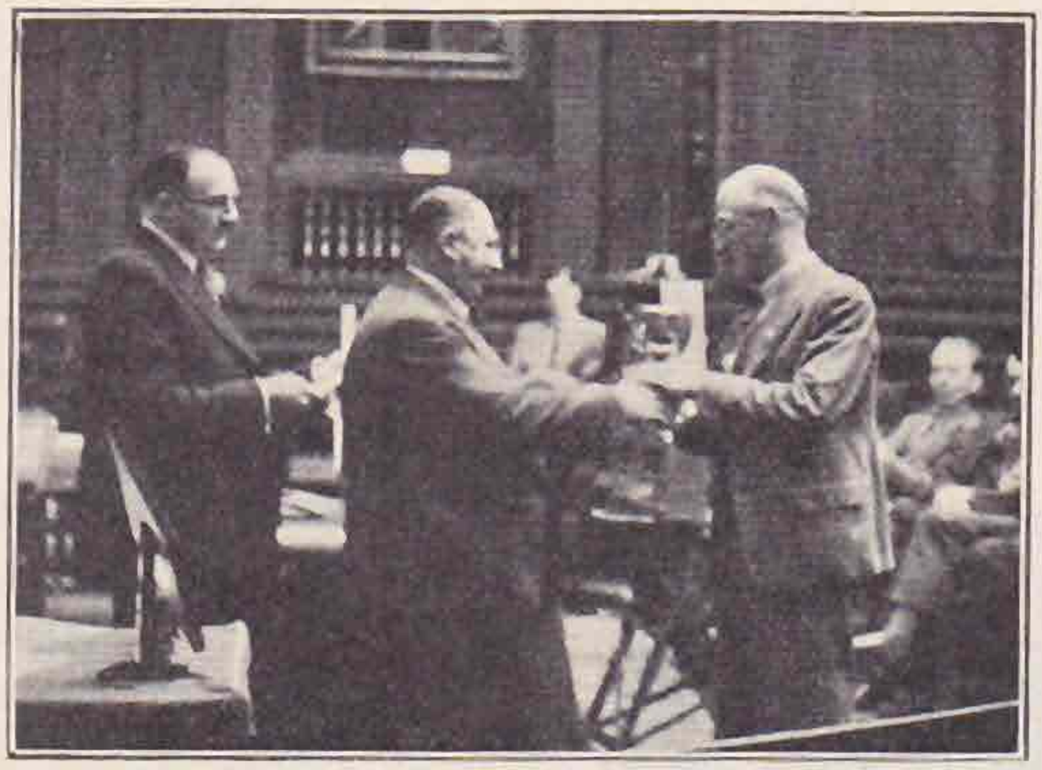

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[Photos: F. G. S. Wise

Un "Conventional!"

A further series of informal photographs taken during Convention.

1. *Mr. R. J. Bee (VS2AG) (who replied to the toast of "The Society Overseas") with Mr. H. A. M. Clark (G6OT).*
2. *Mr. L. B. Fuller (G6L-Beer).*
3. *Mr. H. B. Old M.B.E. (G2VQ) (Nottingham City Wireless Officer).*
4. *Mr. G. A. Jeapes (G2XV) receiving the Rotab Challenge Trophy.*

anxious to obtain entry to "The Golden Gates."

Promptly at 9.15 p.m. the President announced the Draw, an event which had been looked forward to keenly by all who had had an opportunity of examining the goodly array of material on display.

Before proceeding, the writer thanked Mr. Orr Ewing, of *Shaftesbury Microphones, Ltd.*, for his kindness in providing the public-address equipment. With over 250 present, the need for such apparatus was clearly apparent.

Thanks were then accorded to all who had contributed material, hearty applause accompanying the announcement that nearly 80 gifts were available for distribution.

Miss Corry and Miss Hall, the only lady members present, kindly assisted in the task of drawing the numbers.

We give below a complete list of those who so generously supported the event :—

Messrs. The 362 *Radio Valve Co., The High Vacuum Valve Co., Ltd., The Edison Swan Electric Co., Ltd., Standard Telephones & Cables, Ltd., Belling & Lee, Ltd., General Electric Co., Ltd., Wilkins & Wright, Ltd., Fuller Accumulator Co., Ltd., Telegraph Condenser Co., Automatic Coil Winding Co., Graham Farish, Ltd., APA Productions, H. Leslie Dixon, Dubilier, Ltd., Quartz Crystal Co., Stratton & Co., Ltd., N. E. Read, C. Webb, Ltd., Brookes Measuring Tools, Ltd., Oliver Pell Control, Ltd., Central Radio Ltd., Weston Electrical Instrument Co., Ltd., Iliffe and Sons, Furness & Hartley, Tillotson Bros., McGraw-Hill Publishing Co., Ltd., Barnes & Humby, E. R. Martin, Isaac Pitman & Sons, Ltd., Chapman and Hall, Ltd., Shaftesbury Microphones, Ltd., British Mechanical Productions, Marconiphone, Ltd., Mullard Wireless Service Co., Ltd., Gramophone Co., Ltd., G8BP* and *G8FX*.

Space does not allow us to mention the many interesting items presented, but it is worthy of record that Mr. Bee, of Malaya, won an anti-static aerial ; Mr. Corfield, our Valve Manager, collected an Avo Minor ; whilst one QSL printer-member won 100 cards presented by a competitor !

The draw was not completed until nearly 10.30 p.m., after which Mr. Arthur Milne (G2MI) proposed the health of "Visiting Amateurs." He spoke of the cordial welcome which he received when on a visit to Belgium, and expressed the hope that many more reciprocal visits would be made in the future.

Mr. Rosenlund (LA3G) and Mr. Arthur de Smet (ON4CC) replied in excellent English, both expressing their pleasure at being present at such a large gathering of British amateurs.

Finally, the toast of "The Chairman" was given by our Past President, Mr. Bevan Swift, who mentioned the splendid work which had been done for many years by Mr. Ostermeyer. The toast was drunk with musical honours.

Mr. Ostermeyer, in his reply, thanked all those who had in any way assisted the Society during his term of office, and paid a tribute to members of Council, D.R.s, T.R.s, R.E.S. Managers and Bulletin contributors. On behalf of the Society, he offered thanks to Headquarters for their efforts to make Convention a success, and concluded by wishing the Society continued prosperity.

To the singing of "Auld Lang Syne" and "God Save the King," our 12th Convention passed into history.

Conclusion.

The writer desires to record his thanks and those of his staff to all who assisted in any way to lighten the load at Headquarters, and in closing this account of a memorable occasion, he desires to reiterate an oft-expressed wish, "May *Amateur* Radio continue."

After the Show was over.

The morning after the night before—a snap taken at G6CL. From left to right : G6OT, 5SY, 2AI, 6LL, 2QY, EI9D, G2VQ, 5JU, 6CL, 6RB. Seated GI6YW.

Convention Photographs

Enlargements, mounted on cardette, of the Convention group can be obtained from "Lincoln," 3-4, Lincoln's Inn Fields, W.C.2. Price 3s. 3d. each, post free.

Copies of the informal photographs can be obtained from Mr. F. G. S. Wise, "Cinecot," Prospect Road, Barnet, Herts., at 1s. 6d. each for half-plate size. Prices for larger prints upon application.

New Club in West Sussex

A local radio club, to be known as "The West Sussex Short Wave and Television Club," has been formed at Chichester. Weekly meetings are being held at 7.30 p.m. every Tuesday at the Waggon and Lamb, Westgate, Chichester, when any member interested in short wave and television work is cordially invited to attend. A programme, including local field days, morse classes, demonstrations of apparatus and lectures, is to be arranged. The subscription has been provisionally fixed at 5s. per annum.

The Hon. Secretary is L. A. C. J. Williams (2BBB), H.Q. Flight, 43(F) Squadron, R.A.F., Tangmere, Sussex.

More D.F. Tests

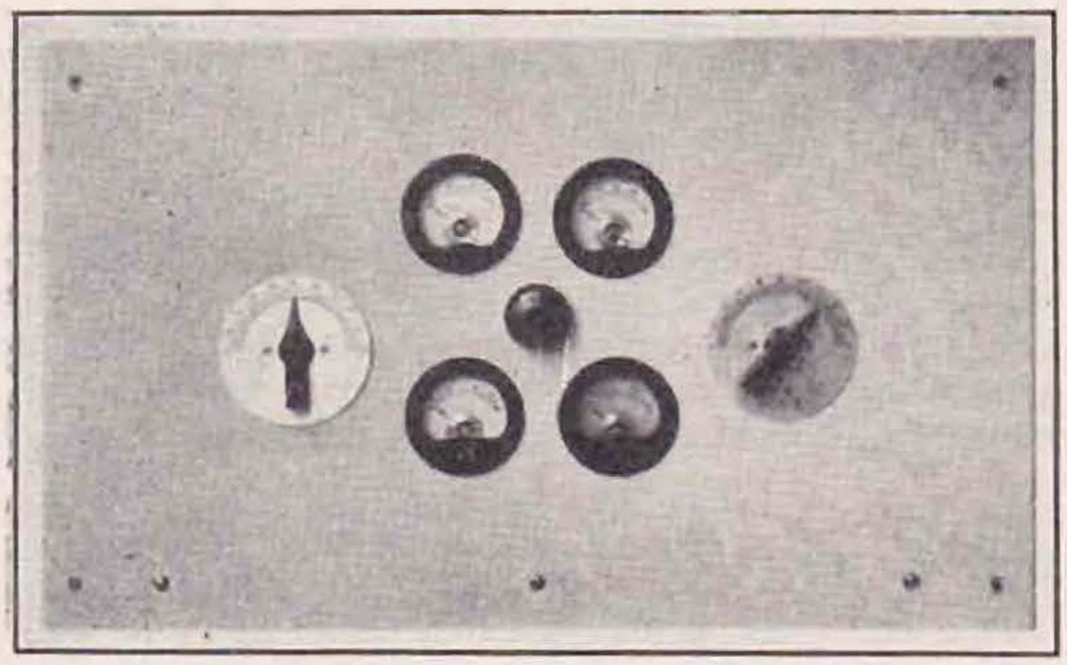
A further Direction Finding Contest in the successful series organised by the Southend and District Radio Society was held on Sunday, September 12, when 36 members and friends took part in a search for a transmitter concealed near Nobles Green, Eastwood, Essex. Three parties succeeded in finding the transmitter within the prescribed time, the winners being Messrs. L. Pugh and J. Leggett, who took a short cut through a narrow lane which had previously been considered impassable by cars. This exploit and the accuracy of their bearings enabled them to win in the record time of 1 hour, 6 minutes.

A Two Band 10-100 Watts Transmitter

By G. McLean Wilford (G2WD).

THE dual channel exciter described in the July issue may perhaps be considered a little too complicated for the beginner, or for one with limited gear at his disposal. The present transmitter, which has been evolved from the dual channel design, will, it is believed, appeal to those members desirous of building a modern station at moderate cost.

The transmitter is arranged for two band operation, *i.e.*, 3.5 and 7 Mc. using a 3.5 Mc. crystal, or 7 and 14 Mc. using a 7 Mc. crystal. An extra buffer stage may probably be required for 14 and 28 Mc. dual operation, but as 28 Mc. work was not considered when designing the set it is suggested that tests might be conducted using a 14 Mc. crystal with a view to 28 Mc. operation. The writer will be glad to hear from anyone following up this line of experiment.



Front view of two-band transmitter. Meters: top left, P.A. screen; top right, P.A. plate; bottom left, oscillator cathode; bottom right, P.A. grid. Left-hand control doubler plate condenser. R.H. control P.A. plate condenser. Knob between meters controls variable resistance in P.A. grid.

No coil changing for two adjacent bands is necessary with the present layout, except for the P.A., where plug-in coils may be used. Data for these is given later. Tapped coils may, of course, be used for this circuit if desired.

Circuit.

Referring to the circuit diagram Fig. 1, it will be seen that a "Jones" exciter is used as in the dual channel unit, either the fundamental or 2nd harmonic being available from the 1st and/or 2nd triodes of the *Marconi* B30 valve (V1). The SPDT switch is used to connect either the fundamental or 2nd harmonic output to the grid of the P.A.

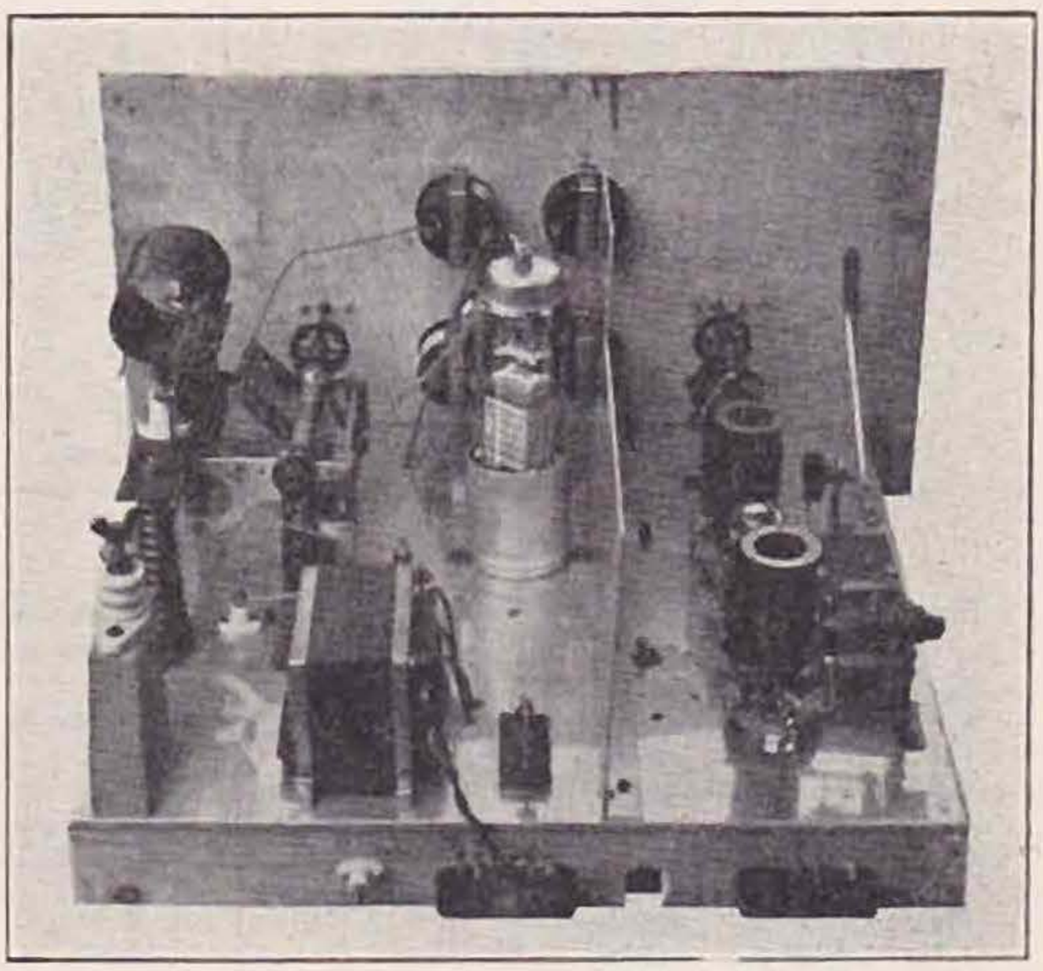
The P.A. can be an RK20 or RCA804 for QRO, or an RK23, 25 or RCA802 for low power. The P.A. valve is capacity coupled by means of C5 (100 $\mu\mu$F variable), a value which gives very good excitation control. This condenser is mounted through the chassis and once the best position has been found it should be left set. The control could, if required, be brought out to the panel to permit adjustments being made while the set is in operation. The circuit of the P.A. is tuned with a split stator condenser to improve circuit balance, but a single section condenser could, of course, be used. For CW the set can be keyed in any one of the following ways: (1) in the cathode of V1 using J; (2) blocked grid keying of the P.A. (V2); (3) suppressor grid keying as in the dual channel exciter; (4) in the centre tap of V2.

For telephony the P.A. valve can be modulated by the following methods: (1) suppressor grid; (2) grid; (3) combined screen and plate using a special *Thordarson* transformer; the output in case (3) being at least three times as great as in cases (1) or (2).

The speech amplifier and modulator for (1) and (2) can be small and inexpensive, but for (3) a Class B modulator using 2 type 59's or 46's, Class B will be necessary. The high power modulator unit described recently could be adapted for (1) and (2) by using it with V2 and V3 only; V3 being replaced by a 42 and T1 replaced by a 1/1 transformer. In case (3) it could be used up to and including V4 and V5, these valves being changed from 45's to 46's or 59's, and T1 and T2 being changed to Class B, input and output transformers, respectively. T2 then becomes the special *Thordarson* double wound transformer for combined plate and screen modulation. This could be run at low H.T. volts for the RK25 or 802 (say 250), but for an RK20 or 804 at least 400 volts should be available. Type 59's could also be substituted for the 46's. A separate diagram (Fig. 2) is given using 59's. This arrangement is in use at the author's station and with an RK20 in the final, inputs up to 100 watts can be modulated by this unit. Modulation up to 100 per cent. can be obtained by opening up the gain control.

In using combined plate and screen modulation the suppressor grid can be made either zero or biassed about 40 volts positive.

This set is usually in operation on the 3.5 and



Rear view of two-band transmitter. The oscillator doubler driver is to right of screen and power amplifier to left.

Try C.W. on 56 Mc.

7 Mc. band on Sunday mornings using about 50 watts input and those stations worked always give good reports regarding signal strength, speech quality and depth of modulation.

Construction.

The unit is complete in itself and mounts in a rack similar to, but rather narrower than, the rack in which are mounted the dual channel exciter and its P.A. The author's standard method of construction is again carried out here, *i.e.*, a wooden bottomless box, the top being covered with a sheet of 26 s.w.g. aluminium for screening purposes. The actual dimensions are 18 ins. wide, 16 ins. deep and 2 ins. high, the panel again being plywood $\frac{1}{4}$ in. thick and measuring 20 ins. long and 12 ins. high.

Referring to the front panel view in the photograph, the left-hand knob controls the plate condenser of the 30's (2nd triode), the knob in the centre of the 4 meters controls a 25,000 ohm 25 watt *Varley* variable for grid bias control, whilst the right-hand knob controls the P.A. plate condenser. The 4 meters are used as follows :—

Bottom left : B30 cathode current 0/100 mA.
,, right : P.A. grid, 0/20 mA.
Top left : P.A. screen, 0/50 mA.
,, right : P.A. plate, 0/250 mA.

For low power using RK25 or 802 the values could be reduced for the P.A. screen and P.A. plate to 0/30 and 0/100 mA. respectively.

Referring to the rear view photograph, the crystal holder is of the triple type containing 3 crystals, one for 3.5 Mc. only, and the other two for the L.F. and H.F. ends of 3.5 and 7 Mc., to allow QSY in case of QRM. The fundamental tank and condenser is mounted to the rear of the chassis, next the B30 valve, then the 2nd harmonic tank and its condenser. An S.P.S.T. switch is mounted alongside the harmonic tank to cut off the H.T. when only the first triode of the B30 is in use ; this is to the right of the vertical screen. To the left of the screen are the RK20 valve, the plate tank condenser and coil mounting. Between the screen and the filament transformer is a S.P. switch which is opened if C.T. keying is used, a lead being attached to each contact and to the key and its click filter.

On the back of the chassis are mounted two *Peak* 6-way connection blocks for the filament and H.T. leads, etc., the H.T. being attached to the small stand-off insulator. The aerial pick-up coil is mounted behind, and in the same plane as, the plate coil. The components under the chassis are S, C5, 6, 7, and two R.F. chokes. R3 and R4 can also be mounted under the chassis, but in the author's rig these are fitted near to the input to the modulation transformer for combined plate and screen modulation. The 13-volt filament transformer is also mounted on a separate shelf of the rack for convenience.

Operation.

With H.T. applied to both halves of the B30 valve the crystal tank condenser is varied until the familiar resonance dip is obtained. The 2nd triode is then tuned by C4 until another dip is obtained. With "S" in its correct position grid

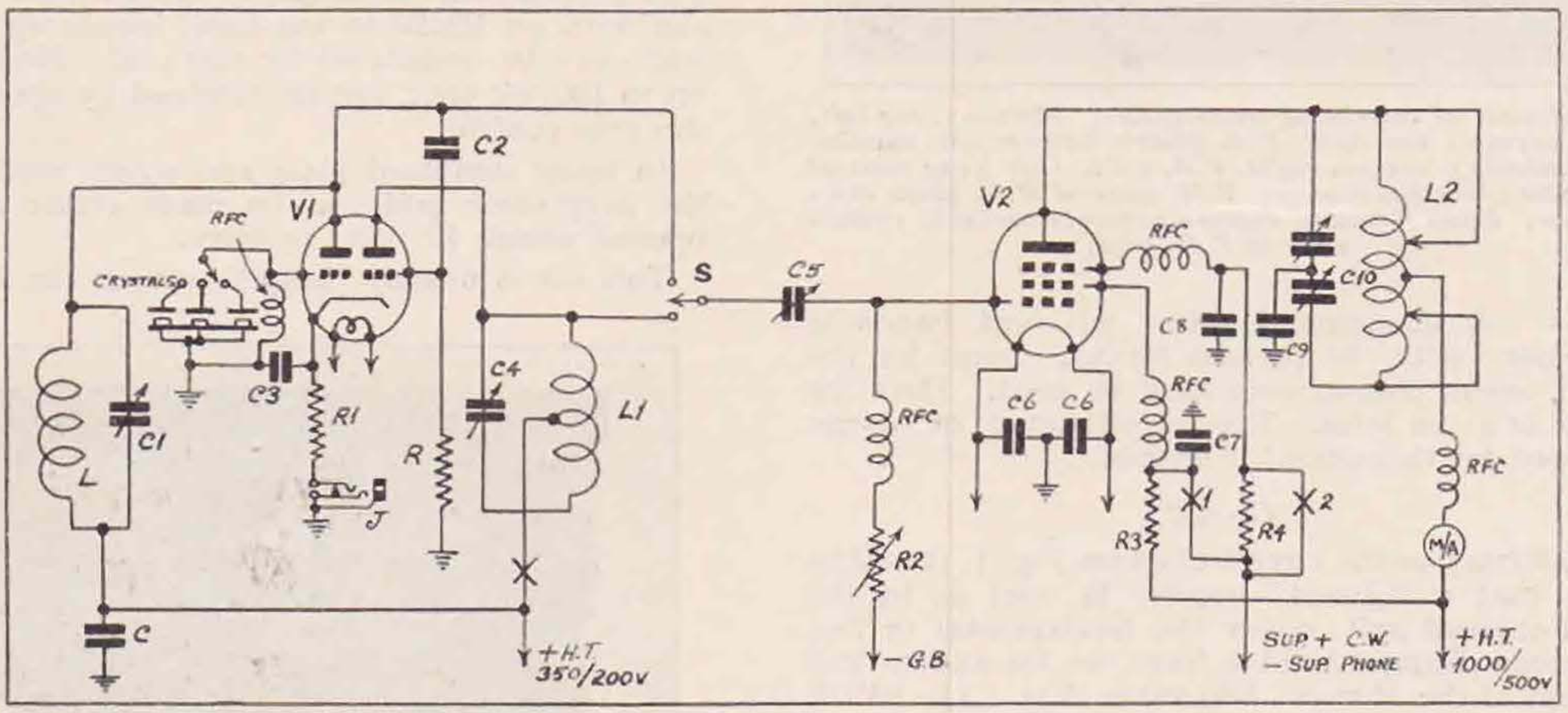


Fig. 1.

Two-band Telegraphy and Telephony Transmitter for Suppressor, Grid or Combined Screen-plate Modulation. Suitable for inputs of 25 to 100 watts.

C.—.01 F Mica, T.C.C.
C1.—100 μμF variable, type 900/100, Eddystone
C2.—100 μμF mica, T.C.C.
C3.—.01 μF mica, T.C.C.
C4.—100 μμF, variable, type 900/100, Eddystone
C5.—100 μμF, variable, type 900/100, Eddystone
C6.—.002 μF mica, T.C.C.
C7.—.002 μF mica, Dubilier
C8.—.002 μF mica, Dubilier
C9.—.002 μF mica, 1,500-v. working, T.C.C.
C.10—100/100 μμF, split stator, Cyldon
V1.—B30, socket 7-pin, Clix
V2.—RK20 (socket 5-pin, National) (Q.C.C.) RK25 802 (socket 7-pin, National) (Q.C.C.)
R.—50,000-ohm, 2-watt, Dubilier
R1.—500-ohm, 10-watt, type AR500, Bulgin
R2.—25,000-ohm, 25-watt, variable, Varley
R3.—16,000-ohm, 50-watt, Zenith
R4.—25,000-ohm, 25-watt, Zenith
X1, X2, X.—S.P.S.T. switch, type S80, Bulgin
S.—S.P.D.T. switch, type S81, Bulgin
J.—Single closed circuit, Igranic
RFC.—R.F. Chokes, section wound, Eddystone
Meters.—Howard Butler

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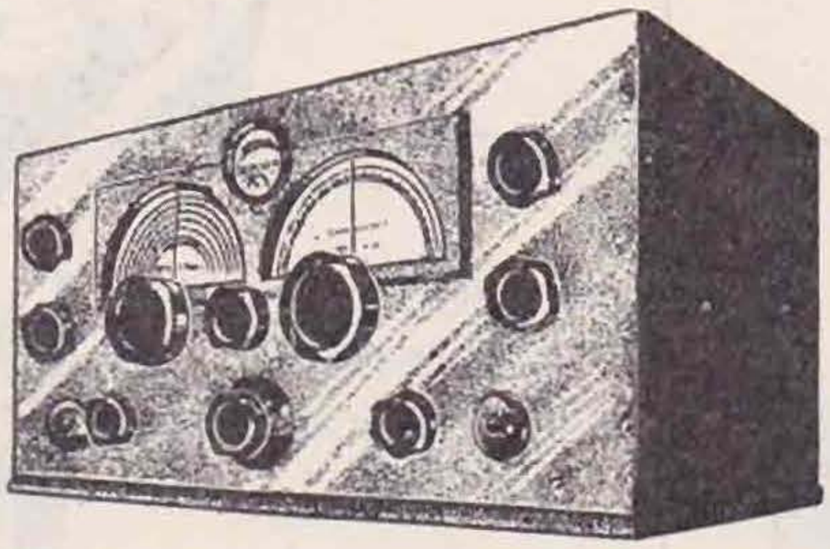
RME 69 1938 MODELS



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- Full Electrical Band spread.
- Crystal Filter.
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current will show in the P.A. grid meter. By varying C5, maximum grid current may be obtained, which for an RK20 should be 10-12 mA., and for an RK25 or 802 4-6 mA. For fundamental crystal output the switch " S " is reversed, and the 2nd triode plate circuit made " dead " by opening the switch " X." Tuning then proceeds as before.

As mentioned in the description of the dual channel exciter, when working on the crystal fundamental the plate condenser may have to be varied slightly due to the absence of the 2nd triode load.

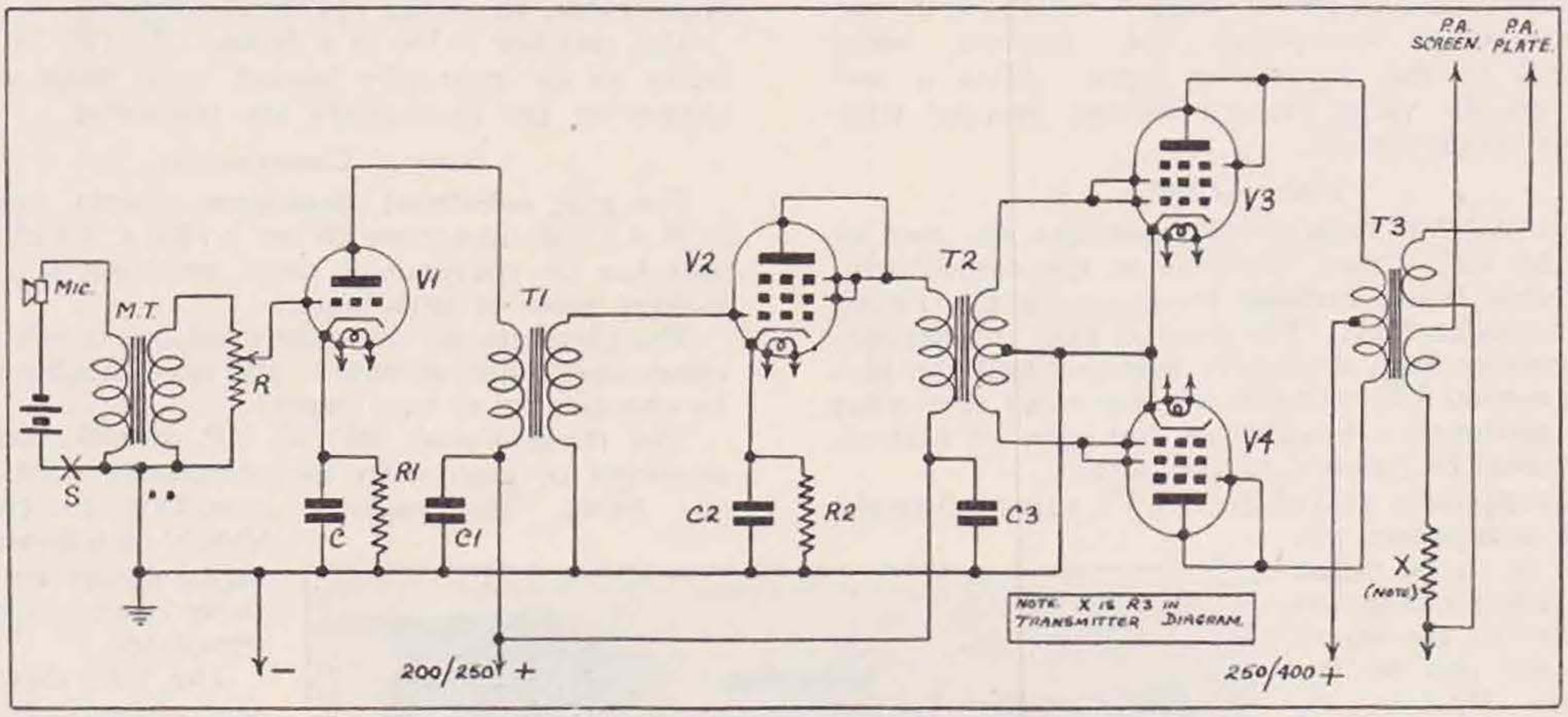


Fig. 2.

Class B Modulator Unit, for use with two-band Transmitter, employing plate and screen modulation.

