THE T. & R. BULLETIN

OFFICIAL ORGAN OF THE INCORPORATED

RADIO SOCIETY OF GREAT BRITAIN

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CONTENTS

ALL EYES ON CAIRO

WASHINGTON, Madrid and now Cairo. In a few days the most momentous Telecommunications Conference in history will begin its work in the dignified surroundings of the famous Heliopolis Palace Hotel, Cairo, under the Royal Patronage of His Majesty, King Farouk, of Egypt.

Since Madrid, countless developments have taken place in every sphere of radio communication ; we in Great Britain have seen the coming of high definition television, police and blind landing beacon services on frequencies which five years ago were neglected except by those with a flair for probing the unknown, whilst service demands have grown at an alarming rate attendant upon the increasing needs of the Army, the Navy and the Air Force.

The British Delegation, led by men with vast experience of international procedure, and with practical knowledge of our contributions to the art, will undoubtedly press for the retention of existing amateur allocations around 3.5, 7, 14, 28 and 56 Mc., but it seems fairly certain that we shall be required to surrender a small channel, 20 kc. wide, in the 1.7 Mc. band. This demand is being made on behalf of the aeronautical services which we believe are handicapped by the shared arrangement at present existing.

In earlier issues an outline has been given of the various proposals made by the British and other Governments, in so far as they affect amateurs. The most serious proposals *on paper* emanate from the Italian Government who seem anxious to restrict amateur operation in Europe to a band width of 100 kc. on 7 and 14 Mc. Japan proposes a restriction of power to 50 watts, whilst other Governments make propositions aimed at suppressing or greatly reducing amateur activities on the lower frequencies. Our Government does not support the Japanese proposal and we believe they are also opposed to the proposals regarding 1.7 and 3.5 Mc. restrictions.

It is significant that little has so far materialised in regard to the ultra shorts—no news may be good news, but we shall be most pleasantly surprised if Cairo passes without a determined effort being made by some Delegation or other to restrict the scope of amateur investigations in the 56, 112, and 224 Mc. regions.

Fortunately the amateur movement will be represented on the spot by our President, Mr. Arthur Watts, and Mr. K. B. Warner, the A.R.R.L. Secretary, two of the most experienced amateurs in the world to-day. In addition Mr. Paul Segal, the A.R.R.L. "legal brains," is expected to be present, whilst the newly formed Experimental Radio Society of Egypt, will, we know, place their services and their stations at the disposal of the I.A.R.U. Delegates whenever required.

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THE YEAR IN REVIEW*

By John Clarricoats (G6CL).

AS we bring to a close another year of activity we can look back with a good deal of satisfaction at the progress which has been made in many directions. Membership has continued to advance, our relationships with Government Departments have never been better, whilst the enlargement of the T. & R. Bulletin has been accompanied by numerous expressions of appreciation from members at home and abroad.

Membership

It is usual in reporting upon the year's work to give a summary of membership totals taken in December each year. The comparative figures since 1932 are as follows :—

1932	...	1,800	1935	...	2,587
1933	...	1,980	1936	...	3,046
1934	...	2,245	1937	...	3,341

Our present total of 3,341 includes 2,858 Home Corporates, 15 Associates, and 468 Overseas members. The latter total, is liable to fluctuate during any year due to the number of Colonial members home on leave. It is fully realised that the Dominion membership is unlikely to grow at any appreciable rate due to the fact that amateurs in these countries are very adequately catered for by their own National organisation, most of whom issue a comprehensive monthly Journal. In the case of the Colonies the T. & R. Bulletin provides a very valuable link with other centres of amateur interest.

It will be noted that the Associate grade is almost extinct due largely to the fact that the newcomer to the Society wishes to obtain full Corporate privileges.

The very satisfactory increase in the Home membership (amounting to 325 during the year) can be attributed in no small measure to the publicity obtained by the publication of the Fifth edition of " A Guide to Amateur Radio," and to the efforts of those members who have sponsored Radio Exhibitions in different centres. In particular, we should mention Mr. James Hunter, Scottish Records Officer, and Mr. J. N. Walker, District 5, Representative, who were responsible for organising R.S.G.B. stands at Glasgow and Bristol respectively.

District Activities

Judging by the enthusiasm evidenced both in District notes and at Provincial gatherings, it seems clear that members out of London are as well catered for, as are those resident in or near the Metropolis. During the year Provincial District Meetings were held in Southport, York, Bristol, Coventry and Tonbridge, whilst Conventionettes took place in Cambridge, Great Yarmouth, Stockton-on-Tees, Plymouth and Nottingham.

Coventry and Southport were new centres for P.D.M.s, and at both meetings very satisfactory attendances were recorded. The record for an out-of-London meeting was, however, set up at Cambridge, where over 140 members and friends took part in various social events arranged by our D.R., Mr. G. Jeapes.

With the exception of the Plymouth and Nottingham meetings, the Secretary and invariably the President, were in attendance. The experiment was tried of running a meeting in Stockton on the evening before the York P.D.M. This proved quite successful as it permitted members resident in Northumberland and Durham to attend an official meeting.

The attendance at the recognised Provincial meetings was in the region of 500 representing a very fair proportion of the membership, but it is hoped that an even greater number will attend the 1938 meetings in order to keep abreast of current progress.

The success of the Town Representatives scheme is now assured. Practically every large town in the country has an elected or appointed Representative, and as a result considerable social progress has resulted. Council take this opportunity of thanking all T.R.s for their past work.

In several parts of the country monthly District meetings have been held, and these appear to have been very successful. We are of the opinion that this arrangement is entirely satisfactory provided the venue is changed regularly. If this is not done certain members resident at extreme distances from the centre employed for the meeting, may consider they are missing important privileges of membership.

To enable District Representatives to keep in touch with the work done by Council a monthly circular has again been issued. During the year all D.R.s were provided with a complete set of record cards covering the membership in their District. This arrangement became possible with the introduction of new Duplicating equipment at Headquarters.

The closest possible contact has been maintained between Headquarters and the D.R.s, who are personally known to the officers of the Society.

It is desired to place on record an expression of Council's grateful thanks to our D.R.s for their unfailing interest in the work of the Society.

Scotland

Mr. James Hunter, as Scottish Records Officer, has continued the excellent work undertaken for many years by our Vice-President, Mr. Jack Wyllie. Membership in Scotland has made a big advance, and the decision last year to form additional Districts has been reflected in an increase of social activities. Plans are being made to arrange a Scottish Convention during the time the Scottish Exhibition is being held in Glasgow.

The Council record their thanks to Mr. Hunter, Mr. Wyllie and the Scottish District Officers for their invaluable assistance.

Licence Matters

During the year the Society has continued to maintain the closest possible liaison with those

*Being the Report prepared by the Secretary on behalf of the Council and read at the Annual General Meeting, December 29th, 1937.

responsible for the issuing of British licences. An important concession was the granting of special facilities for portable 56 Mc. operation during the summer without additional fee.

Considerable advantage has been taken of the 25 watts facility obtained last year. During 1937 over 100 members were recommended for these permits.

The position in regard to high power permits remains unchanged. Members desirous of obtaining permission to use power in excess of 25 watts are required to submit technical details of their projected and recent tests, and must hold themselves in readiness for an inspection of their station by the G.P.O. A duplicate copy of all high-power applications is now forwarded to the G.P.O.

Earlier in the year informal discussions took place between G.P.O. officials and Society representatives on the question as to whether a probationary telegraphy period should be served before a new licencee is permitted to use telephony. Discussions have also taken place on the general question of dividing the 7 and 14 Mc. bands for telegraphy and telephony operation, and the position is still being explored with a view to obtaining some amelioration of the present condition. The Council consider it necessary to point out that it is unwise to take any action which will place restrictions on genuine experimental work, whether that work be devoted to telephony or telegraphy operation.

The question of off frequency operation has again been kept very prominently in mind, especially in view of the fact that the Society were instrumental two years ago in obtaining wider bands for British Isles amateurs.

The Council drew specific attention to this subject in a notice included in the December, 1937, T. & R. Bulletin. The danger of off frequency operation due to the use of master or electron-coupled oscillators was specifically mentioned. From past experience, off frequency operation appears to increase during Contest periods, and to safeguard the interests of all concerned, it has been considered desirable to set up a small group to observe operation during the forthcoming B.E.R.U. Contests.