R—500,000 ohm potentiometer, Reliance.
R1—2,700 ohm 1 watt, Erie.
R2—1,500 ohm 2 watt, Erie.
C, C1, C2, C3—1 μF, 250v. working, T.C.C.
M.T.—Microphone transformer, G.E.C.
T1—3 : 1 L.F. transformer, G.E.C.
T2—Class B input Thordarson, Raymart.
T3—Class B output Thordarson special, Raymart.
V1—56, Webb's Radio.
V2, 3, 4—59, Webb's Radio.
Sockets for V1, 5-pin, Raymart.
Sockets for V2, 3, 4, 7-pin Raymart.

These operations having been carried out power is applied to the plate tank and the circuit tuned to resonance.

With 800 volts on an RK20 the minimum plate current should be about 15-20 mA., and with 500 volts on an RK25 or 802 about 10 mA. The RK20 screen current should be about 30 mA., and for an RK25 or 802 about 20 mA. The plate current for the RK20 loaded to the aerial will be about 120mA., and for the RK25 or 802 not more than 70 mA. These values are for C.W. or combined plate and screen modulation. For grid or suppressor grid modulation the currents will be proportionately less because in these cases the suppressor grid is biassed negatively, which cuts down the plate current to approximately half the value obtained with plate and screen modulation.

It must be remembered, that the socket for an RK20 is 5 pin and the socket for an RK25 or 802 is a 7 pin.

Plate-screen Modulation Unit.

The diagram given is for the author's own modulator unit and is not illustrated as most readers are quite familiar with Class B modulator units. The line up consists of a 56 speech amplifier, and a 59 driver Class " A " connected. The Class " B " amplifier has two 59's Class B connected, *i.e.*, No. 1 and 2 grids connected together and grid 3 to the plate, no bias being required for this connection.

The diagram shows these connections clearly.

A voltage of 200 is ample for the speech amplifier driver, whilst any voltage up to 450 can be used on the Class B valves.

The two windings on the secondary of the Class " B " output transformer are connected, one to the plate of the valve from the P.A. H.T. supply and the other *via* the voltage dropping resister through the second winding to the screen of the P.A.

For the theory of this arrangement the reader is referred to the A.R.R.L. Handbook, 1937 edition, page 236.

Coil Data.

All oscillator doubler coils wound on *Eddystone* type DL9 4 pin formers.

A : 3.5 Mc., 26 turns, 22 s.w.g. enamel to cover 1½ in. winding space.
B : 7 Mc., 12 turns, 18 s.w.g. enamel to cover 1½ in. winding space.
C : 14 Mc., 7 turns, 18 s.w.g. enamel to cover 1⅛ in. winding space.

For 3.5/7 Mc. operation, A and B are used.
For 7/14 Mc. operation, B and C are used.

P.A. Plate Coils.

3.5 Mc., 26 turns, 16 s.w.g. enamel close wound and C.T. 3 in. diam.
7 Mc., 12 turns, 14 s.w.g. enamel spaced wire diam. and C.T. 3 in. diam.
14 Mc., 8 turns, 14 s.w.g. enamel spaced wire diam. and C.T. 2 in. diam.

Plate Coil for tapped operation.

35 turns, 14 s.w.g. bare wire 3 in. diam., spaced wire diameter between turns. Tap at 4 turns from each end for 7 Mc., 14 turns from each end for 14 Mc. and centre tapped.

A Modern U.H.F. Superheterodyne Receiver

By J. N. Walker (G5JU).*

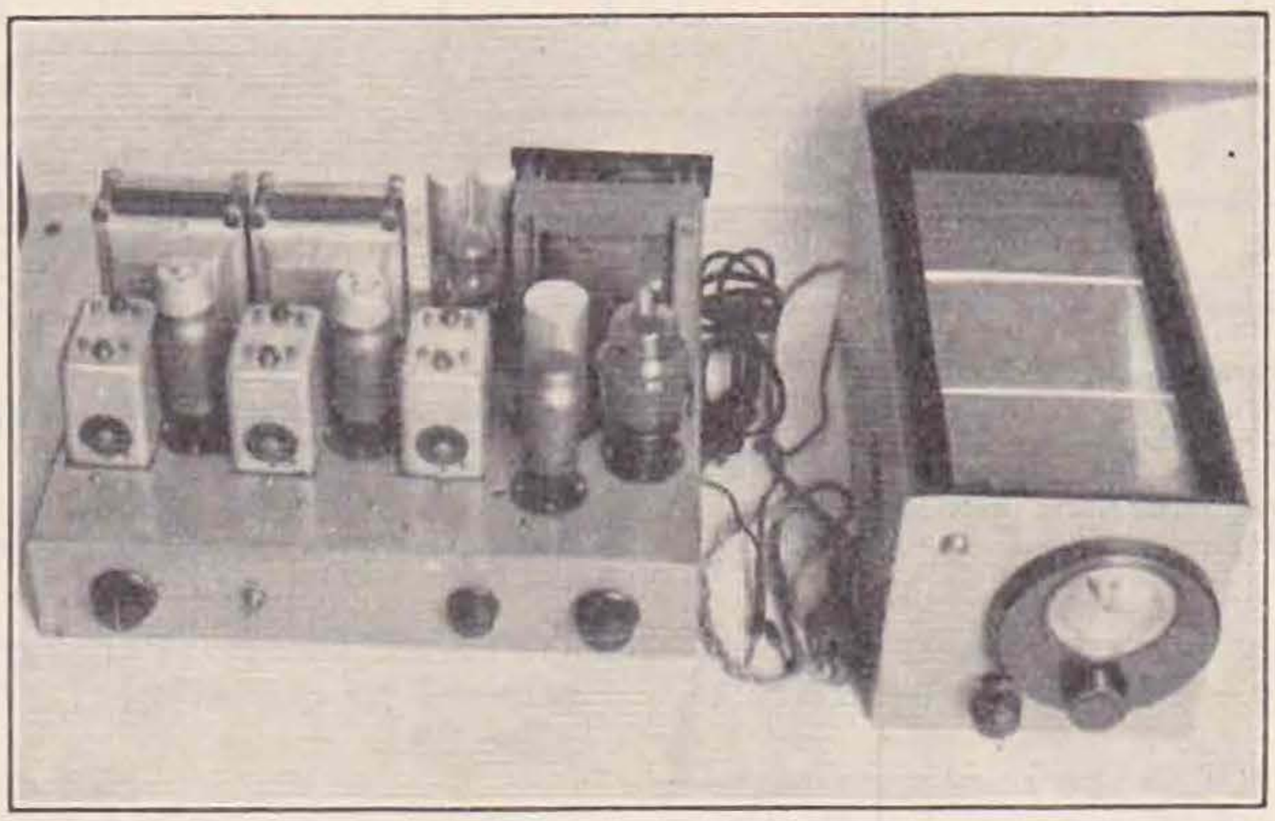
PART II.

THE technical features incorporated in the I.F. amplifier and power supply, which, with the converter, completes the receiver, were described in the September issue. After a few words on the valve line-up we can proceed with constructional details.

Valves Used.

Hivac AC/VP variable-mu pentodes are used in both the I.F. stages, the bias to the control grid of the first being variable by means of the *Varley* potentiometer R11. The overall gain is considerably greater than is usually required and the bias of the second I.F. valve is set at a value somewhat below optimum. Should the full gain be desired, R14 should be reduced to 100 ohms.

The suppressor grid of the AC/VP valve is brought out to a separate pin and it is to be noted that this is connected directly to the earth line and not to the cathode. By doing so, better internal shielding is secured, which, with the slight negative bias impressed, enables a high degree of stability to be secured. If desired, the suppressor grid of the first I.F. valve can be connected to the A.V.C. line, when the control will be slightly better. Thorough decoupling of both screen and anode circuits is included.



A view of the completed U.H.F. Superheterodyne Receiver with its associated I.F. Amplifier.

A double diode pentode, type AC/ZDD (*Hivac*) is used for rectification, A.V.C. bias and audio frequency amplification in the normal way. A delay of a few volts is applied to the A.V.C. system in order to prevent it coming into action on weak signals.

An AC/HL, connected in an electron-coupled circuit, is used in the Beat Frequency Oscillator. Two windings of the *Varley* BP 80 are wired up, as shown in Fig. 4, the third winding being left unused. A *Cyldon* trimmer condenser is specified for the extra padding condenser across the coil, but it should be noted that *Polar* make a suitable type, if the original is difficult to obtain. A *Nicore* choke in the anode circuit enables R.F. voltage to develop and some of this is fed, *via* a very small condenser, to the signal diode. In practice, four or five turns of 20 s.w.g. wire are wound over both the systoflex covered leads to the oscillator anode and diode, but experiment with the number of turns is desirable, to obtain optimum coupling.

The rectifier valve is a *Hivac* UU 120/350 and, being of an indirectly heated type, high voltage surges on the condensers are prevented.

General Construction.

The grey cellulosed aluminium chassis, made by *A.P.A., Ltd.*, measures 15 ins. × 10 ins. × 3 ins., and matches the components used, resulting in a good-looking piece of apparatus.

The photographs show the positions in which the components are mounted, and no difficulty should be experienced in this respect.

The three *Varley* BP 95 I.F. transformers are mounted in line, with the selectivity controls to the front. The makers' mounting instructions should be followed, the metal plates being removed and used as templates.

The I.F. valves are sandwiched in between the transformers, thus allowing very short sub-chassis connections. The B.F.O. valve is to the right and the padding condenser is mounted close to it, with a hole in the chassis enabling the adjusting screw to be reached, and the beat note varied while the receiver is in operation. The power supply is arranged along the rear of the chassis.

On the front of the chassis, from left to right, are mounted the I.F. gain control; the *Bulgin* switch, type S.125 (which disconnects the H.T. to all valves except the output one for transmission); switch type S.114 (which cuts out the A.V.C. when the B.F.O. is switched on and *vice versa*); and the audio gain control, which is a *Dubilier* Potentio-meter type J, and incorporates the mains on/off switch.

On the rear of the chassis are the *Bulgin* switch, type S.92, for switching on or off the A.V.C. bias voltage to the R.F. valve in the converter, the *Eddystone* 6-pin power supply socket, *Clix* loud-speaker and mains voltage control panels, and an earth socket.

On the left-hand side (from the front) are the two *Clix* insulated sockets for the I.F. input, with a terminal immediately below, to which the screening of the cable is connected. On the right-hand side is the telephone jack.

* 56 Mc. R.E.S. Manager.

The construction underneath the chassis is straightforward, except that it is desirable to include a screen to prevent unwanted coupling between the components associated with the B.F.O. and other parts of the amplifier. This screen is fashioned from a piece of copper 10 ins. × 2 ins., with a ¼-in. flange for fixing purposes. It is bent round so that the valve holder, grid condenser and leak, and fixed and variable condensers are shielded within it and fixed in position. This screen shows clearly in the photograph.

Wiring Up.

It is undesirable in a high-gain amplifier of this type to have long leads and therefore all the by-pass condensers and resistances are mounted directly in the wiring, instead of using group boards. Those condensers and resistances directly associated with the valves or coils should be connected as close up to the latter as possible, the other end of the condensers going to the nearest convenient point on the chassis. Note that in the case of the output valve the majority of the condensers are returned to the cathode and not to the chassis.

No. 20 s.w.g. tinned copper wire is suitable and should be insulated with systoflex sleeving. The connections from the top caps of the valves to the I.F. transformers is made with screened cable, the screening being well earthed. The same wire (screened) should be used between the grids of the valves and the transformers, even though these connections are very short.

Condenser C9 is formed similarly to the B.F.O.

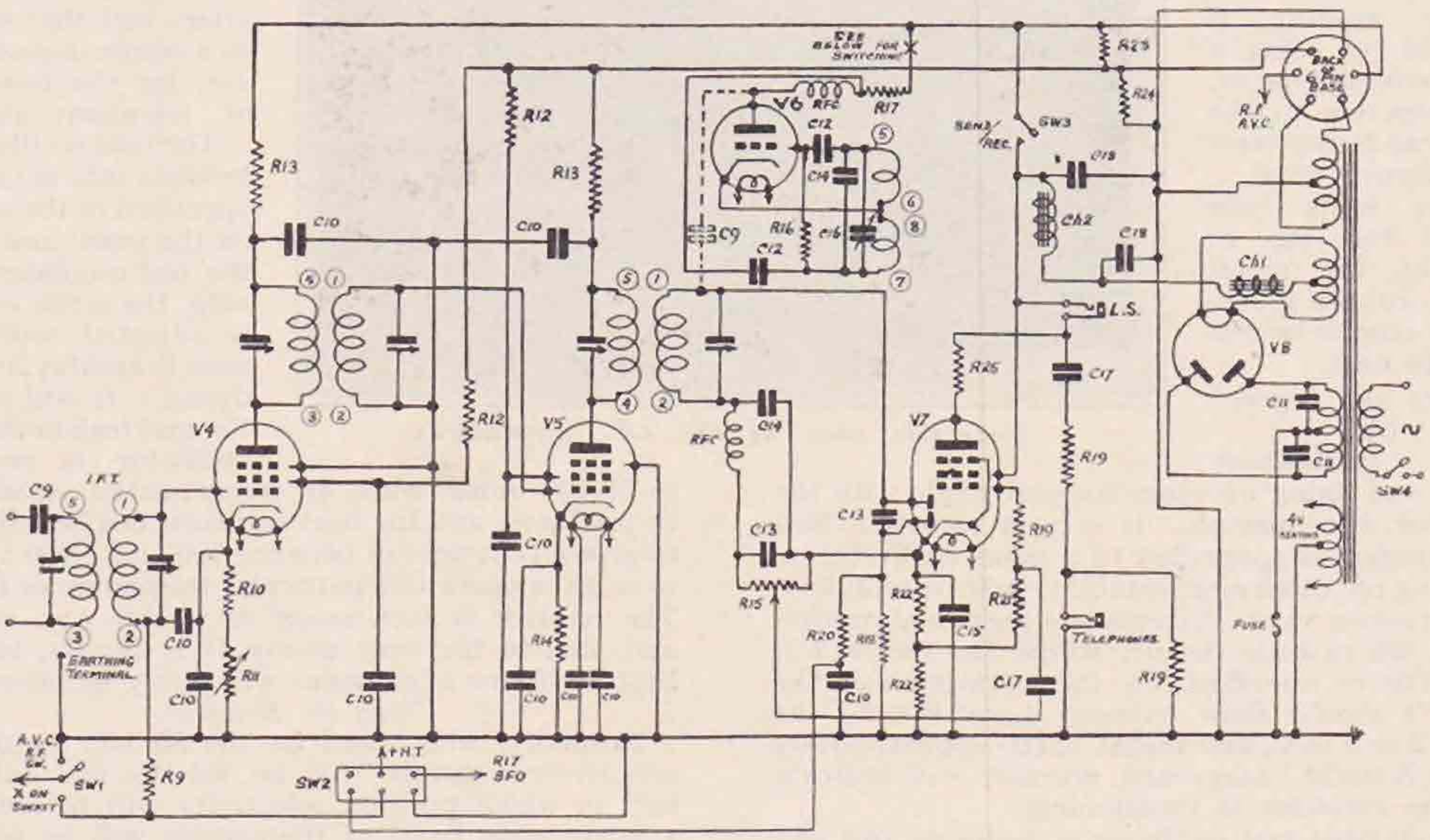


Fig. 4.
I.F. Amplifier and Power Supply.

C9—See Text.
C10—.1 μF, type 250, T.C.C.
C11—.01 by .01 μF, type 87A/02, T.C.C.
C12—.001 μF, type M, T.C.C.
C13—.0001 μF, type M, T.C.C.
C14—.0003 μF, type M, T.C.C.
C15—50 μF, 12 volt, type 12C, Electrolytic, T.C.C.
C16—500 μμF, Trimmer, Cyldon.
C17—.05 μF, type 250, T.C.C.
C18—8 μF, Electrolytic, type 502, T.C.C.
R9, 16—100,000 ohm, type F, ½ watt, Dubilier.
R10—100 ohms, type F ½ watt, Dubilier.
R12—1,000 ohms, type F ½ watt, Dubilier.
R13—5,000 ohms, type F ½ watt, Dubilier.
R14—250 ohms, type F ½ watt, Dubilier.
R17—60,000 ohms, type F 1 watt, Dubilier.
R18—1 megohm, type F ½ watt, Dubilier.
R19—20,000 ohm, type F ½ watt, Dubilier.
R20, 21—250,000 ohms, type F ½ watt, Dubilier.
R22—175 ohms, type BW1, Dubilier.
R11—10,000 ohms, type CP 158, Varley.
R15—250,000 ohms, type J, Dubilier.
R23—10,000 ohms, type F, 2 watts, Dubilier.
R24—20,000 ohms, type F, 2 watts, Dubilier.
I.F. Transformers, type BP95, Varley.
Switch 1, A.V.C. on/off to R.F., type S92, Bulgin.
Switch 2, B.F.O. on/off to R.F., type S114, Bulgin.
Switch 3, Send/Receive, type S125, Bulgin.
Switch 4, Incorporated in Volume Control.
Mains Transformers, type E1004, Epoch.
350-0-350v, 3 at 4v.
Choke 1, 2, Type 20/60, Q.C.C.
B.F.O. Coil, type B.P.80, Varley.
R.F. Chokes, type B.P.26, Varley.
Clix parts. 2, 5 pin Air sprung valveholders.
3, 7 pin, Air sprung valveholders.
1, Fuse Plug, type 27.
1, L.S. Control Panel, type 28.
3 Insulated Resilient Sockets, type 12. (1 earth, 2 input).
3, Solid Plugs, type 7.
6 pin socket and plug connector, Eddystone.
Valves. V4, 5, AC/VP, Hivac.
V6, AC/HL.
V7, AC/2DD.
V8, UU120/350.
2 Screened Valve Connectors, type P64, Bulgin.
Multi-way Cable, type BC4, Bulgin.
1 Telephone Jack and Plug, type J2 and P38, Bulgin.
4 and 6 B.A. N.P. Nuts and Bolts, Rubber Grommets, Group Boards, Screened Wire, H.T. fuse, etc., Bulgin. Metal Chassis, 15 in by 10 in., grey cellulose, A.P.A.

coupiing condenser by winding wire over the systoflex-covered lead to the I.F. transformer, or, alternatively, a small mica trimmer, *Eddystone* type 1023, for example, may be used.

The stopper resistances R 10 and R 19 should be mounted extremely close to the anode and grid of the output valve, in order to prevent parasitic oscillations developing. The special wiring of the *Clix* loud-speaker control panel is given with it, the telephone jack being connected to the " internal speaker " contacts.

The fuse protecting the high-tension side of the mains transformer is placed in the centre tap of the main H.T. winding to chassis and a 60 mA. bulb is suitable. The primary winding is protected by using a *Clix* fuse plug, type 27, for connection to the mains, two 2-amp.fuses being incorporated.

Where leads pass through the top or sides of the metal chassis, rubber grommets or ebonite bushes should be used.

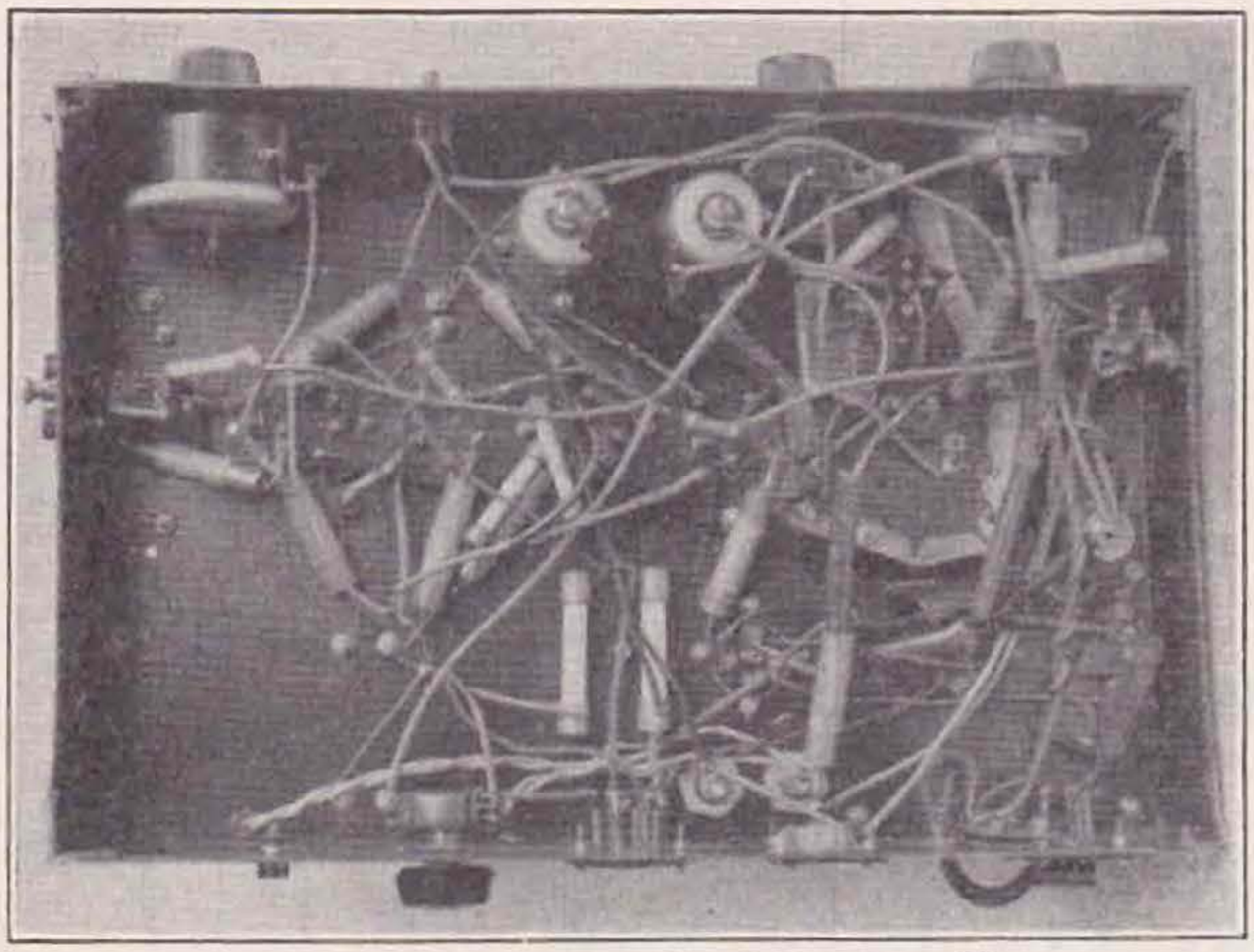
Testing and Lining Up.

The preliminary testing and lining up operations are made with the converter disconnected. It is very essential that the amplifier is connected to a good earth before switching on, otherwise instability will be manifest. If the various valve currents are measured, preferably in the cathode circuit, where the meter will have little or no effect on the performance, the AC/VP's should show between 4 and 6 mA., the B.F.O. 2 or 3 mA., and the AC/ZDD approximately 20 mA. A slight background murmur will indicate that the amplifier is functioning.

A modulated test oscillator is desirable and this can be made up to the circuit shown for the beat frequency oscillator, using either a centre tapped I.F. transformer or a broadcast medium-wave coil. The values of the grid leak and condenser should be 1 megohm and .006 μf., respectively, which will result in a note in the region of 400 cycles. This oscillator should be set so that the second harmonic is received on a broadcast receiver tuned to 922 kc., corresponding to Brno on 325 metres; Hamburg on 332 metres will do practically as well.

The output from this oscillator should be injected into the first I.F. transformer and the trimmers roughly adjusted for maximum response, preferably shown by a low reading milliammeter in the anode circuit of the second I.F. valve, failing which, it will be necessary to judge aurally, keeping the volume down to a low level.

The coupling between the oscillator and the amplifier should then be made very small and the trimmers finally adjusted, the settings being fairly critical. During these operations the selectivity control knobs should be set at the extreme right position, where selectivity is maximum. The I.F. gain control will be at maximum to begin with and can be reduced as adjustment proceeds. Next the output leads from the converter should be plugged into the input sockets in the amplifier, but without the power supply being connected to the former, and the output from the test oscillator connected, by means of crocodile clips, to the primary of the I.F. transformer contained in the second box of the converter. The trimmers of this transformer should be adjusted for maximum output, making alterations in the value of C9 if found necessary.



Underside view of the I.F. Amplifier.

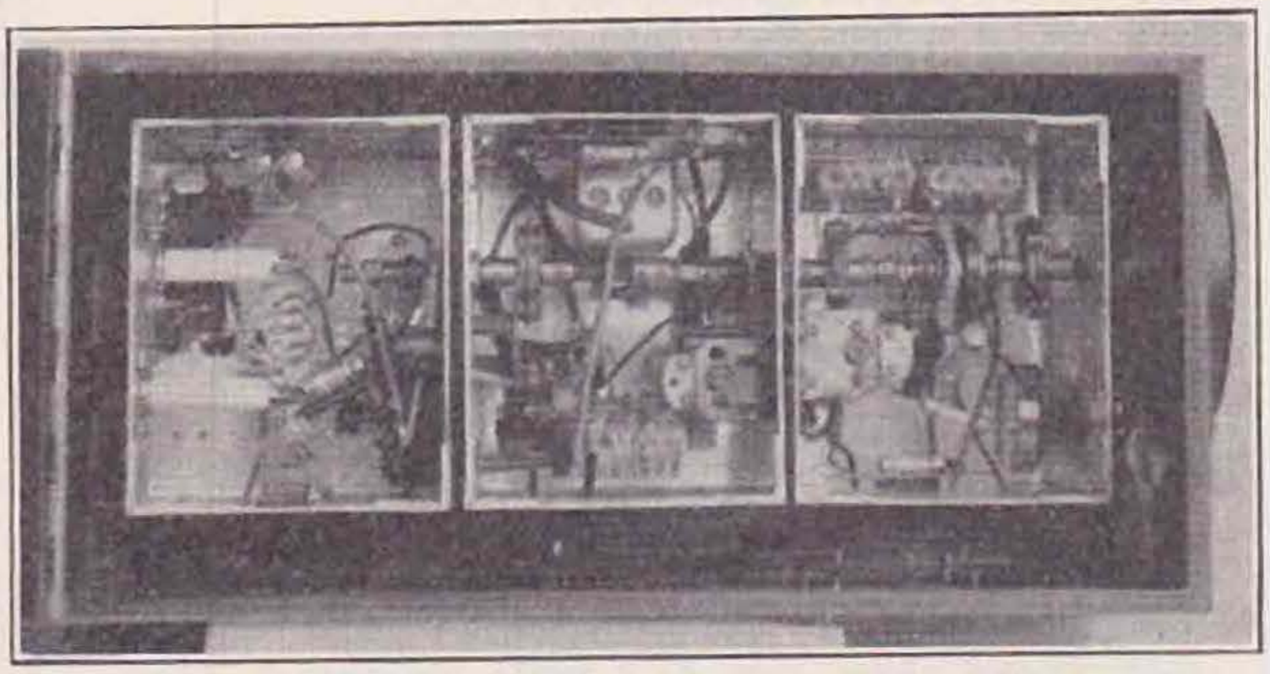
The power plug from the converter can then be plugged into its appropriate socket in the amplifier and the lining up of the R.F. stages, which was described in the previous issue, proceeded with, after which the receiver as a whole is ready for use, for the reception of telephony signals.

The beat oscillator is brought into action by operation of the switch on the panel and, with the test oscillator running, the screw of C16 is adjusted until the note is audibly heterodyned. It will help if the grid leak in the test oscillator is reduced to 50,000 ohms, when an unmodulated signal will be produced, and the beat oscillator can be adjusted to give a beat note of between 700 and 1,000 cycles, to suit the operator's particular telephones or fancy. The receiver is then ready to receive c.w. signals and, due to the very steady H.T. supply, further beat oscillator adjustment will rarely be necessary.

Using the Receiver.

Normally, when used on the 56 Mc. band, the selectivity controls will be set to the extreme left, in which position selectivity will be low and a fairly wide band of frequencies will be passed. The reception of self-excited telephony is possible in this position, provided that the carrier is not heavily frequency modulated or badly broken. When many stations are active close together or when c.c. telephony is being received, the selectivity

(*Continued on page* 230.)



Top view of U.H.F. Receiver showing location of Components.

THE 56 Mc BAND.

By L. G. Blundell (G5LB).

REFRESHING news this month! The band is once again showing definite signs of "life" in the DX sense of the word.

September 5 will be remembered for a long time by a few stations who were listening on straight receivers that day. But to take events in their sequence. Between 10.47 and 11.14 BST G8JV heard an RST213 signal calling "Test de 11E (?) K (?) M on about 57.6 Mc. The extremely poor signal plus car QRM prevented certain identification, but the time, call and transmission characteristics closely correspond with those known to be radiated by 11TKM (see last month's notes).

At about 14.30 BST G2CI was listening round the 28 Mc. band and came across F8CT calling "ten and five." 2CI promptly changed up to 56 and there found the Frenchman coming through in fine style at 559x.

G2HG found him a little later at 55/69x, and he was also getting up to G8JV in Nottingham at 569 at the same time. G2KI in Twickenham located the signal as well and managed to get 56/57x.

Unfortunately for all concerned, F8CT was not in a position to receive on 56 Mc. at the time, and was QRX on 28 Mc. for reports. However, after calling him several times on 56 G2HG went down to "ten" and made contact, there learning what was amiss.

According to the reports furnished by the stations mentioned above, F8CT was audible and readable for almost an hour—from about 14.30 until 15.30, when signals faded right out.

In his acknowledgments to reports, F8CT states that he is using 48 watts input CC with a full wave aerial, and is regularly active at 09.00—15.00 on Saturdays and Sundays. Frequency is 56,336 kc. For those who hear this station working simultaneously on both the 28 and 56 Mc. bands, please note that two separate transmitters are in use and there is no question of harmonic or overtone (or *vice versa*). G2HG cleared that point up by asking 8CT to switch off the 28 Mc. gear. This was done, but 8CT still came over on 56 Mc.—much to everyone's satisfaction.

Things got a bit lively when 2HG started to work 8CT on "ten"—his harmonic being heard by the other stations on the higher frequency with 8CT's signal. The general inference was that they *were* in QSO on 56 Mc. However, everyone soon knew otherwise, thanks to HG.

Local News.

G6YL, who reports activity with CW, is using LL oscillator with 10 watts input. Aerial, 82 ft. horizontal. Has been frequently testing with 5QY at about 20 miles, but appeals for more CW activity in that part of the country so that a better check on gear can be obtained. Anyone willing to arrange CW schedules is requested to write direct to the stations mentioned.

G2LC, of Leigh-on-Sea, is operating a straight receiver, and has heard 2HG (30 miles) at 559x. Transmissions on this band, however, are not yet possible.

G2HG continues to contact 6FL fairly regularly, but the schedule suffered (more from "unavoidable absence" than poor conditions) at the end of August and early September. However, there appears to be no serious falling off of conditions, as HG usually finds a QSO possible whenever 6FL is heard.

Reminder.

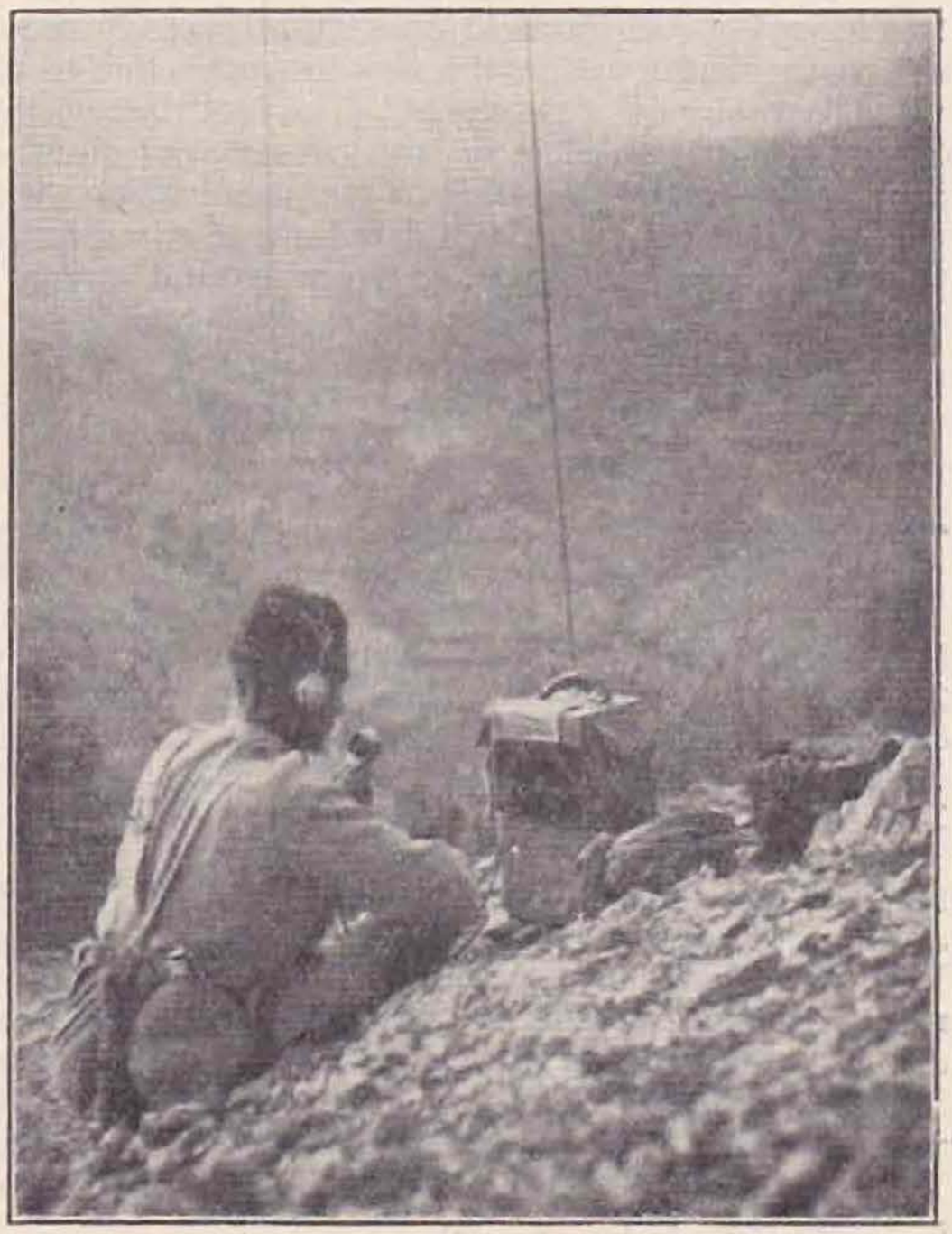
Much more CW activity required! Can you help? If so, please commence activity as soon as possible. Thanks OM.

56 Mc. on Active Service

By M. Brookes-King (G2CI)

WHILE one hears, nowadays, many disparaging remarks concerning self-excited transmitters and super-regenerated receivers for 56 Mc. morse, such apparatus fills a very real need in certain circumstances, as the following account will show.

About a year ago, Major David Williams, of the South Waziristan Scouts, when home on leave, informed the writer that he was trying to obtain portable radio apparatus for use by his patrols in the hills of the North-West Frontier. He finally ordered two *R.C.A.* type A.T.R.-219 transceivers; and knowing that G2CI was interested in 56 Mc., he asked for information about work on this frequency. In return, he agreed to report upon the behaviour of the sets, as it was explained that such information might be of great value to the



One of the 56 Mc. portables in actual use in the hills of the North-West Frontier of India.

Watch For DX on 56 Mc.

study of 56 Mc. problems. A highly interesting official report has now arrived, and permission obtained to make use of the material contained in it.

The A.T.R.-219, as originally built with self-contained batteries, weighs 26 lbs.; but as this is rather too heavy for a man working in the extremely rough and precipitous country where the sets are used, Major Williams has separated the high tension batteries, which now form a pack for a second man, and this unit has a plug-in cable to the instrument box.

A quarter-wave rod of 3/16-in. copper is used as an aerial, as this is easy to carry.

The report covers a period of four months, during which one of the sets has accompanied patrols on active service, being carried for some four hundred miles in all. The conditions have been appalling, the set being subjected to continual jolting, and to exposure in all kinds of weather, including heavy rain; yet consistently good service has been maintained.

As to the distance over which communication is obtained with these sets, it has not been possible fully to test this, due to the continual hostilities. However, an air line distance of 15 miles has been covered between the stations. Patrol work, which of course must be done without regard to location, is normally over a distance of from three to seven miles, and such distances have been successfully covered. As soon as conditions become more normal, Major Williams will carry out tests to discover the limiting height of obstructing hills for a given distance. From experience already gained, he believes that at a distance of six miles an intervening ridge rising several hundred feet above the communicating stations would not form a complete screen.

In conclusion he remarks on the popularity of this means of communication with his native troops, and their confidence in the sets in preference to the visual equipment. He says: "The fact that neither day nor night, absence of sun, presence of cloud or rain, makes any difference to communication with this instrument . . . a rapid means of communication which can be operated from behind cover, is appreciated by all." Well done, 56 Mc.!

The 28 Mc Band

By Nelly Corry (G2YL)

THE winter DX season arrived early in September this year, and by the end of the month stations in 44 countries in all continents had been heard, this representing an increase of 24 countries on last year. G6DH worked all continents several times during the month, and G2OA had fifteen contacts with VK2, 3, 5, VU, ZE, OA, LU, W5, 6, 7, VE5 at the week-end of September 11-12. Activity appears to be on a higher level than ever in most parts of the world, and those who have not yet made "WAC and WBE on Ten" are advised to *do it now*! Four new countries have been worked, and the following are believed to be First Contacts:—G5QY worked VS7MB at 18.00 G.M.T. on September 8; G2XC worked SV1RX on September 18; G5QY worked VP9R on September 25; G6DH worked VS1AA at 08.30 G.M.T. on September 26.

The band is still comparatively quiet in the early mornings, though judging by the regular reception of J and U commercials conditions are usually good then. Australian signals heard included VK2GU, 2UD, 3BQ, 3CP, 3TU, 3YP and 5KO, and several of these have been worked as late as midday. G6DH worked ZL1FE at 10.35 G.M.T. on September 26, and ZL4FW at the unusual hour of 20.20 G.M.T. on the 7th. Another example of "long way round" reception occurred on September 20, when G2WQ heard VK3YP as late as 21.45 G.M.T.

Active stations in Asia included J2IN, KA1AN, U9AV, U9ML, VS1AA, VS7MB, VU2AN and VU2CQ. The latter put an S8 signal into Europe almost daily, and was undoubtedly called by more G's than any other station on the band. South Africans heard during the month were ZS1AH, ZS1C, ZT2B, ZU5B, ZS6AJ, ZT6AU and ZT6J, while in Southern Rhodesia ZE1JJ and ZE1JU are again active. Signals were also reported from CN, FA and SU, and on September 12 BRS2138 logged FQ8A of Senegal.

North American signals were generally good, particularly after the middle of the month, and on many days numerous West Coast stations came through at excellent strength, with absolutely no trace of the "watery" effect usually associated with W6's on 14 Mc. G6DH worked all districts on 'phone, and G2XC and others worked them all on c.w., a feat not so easy to accomplish as it used to be when W's used c.w. more than 'phone, instead of *vice versa*.

A large number of stations in Central America and the West Indies were heard, and these included CM7AB, FM8AA, HR4AF, K4DDH, K4EIL, K4EPO, K4SA, K5AC, K5AG, K5AY, TI2FG, VP2AT, VP5PZ and VP9R. South Americans were audible on a good many days, occasionally at times when U.S.A. signals were also coming in well. Calls reported heard were LU3DH, LU5AN, LU6AX, LU7AZ, LU9BV, OA4J, PY1BR, PY2AC, PY2HQ, PY3AB, PY5AG and YV5AK.

Stations from 17 European countries were heard during the month, but as usual the improvement in DX conditions was accompanied by a diminution in the number and strength of signals from Central Europe. Many stations now report the regular reception of G signals over distances of from 50 to 250 miles, e.g., G6DH's signals from Clacton have been heard by G2XC at Portsmouth almost daily, and by G5MP at Hythe on several occasions when VK and other DX stations were audible.

Thanks are due to G2OA, 2WQ, 2XC, 5MP, 6DH, 6XL, 6YL, BRS24 and BRS2138, whose reports have materially helped in the compilation of these notes.

In a late message VS1AA reports working D4XJF, 4XQF, ZE1JU, ZT6AU, ZS1AH, VK5KO, 2UD, 5LJ, VU2CQ and VS7MB. No American signals were heard.

An Offer

The Macclesfield Grammar School Radio Society would be willing to make daily observations on any amateur station transmitting regularly between 10.45 and 16.15 G.M.T. Detailed reports would be submitted monthly. Stations wishing to co-operate should write to G8SF, Lynbrook, Marple, Cheshire.

Soliloquies from the Shack

By Uncle Tom.

(The old original Popeye, having duly taken his spinach, lets fly with something approaching the old verve, which has been so sadly lacking of late.)

WELL, well, my little amateur broadcasters! Uncle Tom has been listening to you all from his Radio Poles in Rutlandshire, and he's heard all the things that you do and talk about. In fact, he's almost found out what an amateur broadcaster is. It's something that works on 7 Mc. and talks about it's YL and the chappie next door who's borrowed his only microphone battery because the front-door bell won't work, and . . . But doubtless you've heard it all before.

Does it ever occur to some of you nitwits and milliwits that there is now a great British public, all owners of all-wave receivers (by the way, dear, there's another 2s. 3d. due to-morrow) and all listeners to the great Brotherhood of Amateur Broadcasters? Most of these people have never heard an amateur transmitter, because they listen only on 7 Mc., and there aren't many working there—only amateur broadcasters.

The point is that a few years ago the "ham" had a name among the non-technical people for being a rather clever sort of bloke who did all sorts of wonderful things down on those short waves that no one could receive. Nowadays he's just "one of those silly chatterers who stop us getting Franco's latest news bulletin on 40 metres. And all he says half the day, my dear, is 'Calling test, calling test, calling test.'" Hasn't he found his bloomin' test yet?

It's a fact, my little nephews (and we'll leave the nieces out, thank you, because they're not included in this ticking-off). Your name is *mud* among the B.C.L.'s nowadays, even more than it was when you used to jam them up properly.

My pet sleuths have been busy for me, and I have several reports in from them. Here's one: A G8, on 'phone, suggested a test, which proved to be a try-out on C.W., and was reported "beautiful." The second G8 decided to do the same, but his try-out was evidently a first attempt, for nothing happened. The carrier remained quite uninterrupted.

A nephew in Malta wants me to publish, in full, some of the twaddle emanating from the aerials of certain hams, and has offered to supply me with a complete tape recording of their efforts. He imagines that they could't sue me for libel or deny their crimes if I just translated a paragraph or two straight off the tape. I have accepted his offer gratefully—so look out, some of you.

Up comes The Young Squirt again, with a moan which, I notice, was posted on May 20, and has just arrived. Says he: "My static-inhaler has noticed a tendency of the OM of certain 'phone stations to put the YL-OW-YF on the air to call 'Test Twentai' and 'Standin' Bai,' etc. In rolls a young squirt, full of spitch, R.A.C. and bursting fuses, in anticipation of a pleasant QSO and—who knows—a date. What does he get? Back comes the OM himself on to the crystal mike with a 'Ha ha, sucker!' kind of swoop. Need I say more? Only, as a member of our younger generation, to protest most strongly against this deplorable practice of raising our youthful blood pressures."

And here's G2—with a suggestion: "What about starting a new Club for the puddle-brained goof operators who keep doing things on 40? The rules to be as follows:—"For C.W. send 'test' dozens of times and sign once quick so they won't recognise you; have a bum note, plenty of 50-cycle; always send faster than the other guy—he'll like you better; always give a lower QRK than yours; work out of the band at times—the G.P.O. like work to do; don't say nine point nine watts—be truthful and leave out the point.

"For 'phone imitate the Yanks, talk in bucks, dimes and dollars—sounds more interesting; if you live in a valley and are a bit of a pansy, say 'This is G8—, the Lily of the Valley'—anything like that is very interesting; if you feel like a laugh, don't—say 'hi' or clap your hands and finally bang on the key till you see red. Then you've passed with honours."

Forward, newly-elected Puddle-Brained Goof Ops; the P.B.G.O. Club has been founded and awaits members. No subs., no officers, no meetings. Just be yourselves and you'll be all right.

On more pleasant subjects—never shall I forget that night of September 4. While all you crowd were causing audio QRM at the Florence I was enjoying all the thrills of the old days down at my Radio Poles. Only about three G's on the air. Next day, the Sunday, was memorable in several ways. Down at G2YL's there was a never-to-be-forgotten game of bowls between old-timers and young squirts; anyone who had been on the air less than ten years was a young squirt, and there were *still* plenty of old timers to go round. And were those young squirts whacked? (Or were they?)

Same evening, strange sight on Wimbledon Common—four well-known G amateurs solemnly holding kite-strings while four weird Chinese kites performed incredible evolutions. Rumour has it that this experiment was tied up somehow with 56-Mc. work, but I can't see the connection, as the inspector said when the milliammeter persisted in reading zero.

Possibly there is a future for 56-Mc. sigs that loop the loop as well as performing their usual wibble-wobble games. Incidentally I was within a few miles of Messrs. Wibble and Wobble a little while back, but they were at the top of Snowdon and I was at the bottom. Next day I was at the top, and as they weren't there I presume they were at the bottom! But how I would have loved to meet them and give them a wibbly-wobbly shake of the mitt!

Finally, Heard on the Air (no spoofing): Well-known DX worker doing 'phone on 10 metres, and telling a Yank that he must go off the air for a couple of hours to charge his microphone battery.

THE MONTH ON THE AIR—

September, 1937

By H. A. M. Whyte (G6WY).*

IT would appear that since the advent of this page, certain amateurs with a twisted sense of humour sign with odd calls to get them into print. They are succeeding, as we have many bogus calls this month, but the great advantage of airing them here is that everybody knows they are bogus and nobody is therefore disappointed.

Let us start with XG3BY, heard by so many on 14 Mc. 'phone. We are grateful to BRS2916 in Ayr, G5SO, 2YK, 2TR, and 5PN for sending in information about him. He QSLs under cover and is not in Corsica but working unlicensed in Rome. He will send full QRA under cover. Along comes EP2RK, reported by 2ATI and G2ZR, who worked him. He gave QRA as Tabriz and had a T2 note; sound like our old friend TA1CC come to life in a new (?) country. HZ5NI, QSO G2VD, is another who sounds too good to be true. G2UK worked him and obtained Sana Iemen as QRA. He *might* be in the Kingdom of Yemen, but we will await card. G5MO queries the authenticity of LZ1AA, heard by several. That is a call which has been used for the last few years by the type of person described in the first paragraph.

There is a chance, however, that FQ8A may be genuine. G5VU reports working him on 28 Mc. He sounds like old FQ3AA having changed his call, as BRS2138, in Ross-shire, gives Dakar, Senegal, as his QRA. We have talked a great deal about TA calls, but welcome news comes from SU1SG, who informs us that TA1N was worked at the beginning of the year and sent a card immediately. No QRA is given, however. This news is forwarded by GW2UL. G2UV reports TA1OC in Angora, who is a fake. If the gentleman who signed B5LP on 7 Mc. will communicate with the R.S.G.B., he will learn something to his disadvantage.

Many have reported OXVC while operating in Gibraltar Harbour, but some have rather given themselves away by saying they heard OX3C: This brings us to an important point. Many members who are new to the art of logging DX CW or DX 'phone signals must be quite sure they have properly read a call before sending it in. Many 'phone signals are reported wrongly because insufficient care is taken in deciphering foreign accents. Don't forget that many overseas amateurs do not speak English at all; how then can they be expected to pronounce English consonants and vowels so that their calls can be easily understood by all the different dialect-speaking amateurs in these islands? As an example, VK2AL has received dozens of 'phone reports from G, and has never been on 'phone. VK3AL is always received well in G, so now imagine an Australian pronouncing 3, mix it with QRM, QSB, static and a sleepy head, and VK2AL emerges! Never report until 100 per cent. sure.

G8LG has received a card from FF8AH and gives details of this interesting station. CN8AH operates a portable on Army manœuvres and was situated towards the Morocco boundary of the Sahara. Looking at a map this would appear to be actually in the Sahara portion of Algeria and should therefore sign FA for a prefix. Until definite longitude and latitude is obtained, we suggest he was not in French West Africa at all. There is no such country as The Sahara, for it is a desert and stretches into Algeria, Libya, Egypt, Sudan, etc. If FF8AH was really in F.W. Africa, he would be in French Sudan, but don't forget that FF8BG fooled us several years ago. He was in Laghuat, on the other side of the Atlas Mountains, still in FA! FF8AH uses 8 watts, with the grandest drift on 14 Mc. G8HA worked him and tried for further QRA, but N.D.

If you hear G8XY calling "CQ G" on 14,100, don't get excited and think you have heard a pirate. He is a genuinely licensed ship in the Atlantic and QSL's. G2ZR heard him.

2AIJ requests information about XSM7YN; 2ATI obliges and tells us he is on a ship, which, when heard, was bound from Pernambuco to Rio. OH3NQP is still in the news and was worked by G6ZO when the latter was portable in Dorset with 240 volts.

BERS195, our ether-comber in Darwin, N.A., sends his usual indispensable report. He has heard CN1CR and confirms 2BYF's reception of VR4BA in Br. Solomon Islands. VR4JD and VR4OC are others active in this group. He cannot understand the reception of ZK1AA in England, as he has never heard him or heard any station calling him, so that raises the query of ZK1AA's authenticity. Has any British amateur received a card from Cook Is.? K6TE, in Wake Is., is another new one for BERS195, and is also a new one for many in Great Britain. 2ATI, in Stoke, heard him five days running with T7 chirpy note. BRS2138 also reports him. We have not heard of any European contacts yet, however. His full QRA is c/o Pan American Airways, Wake Is. Trebilcock tells us that PK6HR, heard on 14 Mc., with T6 note, gives his QRA as Seroei, Dutch New Guinea, and PK6XH (ex-PA0XH) is in the same town. HO2U is supposed to be a ship on a world cruise and was heard in the Pacific. Those who imagine that Alaska is too cold for ladies should look out for K7GLL, Miss Beulah Tolonen, Kennecott, Alaska, on 14 Mc. J9CA, in Formosa, is another rare one reported from Darwin, and so are KA7EC, ZE1JG, K4DTH, K4EVC, XZ2JB, ZE1JI, VQ8AS (Chagos Archipelago), and ZS3F. VK9BB (ex-VK3BB) is in New Guinea and should be addressed c/o Guinea Airways, Wau. He has a T6 signal on 14 Mc.

We are glad that the Mandated Territory of South-West Africa has come to life again in the person of ZS3F. G6ZO heard him and G2TR worked him. Yes, it is a new country!

Here is a little story to appeal to the QRP man who grumbles that he is too low-powered to get out. GM2JF worked W6IWC, and when he received

*9, The Mead, Beckenham, Kent.

his card, was astonished to learn that the Californian was using ONE watt; 100 volts at 10 mA. to a pair of 230's. He admitted he got out better with a power of 20 watts, which is QRO for him. With this little watt he is now W.A.C. Yes, that's a world record. Now then, you G's, it's up to you. G6ZO comes nearest, having worked VK, W 1-2, FT, FA, CN and UK8IA with 240 volts, and heard the usual run of 14 Mc. DX from his portable holiday site in Dorset. At home he succeeded in raising LU8EN, HS1BJ and VS7MB for new countries. He thinks SU8CX is suspicious; we agree, he is—very. G6ZO says that 7 Mc. is alive in the early morning and W2FA is always on the look out for G contacts on 7,145 kc. Other unusual DX heard includes W1OXAB (14,280), PK2CC (14,300), XSM7YN (this time in the Caribbean Sea), CP1AA (14,030), CR7AE (14,080), VQ5KLB (LF 14), AR8B (14,100) (any details?), UK8IA (Tashkent aeroklub), XU8RL (14,310), VQ8AE (14,040), XU8XQ (14,060), XFQ8A (near Oran, Algeria), and VQ8AS (14,080). On 7 Mc., ZO heard VO1M 7,160), VP6MO (7,150), XE1BC (7,120), and HK5JD (7.050). There is no doubt 7 Mc. is "hot" now, and G8ON worked YV4AX and couldn't believe it true! Those who are looking for Madeira should raise CT3AN heard on 7,050.

That "high power" British station, G8KW, using a strict 10 watts, worked 70 W's, 10 VK's, five VE's, three ZS's, two ZL's, two VU's, two PY's and KA. That looks like a good W.A.C. to us. A new Hong Kong station is VS6AZ, heard by G8KW. G5FA has been concentrating on 7 Mc., and for our benefit informs us he has worked W's every morning about 7.30 a.m. He heard W's in every district except W6, and VE's in every district except VE4, also HK5JD, HI2T (7,090), ZL4BN, ZL2GS, and ZL3AB.

E. Y. Nepean (G5DN), and one of the original operators of AC4YN, is returning to India and will be on the air as VU2YN in a few months. QRA Peshawar, N.W.F.P. By the way, AC4YN'S cards have arrived. The lucky recipients are G6WY and G2ZQ! G2ZQ hastens to say that several ZE cards are missing from his collection—we apologise and hope the ZE's will too. He says that VQ3HJP is ex-SU6SW, VQ3TOM is ex-GM2TM, and VQ3ALT is ex-G2NQ. That means the R.A.F. are expanding. ZQ worked XU8XQ, who reported that the "all clear" had just been sounded in Shanghai after an air raid, and fires were burning all around him. He must be keen on radio.

We are sorry to return to pirates, but it can't be helped. GM8HJ has had his card returned for SU1AC and G6KP has heard a relic of the "good old 45-meter days" in EF8BA. KP added Gibraltar (OXVC), FQ8AB and FP8PX to his new country list, and worked FQ8AD (14,390), but was unable to get full QRA owing to W QRM. Has anyone else heard this station? By the way, FQ8AB does QSL: his first cards arrived at H.Q. *via* the R.E.F.

BRS2138, up in Ross, received a card from K6NZQ for reception of his portable 'phone and requests details of UCA heard on 28 Mc. He reports YV5AM, HC1JW, HC1JD, TI2AF, TI2AV, TI2RC and HS1BJ on 14 Mc. 'phone, and VE5KI, a Mission Station in Chesterfield Inlet, Keewatin, on CW. VQ8AS, in Salomon Is., Chagos Group, was heard regularly and requests QSL's *via* VQ8AF. GM2JF claims first contact with VQ3TOM and supplies the information on the schedule of UPOL obtained from U9MI. UPOL is on 14,405 between 19.00-22.00 G.M.T.

2ATI, of Stoke, also reports VQ8AS, CR7RB, CR7AN, CR7AE, CR7RN, CR7AU on CW and VE5OT, VE5MZ, VE5QA, VE5AA on 14 Mc. 'phone. PK6AJ, in Amboina Is., south of Ceram, FR8VX, K6BNR on CW, and K6NZQ, K6GQF, HC1JB on 'phone were his best in a second report. G5WW seeks schedules on 1.7 Mc. between 20.00 and 22.00 G.M.T., any evening, and heard I1TKM on 56 Mc. on August 18 at 19.45 G.M.T.

Another ship call is CX1AID, worked by G8DK when 70 miles south of Bombay. G8DK, using 3 watts on 14 Mc., raised W1, 2, 3, 8, 9, and with 5 watts two VE2's. BRS1711, of Devon, appreciates gramophone records from VK2ADE and VK2XU. We bet the VK's on CW in Sydney disagree! G2MI claims first contact with French Guiana when he worked FY8A on May 22 at 22.20 G.M.T. Full QRA of FY8B is: Chas. Robinson, P.T.T. Cayenne. G2LC raised FY8C for a new country and PK1MF, ST2CM (who went to the same school as G2LC) and XE1DA. He raises the query: "Do U9's QSL?" The answer is few and far between.

G2TR has been busy and reports working KA1AN, HS1BJ, PK1BO, VQ3ALT, VQ3HJP, VS1AA and ZA3X, whose QRA given during the QSO was Elbarhausen, Albania. Our atlas shows Elbasan, so it may be genuine. G2UV (who originated the first QSL) worked KA1UP, FQ8AB and J2CX among other more common DX, and XZN3B in mid-Atlantic. BRS2658 puts Southport on the map by hearing 'phone from FB8AG, ZS6A, YV5AE, PK4DG, OA4R, OA4L, OA5J and W6's and 7's. He received a card from K6NZQ too.

We have made several comments on the danger of off-frequency operation, and the following will not only be of interest but we hope a deterrent to those whose consciences and frequencies stray. SU2TW received a communication to the effect that he had been heard on 14414.33 kc. by Le Bureau de Radiocontrole et des Frequencies de Service des P.T.T. and requested him to take steps to ensure that the terms of his licence were observed. We'll just say, "Cairo ahead" and no more. G8DJ, who supplied the above information, has heard HC4EA, YV5AE and CE3AI on CW and YV1AA S9 'phone. In answer to G6ZO, G8DA says that FFK is at St. Nazaire and is licensed for every frequency except 14 Mc. He also heard GADUW, Flying Boat "Caledonia." G2HX worked VQ3ALT and VQ3HJP. G8HA worked all continents in 4 hrs. 15 mins., with 350 volts on a 2A3. G8LT with QRP has been testing two half-wave 14 Mc. doublets in phase and has had S7-9 from many W6-7's, and obtained his W.A.C.-W.B.E. with this aerial.

G5MO worked XOH5NK (whose QRA is S.S. *Kurikka*) while in the Baltic, EA7AV and ZA3X were unusual ones for him. G2ZR heard OOAFA on 7.200 kc. calling G's. G8KP is not sure of ZB1L, but he is quite genuine. Other DX worked by him includes CX2BK, UK8IA, HS1BJ, J5CC and J8CF.

Reports are increasing, so please keep them as concise as possible.

BOOK REVIEWS

HANDBOOK FOR WIRELESS TELEGRAPH OPERATORS · Working Installations Licensed by His Majesty's Postmaster-General. Published by H.M. Stationery Office. Obtainable from H.M.S.O., at the following addresses: Adastral House, Kingsway, London, W.C.2; 120, George Street, Edinburgh, 2; 26, York Street, Manchester, 1; 1, St. Andrew's Crescent, Cardiff; 80, Chichester Street, Belfast; or through any bookseller. Price 9d. net, postage extra.

This is a new and revised edition of the well-known "manual for the guidance of wireless telegraph operators." The instructions are in the main of interest to operators on board ship, but there is much that is of interest to all operators. There is no technical instruction whatever, and the book is concerned only with the actual procedure of working; handling of traffic, and the proper methods of transmission and receipt of signals being the main subject.

The writer found the instructions to operators of low-power radiotelephone ship stations interesting, and two tables are given for spelling, one international, and the other for use between British stations. It may pain æsthetic readers to find that "Xmas" is still the word for X, as in the Telephone Directory; and in the International Table the moan of the gentleman who lost his "sweetie" in Sweden, but retained a perfect pronunciation, gives more colour to the use of Upsala for the letter U than the "University" of amateur use, though the latter has much to recommend it.

Unorthodox operating procedure is liable to creep into amateur work, and it is well to have this manual of standard method for reference. Appendices contain the International Morse Code, The Q Code, Miscellaneous Abbreviations, Signal Strength Code, Service Advices, and details of the examinations for operators on board ship. T. P. A.

SHORT-WAVE RADIO. By J. H. Reyner, B.Sc. (Hons.), A.G.G.I., D.I.C., A.M.I.E.E., M.Inst. R.E. 162 pages and 83 illustrations. Published by Sir Isaac Pitman & Sons, Ltd., London. Price 8s. 6d. net.

Forming a companion volume to the author's well-known "Modern Radio Communication," Vol. 1 and 2, this book gives a very readable *résumé* of short-wave technique. Like its companion volumes, it deals with a large number of subdivisions of the subject in a non-mathematical way without going very deeply into the details of either theory or practice.

Even though the author assumes a good working knowledge of ordinary theory, he gives a glossary of 55 "more specialised" terms; and while one may be surprised to find such terms as Amplitude, Eddy Currents, Inertia, Megohm, Series, and Triode under this heading, one must not withhold credit for the clear explanations in few words. One only seemed a little unhappy: "Conductance" is described as the "reciprocal of resistance."

After a most instructive account of the electrical conditions of the upper atmosphere, the treatment of propagation includes consideration of echoes, scattering, polarisation, Tremellen charts, etc.

Aerials and feeders naturally demand considerable attention, and the explanation of untuned feeders and surge impedance is outstanding in an excellent chapter. A printer's error in the surge impedance formula here will be apparent when later sections are reached by the reader.

Then various forms of aerial arrays are described and the reasons for their directivity explained. Special types of receiving aerial come next, including the Beverage, Inverted V, Zig-zag array, and Horizontal Diamond.

The chapter on short-wave transmitters describes the Class A, Class B, and Class C modes of operation, neutralising, frequency stabilisation, and frequency doublers, in addition to other such items as grid bias, valve losses, etc.

Modulation is surveyed, briefly in the case of plate, grid and series systems, but with greater detail in the cases of suppressed-carrier working, single side-band and frequency modulation.

Receivers of the straight, superhet and super-regenerative types are described, and some interesting curves for inductances are shown. Single-signal receivers are not mentioned, and no super-regenerative circuit is shown.

After an interesting explanation of the characteristics of ultra-short wave propagation, including optical range and field-strength formulæ, circuits are given for self-excited U.S.W. transmitters, and receivers described include frequency changing circuits. Television requirements are explained.

A chapter on micro-waves concludes the book.