An excellent example of the close co-operation existing between the Society and the G.P.O. was provided early in the year when permission was granted for Scottish amateurs to use the prefix GM. Later a similar concession was obtained for Welsh amateurs who are now permitted to use the prefix GW. These extra facilities have proved of much value in identifying transmissions from Scottish and Welsh stations.

A very marked increase is recorded in the number of new licences issued during the year. The comparative figures taken at the same time each year since 1933 are given above :—

	1933	1934	1935	1936	193
Up to 10 watts...	1055	1135	1239	1338	1539
Above 10 watts	303	328	373	498	677
Total ...	1358	1463	1612	1836	2216
A.A. Licences ...	885	937	967	1230	1734

Within the last few weeks, and on the recommendation of the Society, calls in the series G3 have been issued; the G2, 5, 6 and 8 groups having been fully allocated.

During the early months of the year the Council of the Society were asked to give their views on certain proposals affecting amateurs, made by other Governments who will be taking part in the Cairo Conference due to open on February 1, 1938.

The Council desire to record that the G.P.O. have given the most careful consideration to the proposals put forward by the Society, and they wish to take this opportunity of expressing their thanks for the friendly and helpful attitude of the G.P.O. officials on all occasions.

The Bucharest meeting of the C.C.I.R. was attended by Messrs. Lamb and Stadler, representing the International Amateur Radio Union, and it was the pleasure of the Council to entertain these delegates in London after the Conference concluded. In addition to C.C.I.R. business the opportunity was taken of discussing informally points of general policy and interest to the A.R.R.L. and the R.S.G.B.

Prior to the C.C.I.R. meeting the Society prepared a document dealing with several aspects of 56 Mc. communication. This document was available at the time of the Conference and copies were handed to the Head of every Government Delegation. The report is to be published in the T. & R. Bulletin for the benefit and interest of all members.

After the Bucharest meeting the Society were informed that data relative to the frequency control of 56 Mc. transmissions would be welcomed by the G.P.O. Steps were accordingly taken to amass information on this subject and an important contribution is now in course of preparation. This will also appear later in the Society's Journal.

Preparations for the Cairo Conference are now advanced and it is with considerable pleasure that we record that our President-Elect, Mr. Arthur Watts, will be in attendance as a representative of both the R.S.G.B. and the I.A.R.U. The Council feel certain that the membership will appreciate that in order to make this journey, Mr. Watts has been compelled to make many sacrifices, particularly in connection with his private affairs. The Council are confident that Mr. Watts will act in the best interests not only of British Isles amateurs, but those of all other countries. We wish him well.

TO REMIND YOU

B.E.R.U. CONTESTS—FEBRUARY, 1938

(For Rules see November, 1937, "Bulletin")

Society Publications

Throughout the year every effort has been made to provide up-to-date information through the medium of the Society's Journal. It is interesting to note that the average number of pages in the 12 issues comprising Volume 12, exceeded 50 compared with 44 in Volume 11 and 40 in Volume 10. The first five issues of Volume 13 averaged 58 pages per issue.

Constructional articles and in particular those relating to 56 Mc. gear have been popular features, whilst Mr. Wilford and Mr. Buckingham have both rendered excellent service with articles dealing with high and low power transmitters. In preparing the BULLETIN each month the editorial staff are continually faced with the problem of catering for over 3,000 members with technical knowledge and tastes varying over wide limits. To strike a happy medium is no easy task but judging by the favourable comments which have been received it would seem that the material published is on the whole acceptable.

Particular attention must be drawn to the excellent series of " Helping Hand " articles which have appeared from the pen of Mr. Forsyth. The fact that these articles were wanted was known to Council for some time, but until the early part of the current year it had not been found possible to make the necessary arrangements to provide them. In connection with this new feature a Technical Information Bureau was instituted and already this service has been found of great value to many members.

The " Month on the Air " feature originally commenced by Mr. J. Hunter, has in recent months been taken over by Mr. H. A. M. Whyte. It is believed that members appreciate the topical information given in regard to radio conditions.

Book Reviews have again been most admirably handled by Mr. T. P. Allen, whilst Mr. D. N. Corfield has reviewed and reported upon valves, cathode ray tubes and measuring devices.

The thanks of the Council are offered to all who have contributed articles or information to the BULLETIN, and in particular to Miss Corry, Mr. Blundell, " Uncle Tom," and Mr. R. E. Griffin, compiler of the last Index.

The services rendered by Mr. A. O. Milne as BULLETIN draughtsman must be mentioned. His work has been highly appreciated by all members.

The phenomenal success of the 5th Edition of " A Guide to Amateur Radio " has already been commented upon in the Society's Journal. An organisation which is in a position to produce a text-book running to some 168 pages, must consider itself fortunate that it can call upon so many willing contributors. Further to sell 15,000 copies within two months of publication, the material in itself must have a strong appeal to member and non-member alike. The success of the 5th Guide was due almost entirely to the excellent technical articles gratuitously contributed by Messrs. H. A. M. Clark, F. Charman, D. N. Corfield, A. J. Forsyth, A. D. Gay, J. N. Walker, E. L. Gardiner, A. L. Westlake, I. B. Clark, and others, including Mr. T. P. Allen, whose original material in earlier editions formed the basis of many of the current chapters.

The new Council will shortly be faced with the difficult task of deciding the procedure to be followed with the preparation of the 1938 edition of the Guide, for it is clearly apparent that we have now reached a point where it has passed from the sixpenny text-book stage. If the material increases as it is likely to do, a heavier binding will become necessary, which will result in increased production costs. With the knowledge that previous editions have been well received, the Council will most probably decide to increase the cost to 1s.

Advertising

Members who have followed the trend of advertising will have noticed that T. & R. BULLETIN advertising has increased more than perhaps might have been expected. The nett increase in revenue from this source amounted to over £200 during the year. That the BULLETIN is regarded as an important advertising medium almost goes without saying—that our members are supporting advertisers follows as a logical conclusion. The co-operation given by regular advertisers is most highly appreciated by the Council, who also desire to record their thanks to Mr. H. Freeman for his work as Advertising Manager.

Advertising revenue from the Guide showed an increase over the previous year, but it should be explained that our Advertising Manager encounters great difficulties in obtaining instructions due entirely to the fact that he is forced from a policy point of view to withhold his requests for support until early in August, which period coincides with the holiday season. Members with experience of advertising matters will, we feel, appreciate the difficulties mentioned.

Convention

The highly successful Twelfth Annual Convention was fully reported upon in the October T. & R. BULLETIN. Over 300 members attended some, or all, of the events arranged, and it would seem that the present type of programme has a general appeal. It is anticipated that before the next Convention steps will have been taken to improve the arrangements made for the Annual Dinner. The hit-and-miss methods which have applied in the past can no longer be continued owing to the greater numbers attending.

Sectional Activities

As in the past the QSL Section has again been well patronised, if patronised can be used to describe the unceasing volume of cards received daily from home members and overseas amateurs and national bureaux. Early in the year the experiment was tried of sending a postcard to all British Isles amateurs who had QSL's awaiting collection, but no envelopes. This arrangement has been found to be most useful in reducing the congestion of unclaimed cards.

Following on the R.S.G.B. decision to endeavour to reduce the number of unwanted listener reports sent to European amateurs, the A.R.R.L. announced during the year that they would be unable to accept listener reports addressed to American amateurs. The Council are appreciative of the fact that this decision is a restriction on the facilities of B.R.S. members, but they feel it is essential, owing to the increase in short-wave listening, to lighten the load on the A.R.R.L. QSL Bureau. B.R.S. members, as it has been previously explained, stand a very much better chance of receiving acknowledgments of reports if forwarded direct to the stations heard.

In commenting on this important section of the Society's work, we desire to stress again the urgent necessity of standardising the size of QSL cards and envelopes for the collection of cards. Great inconvenience is caused through the use of out-size cards, whilst our work is frequently made more difficult because members forward ridiculously large or small stamped addressed envelopes.

The QRA section, managed so successfully for many years by Mr. M. Williams, was recently taken over by Mr. H. A. M. Whyte. British Isles amateurs owe a debt of gratitude to Mr. Williams and Mr. Whyte for their unflagging efforts to keep the list of British calls, as published in the Call Book, up to date. The monthly lists which appear in the BULLETIN are also very much appreciated.

The Calibration Section, under the control of Mr. A. D. Gay, has continued to provide a very valuable service to members. During the year a large number of calibration certificates have been issued, and a considerable amount of time has been spent in maintaining the high-precision gear necessary for this work.