Throughout the book many references are given to sources of further information, and the style of treatment is the easily-flowing, concise but clear exposition with which readers of the companion volumes will be familiar.

For those who require a sound, but not too "heavy" book on the subject, or those who require an introduction to all branches before deeper study, the book can be confidently recommended, even though the price is on the higher side.

T. P. A.

Contemporary Literature

THE "C-O-M" 150-WATT TRANSMITTER. George W. Shuart (W2AMN). Short Wave and Television (U.S.A.) May, 1937.

The author presents a new Crystal-Oscillator-Multiplier circuit with only one tuned circuit. The frequency of the crystal can be doubled by shunting the cathode bias resister with a variable condenser. The circuit uses a 6L6 crystal oscillator, an RK39 driver, and a pair of RK37's in parallel.

* * *

A VIBRATOR POWER SUPPLY. Maurice E. Kennedy (W6KQ-W6BGC). Short Wave and Television (U.S.A.), May, 1937.

This article will be of interest to the owners of 56 Mc. portable stations, and by using two or more of the units described and dividing the load between them, power for a Field Day station could be obtained. The unit described operates from a six-volt accumulator and has an output of 225 volts at 50 mA.

A Method of Plotting Three Variables in Two Dimensions

By I. B. Clark (2BIB).

IT frequently happens that graphs are required to show the influence due to the variation of two quantities on a third quantity, and there are a number of methods by which this can be done. The following is one that may be applied to many such problems, and has certain advantages over others. Only the simplest case will be dealt with, so that those whose mathematical attainments are not so strong may be able to follow the method clearly. For others, the hint will be sufficient to enable them to apply the method to more complicated cases.

Perhaps the simplest graph to plot is one with the form $y=2x$, where every ordinate y is the double of the corresponding x, and y is only dependent upon the single variable x. If, however, instead of the x's being multiplied by the number 2, they be multiplied by a numeral n, which may have any value such as 1, 2, 3, 4, etc., we now have three variables out of which the one, y, is dependent upon the other two, x and n.

By choosing values of n from unity upwards, a family of curves (straight lines) can be plotted for all values of n and x; as $y=x$, $y=2x$, $y=3x$, etc. This diagram is shown in Fig. 1 from $x=0$ to $x=10$, and for values of n from $n=0$ to $n=10$. Intermediate values of x and of n can readily be interpolated as the scales are all of equal parts, and in this case the plotting of a " family " of curves is the most direct and simple method.

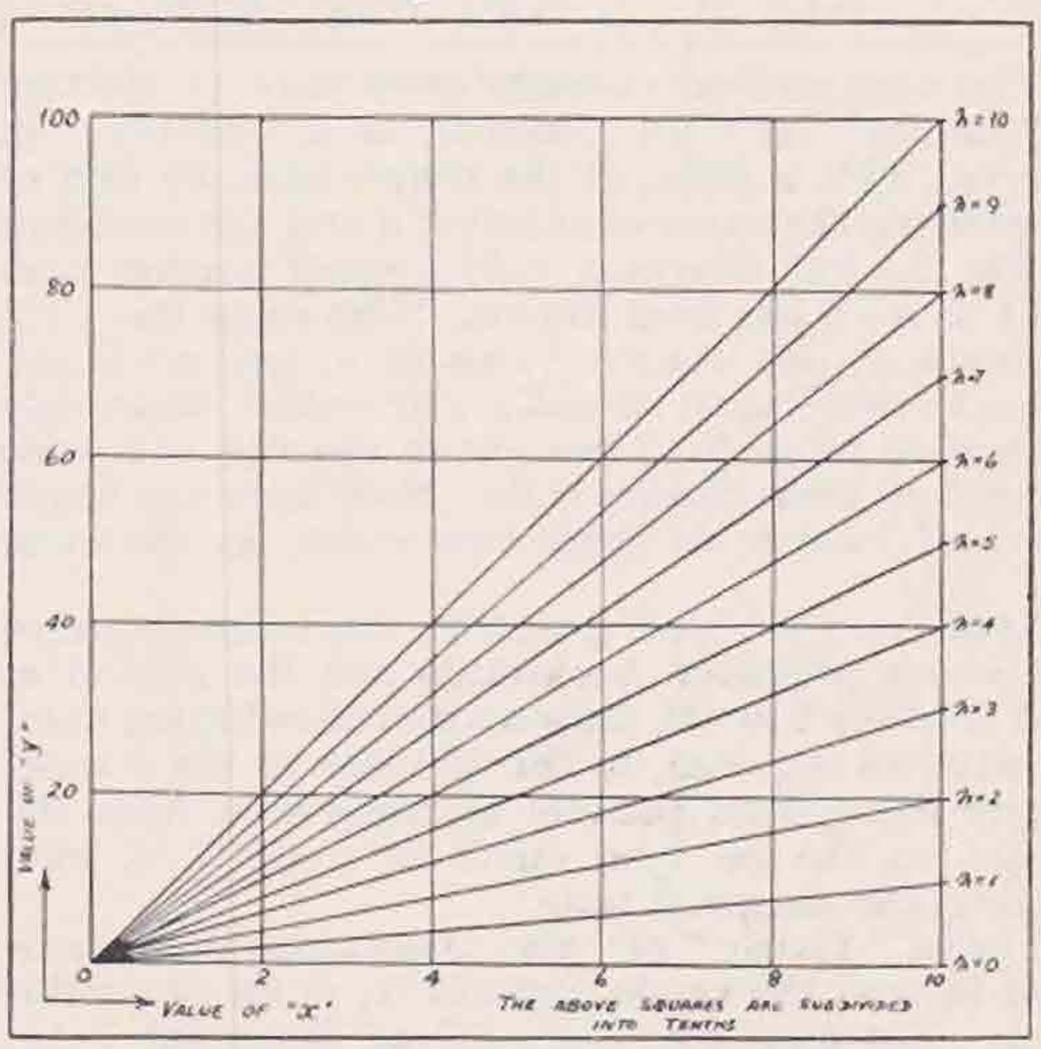


Fig. 1
Graph of y=xn

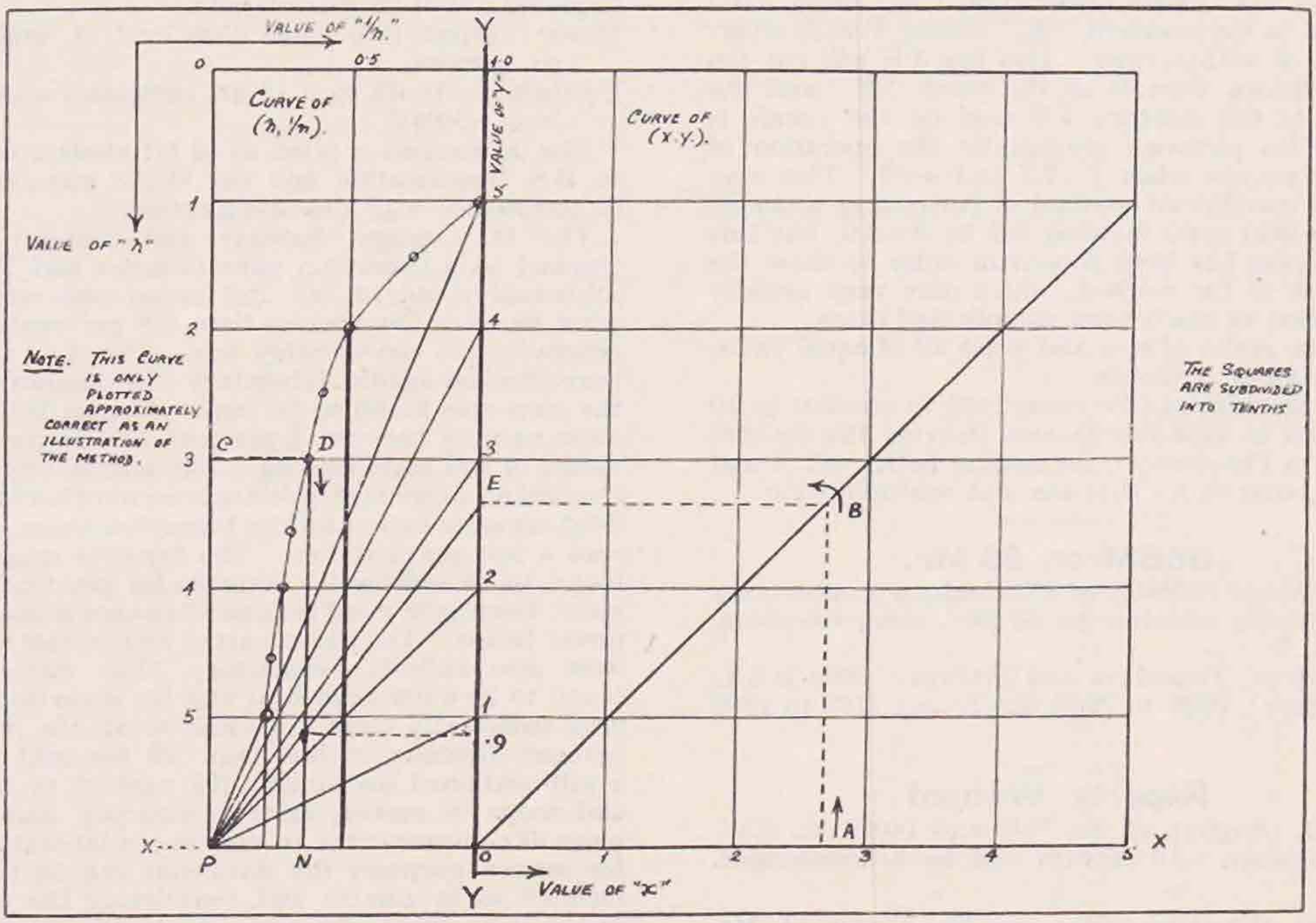


Fig. 2
The graph of y=x/n in two quadrants

In other cases, however, the resultant curves in the "family" are not equally spaced, and interpolations for intermediate values of one or other of the variables may be uncertain, and the consequent utility of the diagram impaired. If, for example, instead of having $y=n.x$ as before, the relationship is $y=x/n$, the curves in the "family" would no longer be well spaced, for when

n=	0	1	2	3	4	etc.
1/n=	Inf.	1	0.5	0.33	0.25	etc.

The new method consists essentially in plotting a "family" of "y's" instead of a "family" of curves. This is done, in the simple case, by first of all plotting the curve connecting n and $1/n$ as shown in Fig. 2. For clearness, only a small portion from $n=1$ to $n=5$ has been drawn. Next draw the "y" ordinate at any chosen value of n, say $n=1$ and $1/n=1$, dividing it on any convenient scale, say from $y=0$ to $y=5$. Then put in the axis of x, also divided to some chosen scale. Now draw the single curve of $y=n/x$ on these two scales, as shown in Fig. 2.

Next from the pole point P, the intersection of the x-axis produced backwards and the axis of n, that is where $1/n=0$, draw a series of radiating lines, as many as required, to the divisions of the y-scale. Lastly draw lines parallel to the y-axis from the points on the $(n, 1/n)$ curve at $n=2$, 3, 4, etc., cutting the diagonal lines.

Thus a "family" of "y's" is obtained that can be used to read the single curve of (x, y) for any value of n. For example, if $x=2.7$ at the point "A," proceed to "B" on the $(x.y)$ curve. Next, starting from the value of n, say 3, proceed from the point "C" to "D" on the curve of $(n, 1/n)$. From "B" proceed to the y-axis at "E," joining P to E either by eye or with a ruler. This line PE will cut the y-axis drawn from D at the point "F," and the length of the ordinary FN read on the y-scale is 0.9. This performs graphically the operation of finding $y=x/n$ when $x=2.7$ and $n=3$. This may seem a roundabout method of performing a simple arithmetical sum, dividing 2.7 by 3=0.9, but this simple case has been chosen in order to show the principle of the method, which may very usefully be applied to much more complicated cases.

As the scales of n, x and y are all of equal parts, interpolation is simple.

The diagram can be completed to cover 0 to 10 and used in slide-rule fashion (leaving the decimal places to Providence), for finding both $y=x/n$ and $x=y.n$, that is for division and multiplication.

G5BM on 56 Mc.

Mr. Watts (G5BM) of Cheltenham is operating the following schedule on 56 Mc., using telephony and I.C.W. :—

Tuesdays, Thursdays and Fridays: 1900 B.S.T.

Sundays: 0830 to 0900 B.S.T. and 1100 to 1300 B.S.T.

Reports Wanted

G8RL (Rugby), on his 7040 and 14080 kc. C.W. transmissions. All reports will be acknowledged.

* * *

G5RR (London, S.W.), on his 7 and 14 Mc. transmissions.

Model 7 Universal Avometer

The Model 7 Universal Avometer is a compact moving-coil instrument capable of reading voltage and current, both A.C. and D.C., together with ranges for resistance, capacity and power output, and is manufactured by *Messrs. Automatic Coil Winder & Electrical Equipment Co., Ltd.*

The instrument is housed in a black finished case 7½ ins. long, 6½ ins. wide and 4 ins. deep, fitted with a carrying handle. The scale, equipped with a parallax mirror, is very open and easily readable and has a useful length of 5 ins.

The ranges are set by two switches, one controlling the A.C. ranges and one the D.C. ranges, together with three small adjustable knobs for setting the zero on the resistance ranges. There is a push button which divides by two all voltage and current ranges. There is also an automatic trip switch which breaks the circuit when overloads are accidentally applied and this can be relied upon to protect the meter in all cases except obvious abuse such as connecting the mains to a low current range.

As a voltmeter the resistance of the meter is 500 ohms per volt, 1,000 ohms per volt when the ÷2 button is depressed; this applies to all ranges, A.C. or D.C. except lowest A.C. volts. The selector switch ranges are as follows :—

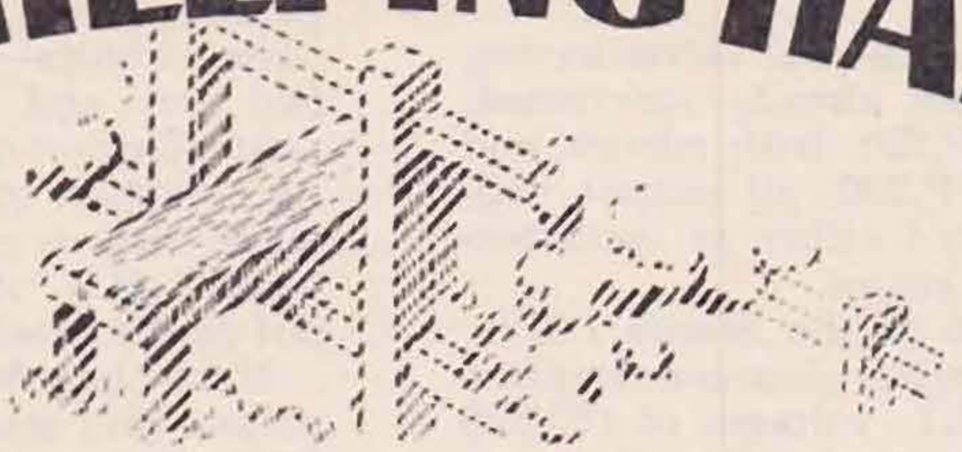
D.C. volts: 0-1, 10, 100, 400 and 1,000.
D.C. amps: 0-.002, .01, 0.1, 1.0 and 10.
A.C. volts: 0-10, 100, 400 and 1,000.
A.C. amps: 0-.01, 0.1, 1.0 and 10.
Ohms: 0-10,000, 100,000, 1 megohm and this latter may be extended to 0-10 and 0-40 megohm with external supply.
Capacity: 0.01-20 microfarads.
Power output into 4,000 ohm load, 1 milliwatt to 4 watts.
Decibels: —10 db to +15 db, compared with zero level (50MW.).

The instrument is rated as of 1st grade accuracy to B.S. Specification and the meter was checked in accordance with this specification.

The D.C. ranges (voltage and current) were checked on a Crompton potentiometer and N.P.L. calibrated standard cell and in no case was the error found to be greater than 0.5 per cent., and generally was considerably less. The A.C. ranges were checked against laboratory sub-standards and the error was found to be larger than on D.C., the error varying between ½ per cent. and 1½ per cent. minus of full scale reading. The resistance ranges checked on a standard resistance box were found to be dead accurate except for the 1 megohm range, which read a few per cent. low. The capacity range was found to be sufficiently accurate for practical purposes, bearing in mind that no allowance is made for power factor. The power output and decible ranges were also entirely satisfactory. The meter was found to be quite dead beat and the scale divisions were sufficiently clear to be able to set the pointer without difficulty to less than .25 per cent. For a self-contained instrument the number of ranges and scope in measurement is amazing, and as a piece of equipment for an amateur, a laboratory or for service purposes the Avometer can be recommended as invaluable and, considering the utility of the instrument, the price of £16 16s. 0d. is not excessive.

D. N. C.

THE HELPING HAND



By Austin Forsyth (G6FO).

PART VIII.—SELECTING TRANSMITTING APPARATUS

SOME recent correspondence indicates that a useful article in this series would be one dealing in some detail with the type of apparatus and component parts required to begin low-power transmission, and for later experimental work. Naturally, much depends on the scope of the amateur's intentions—to say nothing of the thickness of his wallet—but at the same time there is, for the average beginner, certain gear which he will find necessary for making a start with the first transmitter, and which will always be useful subsequently.

We propose, therefore, to discuss this month some of these requirements, considering matters from the point of view of the 10-watt man who does not wish to spend a great deal of money but who wants to be sure he buys good apparatus with as wide an application as possible—in other words, gear which can be used in all sorts of transmitters and for various purposes, and which will not soon be out of date.

Some of the essentials have already been discussed in previous articles under the headings of Receivers, Frequency Meters and Monitors, Power Supply, and so forth, so that we are now only concerned with component parts and pieces of apparatus, and we do not intend this month to go into details regarding the actual construction of transmitters or the description of circuits, as this will follow in the next article. The headings below cover general requirements for low-power working at from 250 to 500 volts, with inputs from 2 or 3 watts up to 20 or 25. We are not concerned with what is generally regarded in this country as high-power transmission, 50 watts and upwards, as there is plenty of published material already available on such apparatus. Indeed, one of the reasons prompting the remarks above is the fact that there is very little written, in The Bulletin or elsewhere, covering the needs of the low-power man, and it is this gap which we hope, so far as we are able, to try and fill.

With this introduction, we can get on with the business.

Valves.

This is usually the first thought of every amateur, and indeed it gives plenty of scope for discussion. First, there is the battery-operated station, limited to perhaps 250-300 volts H.T., or even less. H.T. and L.T. economy is a primary requirement, and so the choice of suitable valves becomes somewhat circumscribed. It happens, however, that there are several receiving types by different makers which can be used satisfactorily with voltages of 150-200 on the plate. The *Mazda* QP.240 is a double-pentode output valve which can be made to combine the functions of crystal oscillator and frequency doubler, enough fourth harmonic R.F. output being obtainable to drive a triode, such as the *Mazda* PA.20, to 10 or 12 watts with 250 volts H.T. This particular valve may be described as a battery-operated power triode, as its normal plate current is 50 mA. at 250 volts, with a filament consumption of 2 amps. at 2 volts. A cheaper valve to run and to buy is the P.220A by the same makers, which can be safely operated at about 5 watts input with 200 volts on the plate; it is a triode with good characteristics, and we have used a pair in push-pull on frequencies as high as 56 Mc., though this sort of operation probably does not meet with the approval of *Messrs. Ediswan*! A satisfactory triode for the crystal oscillator stage is the *Mazda* P.220, and a simple and effective low-power battery transmitter could be built up round the P.220 and P.220A or PA.20, if the L.T. and H.T. for the latter were available.

Another useful oscillator-doubler is the *Mullard* P.M.22A, but the plate current must be kept down to under 15 mA. at 200 volts, while the Q.P.22A by the same manufacurers can be operated either as an oscillator-doubler or driven P.A.; in the latter case, the grids could be connected push-pull with the anodes of the pentode sections in push-pull or push-push. Notes on these circuits from the point of view of operation and arrangement are given on pp. 41-42 of the new *Guide to Amateur Radio*, though they do not refer to these particular valves, being largely explanatory.

In the comprehensive *Hivac* range of battery valves, useful types are the B230, consisting of two output triodes in one bulb and having obvious application as a crystal oscillator-doubler; the Z220 as a driven P.A.; the Y220 as a low-power (3 or 4-watt) P.A. or crystal oscillator; the PP220 and PX230 triodes as 5-watt R.F. amplifiers, while the PX230.SW by *Hivac* is a particularly interesting

and useful valve for the battery man because, having the same characteristics and power-handling capacity as the PX230, the control grid is brought out to the top cap, enabling improved R.F. efficiency to be obtained.

Tungsram also manufacture several valves having similar applications to those already mentioned. These are the P.215 and SP.220, both triodes, and the PP.222, PP.225 and PP.230, all output pentodes, which can be operated either as oscillator-doublers or in driven P.A. stages.

With the single exception of the *Mazda* PA.20, all the valves discussed above have low-consumption filaments and operate at H.T. voltages of 150-200 with anode currents varying from 10 to 25 milliamps., and are thus well worthy of the attention of the amateur who, being tied to batteries, has to make every milliamp. pull its weight. Most of them can be operated satisfactorily at the higher frequencies, though not all are suitable for 28 Mc., and it must be said that the efficiency falls off noticeably as the frequency increases. This is only to be expected, because these valves are designed for operation in the output stage of ordinary broadcast receivers, where such points as the grid-filament capacity do not matter. It is for this reason that the *Hivac* PX230.SW can be particularly recommended, as its input capacity has been brought to a satisfactorily low figure by the special form of construction adopted.

For telephony working from batteries and where low inputs are used, grid control modulation is both effective and economical. All the valves which have been described as being suitable for operation in the P.A. stage can be grid-modulated using a simple circuit, more modulating power being obtainable by putting a stage of amplification after the microphone. With a sensitive carbon microphone, the modulator can be a low-consumption pentode, such as the *Mazda* Pen. 220 or *Mullard* P.M. 22A, either of which will give enough audio output to modulate a five-watt carrier comfortably, the additional H.T. drain being under 8 mA. Choke-control modulation can also be used, of course, but then the load on the H.T. supply is increased nearly 75 per cent. owing to the fact that normally the P.A. stage and its modulator must be balanced to draw the same plate current.

Coming now to valves for mains operation, the choice is much wider. *The* 362 *Valve Co.* offer their excellent range of R.F. pentodes, of which the most interesting to the low-power man is the RFP.15. This valve, designed for a maximum anode voltage of 500, can be satisfactorily operated on 250 to 300 volts. Two in push-pull make a beautifully balanced P.A. stage, requiring low driving power and, if the lay-out and stray capacities are properly arranged and controlled, *no neutralisation is necessary*. We are aware that some of our readers will question this, but our answer, based on practical experience with a push-pull P.A. operated on the four bands 3.5 to 28 Mc., is still the same! Correctly handled, neutralisation is not required. If in a particular case it should be, it is quite a simple matter to arrange. For test purposes, a single RFP.15 has also been tried as an unneutralised P.A., with the same result. It is certainly desirable to build the P.A. as a separate unit when using these valves, and to apply the drive by link-coupling, also taking off the aerial load by the same means. There is nothing critical or difficult about these valves, but owing to their sensitivity to "stray" drive—such as slight radiation from the buffer stage when it is apparently dead and coupling between the grid and plate circuits—the P.A. stage should be carefully laid out and screened. This is only to make neutralisation quite unnecessary. We ourselves see no objection to neutralising should it be required, while there is also something to be said for a "triggered" P.A. stage—but perhaps that had better not be discussed in this section of The Bulletin.

Much has been said and written about suppressor-grid modulation of pentodes, not only the RFP.15 but other types, and in this connection our experience is that where the H.T. supply is available, it is more satisfactory to use plate modulation with the anode and screen simultaneously controlled. Grid modulation can also be applied to R.F. pentodes in the usual way, with the same limitations regarding audio input and carrier power.

Still considering output valves for the P.A. stage, there is the *Mullard* TZ-05/20—the T25D under another name—which is a very useful triode on all frequencies to 28 Mc. The driving power required is, of course, greater than for the RFP.15, and neutralisation *is* necessary! This valve will work well at lower than the 500v. H.T. for which it is designed and, like the RFP.15, is a good investment for the man who may be starting with 250-300 volts with the idea of eventually using 500 volts with a 25-watt licence. The Tungsram 0/15-400 is a similar valve to the TZ-05/20, cheaper, and rated somewhat lower.

As regards valves suitable for oscillator-doubler, exciter and buffer amplifier stages, it may be said that almost any good output triode or L.F. pentode can be satisfactorily used for them. Particular examples are the *Mazda* A.C.2/Pen., *Osram* MPT4 and *Mullard* Pen.A4 for oscillator-doubler and tri-tet circuits; these are all rated at 250 volts on the plate, the MPT4 having the most economical heater. In the *Hivac* series, there is the AC/Y having a similar application.

The P.A. stage (output) valves suggested can all be modulated by choke control using either a *Hivac* PX5, *Mullard* DO.24, *Mazda* PP5/400 or "*362*" PX25, all these being very similarly rated. They will, however, require sub-modulator and speech amplifier stages depending upon the type and sensitivity of the microphone used. For instance, with a G.P.O.-type microphone, a single stage consisting of a transformer coupled *Mazda* AC/Pen. will load up a DO.24 well, but with a transverse-current microphone, two stages are necessary and three for comfort.

From the above, it will be seen that a very useful and flexible transmitter of high efficiency could be built up using an AC.2/Pen. as oscillator-doubler, followed by an RFP.15 as P.A., anode modulated by means of a PX25 preceded by two stages of speech amplification. Such a transmitter would be suitable for 25-watt operation on C.W., with a 10-watt carrier fully modulated for telephony. The total power consumption at 500 volts H.T. would be 30-33 watts on C.W. and about 40 watts on 'phone.

Variable Condensers.

Having dealt with the question of valves, we now

turn our attention to other components, of which the heading suggests the next most important.

Variable condensers suitable for low-power transmission need not necessarily be bought new specially for the purpose. Some of the older makes of .0005 μF. capacity, designed for high-efficiency broadcast work, are excellent if double-spaced. They are often to be had very cheaply in that amateur's paradise—a really well-stocked junk shop. The type to look for are those of built-up construction as opposed to the more modern kind which look as if they had been machine-stamped from a single sheet of metal. There should be plenty of insulation between rotor and stator, preferably not in the form of an ebonite plate. The makes which most nearly fit this specification are the old *Cyldon*, *Ormond* and base-board mounting *Lissen*, of which the former are the best. They can still be obtained in the .0005 μf. capacities, both single and twin, and cleaned up and double-spaced are as good as many of the types offered to-day as being designed for transmitting.

Table of Recommended Condenser Values.

Band.	*Fixed.*	*Variable.*
1.7 Mc.	.004-.006	.0003-.0005
3.5 ,,	.001-.003	.0003
7 ,,	.001	.00015
14 ,,	.0005	.0001
28 ,,	.0003	.00005
56 ,,	.0002	.00003

All values in microfarads.

Actual capacities of variable condensers will be lower to allow tuning adjustment.

"*Cyldon*" variable condensers are still being manufactured, and are recognised as being among the best on the market. The newer types, obtainable from *Radio Development Co., Ltd.*, differ little from the original models—except that the insulating material is of higher grade—which suggests that second-hand "*Cyldons*" in usable condition are well worth having. The standard types are suitable for voltages up to about 500, though in some circuits where high peak values occur, flash-over may be experienced.

For lower voltage operation the ordinary receiving types manufactured by *Wingrove & Rogers* ("Polar") and *Jackson Bros.* ("J. B.") can be used with satisfactory results. *Eddystone* produce not only their new transmitting type for much higher voltages than those we are considering here, but also their standard 922 and 979 in 160 and 100μμf. capacities respectively, the latter being for high-power work.

When using receiving condensers for low-power transmission, the points to watch are sound low-loss construction, good insulation with a high-quality material and a long leakage path between rotor and stator, while the vane spacing should be such as to obviate flash-over. Thrice the thickness of the cover of THE BULLETIN is a good gauge for checking safe spacing at voltages up to about 350. The need for a fairly long leakage path between rotor and stator is worth explaining. Some of the best designs of condenser for *receiving* have the stator set in the rotor end-plates by means of a very small collar of insulating material. This might be pure quartz, but if it is only a thirty-second of an inch thick, the condenser is useless for transmitting even with low power, because the electrical stresses will be sufficient to destroy the insulation.

The table herewith sets out the best values of fixed and variable capacities for the various bands.

Fixed Condensers.

In our experience, there is quite a surprising disregard among both amateurs and designers of transmitting apparatus of the important part played by the fixed by-pass condenser. The former are satisfied to stick in anything handy so long as it *is* a fixed condenser, while the latter often specify values which are totally unsuitable for the frequencies involved. It must be explained, however, that the designer's problem is usually complicated by the fact that the transmitter or other apparatus is to be operated on several bands, which means that the values of fixed capacities must necessarily be a compromise.

As is well known, the mica dielectric type should be used wherever possible, though they are admittedly dearer than paper condensers and harder to get at a reasonable price for voltages above 600-v. D.C. working. However, as we are at the moment only concerned with low-power operation and maximum anode voltages of 350-500, the question is more easily answered. There are the *Dubilier* type 690W, 691 and 670, fitted respectively with wire ends, soldering tags and terminals, in all required capacities up to .01 μf., and suitable for 350-v. D.C. working. The same makers' type 620 are available in capacities from .0001 to .005 μf. for 500-v. D.C. The *T.C.C.* type M are fitted with soldering tags, and their type 340, for 500-v. operation, have terminals.

The "*Epoch*" paper-dielectric condensers, obtainable from *Radio Development Co., Ltd.*, cover all capacities and working values from .00005 μf. to 1000-v. D.C., and can be recommended as being the next best thing to mica.

In power supply circuits the working voltage should be taken as the peak value likely to be encountered, i.e., a 350-volt power pack will often produce peak voltages as high as 550 or 600 under no-load conditions, so that the smoothing condensers used should be chosen to suit the latter condition.

Coils.

These are quite easily home-made, particularly for the high-frequency bands, where only relatively few turns are required, and the coil thereby becomes self-supporting. While soft-drawn copper tube is easy to work and looks well, something much cheaper is quite satisfactory for low-power work. We have seen copper-tube coils in 10-watt transmitters which were fitted because the constructor thought they were necessary, not realising that the only value of such heavy-gauge coils for low-power is that they can be made rigid (in one particular case, a coil good for at least 250 watts was connected to its tank condenser with No. 18 wire!), while actually the distributed capacity of a copper-tube coil can be quite high, so that where it is not required to carry heavy circulating currents, such a coil is often a source of inefficiency.