APPRECIATIONS

To all my friends at home and abroad who so generously and so kindly contributed to the National NC101X Superhet Receiver, which was presented to me at the Annual General Meeting, I send my most grateful thanks.

Even more than the gift itself do I value the affection and regard which prompted the gesture.

I hope that through the medium of your gift I may extend still further the cause of Amateur Radio.

G6CL.

The Band Monitoring Group have rendered a most useful service by informing Headquarters of off-frequency operation. In all such cases where the person concerned has been a member, a friendly letter has been sent informing him of the report and offering technical help. That this service has been of value is shown by the appreciative letters received from the small number of members whose signals have been heard off frequency.

The highly important work of the Band Occupancy Groups has continued under the able leadership of Mr. L. Hill, of Bristol, who, in spite of severe illness, has kept together his group of workers. Two checks have been taken during the year and the summarised information covering them and those taken in 1935 and 1936 are as follows :—

1935.		1936.		1937.	
April	815	April	928	April	1,368
Sept.	905	Nov.	1,169	Oct.	1,585

The figures represent individual British Isles stations heard in operation.

Unfortunately, Mr. Hill was prevented owing to illness from organising the October check, his place being taken by Mr. Clark (BRS565), of Chingford.

The Council desire to record their thanks to these two members and to all others who have assisted with this work.

The Slow Morse Practices have again been sponsored by Mr. T. A. St. Johnston, and regular schedules have appeared monthly in the BULLETIN. We believe these practices are found to be of great value to B.R.S. and A.A. members. The thanks of the Council are offered to all who have co-operated.

Committee Work

The Tests and Awards Committee, under the able chairmanship of Mr. St. Johnston, have done yeoman service. In addition to the difficult task of preparing rules for the various contests organised by the Society, they have also undertaken the checking of entry forms and the preparation of material for publication.

Comments have already been made concerning the 5th Guide, but the Council take this opportunity of officially thanking Messrs. Corfield, Charman and Clark for their services on the Technical Committee set up to assist in the production of that publication.

The future of the Society's Research and Experimental Section has in recent weeks been under careful discussion by the Council, who have had before them a report issued by a special Committee set up to consider ways and means of improving the Section's activities. Certain important changes are shortly to be announced, including a decision to issue a special Research Award to those members who have made outstanding contributions to the Experimental Section. A Research Committee has been appointed to examine contributions submitted by members of the Experimental Section. An important function of the new Research Committee will be to set specific problems for the consideration of Experimental members. Details of the new arrangements will be made known in an early issue of the T. & R. BULLETIN.

The Society has been fortunate in obtaining the services of Mr. A. M. Houston Fergus to act as Head of the Experimental side of the Section's activities, whilst Mr. H. C. Page will continue, as hitherto, as R.E.S. Manager. Mr. J. C. Elmer, whose work in the past has been of great value to the Section, will continue to act as Assistant R.E.S. Manager.

During the year numerous technical articles were published from R.E.S. members, but probably the most important and certainly the most valuable contribution was the special 56 Mc. Report, prepared for the G.P.O. and mentioned earlier.

The Society has again been represented on several British Standards Institution committees, which are preparing specifications covering Radio apparatus.

Lectures

The Society is indeed fortunate to be allowed to make use of the Institution of Electrical Engineers for its monthly London meetings. During the latter part of the 1936-37 session it was decided to commence the lectures 30 minutes later with a view to allowing more members to attend. The latter hour seems to have been accepted as an improvement, but the poor support given in general by London members makes the task of arranging lectures a somewhat difficult one.

Council desire to record their thanks to all who have contributed to the lectures and discussions.

Documentary Films

For some years it had been the wish of the Council to produce a documentary film of current amateur activities, which after display could be preserved as a record. Fortunately we were successful in obtaining the services of Messrs. Wise and Stockon, members of the Finchley Amateur Cine Society. Their efforts centred around National Field Day, during which event 15 stations were filmed and over 300 miles covered in the process. Steps were also taken to film some of the better-known London amateur stations, as the first of a series entitled "British Amateur Stations." These films, together with some short lengths taken at Convention, have already been shown to audiences in London, Birmingham, Hull, Kettering, Belfast and Bristol, and will during the coming year be displayed in many other parts of the country. The Society are indebted to the F.A.C.S., and in particular to Messrs. Wise and Stockon for their co-operation.

Contests

The Annual B.E.R.U. Contest held in February was again well supported, and it is hoped that under the new rules which appeared in the November issue of the Society's Journal an even greater response will be accorded to the Eighth Contest to be staged in 1938. Certain important changes in the rules should ensure a better overseas entry.

National Field Day was the outstanding contest and social event of the year. Nearly 100 portable stations were in the field, and thanks to the whole-hearted co-operation of D.R.'s and others, the keenness and enthusiasm reached a higher level than ever before. For the first time the South Eastern District had the honour of winning the N.F.D. Shield.

In July a National 56 Mc. Field Day was arranged, and in spite of holidays and bad weather in certain areas, very valuable work was done. The Belfast-Snowdon contacts were outstanding examples of new ground being broken. To encourage interest in 56 Mc. work the Council are organising the First 56 Mc. International Contest during 1938. It is confidently hoped that this event will provide the desired impetus to arouse world-wide interest in this band of frequencies.

The 1937 1.7 Mc. Transmitting Contest was very well supported, as were privately arranged DX tests on 3.5 Mc. Unfortunately organised 3.5 Mc. Contests have in the past been poorly supported, and for that reason the Tests Committee have made no arrangement for such tests during the present season.

B.E.R.U. Section Activities

Early in the year the Society was able to give useful advice to the Egyptian B.E.R.U. Group in connection with the formation of a National Egyptian Society. As a result of our suggestions, the newly formed Experimental Society of Egypt has applied for affiliation with the I.A.R.U. Due to political changes, the Egyptian Group can no longer be regarded as a part of the British Empire. The Council desire to record their thanks to Messrs. Pettitt and Marsh for the services they have rendered to the Society, and the Egyptian membership in particular.

Negotiations have taken place with a view to obtaining authority for members to operate amateur stations in Gibraltar and Bahrein, whilst permission has now been granted for amateur operation in the Windward and Leeward Groups.

Advice on licence matters and general policy has been given to various Empire organisations. The Council note with interest that the New Zealand amateurs are now permitted to make restricted use of telephony on 14 Mc.

Protests were lodged with the G.P.O. on behalf of Home and Empire members who have complained of interference from commercial stations working in the 7 and 14 Mc. bands, and in most cases the stations have moved out of our allocations.

Regular correspondence has been exchanged with B.E.R.U. section representatives and other overseas members. Notes covering activities in most parts of the Empire have appeared monthly in the BULLETIN.

During the year authority to represent Colonial Groups in I.A.R.U. matters was received from nearly every part of the Colonial Empire. Under this arrangement the R.S.G.B. is authorised to approve W.A.C. claims from members residing in these countries.

It is the intention of the Council to organise a Loyal Relay on the occasion of the official celebration of H.M. The King's birthday in June, 1938. It is hoped that Empire Societies and groups will co-operate in making this relay a complete success.

During the year a number of W.B.E. and H.B.E. certificates were awarded to Home and Overseas members.

Co-operation with the I.A.R.U.

The closest possible co-operation continues to exist between the R.S.G.B. and the A.R.R.L. as Headquarter's Society, in the International Amateur Radio Union, and frequent correspondence has been exchanged on numerous matters of general policy.

The visit to Cairo of Mr. K. B. Warner (A.R.R.L. Secretary) will enable our President-Elect to discuss informally many points of interest to both organisations.

Appreciations

Before concluding, this, my eighth Annual Report prepared on behalf of the Council, I wish to record my thanks to Mr. E. D. Ostermeyer and Mr. A. E. Watts for their help and advice during the year. Hardly a day has passed without the necessity arising of obtaining a second opinion on some point of policy.

I also desire to record my thanks to Mr. A. O. Milne, who has rendered very great assistance to me in my secretarial duties, and to Messrs. A. D. Gay and H. A. M. Whyte, who have regularly visited Headquarters and given advice on various matters.

To the other members of Council and to all D.R.'s, I extend my thanks for their helpful co-operation in various spheres of Headquarters activity.

Finally, I wish to thank my staff for their loyal support throughout the year.

The excellent team spirit existing at Headquarters has contributed very materially to the progress of the Society.

Experiences with a Simple Directive Aerial

By F. W. Garnett (G6XL).