Excellent coils can be made from No. 12 bare or, preferably, enamelled wire, the inductance being wound up to the required number of turns

on a former giving the necessary finished diameter. The turns should be spaced and held in position with strips of celluloid anchored to the wire with a coating of celluloid cement—amyl acetate and celluloid scrapings mixed into a thick paste—or "Durofix" can be used for the same purpose. Coils of this type, excellently finished and to any size, are retailed by *R. V. Inductances*, and can be recommended for the P.A. stage in any transmitter.

Coils for crystal-oscillator and low-power stages in general can be on skeleton formers, using 18 or 16 gauge wire, and arranged for plug-in mounting. While suitable ones can be made up on standard formers, *Q.C.C.* list a useful range in their "Ten Watt Type," centre-tapped if required, which are wound on formers fitting a standard base. Link-coupling is very easily arranged with these particular inductances.

Small Parts.

Under this heading come such items as stand-off insulators, switches, dials and scales, extension controls, valve-holders, plugs and jacks, and so forth. *Eddystone, Raymart, Bulgin* and *British Mechanical Productions* ("*Clix*") offer one or other of all these items. Tank coils should be mounted on stand-off insulators of the bee-hive type, and condensers on smaller ones, such as the *Eddystone* midget type 1019. The "*Cyldon*" condensers already mentioned, in particular, lend themselves well to this low-loss form of mounting.

Bulgin switches, plugs and jacks have a wide variety of uses on transmitters—isolating circuits, and metering are only two—while for baseboard mounting valve-holders there are the "*Clix*" and *Eddystone* components. Of the former manufacture there are some very useful plugs, sockets and terminals of different kinds.

The patient and ingenious constructor can make for himself quite a number of small parts, such as condenser mounts, extension controls, coil- and crystal-holders, and R.F. chokes. As regards the latter, *Q.C.C.* type A have been found very effective, while their two designs of crystal-holder have been standardised for a long time.

Meters.

As regards meters, the best advice we can give is that as many good ones as possible should be obtained! One cannot have too many of them, useful ranges being 0-10 mA. for grid circuit metering, 0-100 mA. for the plates, 0-10 volts for filament and heater checking, and 0-500 volts for H.T. *Ferranti, Premier* and *Bulgin* will be found to offer instruments covering all these ranges, though the latter do not list low-reading moving-coil voltmeters.

The meters suggested above, if they are all moving-coil—as they should be, since moving-iron instruments are more often than not a pure waste of money—represent quite a considerable outlay, and many of our readers will have to make up their minds to have one only to start with. In this case, choose a milliammeter reading 0-50 mA., such as the *Ferranti* projecting pattern. These meters are fitted with fuses, an exceedingly useful point, and though the range suggested will not enable very close measurements of grid current to be obtained, it is better than using one reading 0-100 mA. or, alternatively, buying a low-reading instrument and trying to shunt it accurately for the higher ranges. An 0-50 milliammeter can be very easily shunted to cover 0-100 mA., simply by inserting it in a circuit which is passing, say, 42 mA., and then, by putting a length of resistance wire across the terminals, adjusting the amount in shunt till the needle reads 21 mA.; if the original reading happens to be 35 mA., the parallel resistance is varied till the needle registers 17.5 mA. No calculations whatever are required, and the whole operation can be carried out in a few minutes. Theoretically, this can also be done with a low-reading meter, say 0-5 or 0-10 mA., but in practice it will be found rather difficult to multiply the range 20 or 10 times, owing to the exceedingly close adjustment which is necessary, apart from the fact that the scale has to be very accurately read.

When shunting a milliammeter under working conditions, a point to watch is that it should be inserted in the H.T. negative lead—if carried out on the transmitter with several hundred volts on the circuit—or, if the H.T. negative lead cannot be broken, the operator should insulate himself by standing on a rubber mat, avoiding touching anything else while handling the meter. Obviously, touching the terminals of a meter in the H.T. positive lead and forming a return circuit by leaning on the earth connection will certainly result in a nasty shock—the nastiness of the shock and the amount of damage which ensues being dependent on the H.T. voltage being used!

Again, a multi-range test instrument can be made up round an 0-1 mA. meter, giving A.C. and D.C. current and voltage over a very wide range. This demands an article to itself, as it involves a specified instrument with a very open scale, the internal resistance of which is known and for which very accurate shunts and series resistors are required.

The well-known "Avo" range of test instruments offers a wide choice to the amateur who wants to be properly equipped, and the most useful medium-priced meter is the "Avominor," which gives both A.C. and D.C. current and voltage ranges of the kind always being encountered in low-power amateur work. The manufacturers are *The Automatic Coil Winder & Electrical Equipment Co., Ltd.*

As regards meters for R.F. measurements, while thermo-couple types are desirable—and extremely expensive—hot-wire ammeters will be found the next best thing and quite useful. *Electradix* usually have a good selection, and a scale reading of 0-1 amps. will cover most requirements.

* * *

We cannot claim that this discussion on Selecting Transmitting Components is complete, because we have not, for one thing, mentioned either American valves or parts. The reason for this is that they are very fully dealt with in several well-advertised publications—such as "QST," "Radio," and the ARRL and Jones' Handbooks—which are easily obtainable by anyone interested. Moreover, retailers in this country handling American radio products have, generally speaking, a very good idea of what they are selling and are only too pleased to offer advice.

Our aim in this brief survey has been to try and take in the apparatus of British manufacture, more particularly because it is now less and less realised that the valves and parts we have mentioned, produced in our own country by our own people,

(*Continued on page* 230)

THE FIRST 56 Mc. N.F.D.

THE announcement of this event in the May issue was welcomed by the majority of stations possessing portable equipment, and before the day arrived an encouraging number of entries were "on the book."

Those stations in the Western and Northern districts were, it seems, on the weather clerk's black book—gales, driving rain, sleet and thick mist playing havoc with the carefully prepared plans of activity. Naturally, most locations were several hundred feet up on the side or top of a hill or mountain, and, of course, received full benefit (?) of the exposed position.

However, these conditions did not deter our hardy portables, and tents were pitched, masts and radiators erected and gear wired up without thought for material comforts or surrender. What with the rain trickling down feeders into the "works" and moisture-soaked atmosphere writing "finis" to efficient insulation, masts bending before the force of the wind and making fine skipping-ropes of the attached aerial and lines, the amount of activity and contacts made is a fine tribute to the spirit and patience which typifies the radio amateur.

Those in the South were more fortunate, but even then the day was very far from what it might have been for such an occasion, and frequent rain squalls made things rather uncomfortable at times. GI6YWP seems to be the only one to be favoured with a spell of really enjoyable sunshine—but that followed a stormy forenoon.

All contestants, however, were of the opinion that the day's accomplishments were well worth the hard and dirty work involved in operating under such circumstances—most of them asking for more!

The Entries.

To give a detailed description of the apparatus and contacts made of each individual entry would entail not several pages of this issue, but several complete "Bulls!"—such was the amount of material sent in with the log sheets. Brief details of the various stations and their results are therefore only possible and now follow.

Note: Figures following call signs indicate mileage covered.

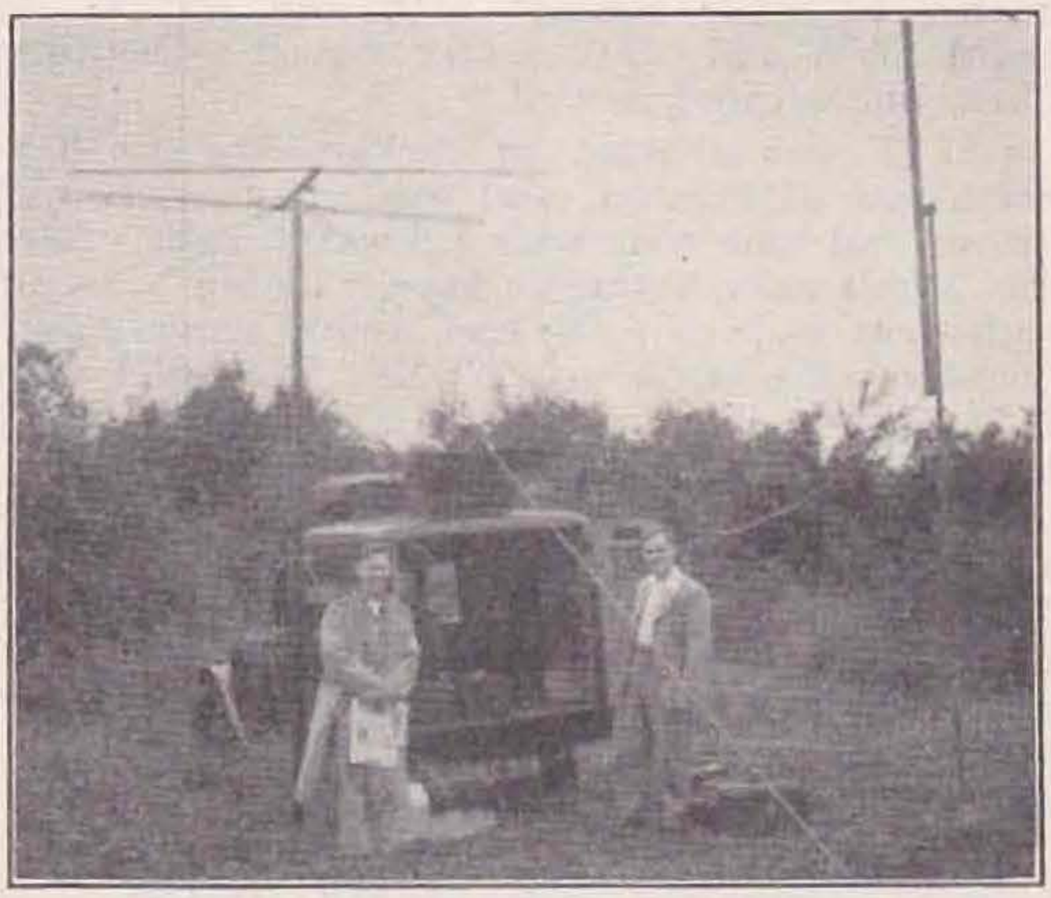
G2DCP; located near (not in!) the Cat and Fiddle Inn, near Buxton. Transmitter was two 45's in PP parallel rod oscillator with 10 watts input, plate modulated. The aerial system comprised a rotating half-wave vertical with reflector. Zepp. fed through three-quarter-wave feeders. Receivers were (*a*) three stage super-regen., and (*b*) E.C. detector with optional quench, plus L.F. QSO's were affected with the following: 6OKP (85), 6MXP (77), 5MQ (40), 2INP (36), 6DP (30), 6OM (20) and 2AOP (local).

G2FA; operated from the Valiant Sailor, Folkestone, used two transmitters, one being unity coupled. Two aerial systems were also used (*a*) a VF Zepp, and (*b*) centre fed *via* low impedance line. Was heard by F8AA on several occasions, and heard a French station at about R2 but no contact made.

G2JBP, 2GZP and 2UXP were on Hayes and Keston Commons, Kent, working with QRP transmitters and half-wave vertical radiators. Stations worked and heard were 5OX, 6NF, 2MV, 5ISP, 2OD (30).

G2WSP at Ilkeston, Derbyshire, used a modified long-line PP transmitter with 5 watts input for tone signals, and an MO.BA.PA. with 10 watts for CW. Three aerials were used (*a*) half-wave dipole (*b*) an H type broadside array and (*c*) a V beam with 111 foot sides at an angle of 40 degrees. Receivers were a three valve "straight" and a three valve superegen., QSO 5JQ (31), and heard 5ML (56) fading 56-3 and 6HLP.

G5BKP tested two sites. In the morning on Crickley Hill, near Cheltenham, a 2 watt transceiver for 'phone and tone code and later a 10 watt PP long-line oscillator were put into service.



The 56 Mc. Station Operated by G5CDP near Wendover.

Aerials were a half-wave vertical matched impedance for the transmitter and a Reinartz directional type for receiving, the latter giving an increase of at least two R strengths over the vertical. 6IH and 5BM were contacted from this location. In the afternoon a move was made to British Camp, Malvern, and from here 6IH was again raised. Shortly after, 6OKP on Snowdon was heard and contacted. Two three-valve superregen. receivers were used.

G5CDP, on Haddington Hill, near Wendover, at a height of 860 feet. Transmitter was a CC 7 Mc. tritet, 6L6 doubler, followed by a 4304A as power doubler with 10 watts input with 'phone or tone modulation. Aerials in use were (*a*) vertical dipole fed *via* a quarter-wave matching section and LI line and (*b*) rotatable horizontal dipole with reflector and centre fed also with L.I. line. Receiver was a super-het. with a regenerative R.F. stage (954 acorn). QSO's affected with 6NRP, 5RD, 2MC, 8NVP, 6GR and 2QY. Heard 2MV and 5ML.

Increase 56 Mc. Range by C.W.

G5IJP, on Horsenden Hill, Middlesex, operated a 3½ watt transceiver with vertical half-wave centre fed through L.I. line. 'Phone contacts were made with 6SK, 5WW, 6GR, and 2QY. Heard 8FV, 5RD, 5KH and 6NF.

G5JUP, at Southlea Farm (300 ft.), near Reniford, Bristol, with a 4/6 watt Ultraudion modulated with 'phone or tone and coupled to a semi-vertical three-phased half-wave aerial, contacted 6FV (14) and heard 5BKP (60). Receiver was a three-valve superegen.

G5MAP operated a 5 watt PP oscillator (53) from Kithurst Hill, near Storrington. Contacts were made with 2NHP, 5CMP, 6RD (55), 6XMP, 5JWP, 2MV, 6GR and 8IXP. Also heard 5HF, 8IX, 5KH, 6VA, 2OD and 6NF.

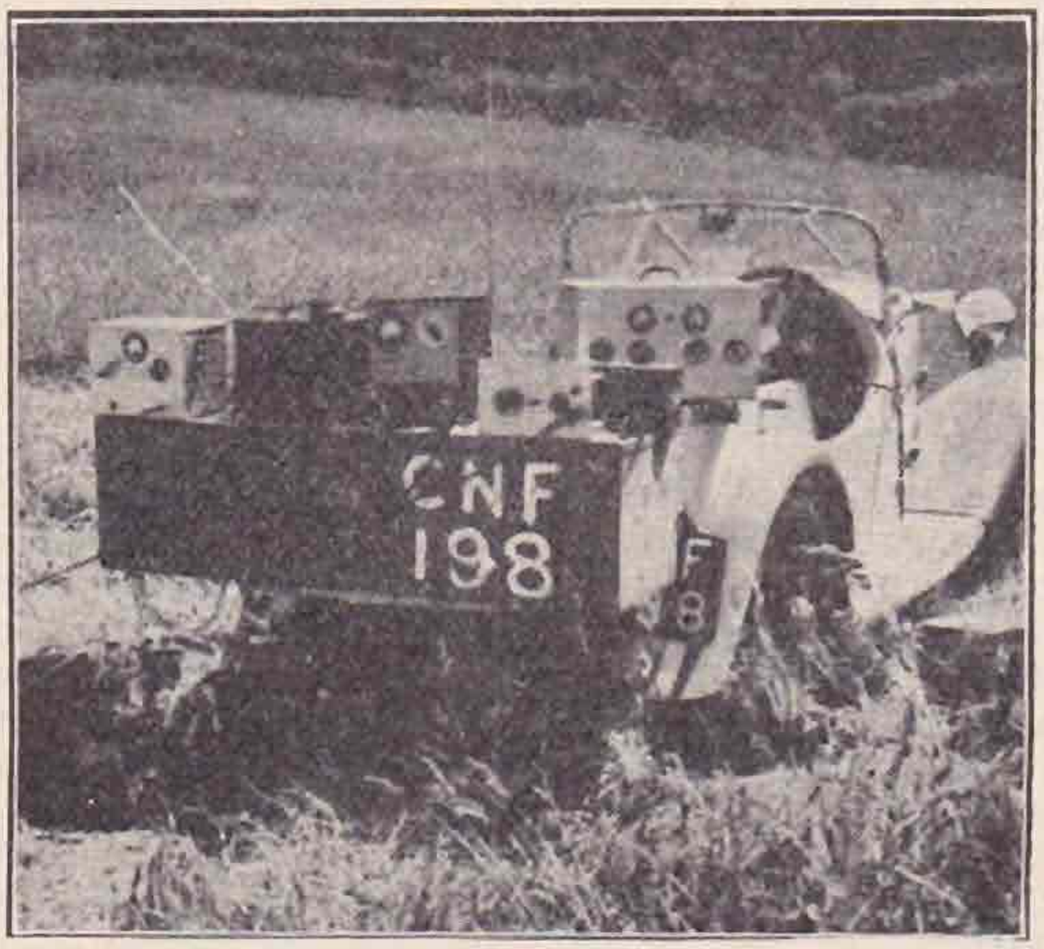
G6QN, in Stoke, Coventry, used two T.P.T.G. transmitters, each feeding a different aerial system. One, a centre-fed half-wave vertical, and the other a rotatable half-wave with reflector and Zepp. fed. Three super-regen, receivers were used. Had QSO with 5ML, 6YU and 5PP. Heard 5NOP, 5BOP (?) and 5BKP.

G5UKP, on Crown Hill, Laindon, Essex, was unable to make contact with any station, but heard 5WW and 6UT. Later moved to Southend Cliffs, but without reward.

G5ZTP was situated on Parlike Pike (1,416 ft.) north-east of Preston, and used a transceiver for 'phone and tone code with 1.8 watts input. Aerial was 8 half-wave harmonic type, running N. and S. with free end (N.) 18 foot above ground level. Contacts were made with 6MXP, 5MS, 6DP, 5AD 6OM, 6FCP, 2NF and 5US (?). Heard 6OKP, 6MI, 5MQ (?) and 2DC.

G6DP operated from his home address in Frodsham, near Warrington. He used a 20 watt T.P.T.G. transmitter with tone modulation, and a Hartley receiver with optional quench. Aerials were half-wave vertical and a similar length horizontal. Both being centre fed through L.I. line. QSO made with 2DCP, 5ZTP, 5AD and 5MQ.

G6JZ, in Whitehaven, Cumberland, used a QRP Colpitts transmitter and quench receiver. No signals were heard throughout the day.



The Gear used at GW6MXP near Colwyn Bay.

G6MXP was located on a hill near Colwyn Bay at a height of about 975 ft. The transmitter was a 10 watt Ultraudion with tone or 'phone modulation. A self-quenching Ultraudion receiver was in use. Aerials were an 85 ft. end-on and a half-wave Windom with reflector. QSO made with 2DCP (77), 5ZTP (65), 6FC (60), 5AD (60), 2INP (45), 5MQ (40), 6OKP, 5ODP, 5UO, 2II, 6AA and 2NF. Also heard and heard by 6OM (60). All signals noticed to increase with clearer atmosphere later.

G6OM, in Manchester, worked 2DCP, 6DP, 6OKP, 5ZTP, 2GA and 2INP. Heard 6MXP and 5AD.

G6UTP, although armed with no less than six receivers and two transmitters, could hear no other signals. Three different locations in the Abridge district all produced the same results—nil!

G6WJ, Wakefield, operated a PP oscillator 'phone modulated. Aerial systems were (*a*) 63 ft. horizontal and (*b*) a half-wave vertical with reflector. Receivers used were a three-valve TRF and a superegen. Contacts were made with 6VT, 5QR, 2TY and 8NM.

GI6YWP, the only Northern Irish entry, picked a site on Mourne Mountain at a height of about 800 feet. The transmitter was a 9 watt PP. "T.N.T." modulated for 'phone by a 6L6. The aerial, a horizontal dipole fed through L.I. line plus reflector was "lined up" on Snowdon (the objective) and used for both transmitting and receiving. The receiver being a normal three-valve superegen. In the afternoon made contact with 6OKP (Snowdon—about 114 miles) getting S7/8 'phone to his S6/7 tone signals. No other signals were heard during the day, but OKP was raised again later for another report, which turned out to be exactly as the first, R and S being the same each way. This being the first GI/G contact on this band the opportunity was taken to convey a message of greeting from the President of the R.T.U. to this Society.

Reception Logs.

G2SZ, in Norbury, using a quench receiver with a half-wave Windom aerial, heard 2MV, 6VA, 5KH, 6NF, 5MA and 5HR.

G8AF, near Orford, Warrington, used a superhet. with RC coupled I.F.'s coupled *via* twin line to a dipole, heard 2INP, 2DCP, 5MQ, 6OM, 6DP and 6OKP.

G8JV, located on Weaver Hills, near Ashbourne, at about 1,250 ft. alt. used a TRF receiver with optional quench. Aerials used were a horizontal dipole or half-wave vertical. Signals logged from 6IH, 5ML, 2INP (?), 2WSP, 6CWP, 6OKP, 6DP, 2KD and 6JQ.

G8NV, in Golders Green, used a single valve quench receiver with a Reinartz beam aerial, and heard 2QY, 5CD, 5RD and 6NR.

2ADY and 2BKB, on Ranmore Common, near Dorking, operated a Hartley with optional quench. Aerial was a half-wave vertical, heard 5RD, 8IXP, 2MV, 8FV, 6GR, 5MAP, 6MXP, 2OD and 5JWP.

BRS1173 and 2CJZ, on Ashdown Forest, Sussex, used a two-valve quench receiver with a 15 foot aerial. Heard 5MAP and several other signals which were not identified owing to severe fading.

Active but unlucky receivers were 2CAX, 2GGY and BRS2830. Mr. Purves ran a schedule with 6JZP, but was also disappointed.

Conditions.

Most participants agreed that the band at the time did not exhibit any sign of DX conditions. Fading signals were reported by a few, however, and as far as the stations in the Western and Northern counties were concerned these were due to large areas of low cloud, mist or rain passing over or between them. Signal strengths in nearly every case improving with clearing atmosphere. This effect was particularly noticed by the operators at G6MXP, when during the early evening, the few remaining signals had increased several R strengths.

The fade on transmissions from 5ML of from 1 to 5 minutes duration noticed by 2WSP (distance about 65 miles) may have been due to similar conditions, although it will be remembered that in the past signals from G5ML have been fairly regularly received in South London by 2HG with a similar type of fade; weather conditions at the time were good over an area covering both stations.

However, the change in QRK of signals, as noticed by BRS1173, seems a little harder to explain inasmuch as on some it was a matter of seconds only, while on others it was a period of about three minutes between minimum and maximum. Weather at this station was not nearly so bad as was the case in other instances.

In several reports the view was expressed that the results as regards number of stations contacted could be duplicated any time, and generally improved upon with more favourable weather conditions at any of the given sites, since on the day concerned there was little or no chance for testing out different aerial systems. Most operators finding it difficult enough to erect one or, at the most, two types, so that in effect no station could be operated up to the prearranged and expected standard of efficiency.

Aerial Systems.

As might be expected, the vertical and horizontal half-wave types were most generally used, but as will have been noticed in some of the station reports, the harmonic (multi-wave), H, V and Reinartz beam systems were also in service. Brief reports on the behaviour of the various systems are as follows:

G2DCP noticed that his vertically polarised transmissions were received at a fairly even strength (S7 or over) irrespective of the plane of the aerial at the receiving station, whereas horizontally polarised signals received at 2DCP were subject to great changes in strength when the plane of the receiving aerial was moved out of the horizontal. 6MXP (H.P.) becoming inaudible at the vertical position.

G5CDP found his horizontal dipole with reflector much superior as a receiving system, presumably due to most stations being horizontally polarised at time of reception.

G6DP found that for both transmission and reception the vertical system was much the superior to the horizontal.

G2WSP received 6HLP and 6JQ at S6 and 7 respectively on the dipole suspended obliquely but broadside to those stations. The V beam later erected and directed towards the same stations brought their respective strengths up to S and 8 plus.

G5BKP, using the Reinartz beam aerial for receiving on Crickley Hill, found it to produce signals at least two R strengths better than the vertical. No transmission tests were possible, however.

At G8JV only two stations produced differing signals on the two aerials in use. These were 5ML and 6IH, and their strengths were two S's up on the vertical, but it is not known what type of aerial was in use at those stations.

Generally, it appears that the usual characteristics of the various types were observed to hold good, but in one or two instances there appears a suggestion that certain transmissions were subject to "scattering" and polarity reversal, but no real evidence is available. However, in the type of country encountered by the western and northern portables, effects of this nature would no doubt be frequently observed if tests were made for that purpose. Loss of signals due to local absorption over mineral areas may also be responsible for some peculiarities in the way certain transmissions were received.

Comments on Apparatus.

While the usual combination of self-excited transmitters and super-regenerative receivers still seems to be greatly in vogue for this class of work, several operators have formed the conclusion that that type of gear has certain serious disadvantages. These are briefly:

(*a*) Failure to produce a readable signal at weak carrier strengths.
(*b*) Frequency modulation is the rule rather than exception.
(*c*) Mutilation of speech quality or tone by (*b*).
(*d*) Production of unreadable signals on "straight" or super-het receivers. (Also due to (*b*).
(*e*) Low input/output ratios rendering heavy power supplies uneconomical and awkward portability.

With these conclusions in mind, the operators in question have put forward the following suggestions as to obtaining a general improvement in operating technique.

(*a*) For modulated transmissions, the use of stabilised oscillators plus frequency multiplication and/or buffer or power amplifier stage, together with "straight" or super-het. receivers, will do practically everything towards getting a good signal out *and* getting it over a considerably greater distance.
(*b*) For real DX working, the use of plain CW will give an S5 signal where a 'phone or tone signal (with identical input) is unintelligible or, at the most, barely readable.
(*c*) For portable work the use of CW will enable a very great reduction in weight to be made, in addition to cutting by half the total current consumption. *Note:* Battery driven oscillators can, with care in mechanical design, be made to produce a note entirely suitable for keying.
(*d*) Where 'phone or tone modulated signals are essential, the use of an efficient but low power transceiver will give satisfactory results under usual conditions. Strict portability then being literally and actually realised.

It is hoped that a number of erstwhile 'phone operators will give CW a thorough trial for portable work, as it seems certain that much is to be gained

(*Continued on page* 230.)

To The Editor

THE NEW "GUIDE"

DEAR SIR,—The Society is to be congratulated for its splendid achievement in publishing the 1937 "*Guide to Amateur Radio.*"

No doubt many will join with me in saying that the term "Radio Handbook," would be more applicable to this edition of 164 pages for 6d.

All the way through this work, the high technical standard maintained proves that we have in our ranks many highly scientifically trained amateurs, which is contrary to the opinion expressed from some outside circles.

To all of those who were concerned in compiling the "Guide" I tender my good wishes and thanks. May our operating conditions be based on a similar standard.—Yours faithfully,

W. J. H. KEMPTON
(G8LN, ex G2AI).

MORE ABOUT 7 Mc

DEAR SIR,—Following on the creditable efforts of G5KJ and ex-G8CR, I think a little further discussion on 7 Mc. matters might not be out of place. In the past this band has contained quite as much DX as has 14 Mc., and under the welter of intense QRM, DX is still to be heard—and worked.

I agree with ex-G8CR that the trouble is due mostly to 'phone, and G 'phone at that. Whilst a C.W. man myself, I have no real objection to 'phone as such, but 7 Mc. 'phone nowadays falls into two main categories. These are (*a*) the low power 'phone, so often obliterated by QRM that it is then worthless, and (*b*) high power "half mile per watt" 'phone which accomplishes nothing, relying as it does on "brute force" for its intelligibility. And the QRM on the former is usually due only to the latter!

Surely those who use a potential DX band for local 'phone, with inputs up to a hundred watts or more, are not playing the game. What is 3.5 Mc. for, anyway?

We cannot expect good operators to come on 7 Mc. unless they can find room there. Without 'phone there would be ample space, and it is significant that in the U.S.A. it is the best operators who go on to 7 Mc., not, as here, the novices.

I notice that G5SO raises the old complaint of the substitution of Christian names for call signs. Others have commented on the practice of rag-chewing *ad nauseam* on matters unconnected with radio, thereby causing QRM; of the practice of sending "test" twenty or thirty times without signing; of the new licensees who put away the key when the P.O. morse test is over. It is no good talking of these things. The only cure is to start "Blacklisting" them. Stations guilty of breaches of regulations, selfishness or bad manners should be reported as such, in the future interests of Amateur Radio. It will not be so very "future" unless drastic steps are soon taken.

With regard to DX on 7 Mc., I would mention that the following have been heard recently by me or by friends of mine locally:—All W districts except W7, VE 1, 2, 3, 4, VO, YV, ZC, YI, SU, VU, VSI, PKI, J5CC. Those who read "Ham" Whyte's page (and who does not?) will find notable additions to this list.

In conclusion, I would suggest that our Marathon "rag-chewers," particularly those who send double on 'phone (ask Uncle Tom!), should change either their band or their tactics. Also that on C.W. a "copperplate" 12 W.P.M. is better than faltering QSZ at 20 W.P.M. If these points were regarded 7 Mc. would be a far, far better thing for the users of both 'phone and C.W. But don't use QHL, QLH, etc., as hardly anyone on 7 Mc. knows what they mean!

Yours faithfully,
H. S. CHADWICK, G8ON.

IN DEFENCE

To the Editor, T. & R. BULLETIN.

DEAR SIR,—I read in THE T. & R. BULLETIN for September a letter signed by Ex G8CR, in which he accuses G8's of using the 7 Mc. band as a playground. A word, then, in their defence. As I am all alone in this area, with the exception of the No. 1 D.R. (to whom I owe many thanks for advice and assistance), and not rolling in wealth, I spend many hours listening to the G's, GM's, and GW's, and from the description of their rigs and tests they have carried, or are carrying, out, I have greatly benefited. Who are they that confine their talks to matters chiefly concerned with radio—from my experience the G8's, and in particular those using low power.

Further, only last week whilst listening to a well-known G2 who wears the old school tie, he informed the *world* that when he carried out tests on any new aerial he called "Test," and then went round the band counting the number of stations that were replying. From this he was able to tell if it was any good! He did mention that he sometimes acknowledges one of them. Is that playing the game?

I should like to add a word or two about "The Helping Hand," and say how much I look forward to reading same. The practical ideas are especially helpful to me, and to those who are situated as I am, with no one to turn to for guidance. I trust this feature will be continued.

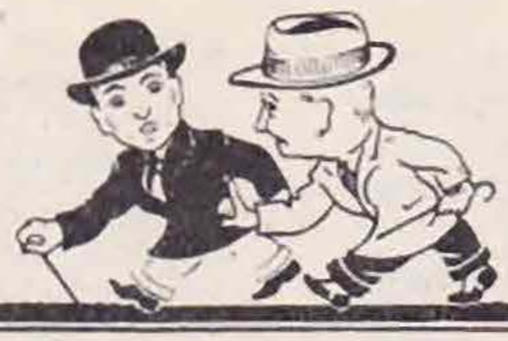
Yours faithfully,
L. H. WEBBER (2CPW).

Bloomers

Claude, the Lynx-Eyed Cat, has spotted two glaring errors in the new Guide. The first occurs on page 93 under Fig. 8, where the potentiometer R1 is described as a 50 ohm type (instead of 50,000), whilst the second occurs in the caption on page 115, where the tuning condenser C3 is described as having a capacity of 50 *micro*farads!

Accidents happen in the best-regulated families, but we really did think we had avoided them this year in the "Guide" family.

Next, please!

BETWEEN  OURSELVES

I.E.E. Meetings

To meet the wishes of many London members, arrangements have been made to display the N.F.D. and London stations films at the I.E.E., Savoy Place, W.C.2, on Friday, October 29, at 6.45 p.m.

Lady friends of members will be cordially welcomed.

Tea will be served free of charge from 6 p.m., whilst the I.E.E. will be open from 5 p.m.

At the November meeting to be held on the 26th of that month, Mr. de Grouchy, of *Everett Edgecumbe & Co., Ltd.*, will lecture on Measuring Devices as applied to the Radio Field.

Press Date

Owing to changes connected with working hours in the printing trade, it is now imperative that all copy be received by Headquarters not later than the first day in each month. D.R.s, T.R.s, and regular correspondents are requested to note this information.

Copy received after Press Day will be held over.

New D.R. for East Midlands

Council are pleased to announce that Mr. G. W. Slack (G5KG), "Inglenook," Racecourse Road, Mansfield, Notts, has accepted their invitation to succeed Mr. J. J. Curnow (G6CW) as D.R. for the East Midlands.

Mr. Slack is a well-known R.E.S. member and his articles dealing with Aerials have proved of great interest to members. We feel confident that under his guidance District 4 will continue to make good progress.

At the September Council meeting a cordial vote of thanks was recorded to Mr. Curnow for his past services.

New Burma Call Signs

We are informed by Mr. M. K. Min that the following are the new call signs issued to Burma amateurs :—

XZ2AC (ex VU2AC).—M. Hla Aung, 31, Shan Avenue, Rangoon.

XZ2BH (ex VU2BH-G5KM).—M. Kyaw Min, Indian Civil Service, Forest Secretary, Secretariat, Rangoon.

XZ2BJ (ex VU2BJ).—W. G. F. Wedderspoon, Government English High School, Maymyo.

XZ2DP (ex VU2DP).—H. W. Kamen, Suite No. 7, Royal Hotel, Rangoon.

XZ2DY (ex VU2DY).—E. J. Mustill, Game Warden, Minto Lodge, Maymyo.

XZ2EM (ex VU2EM).—R. M. Hall, District Superintendent of Police, Akyab.

XZ2EZ (ex VU2EZ).—M. Khin Maung Bo, 82, Inya Road, Rangoon.

XZ2JB (ex VU2JB).—W. G. F. Wedderspoon, Government English High School, Maymyo.

XZ2LZ (ex VU2LZ).—E. J. Dunkley, c/o Philips Electrical Co., 529, Merchant Street, Rangoon.

XZ2ST (ex VU2EH).—M. Sway Tin, 133, Windemere Road, Rangoon.

Golders Green Activities

We are advised by Lt.-Col. Scarlett that R.S.G.B. members will be cordially welcomed at future meetings of the "Golders Green and Hendon Radio Society." The meetings are to be held at The Regal Cinema, Finchley Road, N.W.2, at 8.15 p.m. on the following dates :—

Oct. 28.—Transmitter Design and Operation, by H. A. M. Clark, B.Sc. (G6OT).

Nov. 11.—Receiver Troubles and Fault Finding, by D. N. Corfield, D.L.C. (G5CD).

Nov. 25.—Display of R.S.G.B. films showing amateur transmitting stations, followed by a discussion.

CALIBRATION SERVICE

Crystals should be sent direct to the Calibration Manager enclosed in a small tin, and securely packed to avoid loss in transit. The Society cannot be responsible for any loss that might occur in sending crystals through the post.

Return postage must be enclosed as postage stamps, and not attached to the Postal Order.

Calibration fees : 1.7, 3.5 and 7 Mc. crystals, 1s. 6d. ; 100 kc. crystals, 2s. 6d.

All communications should be addressed to :—

Mr. A. D. Gay (G6NF),
"Oak Dene,"
156, Devonshire Way,
Shirley,
Croydon,
Surrey.

See *A Guide to Amateur Radio* for particulars of frequency meters, etc.

North-West Kent Group

Mr. H. Miles, G2NK, the new Bromley and Beckenham T.R., informs us that the next meeting of the N.W. Kent Group will take place at 52, Widmore Road, Bromley, at 8.15 p.m., on Saturday, October 23. After the usual business members will be given an opportunity of examining the latest amateur and television gear at the works of A.C.S. Ltd.

East Africa QSL Bureau

During Mr. W. E. Lane's absence from Kenya on leave, Mr. H. J. Walker, M.B.E. (VQ4CRC), will be acting as QSL Manager to the Radio Society of East Africa. Mr. Walker's address is P.O. Box 79, Nairobi.

Medway Amateur Transmitting Society

The following lectures have been fixed for the Winter Session of the Gravesend Branch of this Society :—

1937.
Oct. 18. Interference with Broadcasting, by the G.P.O.
Nov. 1. Short-wave Receivers, by *Messrs. Lissen.*
,, 15. 56 Mc., by Mr. W. H. Allen (G2UJ).
Dec. 6. The Metal Way, by *Westinghouse Brake Co.*
,, 20. To be selected, by Mr. W. H. Allen (G2UJ).
1938.
Jan. 10. Osram Valves, by *G.E.C.*
,, 17. To be selected, by Mr. J. Clarricoats (G6CL).
,, 31. The Tritet, by Mr. R. Box (G6BQ).
Feb. 14. R. F. Pentodes, by *362 Valve Co.*

QRA Section

Manager: H. A. M. Whyte (G6WY).

NEW QRA'S

GW2KD.—Portable, Operator GW5FU.
G2KH.—K. W. Hartridge, "Emrick," Hampton Gardens, Prittlewell, Essex.
G2TJ.—T. P. Auzeas, 33, Fairfield Drive, Perivale, Middlesex.
G2VK.—C. E. Willingham, 28, Ashley Road, Bristol, 6.
G2XA.—A. Bell, 663, Anlaby Road, Hull, Yorks.
G5AD.—A. Adams, 28, Savick Road, Cadley, Fulwood, Preston, Lancs.
G5CI.—W. Crossland, 13, Queen's Road, Whitstable, Kent.
G5CJ.—A. L. Sherriff, "Kittyghyll," 181, Windermere Road, Kendal, Westmorland.
G5DC.—W. T. Aked, The Regal Hotel, Cleveleys, Lancs.
G5GA.—B. G. Logan, 12, Orchard Close, St. Stephens, Canterbury, Kent.
G5GY.—T. B. Gregory, 25, Eaton Avenue, Wallasey, Cheshire.
G5HF.—H. R. Heap, 404, Victoria Avenue East, New Morton, Manchester 10, Lancs.

TECHNICAL ENQUIRY BUREAU

The service is free to members except that a nominal charge of 6d. per query is made to cover clerical and postage expenses.

The Rules governing the service are :—

1. Questions must be written legibly and concisely on one side of the paper.
2. A sixpenny postal order must accompany each question.
   The postal order must be made payable to the R.S.G.B., and the letter addressed to Technical Enquiry Bureau, R.S.G.B., 53, Victoria Street, London, S.W.1.
3. The service is only available to fully paid-up members of the Society.

G5KW (ex ZC6NX).—Sergt. K. E. S. Ellis, 2nd Battalion Scots Guards, Small Arms School, Hythe, Kent.
G5MO.—R. S. Page, 68, Victoria Road, Stretford, Manchester, Lancs.
G5NY.—J. E. Nayler, 3, Myrtle Terrace, off Bilston Road, Tipton, Staffs.
G5RR.—F. B. Prior, 4, Corner Fielde, Streatham Hill, London, S.W. (Station at The Carlton Cinema, 161-9, Essex Road, London, N.1.)
GW5TJ.—E. T. James, 11a, Victoria Street, Merthyr, Glamorgan, S. Wales.
G5WP.—W. E. Russell, "Milestones," Westfield Road, Mayford, Woking, Surrey.
G5YQ.—J. Reid, "Norham," Milton Avenue, South Shields, Durham.
G6FP.—Wm. C. Thomson, Retreat House, Newbold Road, Rugby, Warwickshire.
GM6NO.—Jas. J. E. Blacks, 20, Easter Drylaw View, Edinburgh 4, Scotland.
G6PI.—R. Pidsley, 118, Mimms Hall Road, Potters Bar, Middlesex.
G6RM.—B. J. Reichman, 316, Ditchling Road, Brighton, Sussex.
GM6VH.—F. H. Goldsmith, 16, Castlemilk Crescent, King's Park, Glasgow, S.4.
G6YD.—F. J. R. Taylor, Portland Hotel, Kings Street, Weymouth, Dorset.
G6ZX.—A. C. Brown, 41, Gloucester Street, S.W.1, London.
G8AD.—E. B. Vass, 30, Broomfield Road, Chelmsford, Essex.
G8BM.—J. Wylde, 100, Earlston Road, Wallasey, Cheshire.
G8CB.—H. Crewe, 5, Ringby Terrace, Boothtown, Halifax, Yorks.
G8GN.—R. W. Arnott, Oakdene, Monmouth. (Incorrectly reported in August list.)
G8IA.—Rt. Hon. Lord Beaverbrook, Oldbourne Hall, Shoe Lane, E.C.4, London. (Station at Cherkley Court, Leatherhead, Surrey.) (Operator, R. W. Clegg.)
G8JV.—G. Henderson, 99, Selby Road, West Bridgford, Nottingham.
GM8LS.—A. J. Ellis, 76, White Street, Glasgow, W.1, Scotland.
G8MX.—W. L. Hector, Cromar, Hitchin Road, Letchworth, Herts.
G8NG.—A. G. Forbes, 33, Rake Lane, Wallasey, Cheshire.
G8OV.—G. E. Naish, 46, William Street, Northam, Southampton, Hants.
G8OW.—K. B. Wilson, 19, Bancroft Avenue, N.2, London.
G8QQ.—E. P. Jones, 118, Robertson Road, Eastville, Bristol, 5.
G8SI.—W. H. Segrott, 43, Co-operative Street, Derby.
G8SU (ex SU1FS).—Sergt. Frank Skinner, 7th Royal Tank Corps, Catterick, Yorks.
G8TB.—B. W. Wynn, 67, Old Lodge Lane, Purley, Surrey.
G8TD.—W. H. Dyson, Mayfield, Reedley, Burnley, Lancs.
G8TK.—A. L. Browning, 4, Cell Barnes Cottages, Tyttenhanger Lane, Cell Barnes, near, St. Albans, Herts.
G8TN.—L. Sanderson, 104, Croxted Road, West Dulwich, S.E.21, London.
G8TO.—D. L. Flower, Ilmington Manor, near Shipston-on-Stour, Warwickshire.
G8TY.—S. Howard, 92, Arlington Road, Southgate, N.14, London.
G8TZ.—A. Taylor, 50, Oxford Street, Barnsley, Yorks.
G8UB.—Geo. V. Marchbank, 3a, Chatsworth Road, Morecambe W.E., Lancs.
G8UD.—Ed. W. Price, 101, Old Farm Road, Stechford, Birmingham 9.
G8UF.—G. Cunliffe, 173, Harrowby Street, Farnworth, near Bolton, Lancs.
GW8UH.—D. Alan Dyer, 29, Ladysmith Road, Penylan, Cardiff, S. Wales.
G8UI.—F. J. Dawes, 2, Greengates, Breckhill Road, Mapperley, Notts.
GM8UM.—L. T. Davis, "Highview," Southwold Road, Ralston, Paisley.
G8UQ.—J. C. Aldred, 7, Wheatley Avenue, Ben Rhydding, Ilkley, Yorks.
G8US.—J. H. Caldwell, 5, Myrtle Gardens, Bideford, Devon.
GI8UW.—J. S. C. Cupples, 69, Onslow Parade, Belfast, N.I.
G8VC.—C. A. H. Goudie, 97, Warren Road, Washwood Heath, Birmingham, 8.
2AAO.—H. S. Trim, "Lyncroft," Park Avenue, Caterham-on-the-Hill, Surrey.
2AAX.—A. W. G. Anderson, 93, Maybury Road, Hull, Yorks.
2AIJ.—J. Oswald Dykes, 8, Olive Vale, Wavertree, Liverpool, 15.
2AJR.—P. R. Jones, "Sharlcote," Copt Heath, Knowle, Warwickshire.
2ALY.—N. C. Stamford, Oak Lane, Mottram St. Andrew, Macclesfield, Cheshire.
2AVQ.—S. R. Bennett, 69, Field Lane, Horninglow, Burton-on-Trent, Staffs.
2ATO.—Thos. A. Stevenson, Station House, Daventry, Northants.
2AWC.—R. L. Rawles, Blackwater Corner, Newport, I.O.W.
2BDQ.—O. Docherty, The Red Gables, The Highgate, Kenton Estate, Newcastle-on-Tyne, 3.
2BUQ.—E. Butler, Lambden Road, Pluckley, Kent.
2CFA.—G. Keyworth, 181, Westwick Road, Sheffield, Yorks.
2CQB.—R. Gilbert, Churchtown Ludgvan, Long Rock, Cornwall.
2CUT.—L. Carter, 13, Letchworth Road, Ebbw Vale, Monmouth.
2CWV.—W. Hamer, 71, Portelet Road, Liverpool, 13.
2CWY.—R. D. McMillan, 17, Highfield Avenue, Golders Green, N.W.11, London.
2CXC.—A. Anderson, 45, Shawburn Road, Selkirk, Scotland.
2CXI.—R. F. Laurence, Elsfield, Ashley Road, Walton-on-Thames.
2CXY.—P. Gourlay, 75, Woodside Avenue, Rosyth, Scotland.
2CXZ.—D. S. Bruce, 39, High Street, Galashiels, Selkirk, Scotland.
2CYA.—The Blackpool and Fylde Short Wave Radio Society (Operator, Dr. W. H. Buckley), "Oaklea," Breck Road, Poulton-le-Fylde).
2CYF.—J. Gale, 25, Loraine Road, Holloway, N.7, London.
2CZF.—F. Smith, 152, Awsworth Road, Ilkeston, Derby.
2CZG.—V. R. Spearing, York House, Queen's Road, Teddington, Middlesex.
2CZK.—J. Judson, 48, Green Road, Meanwood, Leeds, 6, Yorks.
2CZM.—H. Ridge, 9, Mayfield Road, Heavitree, Exeter, Devon.
2CZO.—V. Spence, 22, Mandale Road, Thornaby-on-Tees, Yorks.
2CZQ.—E. Wake, Old Gaol House, Abingdon, Berks.

Cancelled: G2DV, G2HM, G2GU, G2WZ, G5FB, G6NW, G6UR, G8CC, G8CR, G8CX, 2AHT, 2AUK, 2AZP, 2BCG, 2BHS, 2BQJ, 2BSN, 2BTM, 2BUC, 2BXW, 2CBJ, 2CCR, 2CGA, 2CGT, 2CHJ, 2CIJ, 2CKL, 2CLN, 2COP.

NEW MEMBERS.

HOME CORPORATES.

A. G. HILL (G2KG), "Manton," Sandford Road, Chelmsford, Essex.
L. W. HERMES (G2LH), Grange Wood Cottage, Harriotts Lane, Ashtead, Surrey.
E. S. FIRTH (G2ID), Elmfield House, Bickington, Barnstaple, Devon.
L. FROST (G5PF), Mikado, Station Road, Bognor Regis, Sussex.
L. H. MANSELL (G6IH), Woodfield, Madresfield Road, Malvern, Worcs.
A. C. WEBB (G6WQ), 10, Aberdour Road, Goodmayes, Essex.
D. H. HALLIDAY, B.Sc. (G8FQ), "West View," Silkmore Lane, Stafford.
R. W. CLEGG (operator only G8IA), Radio Towers, Cherkley Court, Leatherhead, Surrey.
F. BOAD (G8IF), 93, Frederick Street, South Shields, Durham.
D. T. BLUNDEN (G8IN), 560, Purley Way, Croydon, Surrey.
L. W. LEWIS (G8ML), 117, Fairview Road, Cheltenham Spa, Glos.
N. L. STEPHENS (G8NQ), Holly Bank, Hereford Road, Monmouth.
J. J. PARKES (G8QK), "Ryecroft," New House Park, St. Albans, Herts.
G. M. THOMPSON, B.Sc. (G8RX), 118, Lyminster Road, Wadsley Bridge, Sheffield.
K. R. CUSTERSON (G8SY), 23, Orchard Estate, Cherryhinton, Cambridge.
C. H. L. EDWARDS (G8TL), 10, Chepstow Crescent, Newbury Park, Ilford, Essex.
J. ST. C. T. RUDDOCK (GI8TS), Broomhedge Rectory, Maze, Lisburn, Co. Antrim, N.I.
H. TEE (G8UA), 104, Rectory Road, Burnley, Lancs.
J. K. COOMBER (G8UG), 61, High Street, Knaphill, Woking, Surrey.
T. C. WHIMSTER (G8UJ), The Priory, Pontefract, Yorks.
J. TURNBULL (G8UK), 12, The Avenue, Monkseaton, Northumberland.
E. ASHER (2AUA), 150, Boulton Road, Handsworth, Birmingham.
J. K. COUSINS (2AXT), 135, Cwm Street, Abertillery, Mon.
J. PEARCE (2BJK), 110, Malborough Avenue, Hull, Yorks.
I. F. SMITH (2BQI), 29, Wood Lane, Highgate, N.6.
J. A. BUDGE (2BUN), 32, Newcombe Road, Southampton, Hants.
W. W. COCK (2CFN), 79, Longmead Avenue, Bishopston, Bristol, 7.
K. BOSELEY (2CLW), 51, Silversea Drive, Westcliff-on-Sea, Essex.
H. A. WILLIAMSON (2CMU), 6, Winscombe Hall, Disraeli Road, Ealing, W.5.
W. B. P. WATSON (2CRL), 278, Union Street, Torre P.O. Torre, Torquay, Devon.
H. CLARKE (2CSC), 126, Atlas Street, Clayton-le-Moors, Accrington, Lancs.
H. A. TAPSFIELD (2CXD), 7, Orchard Avenue, Finchley, London, N.3.
L. R. CRAWLEY (2CXQ), 22, Myddelton Gardens, Winchmore Hill, N.21.
M. PITTAM (BRS2977), Bede College, Durham. (This was incorrectly given as M. Pittal).
J. E. JENSEN (BRS3012), 39, Holywood Road, Belfast, N. Ireland.
E. J. TRUSCOTT (BRS3013), 10, Meadway, Barnet, Herts.
A. R. WALKER (BRS3014), 4, Park Road, Wandsworth, S.W.18.
G. G. CARTER (BRS3015), 119, Lowther Road, Bournemouth, Hants.
C. G. ELLIS (BRS3016), 19, Melrose Avenue, Wood Green, N.22.
L. M. SPALTON (BRS3017), Hilary Mount, Poplar Road, Douglas, I.O.M.
R. C. WHITING (BRS3018), 62, Walton Road, Chesterfield, Derbys.
G. A. SOWERBY (BRS3019), 6, Ravencroft Avenue, Middlesbrough, Yorks.
P. G. MEDCALF (BRS3020), 145, Wendover Road, Aylesbury, Bucks.
E. P. APPLEBY (BRS3021), 10, Phillimore Walk, London, W.8.
J. LYNN (BRS3022), Kilnadore House, Cushendall, Co. Antrim, N.I.
R. S. RAWLING (BRS3023), "Holgate," Ash Heads, Menston-in-Wharfdale, Yorks.
J. T. FOX (BRS3024, now 2AZS), 53, Market Place, Thirsk, Yorks.
W. T. GOULD (BRS3025), 61, Ashcombe Park Road, Weston-super-Mare, Som.
G. GORDON (BRS3026), Deecastle, Dinnet, Aberdeenshire.
G. E. DE M. LEWIN (BRS3027), Rough Down, Salvington Hill, Worthing.
R. ALLEN, (BRS3028), 37, Highfield Road, Bognor Regis, Sussex.
R. CRAGGS (BRS3029), 4, North-Eastern Terrace, Parkgate, Darlington, Co. Durham.
G. J. BOND (BRS3030), 12, Holly Park, Finchley, London, N.3.
D. M. BELL (BRS3031), 21, Glendor Gardens, Mill Hill, London, N.W.7.
G. PARKER (BRS3032), 30, Goulden Road, Withington, Manchester, Lancs.
S. E. NEWBY (BRS3033), 19, St. Andrews Chambers, Well Street, W.1.
H. BEVINGTON (BRS3034), 30, Warrington Road, Leigh, Lancs.
C. J. POTTER (BRS3035), 183, Dale Street, Chatham, Kent.
T. W. D. ALIAGA-KELLY (BRS3036), '70, West Cromwell Road, London, S.W.5.
T. PATON (BRS3037), 339, High Street, Cowdenbeath, Fife.
T. GOODLAD (BRS3038), The Doreys, Medstead, near Alton, Hants.
F. H. MARTIN (BRS3039), 45, Cooksley Road, Redfield, Bristol.
G. D. FRENCH (BRS3040), Betty's Oak, Barnham, Sussex.
G. R. COX (BRS3041), 35, Victoria Street, New Sawley, Long Eaton, Notts.
A. DIMMER (BRS3042), Ankerville, Portsdown Hill Road, Cosham, Hants.
V. M. GOADSBY (BRS3043), 1099, Christchurch Road, Boscombe East, Bournemouth, Hants.
H. J. SMITH (BRS3044), 69, Lord Avenue, Ilford, Essex.
K. E. JORDAN (BRS3045), 66, Eastlands Road, Rugby, Warwickshire.
E. L. WRIGHT (BRS3046), Mill End House, Thaxted, Essex.
C. E. GREEN (BRS3047), 94, Elm Drive, Hove, Sussex, 4.
H. T. WATKINS (BRS3048), 107, Sandy Lane, Cheam, Surrey.
J. H. MCEWING (BRS3049), Solano, Hazelwood Avenue, Newton Mearns, N.B.
J. P. ALDOUS (BRS3050), 647, Foxhall Road, Ipswich, Suffolk.
J. R. CHRISTOPHER (BRS3051), 111, Cassiobury Park Avenue, Watford, Herts.
J. V. NEWSON (BRS3052), 23, Auriol Road, West Kensington, W.14.
J. H. CHAPMAN (BRS3053), 11, New Way Road, Leicester.
J. T. LANE (BRS3054), 44, Balliol Road, Welling, Kent.
L. E. TUCKER (BRS3055), 68, Borrowdale Avenue, Belmont Park, Harrow Weald, Middlesex.
W. H. GOODERHAM (BRS3056), 62, Parker Street, Cleethorpes, Lincs.
H. B. ROGERS (BRS3057), 18, Wood Terrace, Shelton, Stoke-on-Trent.
L. C. KRAILING (BRS3058), Lloyds Bank House, Clare, Suffolk.
MISS H. M. GILBERT (BRS3059), 34, Linden Terrace, Pontefract, Yorks.
G. T. SPARKES (BRS3060), "Lamerton," Swindon Road, Horsham, Sussex.

R.S.G.B. Slow Morse Practices

Details will be found below of the slow Morse practices organised by the Society for those members wishing to learn or improve their code. As usual, test matter will be taken from recent issues of the T. & R. BULLETIN. The page number and month of issue will be given at the end of each test—by telephony. A telephony announcement will also be given at the commencement of each test to assist those interested in tuning to the sending station. It is emphasised that reports will be appreciated and are desired in order to ascertain useful range of transmission and numbers utilising the service. If, however, a reply is desired, a stamp should be sent. Will stations in areas not at present served offer their services to Mr. T. A. St. Johnston (G6UT), 28, Douglas Road, Chingford, E.4 (telephone: Silverthorn 2285).

SCHEDULE OF SLOW MORSE TRANSMISSIONS.

		G.M.T.	KC.	Stations.
Oct. 21	Thursday	22.00	7184	G6UA
,, 23	Saturday	23.00	7145	GI5QX
,, 24	Sunday	09.45	7155	GI5UR
,, 24	Sunday	10.00	7260	G5JL
,, 24	Sunday	10.15	1920	G6VC
,, 25	Monday	23.15	1741	GI6XS
,, 26	Tuesday	22.00	7184	G6UA
,, 27	Wednesday	23.15	1741	GI6XS
,, 28	Thursday	22.00	7184	G6UA
,, 30	Saturday	23.00	7145	GI5QX
,, 31	Sunday	09.45	7155	GI5UR
,, 31	Sunday	10.00	7260	G5JL
,, 31	Sunday	10.15	1920	G6VC
Nov. 1	Monday	23.15	1741	GI6XS
,, 2	Tuesday	22.00	7184	G6UA
,, 3	Wednesday	23.15	1741	GI6XS
,, 4	Thursday	22.00	7184	G6UA
,, 6	Saturday	23.00	7145	GI5QX
,, 7	Sunday	09.45	7155	GI5UR

		G.M.T.	kc.	Stations.
Nov. 7	Sunday	10.00	7260	G5JL
,, 7	Sunday	10.15	1920	G6VC
,, 8	Monday	23.15	1741	GI6XS
,, 9	Tuesday	22.00	7184	G6UA
,, 10	Wednesday	23.15	1741	GI6XS
,, 11	Thursday	22.00	7184	G6UA
,, 13	Saturday	23.00	7145	GI5QX
,, 14	Sunday	09.45	7155	GI5UR
,, 14	Sunday	10.00	7260	G5JL
,, 14	Sunday	10.15	1920	G6VC
,, 15	Monday	23.15	1741	GI6XS
,, 16	Tuesday	22.00	7184	G6UA
,, 17	Wednesday	23.15	1741	GI6XS
,, 18	Thursday	22.00	7184	G6UA
,, 20	Saturday	23.00	7145	GI5QX

Aftermath

Apropos the paragraph published under the title " Humour Corner " in our last issue, Mr. F. Charman (G6CJ) informs us that the wording used by W6KRM on his QSL card has been " cribbed solidly " from a card devised and used by himself over 10 years go. We felt sure we had seen the " curse " somewhere in the distant past, but could not remember the occasion. We express our regrets to Mr. Charman for having given credit to a " cribber " !

Strays

Mr. A. C. Embrechts (ON4AC) is now in Teheran, Iran, therefore the station operating on the 14 Mc. band, under the call ON4AC, is a pirate.

VU2AN is active on 14,080 kc., and is looking for British Isles contacts. His full QRA is T. Arnold, No. 1 Co., 2nd Indian Divisional Signals, Quetta, India. VU2AN formerly operated under the call VU2BA.

Reports Wanted

EI5M (Signal Section, Queenstown, Co. Cork), on their 7,263 kc. telephony and C.W. transmissions. Their usual hours of operation are between 6 p.m. and 8 p.m. and after 10.30 p.m.

G5CI (Whitstable), on his 7 Mc. C.W. transmissions. All reports will be acknowledged.

G8KP (Wakefield), on his 14,260 kc. C.W. transmissions.

Trade Notices

N. E. Read, Radio Engineer and Manufacturer, better known to our members as G6US, has recently acquired larger premises at 24, Church Street, Oswestry. The new workshops will enable him to cope with the building of amateur gear in better conditions than hitherto.

Radio Development Company inform us that they have moved to more commodious premises, and that their new address is Epoch House, 101-105, Goswell Road, London, E.C.1. Telephone : Clerkenwell 4865-6-7.

The Bristol Radio Exhibitions

UNDER the shadow of the huge Bristol University Tower lies the Coliseum, where the Bristol Radio Show was held this year from September 8 to 18. Radio Show—my foot (left one !) It must be admitted if one happened to be interested in radio, it was possible to find a few exhibits pertaining thereto, of which undoubtedly the R.S.G.B. stand was the most interesting, but it was noticed that the stand showing S—— corsetry attracted very considerable attention, although attempts at " gate crashing " were unsuccessful !

The " dart-board " was well patronised, as were also the various other side-shows. The attendance, as usual, was a record and naturally all the stands selling sets did more business than they can possibly cope with ! Having seen the crowd who queued up for the variety performance we can well believe the former statement—it was a marvel how they were all accommodated.

The R.S.G.B. Stand at the Radio Exhibition held at The Drill Hall, Bristol.

An exhibition model of a *Cossor* television receiver was shown on the R.S.G.B. stand and attracted a lot of attention, many wishing to see it in operation ! *Cossor's* also demonstrated a strength-indicating apparatus, the pressure of one's grip on a " dumb-bell " varying the resistance and altering the height of a column of light in a C.R. tube. Other gear shown included 2BMK's well-made modern RK25 transmitter, BRS2023's 12 watt amplifier, G5JU's 56 Mc. superhet receiver, and many other short and ultra-short wave receivers, frequency meters, etc. The fifth edition of the " Guide to Amateur Radio " was prominently displayed and many copies were sold.

Our Secretary (G6CL) was holidaying in the West of England and it was a great pleasure to welcome him at the stand on Friday evening and again on Saturday. The opportunity was taken by many members of personally meeting him and having a chat.

When you see the N.F.D. films (if you haven't already done so) look out for the " man with the

(*Continued on page* 230)

NOTES and NEWS from the BRITISH ISLES

DISTRICT REPRESENTATIVES.

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

DISTRICT 2 (North-Eastern).
Yorkshire (West Riding, and part of North Riding).
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. G. W. Slack (G5KG), "Inglenook," Racecourse Road, Mansfield, Notts.

DISTRICT 5 (Western).
(Hereford, Oxford, Wiltshire, Gloucester.)
Mr. J. N. Walker (G5JU), 4, Frenchay Road, Downend, Bristol.

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

DISTRICT 7 (Southern).
(Berkshire, Hampshire, Surrey.)
Mr. E. A. Dedman (G2NH), 75, Woodlands Avenue, Coombe, New Malden, Surrey.

DISTRICT 8 (Home Counties).
(Beds., Cambs., Hunts., Rutland and the town of Peterborough.)
Mr. G. Jeapes (G2XV), 89, Perne Road, Cambridge.

DISTRICT 9 (East Anglia).
(Norfolk and Suffolk.)
Mr. H. W. Sadler (G2XS), "The Warren Farm," South Wootton, King's Lynn, Norfolk.

DISTRICT 10 (South Wales and Monmouth).
Capt. G. C. Price (GW2OP), The Mount, Pembroke Dock.

DISTRICT 11 (North Wales).
(Anglesey, Carnarvon, Denbighshire, Flintshire, Merioneth, Montgomery, Radnorshire.)
Mr. D. S. Mitchell (GW6AA), "The Flagstaff," Colwyn Bay, Denbighshire.

DISTRICT 12 (London North and Hertford).
(North London Postal Districts and Hertford, together with the area known as North Middlesex.)
Mr. S. Buckingham (G5QF), 41, Brunswick Park Road, New Southgate, N.11.

DISTRICT 13 (London South).
Mr. J. B. Kershaw (G2WV), 13, Montpelier Row, Blackheath S.E.3.

DISTRICT 14 (Eastern)
(East London and Essex.)
Mr. T. A. St. Johnston (G6UT), 28, Douglas Road, Chingford, E.4.