AERIALS have always been the chief interest at this station for a variety of reasons. The locality does not seem particularly good for "unusual" DX, the input until recently was only 50 watts, and the QRM on 14 Mc. is becoming almost as great a problem as on 7 Mc. The policy of increasing power to break through the other man's signals is rapidly making the bands unbearable, and is both unscientific and wasteful; it seems far more sensible to take steps to secure as much radiation as possible in the desired direction and reduce it correspondingly in others.

The difficulty is the size of array needed on 14 Mc. to obtain a worthwhile gain, and the fact that few amateurs can afford a rotating beam, which usually means a self-supported lattice mast with lattice cross arm for anything above ½ wave-length wide. The wind pressure on such a structure is considerable in some localities, and when children are often playing in the garden within a short distance of the mast it is advisable not to take unnecessary risks.

First Experiments

Contests are always looked forward to with great enthusiasm, but B.E.R.U. 1936 proved heavy going. In the Senior, 46 hours at the key only yielded 14 contacts, half of which were "local," but the Junior nearly broke the operator's heart, because 19 hours went by before the first contact was made. This finally indicated that something must be done at once.

The A.R.R.L. DX contest was at hand, so a 7 Mc. Windom was put up, consisting of a 64-foot radiator with a 66-foot reflector 33 ft. 8 ins. behind it. The radiator was 40 ft. high at one end and 45 ft. at the other, the reflector 17 ft. high at one end and 22 ft. at the other, the radiation being directed along a line approximately 33 degs. N. of W.

Not a single W had ever been worked with the previous aerial, a 66-ft. Zepp. running E. and W. (not surprising, of course, considering the polar diagram), yet with the new system the first two contacts yielded S8, the second station reporting G6XL as the strongest station ever heard out of Europe. This was obviously an exaggeration, but encouraging all the same!

A 14 Mc. array was also set up, consisting of a 32-ft. 11-in. vertical aerial, and fed through tuned Zepp. feeders, with 34-ft. reflector and 30-ft. 3-in. director. This worked fairly well, but its erection coincided with a period of bad conditions so that the reports received appeared no better than with the Zepp. mentioned above, which, however, was particularly good for U.S.A. on this band. Unfortunately, no alternative aerials were available for direct comparisons. A ½-wave vertical was tried for several weeks, but with very little success.

VK/ZL Contest, 1936

Stations in Oceania are very rarely heard here in Leeds on 7 Mc. Therefore it was not thought worth while to erect a 7-Mc. Windom. For 14 Mc. a horizontal H array with reflectors was decided upon. The principal mast at G6XL is a 55-ft. steel pole, guyed by three sets of four-stranded steel wires, broken up by large shell insulators into irregular lengths. Another mast of a similar height was required to support the H array, so that the lower pair of half-waves would be a reasonable distance from the ground, and as a 40-ft. wood A.R.R.L. type was in use, and had been very simple to make and erect, it was decided to construct a similar one 52 ft. high to go with the steel mast. This was duly made from the best straight-grained Columbian pine, and equipped with guy wires. But as it seemed to bend in an alarming manner, a short cross-piece was fastened to the top section and braced with wires. This was actually about the worst thing that could have been done, because the extra weight proved the mast's undoing, and after 1½ hours' effort by six men to get it up, the legs broke in two. This was the day before the first week-end!

The only thing left to do was to move the old 40-ft. wood pole, so it was carried bodily in a vertical position and placed so that the line joining it to the steel pole ran 9 degs. W. of N.; 20 degs. to 30 degs. would have been better for a general coverage of VK and ZL, but unfortunately this was not possible.

The aerial wire, 14 S.W.G. enamelled, although ordered three weeks previously, had still not arrived, so a temporary 33-ft. Windom had to be put up. Ash spreaders, 18 ft. by 1½ ins. by ¾ in., were used to carry the aerial and a 34-ft. reflector, 17 ft. 4 ins. behind The feeder tapping point was fixed according to formula, and there was no time to test for standing waves. The feeder was 145 ft. long.

As a point of interest to constructors, the spreaders should be attached to the halyards at the centre in addition to the ends, otherwise they will bend badly when the strain comes on them, also they should be anchored at the ends with strong string to stop the whole system flapping about.

The results with this arrangement were quite encouraging, nine VK's being worked in the first afternoon with an input of 50 watts, two reports being 579. This may not appear anything exciting, but it was more than during the whole contest in 1935. The next morning ZL's were coming in well by 06.00, and G/ZL contacts were heard by 06.45, but although continuous calls were made, no QSO was effected until 11.00, and the report then was only S4.

For the next week-end, as there was not sufficient time to fix a whole H array and reflectors, a pair of half-waves was used, phased by a quarter-wave stub in the centre. Each wire was 32 ft. 11 ins. long, and the quarter-wave section seemed to give maximum current at the centre when only 16 ft. long. The length and spacing of the reflectors was as before; they were not connected together. The 600-ohm feed line was constructed from the same 14 SWG wire spaced 6 ins. with 6¼-in. lengths of wood dowelling boiled in paraffin wax. It was also transposed every 15 ft., but the transposition

blocks used proved very brittle, and within six months more than half of them had broken and dropped out. The feed line was stayed to the house at one end by a rope on to a porcelain saddle across the wires, and at the other end to the remainder of the broken mast which was now about 37 ft. high. Short jumpers were then taken on to the lead-in insulators and on to the stub. Due to the weight of the stub and insulators in the centre, the section of the aerial next to the 40-ft. mast was practically horizontal, the other section sloping up at about 30 degs. to the 55-ft. steel mast. A string, 17 ft. 4 ins. long was used to connect the centres of the aerial and reflector systems, and

	66' ZEPP		132' END FED		WINDOM REFLECTOR		BEAM	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
CONTACTS	26	13	11	8	-	9	3	21
AVERAGE S STRENGTH	4·4	4·4	5·1	5·1	-	5·3	3·3	5·7
THEORETICAL POLAR DIAGRAMS ON 14 Mc								

Fig. 1.
Summarised results using different types of radiation systems.

this was carried down to the ground from the centre of the reflectors and pulled until the reflectors were in the same planes as the aerials.

With this array the apparent line of maximum propagation was 9 degs. N. of E., but this would certainly be modified by the steep slope of the Northern half. Here again there was no time to test for standing waves, but the simple array worked at once, and the first contact was made within one minute of switching on the receiver. Four QSO's were made in half an hour, then an hour went by with no luck, so the other end of the band was tried ; this yielded another four contacts in the next half-hour with just the same average signal strength.

For comparison purposes a standard 132-ft. end-fed aerial was used. This runs from a mast on the house to the 40-ft. wood mast. The direction is N.E. and S.W., with the open end S.W., and about 100 ft. of it are approximately horizontal, 30 ft. above ground. The open end of this wire is only some 10 ft. from the end of the spreader carrying the beam, the angle between the two being 71 degs. During the contest its performance was most disappointing, although previously it had produced plenty of contacts.

The receiver used was a very sensitive and quiet O-V-1 with a 30-ft. indoor aerial round the room, and the transmitter a 47-46-PP210 run at 35 to 50 watts input.

Results to Date

After the contest an attempt was made to find out why such poor results had been obtained on the Sunday mornings. Stations were contacted on the end-on aerial, then a change was made to the beam. In one case the strength dropped from S6 to S3, in all other cases the stations failed to reply, evidently indicating that the strength of signals had dropped below a readable value considering the QRM. It would appear, however, that signals to the Antipodes do not travel E.N.E. in the early morning.

In the afternoons three contacts each gave an increase of S2 when the beam was used, and it was also noticed that the strength of received signals was better on the beam.

This increase is equivalent to 9 dB or an eightfold increase in power, and obviously cannot be entirely due to the simple beam itself. The calculated gain is not more than 5 to 6 dB, and it takes a whole H array with reflectors to give a 9 dB increase.

The reason must lie in the lower angle of radiation and the better matching up of impedances, and it may be said here that it was found very noticeably easier to transfer energy into a 600-ohm line than direct to a two-wave end-fed aerial, even through a Collins coupler. For summarised results see Fig. 1.