DISTRICT 15 (London West).
(West London Postal Districts, Bucks, and that part of Middlesex not included in District 12.)
Mr. H. V. Wilkins (G6WN), 81, Studland Road, Hanwell, W.7.

DISTRICT 16 (South-Eastern).
(Kent and Sussex).
Mr. W. H. Allen (G2UJ), 32, Earls Road, Tunbridge Wells.

DISTRICT 17 (Mid-East).
(Lincolnshire and Rutland.)
Mr. W. Grieve (G5GS), "Summerford," New Waltham, Lincs.

DISTRICT 18 (East Yorkshire).
(East Riding and part of North Riding.)
Mr. W. A. Clark (G5FV), "Lynton," Hull Road, Keyingham, E. Yorks.

DISTRICT 19 (Northern).
(Northumberland, Durham, and North Yorks.)
Mr. H. C. D. Hornsby (G5QY), "Newlands," 105, Kenton Lane, Newcastle-on-Tyne, 3.

SCOTLAND.
Mr. James Hunter (GM6ZV), Records Office, 51, Camphill Avenue, Langside, Glasgow.

NORTHERN IRELAND.
Mr. T. P. Allen (GI6YW), 62, Balmoral Avenue, Belfast.

New Members are cordially invited to write to their local District Representative.

DISTRICT 1 (North-Western).

Birkenhead and District.—The Wirral Amateur Transmitting and Short Wave Club continues to hold its meetings on the last Wednesday in each month at Beechcroft Settlement, Birkenhead, the new meeting place. Individual reports are few, but activity in the district is believed to be increasing.

G8PG has been working good DX on 14 Mc. with real QRP, 6HQ is spending a lot of time on his new aerial, 2FZ was in for DJDC, but had transmitter trouble, and 6GL has returned to 1.7 and 56 Mc., which he finds a pleasant change from the DX bands. 2AHG has 6L6 crystal oscillator working which seems to be very efficient. 8NH has not reported, but is known to be active. 6CX has almost completed his rebuilding and will be on the air shortly on 1.7, 7 and 14 Mc. with two separate transmitters and new aerial.

The members in this district deplore the use of the 14 Mc. band by some local stations for cross-town telephony work.

Blackpool and District.—The Blackpool and Fylde Short Wave Radio Society has opened its winter programme and a satisfactory attendance is reported. Special attention is to be given to B.R.S. and A.A. members, who in the past have been rather neglected. Code practice classes will be held with the object of having every present member doing 12 W.P.M. by the New Year.

The DF Field Day on 14 and 56 Mc. will have been held by the time these notes are published and results should be interesting.

G5SO is working some good DX. 6VQ worked XU and VU in one evening for W.A.C. and W.B.E., and is watching the postman for the cards. 8AK and 8NU are on 7 Mc. at intervals. 8GG is on 14 Mc. and 1.7 Mc. and is recovering from the set-back of a transformer blow-out. 2CWW, 2CMC, C2UI, 2CKD, 2CRO and 2CUP report the usual activities and all are busy with code practice.

Visitors during the past month were GI5OY and his second operator and G2GI and 8IS.

Burnley.—Two new stations, G8TD and 8UA,

Support Local Meetings.

are now on the air, the latter having been acting as the licensed second operator at 8DC. 8TD is experimenting with 6L6 tubes in all stages of his transmitter, 2CVI is also trying a 6L6 in place of a PM24M as crystal oscillator, BRS2951 has been busy logging super DX with a Ham-Band Two receiver, and 5ZN is mostly on 14 Mc. working DX with the W3EDP aerial.

Will members please send their reports to G5ZN, 35, Reedley Road, Burnley ?

FORTHCOMING EVENTS.

Oct. 18.—District 12 (Watford Group), 7.30 p.m., at 50, Oundle Avenue, Bushey, Herts.
,, 20. *—District 15, 7.30 p.m., at G8MA, 47, Eversley Crescent, Ruislip, Middlesex. Nearest station : Ruislip (Met. & Piccadilly).
,, 20.—District 14 (East Essex Section), 8 p.m., at G2KH, "Emrick," Hampton Gardens, Prittlewell.
,, 24. *—District 4. 3.30 p.m., St. James Restaurant, St. James Street, Derby. Talk by G2WS, on Reflection and Refraction of Radio Waves.
,, 26.—District 14 (East London Section), 7.30 p.m., at 2AGD, 136, High Road, Leyton, E.15.
,, 27. *—Scotland "A" and "E" Districts. 7.30 p.m., Room "A," The Institution of Engineers and Shipbuilders, 39, Elmbank Crescent, Glasgow.
,, 27.—Scotland "H" District. 7.30 p.m. at District Clubroom, Bank Street, Kirkcaldy.
,, 28. *—District 13. 8 p.m., at Brotherhood Hall, West Norwood.
,, 29.—Display of Society Films at I.E.E., London. Ladies invited. Tea from 6 p.m. Commence 6.45 p.m.
Nov. 3.—S.L.D.R.T.S. 8 p.m., at Brother-Hall, West Norwood.
,, 7.—District 7. 2.30 p.m., at Royal Oak Hotel, Stoughton, near Guildford.
,, 10.—Scotland "H" District. Details as above.

* Sale of disused apparatus at this meeting.

Liverpool.—The monthly meetings were resumed in September and quite a number of new faces were to be seen among the thirty members who attended. Members are asked to note that the next meeting will be held on October 20 at 38, Mason Street, but new quarters will have to be found for subsequent meetings owing to the fact that G2DC is leaving the district and members will no longer have the benefit of his good offices in securing the Mason Street premises. Those who have been associated with 2DC in connection with RSGB matters since he came to Liverpool not very long ago, will be well aware of the very active part he has taken in running the monthly meetings, his help for and kindness towards new members, the contributions he has made towards N.F.D. on several occasions in the loan of apparatus and enthusiasm and keen "ham" spirit in all matters, and they wll be truly sorry to hear of his forthcoming departure. The amateurs he will meet at his new location are to be congratulated in advance upon having the benefit of his presence as one of their circle, and he will take with him when he goes the very best wishes of all members in Liverpool and District.

Individual reports are scarce this month, as usual. G2DC, 2OA and 8HT have been carrying out 56 Mc. tests at Buxton, but details are not to hand. 2OA reports both W.A.C. and W.B.E. on 28 Mc. in the space of one week-end and is now trying telephony, using suppressor grid modulation of a buffer stage followed by a T55 linear amplifier.

DISTRICT 2 (North Eastern).

Huddersfield.—Congratulations to 2ARN, now G8VF, who is working on 14,240 kc. 2ALU awaits morse test. 6RO and 8QT are the only other members to report. More news is required if these notes are to be representative of the area.

Barnsley.—The club meetings will begin early in October. Best wishes to 2AHT, who is now G8TZ ; 8IJ is licensed for 3.5 Mc., and 6LZ, 5UA, 5KM, and 5IV are licensed for 28 and 56 Mc. After alterations at 6PY, a very smart and efficient station has resulted. 2BH and 6AJ are active, but no other reports are to hand.

Keighley.—There are now five AA stations and two transmitters in Keighley, and one or two more recruits are coming along. G2VO is active on 7 and 14 Mc. ; he has worked VS and VK, and is testing aerials. 8OU, who used to be 2ARU, is building a transmitter.

Goole to Doncaster.—A meeting was held at G5GJ on September 19, when 6SH, 8IC, 8GA, 8UV, 2BPR, and 2CXV attended. There was a discussion on 56 Mc. work and the hope was expressed that most local stations would be active on this band soon. A contact with EI9D was established, and all present had a word with him. Further meetings are to be arranged. 8GA is active on 7 Mc., and is preparing for 14, 28 and 56 Mc. 8UV is a new station ; 5GJ is on 7 Mc. and preparing for 56 Mc., and has been testing out aerials with reflectors and directors.

Stainforth.—8IC, now on 7 and 14 Mc., is getting ready for 56 Mc.

Doncaster.—6SH hopes to be on 56 Mc. soon and is assisting 8BA with modulation gear ; 8BA is interested in 14 Mc. telephony. 2XV at Finningley R.A.F. Depot would be pleased to see local members.

DISTRICT 3 (West Midlands).

Birmingham.—M.A.R.S. opened their season on September 14 with a good attendance. It is hoped to show the R.S.G.B. Films at the November meeting, the display to be followed by a talk on N.F.D. by the D.R. Meetings are held on the second Tuesday in each month at The Hope and Anchor Hotel, Edmund Street, Birmingham, at 8 p.m., when visitors will be very welcome. All the usual stations are active, and we congratulate G8TO on obtaining his full licence.

Coventry.—During the month a party of C.A.R.S. members paid a visit to the B.B.C. transmitter at Droitwich. The visit proved rather exciting, a "technical hitch" occurring during the period of the visit.

A welcome is extended to G8UX, and also to G8FK from Blackburn, who has taken up residence in Coventry.

G2ZT, after many experiments with aerials, has at last found one which suits him, and he is doing good work with it. G5QN has changed his QRA, and has chosen the opportunity to rebuild. Other stations active in Coventry include G2AV, 2DK, 2GR, 2JR, 2LU, 2YS, 2ZT, 5GR, 5ML, 5NO, 5PP, 5QN, 5SK, 6DC, 6JC, 6TD, 6TZ, 6WX, 6XR, 6YU, 8LH, 8NJ, 8OX, 8PJ and 8UX.

DISTRICT 4 (East Midlands)

A very successful meeting lasting four hours took place on September 19 at Nottingham, 35 members being present. We are greatly indebted to Mr. C. E. Shaw, B.Sc., of *Messrs. A. C. Cossor, Ltd.*, for an excellent lecture and demonstration on the practical uses of Cathode Ray apparatus as applied to radio practice, aviation engine performance and medical research. He also exhibited a film showing how greatly *Messrs. Cossor, Ltd.*, has progressed in the study of television transmission and reception since 1933, when the subject was still almost unknown.

Mr. Shaw has kindly promised to give another lecture and demonstration at the April, 1938, meeting, when he will, with the aid of a low-power transmitter and good receiver, measure visibly by means of cathode ray apparatus the entire performance, output, etc., of the previously mentioned transmitter. Further details of this lecture will appear at a later date in these notes. We wish to record our sincere thanks to *Messrs. Cossor, Ltd.*, for their kindness in allowing their engineer and his assistant to come along and give us this excellent talk, and we can assure them that it was much appreciated by all. Mention must also be made that it was directly due to Mr. Oxley (G8MW) that the lecture was arranged. A vote of thanks was proposed and seconded by Mr. Henton (G5VU) and Mr. Leatherland (BRS1794) respectively.

After the lecture the business part of the meeting commenced and a very lively discussion took place on District policy. Many aspects of local activity were reviewed and several decisions made. It should be mentioned at this point that T.R.s should be nominated as soon as possible to take office from January 1 next. Towns may appoint a T.R. providing not less than six members reside in the town or within 10 miles of its boundaries.

News has been received from Headquarters that Nottingham has been selected for the Midland Provincial District Meeting in 1938 and March 13 is the date suggested.

The proposals which were made in July were again examined, and it was decided that meetings shall be held in various towns in the District during the coming season: Derby was selected for the next meeting, when a talk will be given by Mr. Scarr, B.Sc. (G2WS), on "The Reflection and Refraction of Radio Waves." A junk sale will also take place and, if possible, we hope to show the films taken in No. 4 on N.F.D. This programme should prove of great interest to all and a good attendance is expected. The place and time will be the St. James Restaurant, St. James Street, Derby, at 3.30 p.m.

It was decided that a District Committee would be of great value, especially to those members who reside in towns where it is not possible to appoint a T.R. under the official ruling. Further details of this scheme will be made public at a future meeting.

The most important work being carried on in the District at present is that under the leadership of G2WS and G6CW in regard to 56 Mc. experiments. A 56 Mc. link round the district is the ultimate object. All AA and BRS members are asked to co-operate in this connection. We are sure that G2WS is doing everything possible in an endeavour to put the District to the forefront in regard to the investigation and propagation of the high frequencies.

Arrangements for a District Calendar are under consideration. It was decided to open a District fund and it was agreed to levy a charge of 3d. per head at meetings and subtract 1d. in the 1s. from the money taken in junk sales.

We were pleased to see Mr. A. E. Livesey (G6LI) at the last meeting. It will be remembered that he was for some time D.R. for District 17, and also author of many interesting articles which appeared in the T. & R. Bulletin. He is at present resident in Mansfield, and we offer him a cordial welcome to all meetings.

We should like to see Northants, Leicester, Buxton, Chesterfield, and Newark members, as well as those resident in the outlying parts of the District, present at future meetings. Further, the D.R. would like such members to nominate some of their number to sit on the District committee which it is hoped to form. Members residing in towns where there are insufficient numbers to appoint a T.R. are asked to write and express their views on this subject.

Kettering Radio Society recently held a very successful Exhibition. The Secretary is Mr. I. Holmes, "Miami," The Close, Headlands, Kettering.

DISTRICT 5 (Western).

The Crystal Register has not yet come from the printers, but should be ready by the time this appears. Will all those requiring copies please notify the Bristol T.R., Mr. H. Martin, whose address is 68, St. Mark's Road, Easton, Bristol?

The main features of the month in Bristol have been the Exhibitions, and most of the members put in an appearance at the R.S.G.B. stand at one time or another.

With the approach of Autumn, activity on the air is increasing and the 28 Mc. band is being used by many local members. G6RB recently worked five continents in one week-end, and only just missed South America.

Four Bristol stations took part in the 56 Mc. contest for the "G.W. Trophy," but no outstanding DX was heard or worked. G6RB, 6JG and the D.R. were present at Convention and all thoroughly enjoyed the whole of the proceedings.

Oxfordshire.—Meetings are held fortnightly in Oxford at members' QRAs, and particulars are obtainable from the T.R., Mr. H. J. Long (G5LO).

Stanton Harcourt, Oxford. Activity in the county is increasing, G8LV, 8PX, 5TP, and 5HS being on the air regularly, whilst 2CL and 2DU are rebuilding ready for the winter.

G2HX, of *Gloucester*, has been away on holiday, but is settling down to a spell on 28 Mc. The D.R. would like to hear from G5JH regarding 3.5 Mc. operations.

DISTRICT 6 (South Western).

Winter activities are now beginning in all parts of the District and those areas which had ceased meetings for the summer are now making arrangements for starting up once more. It is hoped that all members will do their best to support these meetings. There is no doubt that this side of amateur radio is extremely valuable. The beginner, if he is wise, will seize the opportunity to get information from others, and the genuine "old hand" will not be loth to give such help as is needed.

Most of the amateur bands are in use in the District, and there are signs that 28 Mc. will receive more attention this winter than last. The band already seems distinctly lively, so there should be plenty of opportunities for contacts.

On 56 Mc. the days of portable tests for the summer are now over. It seems that nothing of special importance over last year's results has been discovered, and the attempt at C.W. portable work could scarcely be called a success. We have to congratulate G2CI on his reception of F8CT on 56 Mc. on September 5 between 14.30 and 15.00. A very fine effort.

Taunton.—The members here, as their first meeting of the session, visited their T.R. (G5LM) and had a very excellent time. G2JM, 5AK, 5LM, and 8JF report active, and the following have applied for their two-letter calls: 2BAM, 2BVC, 2BJC, 2CFG, and 2CMS, a truly surprising number. 2BXZ is engaged in building his transmitter.

Exeter.—A meeting was held on Wednesday, September 15. There was an attendance of twelve, and many points of general interest were discussed. One noteworthy feature of the meeting was the fact that all the AA and BRS members present stuck at morse for a solid hour and a half! 56 Mc. still holds interest, although 14 Mc. 'phone, as well as 28 Mc., are coming to the fore.

Torquay.—The first meeting of the winter session was held on Thursday, October 14. As last year, meetings will be held at the QRA of the D.R. and an attempt will be made to keep them to the Thursday nearest the middle of each month. Local members will, as usual, be notified by card. Congratulations to 2BDV, who has attained to the call G5IF. We understand that G6WT has now obtained his American-built transmitter and has already put in a considerable time on the air on 14 Mc. 'phone. G5SY has once more been engaged in building and altering, and no doubt in the dim future will spend a few hours on the air!

Plymouth.—The first meeting was held on October 1, and judging by the interest shown should have been a success.

North Devon.—The monthly meeting was held at 2BAD, Bideford, on September 8, members present being 2ADJ, 2BAD, G8US (ex-2CGA), G6FO, and BRS2442. 2BAD's shack is noteworthy as it consists of three ex-G.P.O. telephone kiosks in series! G8US is doing good work on 1.7, 7, and 14 Mc. 2ADJ and 2CBK have applied for their two-letter calls. G6GM is doing well with 4 watts of grid-modulated 'phone on 1.7 Mc. G6FO has managed to extract the 16th harmonic from exciter, and reached 28 Mc. from 1.7 Mc. crystal, with only two valves. Welcome newcomers to the local group are G2ID, of Bickington, and BRS2970, of Barnstaple. G6FO reports: "There are reports of a particularly annoying form of piracy—operation on the BC bands with 'kit set' transmitters—from both Bideford and Barnstaple. This is being investigated, as the alleged culprits are known." Various members have had visits from G2AK, 5KT, 8NI, 8LI, 8ML, 6YJ, 5HK, and 5OH.

DISTRICT 7 (Southern).

Portsmouth.—At the September meeting of the South Hants R.T.S. there was a keen discussion on Practical Keying Methods. Many excellent schemes, all in actual use by members, were put forward and there should certainly be no "clicks" in this area now! G8JB has finished his new TX. 2XC and 6NZ find 28 Mc. excellent. 8BD, 2AIV, 2ACG, 2CBL are also active on this band. Congratulations to 2AHA, ex-BRS, and 2AWC, ex-BRS2105, both now building TX's. 2ZR is active on 14 Mc., and contemplates a re-build. 5XY, 6SS and 8LO report active.

LONDON MEETING

Friday, October 29th, 1937,

at

I.E.E., SAVOY PLACE,

Victoria Embankment.

Tea 6 p.m. Commence 6.45 p.m.

DISPLAY OF SOCIETY FILMS.

Reading.—At the September meeting of the R.T. & R.S., some 18 members were present. We welcome to the district 2BGB, also congratulations to BRS2618 on his A.A. 2CZQ. G2GG put forward for discussion queries on aerial matching and G8MG on modulation. These were replied to by G6CU and 2YB. General discussion followed. The total membership of R.T. & R.S. is now 28. G5AO contested in DJDC and is now busy with grid bias modulation. 6GT again on the air with phone and CW. after rebuilding TX, and is now located in shack. 5HH still trying aerials and 2IT putting out a fine phone signal. 5TP and 8MG also very active with phone. 8KJ rebuilding TX, and 6WO awaiting confirmation from XZ2DY and LU8EN for WBE and WAC. 2BKD and 2BTY plodding away at code. 2YB, 6CU, 8BK and 8MS all report active. 2GG believed to be rebuilding for 7 Mc. 2BIS once more back to the fold after studies. The next meeting of R.T. and

R.S. on Wednesday, October 20, at Y.M.C.A., Reading.

Southampton.—The most interesting piece of news from this town this month is the discovery that the local station, G8OV, has a "double" in Goole, Yorkshire. As both stations are duly licensed by the G.P.O. and by a coincidence both use the same crystal frequency, a considerable amount of misunderstanding has already taken place. The latest development in this drama is that G8OV (Southampton) has received a letter from the G.P.O. asking for a written explanation of his operating his station in Goole! (G8OV in Goole is actually G8UV.—Ed.) Local activity has increased with the approach of the dark evenings and most stations are active on 14 Mc. G2IL who has been on the air since pre-B.B.C. days, has started on this band and, judging by the effect his transmission produces on local receivers, he should work DX with ease. G8OV is also making tests on this frequency. 8QW, 5OB, 5PT, 2VF all active. Local meetings have now been resumed.

Croydon.—Ten metres having come into life once more finds G5AN, 2KU, 5RF, 2MV all active on that band. 5RF is on phone with 9 watts input to an RK23 suppressor grid with a 6L6 speech amplifier-modulator and has got well out with this rig. G8BX full of enthusiasm of early days of full ticket, is busy on 14 Mc., and has done some good DX. 5AN has the Preselector to the RME69. Now that the Autumn is here, how about the Croydon amateurs having a real "rag chew"? A meeting could be arranged if members will drop the T.R. a line, or come along to the Surrey Radio Contact Club meetings in Croydon, first Tuesday in the month, at Alhambra Hotel, Wellesley Road, at 8 p.m.

DISTRICT 8 (Home Counties).

A District meeting, held at the usual venue, on September 10, was attended by thirteen members. During the meeting the D.R. gave a rough outline of the proceedings which took place at Convention for the benefit of those members who were unable to attend this successful function. This was followed by a junk sale of sundries provided by 2CGO; as usual, half the proceeds were credited to the District fund.

District notes continue to be few and far between, in spite of the general activity noticed when tuning over the bands. G5DR is rebuilding his transmitter into a very commercial looking job. 6FL still perseveres with 56 Mc., and badly needs co-operation; will those interested in these higher frequencies please get into touch with him for schedules? 5JO is to be heard on most bands at most times. 2PL frequently occupies space on 7 Mc. with 'phone transmissions, and is to be heard having many good contacts on this band and also on 14 and 28 Mc. 5OV still maintains schedule with VK2XU on 14 Mc. 'phone. 2XV is obtaining some excellent reports on the bands he deserted many years ago (7 and 3.5 Mc.); he also continues with consistent results on 14 Mc.

Peterborough is still on the map with 2UQ making aerial tests; he is now putting a fine signal into USA on 14 Mc. 2CCF has acquired a "Tobe" receiver with which he is most pleased. 2NJ welcomes BK contacts on 7 Mc., and has been appointed chairman of the local SW Society. 2075 is the new president of this body.

Late news comes in the form of a report from 8FF, who has erected two new masts and WAC in three days on 14 Mc.

DISTRICT 9 (East Anglia).

The membership in the District is steadily increasing, and the number of fully licensed stations, together with those three-letter members who intend to apply for a full permit this winter, should make it possible for much closer co-operation than has hitherto existed.

Unfortunately only three District members, viz., G2XS, 5IX and 6QZ, were able to attend Convention, and thanks are due to them for representing us in London.

The following reports have been received:—

G6QZ and 5IX, of Norwich, have now completed new U.H.F. receivers, and these are working with great success. Both stations are active on 28 and 56 Mc. Reports on their transmissions are very welcome. G2UT is erecting his new high-power gear. G2MN is busy rebuilding his transmitters, and has ceased gardening.

At Lowestoft, G8DD, who has constructed a field strength meter, is still doing good DX on 14 Mc. He has now a 25 watts permit, and is planning some gear for 14 Mc. plate-modulated telephony. G5QO has completed the "G6DH" U.H.F. receiver, and is obtaining very fine results on 28 Mc. reception. He also listens daily, from 22.00 to 23.00 G.M.T. on the 56 Mc. band. 2CWO is learning morse.

Mr. C. R. Thompson, BRS2875, of Orford, has applied for his full licence, and is now awaiting the outcome. He hopes to be on the air some time during the winter.

G2XS at King's Lynn, who has completely dismantled his station prior to a re-build, is still bothered with the power supply question. 2ABX is building and testing transmitters. Mr. Verry is lending a hand where necessary. G2JS is believed to be active.

Will the following areas please send in reports: Ipswich, Gt. Yarmouth, Beccles, Bungay, Swaffham? A card to G5QO as soon as possible, please.

"Obvious statement: An amateur cannot build a transmitter unless he has components; a scribe cannot write notes unless he has reports."

DISTRICT 10 (South Wales and Monmouthshire).

The Cardiff and District S.W. Club are now holding meetings at their Headquarters every Thursday at 8 p.m., at 171, City Road. Cardiff now has four active transmitters and four A.A. licences. 2BHZ hopes to obtain his radiating licence shortly; 2AJN has passed his morse test and is assisting 8NP. Congratulations to 8UH, whose first test call on 14 Mc. brought back a W1. 2CMX is waiting for his morse test. 5XN reports his 'phone S6 in the Philippines from 10 watts input. 8CT has worked J on 14 Mc. and VU on 28 Mc.

General activities are being well maintained in the Swansea area and arrangements for the winter programme are in hand. The following stations are known to be active: 6BK, 8PU, 2NG, 2JL, 6JW, 2WO, 8HI, 2OP, but have nothing of particular interest to report.

The D.R. will have returned to his winter QRA by the time this is in print and anyone who wishes to get in touch with him will find him most Sunday mornings and afternoons on 1.7 and 3.5 Mc. The Scribe would like to draw attention to all readers of the Notes that reports must be sent to him by 25th of each month.

DISTRICT 12 (London North and Hertford).

There is little to report from individual members this month but the district as a whole maintains its usual activity on the air.

The September meeting was held at a different QRA, and on a Thursday instead of Tuesday. The change-over appeared to be justified as an attendance of 33 was recorded. G2VD gave a short talk on his indoor aerial array and G6ZO contributed some interesting information on his system of three aerials with facilities for rapid changing-over, to each system in turn. By the time these notes appear in print the October meeting will have been held and any member who did not receive notification by circular letter should communicate with the D.R. or T.R.s.

G8KW reports active on 1.7, 7 and 14 Mc. with phone and C.W. Transmitter is a tritet link-coupled to a P.A. using a TZO5-20, and this rig has been successful in putting R9 phone into W2, using 7 watts input. Tests have also been carried out on 7 Mc. with ½-watt input to the P.A. All reports showed a decrease of two R strengths against 10 watts.

G6CL has worked VK on 28 Mc. phone and VU on C.W. This later contact qualifies him for W.B.E. and W.A.C. on this band. Recent work has been conducted using 362 R.F.P. 15's. With a pair in push-pull all continents have been worked on telephony with an input of 60 watts. A suppressor bias of 20 volts negative has been found best for phone and 120 volts positive for key work.

Watford District.—The September meeting was held at Bushey on the 10th, when seven members attended. Subjects under discussion included 56 Mc., direction finding and aerial design.

2CKM has applied for his full call and BRS1224 has obtained A.A. facilities on 56 Mc.

DISTRICT 13 (London South).

The area meeting held on September 30 was well attended and the usual discussions took place. A District meeting has been fixed for October 28, at the Brotherhood Hall, and it is hoped that a very good attendance will be recorded. The South London Trophy will be presented at this meeting and a junk sale will also take place. In view of the fact that N.F.D. expenses this year were rather heavier than anticipated it is very necessary that the District fund should receive good support from this sale and we do earnestly request everyone to bring along any spare gear which he may have in order to make the event a real success.

Reports this month are very conspicuous by their absence, hence the shortness of these notes. The usual activity still maintains within the District, but nothing of outstanding interest has taken place. 2AZP and 2ADY have both received radiating licences. Congrats and good luck to them both. G2UX is very busy and is considering resigning his position as T.R. owing to lack of time. Will those members in his area please note this, as if he resigns it is up to them to nominate a successor. 2WV has spent considerable time re-establishing his station after the summer interval and has now erected an additional aerial 132 feet long at right-angles to his existing one. Good results are anticipated in the near future. 28 Mc. gear is also under construction at this station.

It would be of considerable assistance if *all* T.R.'s would endeavour to report *every month*.

DISTRICT 14 (Eastern).

East London.—The September meeting was held at G6UT, Chingford, when a new member, BRS3002, was welcomed. It was announced that the society will not be represented at the exhibition being held at Romford by A. H. Silcocks & Son, Ltd., owing to lack of offers from members. BRS3044, of Ilford, has reported. G2PX has applied for a 3.5 Mc. permit. New members and members moving into the district are invited to attend the monthly meetings and also to get into touch with the T.R.

East Essex.—There was an attendance of 19 at the September meeting held at G2LC, when G6UT was a welcome visitor. The district Crystal Register was brought up to date and is available upon request to the T.R.

Now that the membership is on the increase in this area and there are a number of newcomers to amateur radio, classes have commenced for instruction in morse code and the principles of amateur radio. These classes, which are available to non-members, are held each Wednesday (except when the District meeting takes place) after 8 p.m. at G2LC, 24, Percy Road, Leigh-on-Sea.

Congratulations to G2KH, who within four weeks of obtaining his call was W.A.C. on 14 Mc. G2SO is also doing very well on this band, using a 6L6 only. G2LC is busy listening on 56 Mc. on a new TRF receiver. The latest 3-letter call is 2CYC, ex BRS1946.

News was received of the tragic death at the age of 17 of a promising new member, BRS2830, of Westcliff. His loss was much regretted by all.

DISTRICT 15 (London West, Middlesex and Buckinghamshire).

District meetings are still very popular, and over thirty members attended the September gathering to discuss the proposed club room, which, by vote, was eventually turned down. However, thanks are due to those who so kindly made the offer.

Next month we have been invited to view the station of G8MA and his well-equipped garage, which is at the disposal of District members desirous of building gear for N.F.D., etc. See Forthcoming Events for details.

The DR is anxious to see a TR appointed for the North-West Middlesex area, and would be glad if someone will take steps to see that a member is nominated. (Nomination form appears in this issue.—Ed.)

A few more reports would be welcome to enlarge the letter budget, which will still go into one envelope !

West London.—G2IJ is rebuilding his transmitter into a steel rack. 8KZ busy with aerials has worked VK, PY, SU and all W districts except the 7th on telephony. 6WN now WAC on telephony; whilst VS7 and SV have been added to list on 28 Mc.,

2CCK failed with Morse test, but has greater hopes for next time.

West Middlesex.—G5JL, who has WAC on 7 Mc. with eight watts input to a PX4, wants to know what high-powered stations think! 8FA, who contacted FN1C, is busy with transmitter and 45-ft. vertical Zepp. 12 ft. from ground.

South Middlesex.—G2KI, concentrating on 56 Mc., has heard and had confirmed reception of F8CT. 2VV hopes to be on the air again soon. 2NN active after five weeks' vacation. 6GB rigged Zepp. on 60-ft. mast, and is getting out better. 2CZG started on transmitter with 6L6 and PX4. The following are known to be active: G2LA, 2ZY, 5VB, 8HN, 8IP and 8FV.

A meeting was held by the T.V.A.R.T.S. on Wednesday, September 22, at the Albany Hotel, Twickenham, at which a lecture illustrated by films was given by Mr. W. G. J. Nixon, of *The General Electric Co., Ltd.*, entitled "The Manufacture of Thermionic Valves." Mr. Nixon's talk was much appreciated by an audience of about 35 members and friends.

DISTRICT 16 (South-Eastern).

The reports from the various groups and T.R. areas in the District have been very full this month, and show that considerable activity is taking place. Consequently, we have had some difficulty in keeping these notes within reasonable bounds, but let nobody take this as a cry for less material, for it is far better to have to decide what to leave out than to try and make bricks without straw. There are still some T.R.'s who have not been heard from, however, so how about it, OM's?