VK/ZL Contest, 1937

Early in September, 1937, an attempt was made to improve the performance of the 1936 aerial, and in particular to eliminate standing waves. This was found to be much harder than expected, and after three hours' work it was temporarily abandoned. The weather was windy, and it was found to be far from easy to get accurate readings

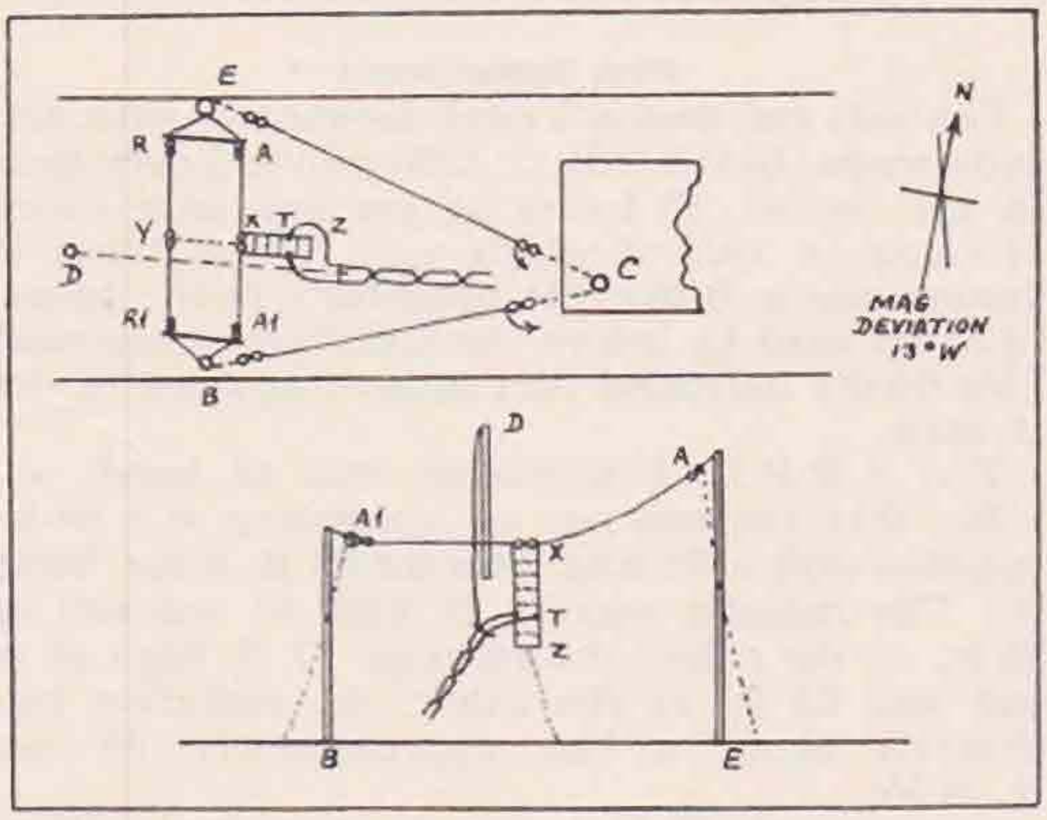


Fig. 2.
Dimensions of the array used by the author in the 1937 VK ZL Contest.
Mast B.—40 ft. wood.
Mast C.—On chimney 48 ft. total height.
Mast D.—37 ft. wood, feed line support
Mast E.—55 ft. steel.
AX.—31 ft. 5 ins. R_1Y.—32 ft. 5 ins.
A_1X.—31 ft. 7 ins. XZ.—15 ft. 8 ins.
RY.—32 ft. 3 ins. XT.—11 ft. 6 ins.
CE.—Line of 132 ft. aerial 1937 true bearing 280 degs.
CB.—Line of 132 ft. aerial 1936 true bearing 242 degs.

on a field strength meter against a flapping line, especially when perched on the top of a pair of steps ! The current shown by a meter in the shorting link of the stub was 1.2 amps. on 14,024 kcs. with 90 watts input, but only .95 on 14,360 kc., and this was taken to indicate that the radiating tops were too long. They were gradually pruned until the current was practically equal at both ends of the band, at 1.15 amp.

The dimensions of the array were then as shown in Fig. 2. The lengths of top, stub and position of tapping point were not at all critical, and even 4 ins. variation made a scarcely detectable difference in results.

A thermo-ammeter was placed in one line between

the Collins coupler and lead-in and at 90 watts input registered .9 amps. This showed that standing waves were present as with an output of, say, 60 watts to a 600 ohm load the current should not be more than .3 amp. under correct operating conditions. ($C^2 \times 600 = 60$.) However, the "contraption" works well, and confirmation of this is seen in an article by W2JOA in November, 1937, QST, who affirms that when there are standing waves on a line, most of them eventually find their way "upstairs" and out on to the roof! This state of affairs is admitted with considerable shame, and will be remedied shortly, but the confession should hearten those who think this aerial critical to erect and operate.

		QSO's.	Average S Strength	Conditions.
Senior, 70/100 watts.	Oct. 2	14	5.64	Good from 13.00 to 20.45, about dead at 21.15.
	,, 3	—	—	Poor to very poor.
	,, 9	20	5.85	Poor up to 14.00, then good to 15.15. Then sudden increase to very good until 20.00. Dead at 21.00.
	,, 10	9	4.55	Fair 07.20-08.20, then hopeless.
	Total ...	43	5.51	

Junior, 25 watts.	Oct. 23	19	5.16	Bad to 13.30, fair till 17.20, then bad until band shut up at 22.00.
	,, 24	5	4.80	Very poor, and getting worse until 11.00, when VK/ZL quite absent. Coming back at 11.25. Conds. fair 12.30 to 13.30.
	,, 30	7	4.86	Moderate 13.00 to 14.30, then H.F. end much better than L.F. end. Bad from 16.15 onwards. About dead at 20.00.
	,, 31	3	5.00	Bad to very bad. Slightly better from 12.30 to 13.30, but still bad.
	Total ...	34	5.03	

The results obtained in the Senior and Junior contests are summarised below, omitting one contact obtained on the end-fed aerial (same as last year, but running E. & W. and 48-52 ft. high).

The difference in signal strength between 70-100 watts and 25 watts appears to be only S½, but the Senior average is reduced by the contacts on October 10, when conditions were very bad and some stations only just readable. Tests have since been made during the same transmission, and the drop in strength has never been reported as more than S1, sometimes no change at all, so cheer up, you QRP men!

Two pleasing reports were received during the Senior contest. VK3EG reported G6XL "easy best G.—2R points better than any other G." (This was with 85 watts.) And VK5RM said "Only European heard here this time." Several direct comparisons with the 132-ft. aerial have since been made, the average superiority of the beam working out at S1.8. One of the principal lobes of the end-on aerial is directed on VK2-3, also a long wire radiates at a lower angle than a half-wave vertical aerial, so that the gain over this type should be more than S1.8.

The diagram of aerial connections is as shown in Fig. 3. The Collins coupler is only used for transmitting, but no doubt it would also be an improvement for reception. Its use with the 132-ft. aerial is unorthodox in that both coils are used with no ground connection, but it works quite as well as the normal way, and saves more complicated switching. When changing over to this aerial, C2 must be increased by about .00006 μF before the aerial will draw power, C1 remaining the same, and, of course, care must be taken to see that the draw is the same on both aerials before asking for comparative reports.

The reflectors have also been removed in an attempt to see how much they are contributing to the gain, but DX conditions seem to be worse at present, and stations scarce. Actually the only S9 report ever received from VK was during one of the tests without reflectors, at 12.50 G.M.T., when conditions were distinctly poor; the corresponding strength with the 132-ft. aerial being S7. It would appear, however, that not more than 25-30 per cent. of the actual gain is due to the reflectors, and this agrees with the theoretical figure. If at all possible, three or four change-overs are made to ensure that any difference reported is not due to QSB. The strength of American contacts is S2 to S3 lower on the beam, a very useful feature indeed, especially during contests!

Inconsistencies

1. It is greatly to be regretted that no direct comparisons of the two aerials have been possible during the afternoon with stations on the extreme

edge of the field of the beam, e.g., ZL 1 and 2. This zone is 60-70 degs. off the supposed centre line, and especially in view of the slope to the North it would be thought no signals would reach there, yet the signal strength in actual QSO's is seldom less than S5/6. As a matter of fact, the two weakest reports from ZL were both ZL4's, and it is interesting to note that in connection with the vexed question of power, the average reports from ZL were just a fraction *higher* in the Junior than the Senior!

2. During a long test with a ZL2 in the early morning he reported no difference at all between the two aerials (without reflectors).

3. Most U.S.A. signals are at least S2 weaker on the centre-fed aerial, even without reflectors, and yet they are much nearer the centre line than are ZL's on the other side; this difference is also borne out in contacts. Screening may be the explanation, as there is a large corrugated iron barn roof 200 yds. away in that direction, also a 132,000-volt power line 300 yds .away and about 45 degs. to the aerial.

4. This identical beam was used at G6AZP during NFD., 1937, trained on U.S.A. on an ideal site 1,300 ft. above sea level, yet conditions were so bad that not a single contact was made.

General Observations

The rig used this year was: 89 Tritet—6L6—T55 with a Comet Pro receiver (not crystal gate) *and* the beam aerial. This is perhaps the most important point of all, and thise who, like the writer, have been using a separate 30-ft. indoor aerial for receiving will be amazed at the way signals come up on the beam. Under good conditions VK/ZL's are S½ to S2 better; whilst under bad conditions a 439 signal will completely disappear when the 132-ft. aerial is used. With the reflectors in use it is fascinating to see how, from being greatly superior at 07.00, the end-on gradually loses ground up to about 11 a.m., when the beam comes into its own, peaking at 15.00 to 17.00 G.M.T.

During one week-end of the Senior, the beam was pulled down about 06.30 one morning, and the radiators and reflectors changed over to fire the opposite way. This enabled five contacts to be secured which certainly would not have been possible otherwise, and of course the difference was noticed in the receiver too. As soon as the end-on seemed better in the receiver, the beam was turned round once more, signals immediately improved, and four more contacts resulted.

It is interesting to draw a comparison between the results of the VK/ZL contests in 1935 and 1937. In 1935, using 40-50 watts input, and a 66-ft. Zepp. running East to West, 25 stations were heard and seven worked (28 per cent.) with an average reported strength of R4.0. In the Junior, 1937, 51 were heard and 35 worked (69 per cent.) with an input of 22-25 watts, but using the beam, and a better receiver.

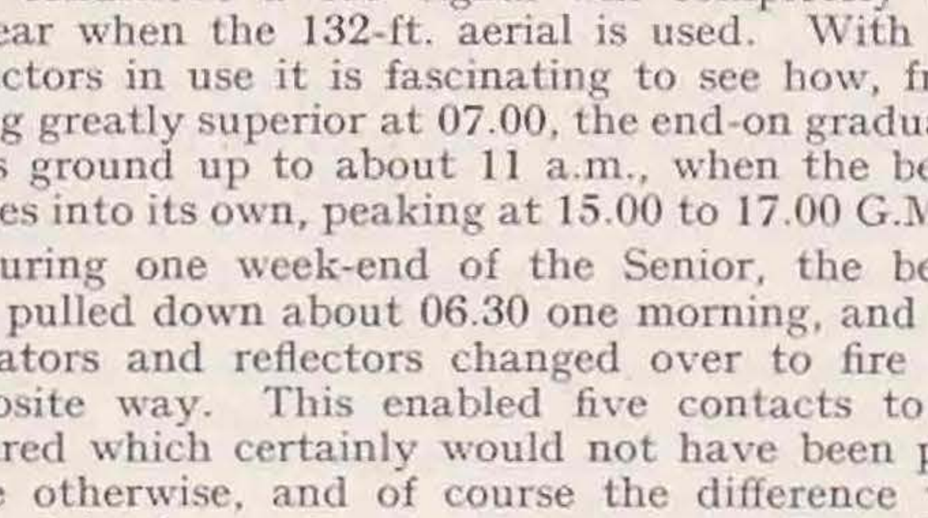


Fig. 3.
Diagram of aerial connections.

The next stage will be to try a horizontal H array without reflectors. The theoretical gain over a vertical half-wave is 6 dB, rather more than the centre fed with reflectors, but the coverage will probably be less, and therefore it may not be so generally useful.

This article is rather incomplete without field strength diagrams of the different aerials used, but the ordinary diode type with 0—1 mA. meter does not even flicker with a 33-ft. aerial two wavelengths away from and parallel to the main aerial. Any advice on this subject will be most welcome.

Acknowledgment must be made to G6CJ for valuable hints initially, to scores of VK, ZL and VU amateurs for their patience in collaborating in tests, to those mines of information, the R.S.G.B. Guide, the A.R.R.L. Handbook, and the Jones Antenna Handbook, and last, but really first, to Mrs. G6XL for giving up a great deal of time which was rightly hers, especially at week-ends, to enable all this to be carried out.

TRADE NOTICE

Radiomart, 44, Holloway Head, Birmingham, 1, have sent us a copy of their new Manual which contains a wealth of valuable information of interest to all amateurs. Data are given on a large number of American type valves and components, whilst numerous circuit diagrams of transmitters, receivers, etc., are included.

Details appear of the Raymart Transposed Aerial system, together with information on various types of doublet, matched impedance, and single wire aerials.

Well printed and profusely illustrated, this 64-page Manual is available from the above address, price 7½d. post free.

Technical Articles

This issue contains 60 pages. To maintain a large Bulletin, a steady flow of sound technical articles is necessary. Members willing to contribute are advised to write to Headquarters outlining the scope of the projected article.

A special circular of interest to all contributors is available on request.

LONDON MEETING

at

I.E.E., SAVOY PLACE,

Friday, January 28th, 1938

PRESIDENTIAL ADDRESS

Followed by

LECTURE BY D. W. HEIGHTMAN, G6DH

Tea from 6 p.m. Meeting commences 6.45

A Sensitive and Selective Three-Valve Receiver

By J St. C. T. Ruddock (GI8TS)

MANY amateurs prefer a straight short-wave receiver to the more ambitious superhet, because of the lower cost and quieter background. A weak signal can be more easily read on the straight set, whereas in the superhet, although it may be much stronger, it is accompanied by "mush," thus making it much more difficult to decipher. It is for this reason that a well-designed and constructed set of the straight type should always be used by the beginner, and the idea that if he had a multi-tube superhet he would get many more stations should be condemned.

A carefully built three-valve receiver using reliable components, is very difficult to beat. Such troubles as hand-capacity, threshold-howl, "ploppy" reaction and change of dial readings from time to time, cannot be tolerated. To overcome these faults the design must be good and the set rigidly constructed.

In the set to be described the chassis is of No. 18 gauge aluminium measuring 14 in. by 8½ in. by 1½ in. The panel is of the same material and measures 14 in. by 8 in. This is strengthened by two brackets and the screen separating the R.F. stage from that of the detector and L.F. Although No. 18 gauge makes a very rigid chassis it can be easily bent, thus allowing the constructor to make the chassis from a sheet measuring 17 in. by 11½ in.

Circuit Details.

The circuit, as will be seen from the theoretical diagram (Fig. 1), consists of a tuned R.F. stage followed by a triode detector, which in turn is coupled to a pentode output valve. It may be argued that not much is gained by having an H.F. stage, because at the higher frequencies the gain in signal strength is small; but if properly designed it has three main advantages: (1) It enables reaction to be smooth with no dead spots, (2) Selectivity is increased, and (3) Dial readings on the main (detector) tuning condenser are always