Gravesend.—The local branch of the M.A.T.S. have arranged what looks like being a very interesting series of lectures for the coming winter session, and a list will be found elsewhere in this issue. G6BQ and 6VC are high scorers in the "Observer" contest, and it seems that another of Chatham's cups will find a home in Gravesend. The latter station is running slow Morse practice to which there is an enthusiastic response, and is also busy on 56 Mc. Most stations are active.

Eastbourne.—The T.R. for this group is, it may be remembered, collecting reports from stations outside his area and not in any other T.R. area. The first trial of the scheme seems very successful. G5IH busy with aerials, 2AO rebuilding, 8CP working some DX and trying 'phone. The following have also reported:—2KV, 2BIU, 2CNO, and 5RO, who is on 56 Mc. every Sunday at 11.30 G.M.T. with C.C.

Whitstable.—At future W.R.A. meetings, talks will be given by members on various subjects of general radio interest, and it is hoped that all amateurs, not only in Whitstable, but in surrounding towns, will make an effort to attend. Full details from 5CI.

Brighton and Hove.—Kingston and District held a Conventionette in conjunction with the Brighton group on September 19 in Brighton, but unfortunately the numbers present were not as great as had been expected. Only two from Brighton attended together with 5PR, 5KV, 2UJ and 2AKQ from other parts of the District. By the courtesy of the Chief Constable of the Brighton police an interesting time was spent in inspecting the police transmitter and in examining the "works" of the very efficient and compact super-regen. receivers used in connection with it.

Heathfield.—G5JZ is moving to a new QRA and while awaiting mains intends putting out some QRP signals on 56 Mc. 5PR is also waiting for mains and will soon have C.C. going on 56 Mc. in addition to 28 Mc. 1173 is using a super-regen. on the latter band, and as usual is hearing some extraordinary DX, while 5AQ, 5PN and 2CJZ are also busy.

Tunbridge Wells.—A great deal of rebuilding seems to be taking place here. 5OQ is the first to finish, and is putting out some excellent signals on 7 and 14 Mc., and there should be more to report on later.

Chichester.—The West Sussex Short Wave and Television Club was formed on September 14, and there was an attendance of 12 at the first meeting. The hon. secretary is Mr. J. Williams, 2BBB, H.Q. Flight, 43 (F) Squadron R.A.F., Tangmere, who will be pleased to hear from prospective members.

Belated congratulations to 2ACZ, who in August became G8UC.

DISTRICT 17 (Mid-East).

Boston.—G6LH has a new rig using two T20's; his activity will be chiefly on the 28 Mc. band. 8BQ is starting up again after a period of inactivity. 6GH has worked all W Districts with the exception of W1 and 2, on 28 Mc; has also worked LZ on 14 Mc.

Horncastle.—2AAS is still struggling with his code and hopes to have full ticket soon.

Cranwell.—The Cranwell Transmitter G8FC is now W.B.E. and the operators are erecting four masts for a Beam Array. 8PF with newly erected, 14 Mc. aerial, two half-waves in phase and matched feeders, has worked ZL, VK, HS, CR7, CE, VE, PY, and a host of W's with an input of 8 watts. 8PQ ,who is active on 7 Mc., is still unable to get out of Europe on this band, and contemplates moving to 14 Mc.

Sleaford.—G8GT is active on 7 Mc. on phone and asks for schedules with District 17 members on 1.7 Mc.

Brigg.—G8AP is now the proud possessor of a HRO receiver and is busy improving the transmitter to match the receiver.

Mablethorpe and Sutton.—G5CY worked all W Districts on 28 Mc. during a week in September. We are pleased to record that 5 BD is active again with a new shack, transmitter and receiver, and is working DX on 28 Mc. 2FT is also active again, VE4 being the best DX for the month with an input of 10 watts.

Grimsby.—The following stations are known to be active: 5GS, 8JN, 2VY, 6AK, 8PV, 2HU, 6YN, 5SX, 6RN, and 2AZH. For special mention this month we are pleased to record 8JN's first VK contact on 14 Mc. We are also glad to welcome a new member in BRS3035.

DISTRICT 18 (East Yorkshire).

Scarborough.—G6CP is again working phone on 7 Mc. with much improved quality. G5HZ has an RK20, and has contacted U.S.A. with Suppressor modulated phone on 14 Mc. G5MV is preparing plans for remote control system for winter, he has worked LU on phone, and continues with other DX on c.w. G8BB is also putting out good phone

with a suppressor modulated RK25. G6TG is rebuilding his speech amplifier, and testing a Windom on 14 Mc. G8TQ is a new call, making a total of 10 active stations in the town. G2CP is again in Scarborough, and has a new rig using a P2 driving a neutralised 45. G2TK has a mast which is 60 ft. above the roof of the building; this is used as a landmark by the local trawlers! He is conducting ground wave tests on 28 Mc., and checking weather conditions and humidity. His transmitter is being changed from an RK20 final to a new rig with T20 and T55. G8KU also continues on low-power c.w. G5GI is very pleased with his new Ultra-gainer receiver, and is no longer troubled with local QRM. 2BMD is inactive owing to illness, and we all wish him a speedy recovery.

By the time these notes appear, meetings will have been resumed at the Scarborough Short Wave Club. Any of the above-mentioned members will be pleased to introduce visitors at the Monday night meetings.

DISTRICT 19 (Northern).

Stockton and Darlington.—G2FO, 8HQ, 8OH, 6ZT and 2BQO ran a 56 Mc. portable under the call G6ZTP for the Field Day, but had no success with DX. G6ZT is testing directional aerials on 56 Mc. G2FO, besides usual activity on 14 Mc., is engaged on 56 Mc. trying to contact G6ZT and G8HQ. G8OH is experimenting with aerial couplers. G8PS started with 9 watts to a 59 and his second contact was with W. G8CL is constructing a rotary beam for 14 Mc. G5QU is getting ready for 28 Mc. work. Congratulations to G8GL on WAC and WBE. He is now using a rig with 48's from 100-v. D.C. mains. BRS2859 has now acquired the call 2CZO. Also active are G6DR, 2CBA and 2BQO, the latter on 56 Mc.

Sunderland.—G8AR and 6HV have erected 50 ft. trellis masts and are putting up beam aerials. The latter is using remote-controlled TX. Others active are G5NS, 6UD, 5AC, 5PZ, and 6TR. These stations are mostly busy working 14 Mc. DX.

South Shields.—G5YO is on 14 Mc. and preparing for 28 Mc. G8JO has been on 28 and 14 Mc. G8KK is on 14 Mc. CW and phone and working plenty of DX. G5WZ is on 28 and 56 Mc. CW and has worked G6YL (QRB 27 miles) and G5QY (QRB 12 miles), the latter several times.

Newcastle and District.—G8SG is waiting cards for WAC and WBE. Congrats., O.M. G2XT is on 1.7. and 14 Mc. CW and 'phone and is trying to get on 28 Mc. G5RI has been using an aerial directional for ZS and has had several R9 reports from that country. G6YL has at last worked G5QY on 56 Mc. CW and is having regular QSO's with him now. She is also active on 28 Mc. 2BGG is active again and completing his super RX. G2PN has started on 28 Mc. again and is going on 56 Mc. CW with CC. G2GC is on 28 Mc. and working plenty of good DX.

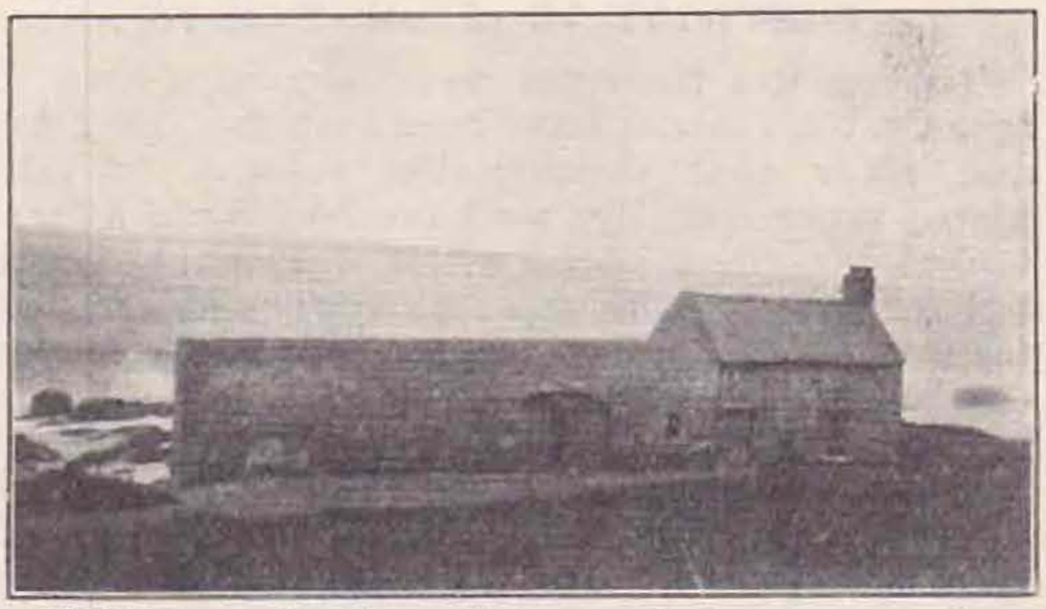
G5QY has had seven solid QSO's with G6YL on 56 Mc. CW. Signals to G6YL and *vice versa* seem to disappear between 11 a.m. and 5 p.m. and they are running skeds to find out more about this effect. They are both using horizontal aerials and ordinary 0-v-1 receivers. Incidentally, G6YL has now worked G5QY on all six bands on the same aerial (80 ft.).

Many stations are active but have not reported; these include G2LD, 5AY, 8AY, 8OA.

Northern Ireland

The annual general meeting of the Radio Transmitters' Union was held on September 25, GI6TB and GI5HV being re-elected chairman and vice-chairman respectively. The Committee comprises GI2SP, GI5SJ, GI5SQ, GI6YW and GI8DB. Hon. secretary is 2BFJ, and hon. editor is BRS2868. The Union's finances are in a very sound condition, and the success of the monthly magazine "GIST" will now certainly lead to its further development. It was decided to award the Union's trophies as follows:—The "QRM Eliminator" (a shillelagh, first awarded in 1926) to the crew of GI6YWP, viz., GI5SJ, GI2SP and GI6YW, for the first 56 Mc. contact between G and GI; and the Houston-Fergus Trophy to BRS2868 for his outstanding work as hon. editor of "GIST."

Only one report arrived this month, but it is of more than usual interest. GI8LF has now worked all continents and awaits confirmations for W.A.C. PY and W were worked with a single '59 tritet, and others with 59 driving a 45; input 10 watts. Congratulations 8LF!



GI8LF sends the photograph here reproduced, and the following interesting information. The house is situated on the road from Ballycastle to Fair Head, and 8LF as a child was taken to see the awesome spark generated by the apparatus there in charge of the late Mr. C. S. Kemp. On Rathlin Island, dimly seen in the background, the late Marchese Marconi was operating a similar transmitter from the lighthouse, and they spent several weeks trying before they were able to contact over the nine miles.

These experiments took place in 1898, two years after the tests on Salisbury Plain and three years before the trans-Atlantic triumph. It is understood that the old house in the photograph is about to be rebuilt, which lends added interest to the picture as a record of the spot which saw the very beginnings of wireless.

GI8TS is welcomed as a new station; his crystal frequencies are 3,537.4 and 3,561.3 kc. 2COP is now GI8UW and is active on 7 Mc. with 'phone.

Scotland.

The R.S.G.B. was again represented at the annual Scottish Radio Exhibition, which was open from September 15 to 25, in Glasgow. In the limited space available, it is difficult to thank individually everyone who contributed to the success of our stand, but if an exception may be made, we should like to thank especially 2ARO, who was present every afternoon and several evenings and GM8FM, GM8QD, 2BQL and BRS2689 for their assistance most days. Our

thanks are also due to GM8MJ, GM6RV, 2CJY, 2CHN and BRS2204 for the loan of apparatus for display. In addition, many other members, too numerous to name individually, lent a willing hand to make things go smoothly. The sale of the "Guide" was very good and last year's total was passed by a good margin. It is interesting to note that over 100 members signed the visitors' book, every district in Scotland being represented by the visitors. Amongst our visitors were W9ZN, the Central Division Director of the A.R.R.L., and W1GLP of Boston. It is fully expected that a substantial addition will be made to the ranks of the Society as a direct result of the publicity obtained during the run of the Exhibition.

"A" District.—Meetings resumed on September 29 and a good attendance of members were present. Several matters were discussed, foremost being the proposal to run additional meetings; as the members present were overwhelmingly in favour of the idea, it was decided to appoint a committee of five to go into the details and to find a suitable meeting place. The committee was duly elected and it is hoped that they will be able to report fully their findings at the October meeting. Interest in 56 Mc. work being on the upgrade, it has been decided to co-ordinate the activities in the district and as a first step a list of interested members was made at the meeting. Members who were not present are invited to advise either GM8AH or GM6ZV, if interested, and state whether any gear is available and if licensed for 56 Mc. operation. In response to many requests, it has been arranged to hold another Junk Sale at the October meeting and it is hoped that members will bring along their surplus gear for sale. Several A.A. members have passed their morse test and await full calls.

"B" District.—At the September meeting GM2OX gave a demonstration of his 56 Mc. C.C. transmitter and much interest was aroused by the gear. GM6BM continues to work rare DX and reports contact with FR8VX of Reunion; this is thought to be the first GM/FR8 Contact.

"C" District.—The slow morse transmissions mentioned last month have now been altered to 10 a.m. every Sunday on 7030 kc. The last meeting was well supported and a demonstration was given with transmitter and artificial aerial. Most stations in the district are active and several A.A. members are doing intensive work on morse in preparation for full licences.

"D" District.—Mr. W. Blyth (GM5YX), the district officer, has been forced to tender his resignation through ill health, but at time of writing the name of his successor has not been received. No other news is to hand. We were pleased to meet a large number of "D" district members during the run of the Scottish Radio Exhibition.

"E" District.—GM5KF reports first contact between GM and VS1AA on 28 Mc.

"F" District.—Preparations are on hand at GM6NX, GM6RV and GM8HP for participation in the VK contest. GM6NX reports QSO with K7COI. Meetings have resumed, although the first was rather poorly attended and had to be abandoned. It is hoped that better support will be forthcoming for future meetings.

"G" District.—Meetings have been resumed and many ideas were discussed at the first of the season. No news is to hand except that 2CXC has received his H.B.E. certificate.

"H" District.—As this is being written before the first meeting, there is no news to hand.

EMPIRE CALLS HEARD

From August 23 to 31, 1937. J. M. Kirk, G6ZO. O-V-O. receiver, 15 ft. aerial. Portable at Bexington-on-Sea, Bridport, Dorsetshire.

14 Mc.: st2cm, 2lr, vq4cre, 5klb, vo1y, vu2ba, vp6yb (fone), zs1ah, 1b, 6j, zt2z, 6y, zu6af, zl2qa, 4gm, vk2ae, 2br, 2bz, 2dg, 2jx, 2lp, 2vq, 3bg, 3df, 3dq, 3kx, 3qk, vk3rv, 3uh, 3xu, 5fm.

Bright Idea

A useful means for obtaining A.C. from D.C. mains is provided by the converter units fitted to the current *Philips* Broadcast receivers. Two models are available at a cost of 25s.

Type 7861C for 200-250 volts D.C.
Type 7860C for 100-145 volts D.C.
An output of 75 watts is obtainable from each.

G2JM.

Sympathies

We extend our deep sympathies to Mr. J. MacIntosh (VS1AA) (Malayan Representative) upon the sudden death of his mother. The late Mrs. MacIntosh was an ardent radio enthusiast and followed for many years her son's activities in the amateur field.

BRITISH EMPIRE NEWS AND NOTES

British West Indies (Eastern Group)

By VP2AT.

Conditions have again been very poor for DX, although U.S.A. signals have been plentiful, making bad QRM on any stray DX that might get over. These poor conditions evidently account for the lack of activity this month. What little there has been was chiefly on 7 Mc. with inter-island QSOs.

VP2AT would like reports from Europe on his 14 Mc. 'phone and 28 Mc. signals.

Ceylon

By VS7RP.

VS7RA found conditions for the first half of September quite good on 14 Mc. between 11.30 and 12.30 G.M.T. and had some good telephony contacts with CO7CX, K6OQE and W4CYU. Conditions after the above-mentioned hours fell off badly. VS7GJ has also established good telephony contacts with CO7 and HI7, and now awaits a new generator for further improvements.

VS7RP, who continues to pay attention mostly to 14 Mc., found conditions similar to those reported by VS7RA, except that the latter half of the month showed signs of increased QRN. W.A.C. was achieved twice during the month, and he now only needs cards from South America confirming QSO's before applying for his certificate.

VS7JW worked many new stations during the month on 14 Mc. He finds 7 Mc. a little more open now but QRN and QRM prevent the low-powered station from doing much DX. Other stations active, but who have not reported, are VS7EB, 7RF and 7MB.

Irish Free State

By EI9D.

Organised by I.R.T.S., the Direction Finding contest held on September 26 was a great success. A transmitter secreted in a country district some ten miles from Dublin was eventually located by the various tracking sections equipped with D.F. receivers. All sections started from different locations outside the city.

Congratulations to the undernoted recipients of new licences. EI7M, Mr. James Browne, 11, Roseneath Villas, Military Road, Cork; EI8M, Mr. R. Newman, 7, Bellevue Park, Passage, Co. Cork; EI9M, Mr. Desmond Ingram, "Thanet," Howth Road, Dublin.

EI8G is rebuilding his 56 Mc. gear and hopes to take part in the South Wales tests. His new QRA on the Co. Wicklow coast should be a very suitable one. Stations generally are active on all bands, but EI5F, 7F, 6G, 8G, 9J and 2M are now operating regularly on 28Mc.

The I.R.T.S. committee is at present busy organising a Conventionette which it is hoped to hold in Dublin before the end of the year. Further information later.

Malaya and Borneo

By VS1AA.

Activity does not appear to be very high, judging by the number of reports which have been received. Come on, folks; surely a couple of lines a month is not too much to ask for?

VS2AB has left for "G" on long leave. 1AF has been working out the Eastern coast of U.S.A.

VS1AA is building a modulator, and if it works there will be some more 'phone QRM! He hopes to go on short leave to Brastagi, Sumatra, in October, so these notes may not appear next month. The letter budget has entirely disappeared. It was never returned to 1AA.

Malta

By ZB1E.

The recently improved licence conditions have set ZB1 workshops busy rebuilding to include operation on the 28 Mc. band; some also for the 56 Mc. band and telephony. ZB1P is constructing an entirely new transmitter to work on 14 and 28 Mc., using a pair of 6L6s in the final stage. ZB1L will soon be on the air with 'phone. All stations are active, weather and duties permitting.

Conditions generally are improving, although some thunderstorms early in September provided much QRN and very erratic working on the 14 Mc. band for many days. The 28 Mc. band is returning and D, G, ON, SU and W signals are being heard lately at S5 to S7 in the evenings. Very good W3 'phone was heard on this band on September 21 at 18.00 G.M.T.

South Africa

Division 1.—Conditions on 14 Mc. have been excellent; the band remaining open until 21.00 G.M.T. ZS1AN is still looking for G on 7 Mc. ZS1AH has devised a gadget for discharging his aerial when changing over to receive. Incidentally we hear he piled up a good score in the D.J.D.C. contest. ZS1AL has constructed an electrical bug and says it works well, but we are inclined to think his dots are too clipped. ZS1A sold his complete rig, and bought a NC100X. He is now busy building a new transmitter.

ZS1B requires a QSO on 'phone with G on 14 Mc.; his frequency is 14,064 kc. A new aerial has been erected at this station, and on account of only a small space being available a half wave doublet using twisted feeders was chosen. Results to date have been very satisfactory, the best being R9 from LU and R7 from W6 and KA1; all 'phone reports. ZT1E has been heard testing 'phone on 14 Mc.

28 Mc. has been very spasmodic. ZS1AH reports being unable to hear any signals at all. This station, by the way, uses three complete rigs for 7, 14 and 28 Mc. work.

We believe regulations governing amateur licences are being tightened up, particularly in regard to the 12 W.P.M. Morse. We are very glad to hear this as we consider every amateur should be able to do this speed regardless of whether he uses C.W. or 'phone.

We are raising a loud cry for news and still more news. Won't anyone oblige ?

ZS1B.

* * *

Division 5.—Conditions on 7 Mc. have been erratic with heavy QRN. On 14 Mc. DX is plentiful, Europeans being contacted nightly.

G2DF had a good QSO with ZU5Q, and wants further S.A. contacts. His QRG is near the L.F. end of 14 Mc. G5RI had his 73 QSP'd to ZS5Z and 5E. ZU5L is on 7 and 14 Mc. ZT5R using a new mast for the first time obtained 569 from a W6. He maintains a 1.7 Mc. schedule with ZS5AK. ZT5V has recently worked 20 countries on 14 Mc.

Although no contacts have yet been made, 28 Mc. signals are coming into Division 5.

ZS5R, 5Z, ZU5AC, 5AF, 5D and 5Q have been active.

ZU5Q.

* * *

Division 6.—The Under Secretary, Telegraphs, for the Union of South Africa, Mr. F. Collins, has issued an instruction to all South African amateurs notifying that the Postmaster-General views with concern the growing tendency on the part of amateur radio licensees to use radio-telephony for the purpose of indulging in conversations on trivial matters, which even if liberally interpreted, cannot be regarded as relating in any way to radio experiments.

There was also evidence, in some cases, that licensees permitted members of their families to converse over the air and that these conversations were frequently of long duration, particularly when "duplex telephony" was used.

While it was not desired, at the time, to introduce irksome restrictions, the Postmaster-General requested all amateurs to confine, as far as possible, their conversations to matters relating to experiments and to remarks of a personal character for which, by reason of their unimportance, recourse to the public telegraph or telephone service would be out of the question. It was emphasised that the permission to communicate unimportant personal matters was not to be construed as implying that frivolous remarks would be tolerated.

It is hoped that transmitting members of the African Radio Research Union will co-operate with the Post Office in its efforts to eliminate these undesirable features in the field of amateur radio.

The 14 Mc. band is gradually approaching its South African DX season. Most continents are workable, and average signal strength reports range from S5 to S8. A few rare signals—VE and ZL—can be heard around 16.00 to 18.00, South African standard time.

The 28 Mc. band is not yet quite occupied ; only a few local signals being heard with clarity. A number of Johannesburg amateurs declare, though, that the coming season will be exceptionally good for 28 Mc. DX.

ZU6C is active again, and works mostly on 14 Mc., using telephony.

ZT6X combines C.W. and telephony contacts on 14 Mc., and has worked a number of DX stations.

ZS6C operates mostly on C.W., and uses the 7 Mc. band. He states that reception in Alberton, compared with the late Johannesburg locality, is almost devoid of interference.

ZS6Q continues active on 14 Mc. and still maintains exceptional telephony quality in his transmissions. He recently installed a pair of Zero-bias tubes in the modulator section.

ZS6AM maintains regular contacts with a VK station on the 7 Mc. band. Conversations between them have lasted nightly for a fortnight.

ZT6AQ is active on 14 Mc., and can often be heard calling G stations. ZT6AD recently contacted W6 and W8 on 14 Mc. His frequencies are 14,348 and 14,364 kc. ZS6T has moved to a new locality, and expects to be active in the very near future. ZU6AD is back on 14 Mc., and has managed to contact a few W stations.

ZU6N works his American friends regularly, and states that there is nothing quite as good as his 35T final amplifier !

ZU6V has had a fair share of 14 Mc. DX. Recent additions to his log are : XV8, LY1, G2, J5, PY2, and W2. He heard a ZL3 and called intermittently for over half an hour, but N.D. !

Members' reports on their activities will be gladly welcomed by the Divisional Correspondent, Box 4020, Johannesburg. He will also be pleased to forward any South African QSL cards for Great Britain to the R.S.G.B.

ZU6V.

South India

By VU2JP *via* VS7MB and G6ZO.

Membership in South India is on the increase and most members are active. VU2EP will be leaving for G, where he hopes to be active under a GM call. VU7MB is working on 56 Mc. and experimenting with a view to relaying descriptions of field events, market scenes, etc., to the Mysore transmitter.

VU2JP will be in Madras shortly, where he hopes to be able to take the opportunity to sit for his exam. Several members have already passed the exam. and await calls before starting up.

The budget is to continue, as nearly fifty members have signified willingness to contribute articles, but both North and South Indian members are asked to let 2JP have plenty of material each month. Station descriptions in detail will be most welcome and a "hints and kinks" column has been started for the use of members, as also an "exchange and mart" page. Such notes should reach 2JP by the 4th of each month.

(Editorial Note : G8DA, G6RO, GI8LF also received this report *via* VU2FH).

Stray

VK4EL informs us that out of 93 British stations worked, each of whom received his QSL, only 40 have so far had the courtesy to send confirmation of the contacts.

Egyptian Notes

During September less activity than usual was reported, due no doubt to 14 Mc. being rather noisy. That band has not improved as much as was expected as far as DX is concerned—neither, for that matter, has 28 Mc. Having heard reports of marked improvement in G, it was hoped that similar conditions would soon be noticed here, but as yet very little change is in evidence.

SU1AX is continuing his experiments with grid-modulated 'phone and some improvement is noticeable as a result of using a better microphone. We take this opportunity of wishing him the best of luck during his absence of about one year. SU1KG's activities are now somewhat curtailed as he has very little leisure time, due to a change in business. SU1TM has returned from G but has not resumed activities as yet. It is understood that a change of QTH is to take place, so he may not be on the air again for a few weeks.

SU1RK has received most of the gear required for his new rig and has begun testing the modulator. SU1RO also seems to have been busy and is waiting for 28 Mc. to get really lively before putting in more operating time. He has only been on occasionally.

Apart from the usual schedules with GW2UL, SU1SG has done very little operating. At present he is busy organising the production of the first number of the E.R.S.E. Official Journal. It is hoped that each member will contribute something and so ensure the success of the venture.

SU2TW has improved reception by means of link coupling between the receiver and his transmitting aerial not in use. A single stage of pre-selection is also in course of construction. He is awaiting delivery of a valve to enable him to complete his work on the new rig.

SU1AM, 5NK, and 1RD are still away in Europe on holiday but are expected back shortly.

SU1WM would like news as to whether AC4AA is a genuine station or not. This station was worked on September 4, the address being given as Tsin-Ho, Kan Postal Office, Lassa. That, together with HK4EA, was the only outstanding QSO last month.

It is believed that a new station, SU1PG, hopes to be on the air soon. Information from this station and also from BERS227 would be appreciated.

In conclusion, the writer would be much obliged if all R.S.G.B. members in SU would kindly let him have details of activities by the 20th of each month. Only one member so far has sent in regular reports.

SU1WM.

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56 Mc. RECEIVER

—(*Continued from page* 190).

knobs can, with advantage, be turned more or less towards the right.

The R.F. gain control should always be full on, except when strong local signals are being received. The position of the I.F. gain control is a matter for individual circumstances—full on, the background noise will rise somewhat, but this can be offset by a reduction in the audio amplification. An intermediate position will generally be found most satisfactory.

Finally, the writer will be very interested to hear from members who build this receiver and will be glad to clear up any points which may not have been fully gone into and help with any difficulties that may arise.

THE HELPING HAND

—(*Contd. from page* 204).

are fully capable of giving results quite as good, as, if not better than, their foreign counterparts. At the same time, we agree with everybody else that there is a regrettable lack of initiative and imagination on the part of some of our manufacturers in tackling the British market, particularly as regards valves. Their quite understandable rejoinder to this is that there is not the same scope in this country as there is in America, and that probable sales would be so low as to make the cost of special research and production uneconomic. However, the fact remains that enormous quantities of American radio apparatus are sold in this country, against a high tariff, which might well be represented by money spent on English goods. It should be noted in this connection—in face of the great and growing popularity of American apparatus—that our own in not inferior, but is restricted in range and, in general, is more expensive. In other words, the prevailing fashion for foreign apparatus does not necessarily mean that it is better.

* * *

Finally, as we have mentioned in this article one or two types of transmitter, mains and battery operated, it would be helpful to hear from readers as to which they are particularly interested in, as this will enable us to produce a design for publication in these pages.

Don't wait till the end of the month to write, nor leave it because you think plenty of others will.

THE FIRST 56 Mc. N.F.D.

—(*Continued from page* 209).

by using that type of signal, both as regards reliability and portability.

Conclusions.

It has been decided to present certificates of merit to Mr. T. P. Allen, GI6YW, and Mr. W. Jones, GW6OK, in recognition of the first 56 Mc. contact between Northern Ireland and Wales.

In addition certificates of merit are to be awarded to Messrs. Corfield, G5CD, Drudge Coates, G2DC, and David Mitchell, GW6MX, who, in the opinion of the adjudicators, submitted the most valuable transmitting entries, and to Messrs. Byers, G8AF, Henderson, G8JV, and Ilott, 2ADY, who submitted the most valuable receiving logs.

To these members and all others who co-operated in this interesting series of tests we record our thanks.

BRISTOL EXHIBITIONS

—(*Continued from page* 214).

bowler hat." He is Mr. Henry Martin, the Bristol T.R., and a great deal of credit goes to him and his committee for the energy expended in making the arrangements and running the stand so successfully.

Following on the Coliseum Radio Exhibition, the stand was removed, practically *en bloc*, to the Bristol Annual Exhibition at the Drill Hall, and here also the gear attracted much favourable attention.

The G's Take a Bow !

In the October issue of Q.S.T. there appears a list showing the number of W.A.C. certificates which had been awarded by the I.A.R.U. up to July 1, 1937.

British amateurs had up to the above date claimed 259 C.W. W.A.C. certificates and 12 Telephony certificates. Our nearest rivals were the Australians, with 148 C.W. awards.

In spite of its alleged kilowatt stations, the W6 District could only claim 253 C.W. certificates and 10 'phone certificates. As the total number of G licences does not exceed 2,000, and the number of W6 calls runs to over 26 pages in the Call Book, the relative efficiency seems apparent.

Town Representatives, 1938

Town Representatives may be nominated for any town in the British Isles providing the membership within a 10 miles radius of the town centre, exceeds five in number.

Nominations, which shall be made in the form prescribed below, must reach Headquarters not later than November 30. In the event of more than one member being nominated for a particular town, a ballot form for voting purposes will be included in the December issue of this Journal.

Only members resident in a particular town or town area may nominate their local representative.

Nomination Form.

To the Secretary.

T.R. ELECTION, 1938.

I desire to nominate Mr.....

Call Sign.....as T.R. for..... and I have obtained his consent for the nomination to be forwarded.

Signed .....

Call Sign .....

A copy of this form will be accepted.

In the event of a T.R. not being nominated for a particular town, the Council reserve the right to appoint a member to serve for the coming year.

Patents and Trade Marks.

INDEX TO DISPLAYED ADVERTISEMENTS