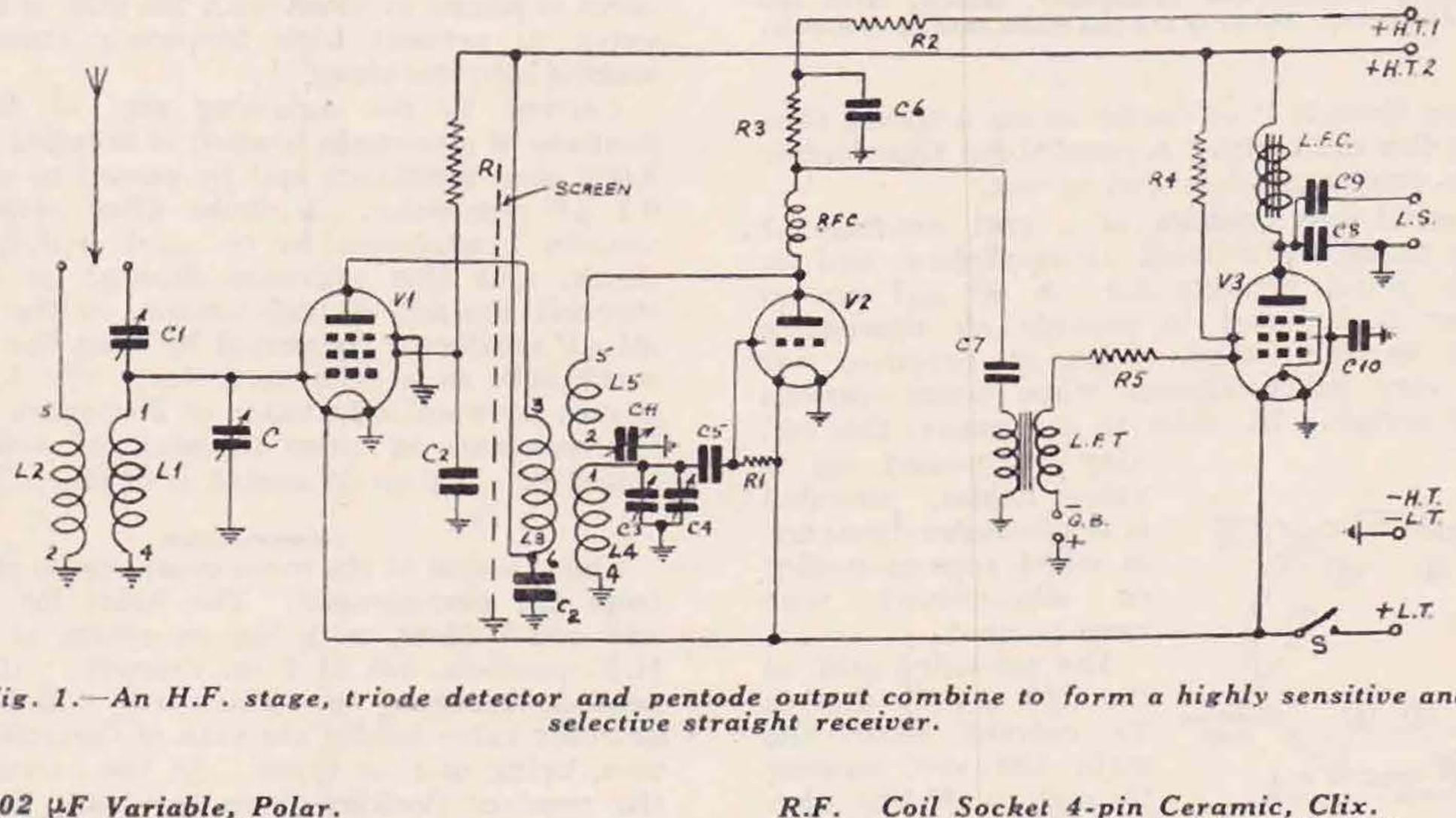
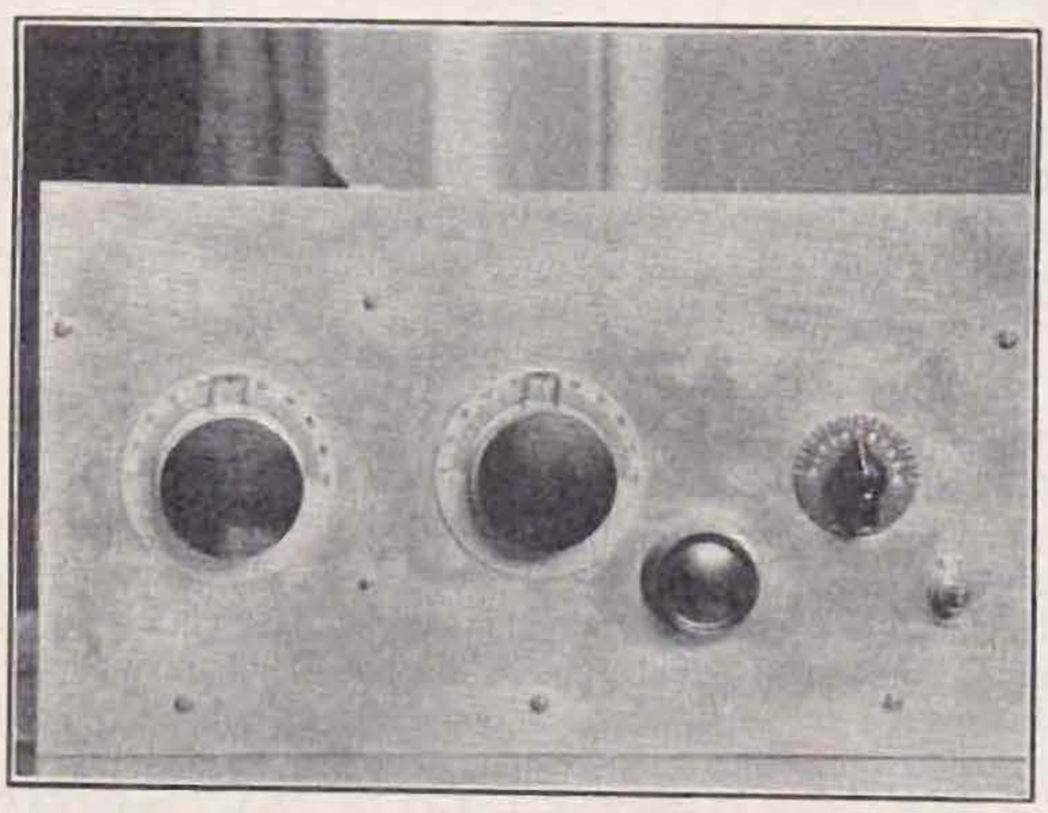


Fig. 1.—An H.F. stage, triode detector and pentode output combine to form a highly sensitive and selective straight receiver.

C .0002 µF Variable, Polar.
C1 50 µµF Pre-set J.B.
C2 .1 µF Tubular, Dubilier.
C3 Tank Unit No. 1042, Eddystone.
C4 Band-spread Unit No. 1043, Eddystone.
C5 100 µµF Mica, Dubilier.
C6 2 µF 250v. working, Dubilier.
C7 .5 µF Tubular, Dubilier.
C8 .01 µF Tubular, Dubilier.
C9 2 µF 250v. working, Dubilier.
C10 .1 µF Tubular, Dubilier.
C11 160 µµF Variable, Type "C" Polar.
R 40,000-ohm ½-watt, Bulgin.
R1 3-megohm ½-watt, Bulgin.
R2, R4 5,000 ohm ½-watt, Bulgin.
R3 30,000-ohm ½-watt, Bulgin.
R5 20,000-ohm ½-watt, Bulgin.
V1 H.F. Pen Socket, 4 or 7-pin Type, No. 985, Eddystone.
V2 Detector Socket 4-pin Ceramic, Clix.
V3 Output Socket 5-pin, Clix.
R.F. Coil Socket 4-pin Ceramic, Clix.
Detector Coil Socket 6-pin Type No. 964. Eddystone.
H.F.C. Choke, Section Wound, Eddystone.
L.F. Choke, 20 Henry, Lissen.
S Toggle Switch, Type S80, Bulgin.
L.F. Transformer, "Hypermite," R.I.
Dial, Knob and Cursor Type, No. 1026. Eddystone.
5-way Battery Cable, Bulgin.
Set of 4-pin Coils, Eddystone.
Set of 6-pin Coils, Eddystone.
Aluminium Chassis No. 18 Gauge, 14 x 8½ x 1½ in.
Aluminium Panel, No. 18 Gauge, 14 x 8 in.
Aluminium Screen, No. 18 Gauge, 8½ x 6½ in. with ½ in. flanges.
2 Panel Brackets.
1 Small Bracket, Peto-Scott.
V1 H.F. Pentode 210 S.P.T. Cossor.
V2 PM 1 HL Mullard.
V3 See text.

constant and do not change when different aerials are used.

In this stage a fixed-mu H.F. pentode is used, which is vastly superior to the screened-grid type. Transformer coupling is used between this stage and the next as greater amplification has been obtained by this method than by capacity coupling. The detector valve is a triode. A screened-grid type might have been used but since one is apt to have trouble with suitable screen voltages the



Panel view of the receiver. The middle control is the main tuning bandspread condenser, which, with the reaction condenser below it are the main tuning controls.

writer has thought it advisable to use a triode, thus avoiding this difficulty. A parallel-fed transformer links the detector and output valves.

The aerial coil consists of a grid winding L1 which is tuned by a .0002 μF condenser, and an aperiodic aerial winding L2. A 50 μμf pre-set condenser is included to provide an alternative coupling to this stage. This, in practice, has proved very advantageous when using various types of aerials. In order to economise, this coil may be wound on a valve holder, provided it is of similar diameter, in which case enamelled or silk-covered wire must be used.

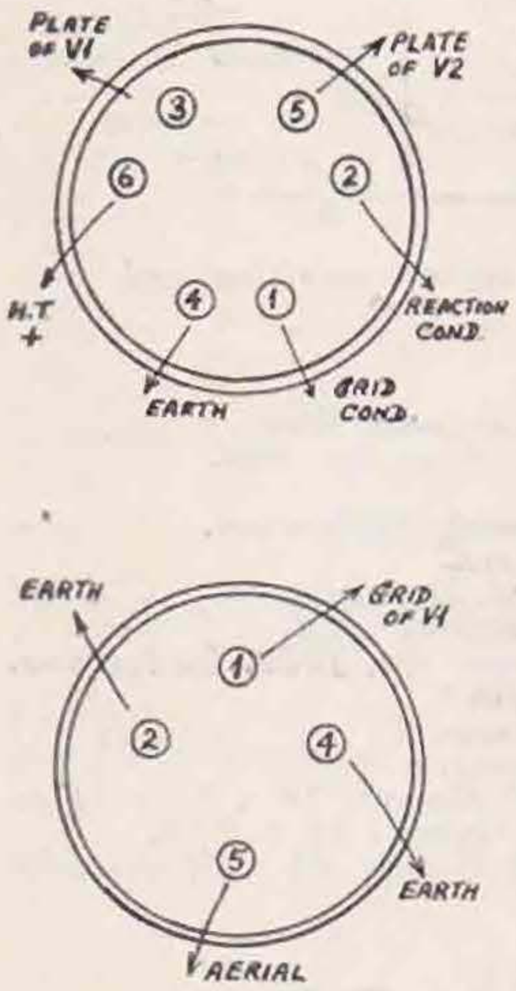


Fig. 2.—Coil connections, looking underneath the R.F and detector coils.

The screening-grid of the 210 S.P.T. derives its current from the main 120 volt tapping through a 40,000 ohm resistance which is by-passed to earth by a .1 μF tubular condenser. If a 7-pin valve is used, as in the original, care must be taken to see that the holder is wired up correctly. In the 4-pin edition the connections are as for an ordinary S.G. valve.

The H.F. transformer consists of three windings on an *Eddystone* former : L4 is the main grid winding wound at the top : L3 the coupling coil, wound with enamelled wire between the last few turns of L4, and L5 the reaction coil wound at the bottom. The tuning condensers (band-set and band-spread) are *Eddystone* type Nos. 1042 and 1043. When these condensers are used together, tuning, for the newcomer to short-waves, is greatly simplified. The band-set condenser is divided off into 10 equal divisions of its travel. The band required is set on this and the band-spread condenser which has integral slow-motion, covers this division with slight overlap ; thus for the 7 Mc. band the band-set is set at division 3 and the band-spread covers the 300 kc. band width in 60°. The grid condenser is .0001 μF and grid leak 3 megohms.

A *Polar* type " C " condenser which incorporates slow motion is used for reaction. It will be seen that this is mounted on a small bracket behind the panel so that the slow-motion spindle protrudes through it far enough to allow the knob to be fixed. Alternatively an *Eddystone* .0002 μF type No. 957 may be used which does not necessitate mounting on a bracket, but may be mounted directly on the panel. With correct plate voltage on the detector, reaction is very smooth.

In the anode circuit of the triode there is a 5,000 ohm decoupling resistance with 2 μF condenser, followed by another resistance of 30,000 ohms and a good S.W. H.F. choke. From the top of this choke a .5 μF tubular condenser is used to parallel feed the transformer. Another resistance of 20,000 ohms is placed in series with the grid of the output valve to prevent high frequency currents from leaking into this stage.

Current to the screening grid of the output pentode (if a pentode is used) is supplied through a 5,000 ohm resistance and by-passed to earth by a 0.1 μF condenser. A choke filter output circuit enables headphones to be used without risk of shock, and also prevents damage to the valve through absence of high-tension on the plate. A .01 μF condenser connected between the plate and earth acts as a tone corrector. The L.F. choke should have an inductance of 20 henrys and be of low resistance in order to minimise voltage drop across it. The on-off switch is in the L.T. + lead.

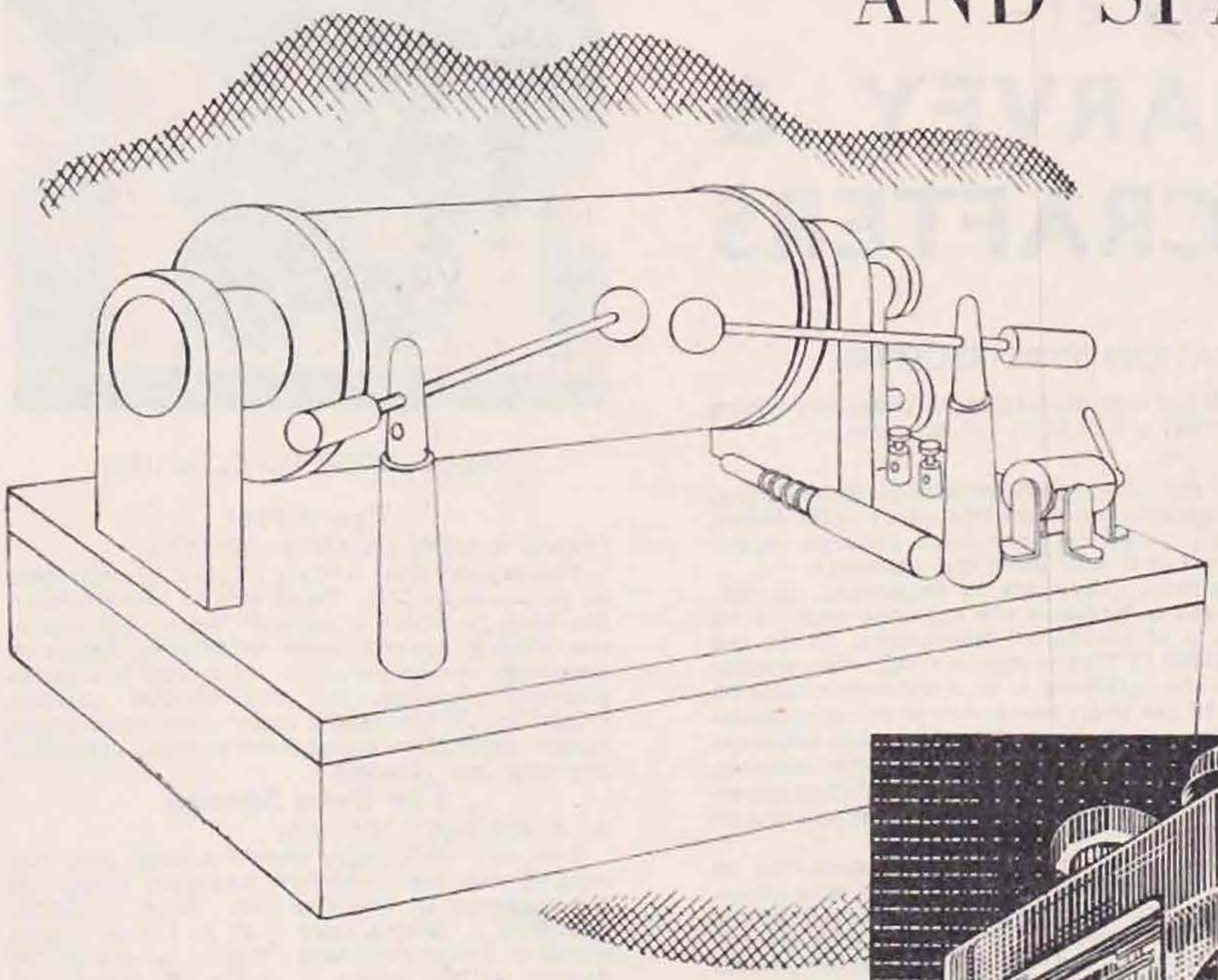
Construction.

The position of the main components can be seen from the photographs. The holes for the valve and coil holders, with the exception of the 7-pin H.F. pentode, are of 1 in. diameter ; that of the pentode being 1¼ in. The aerial coil holder and detector valve holder are each of Ceramic construction, being of *Clix* types. At the extreme left of the receiver (looking from the back) is mounted the L.F. choke, while next to it is the L.F. transformer.

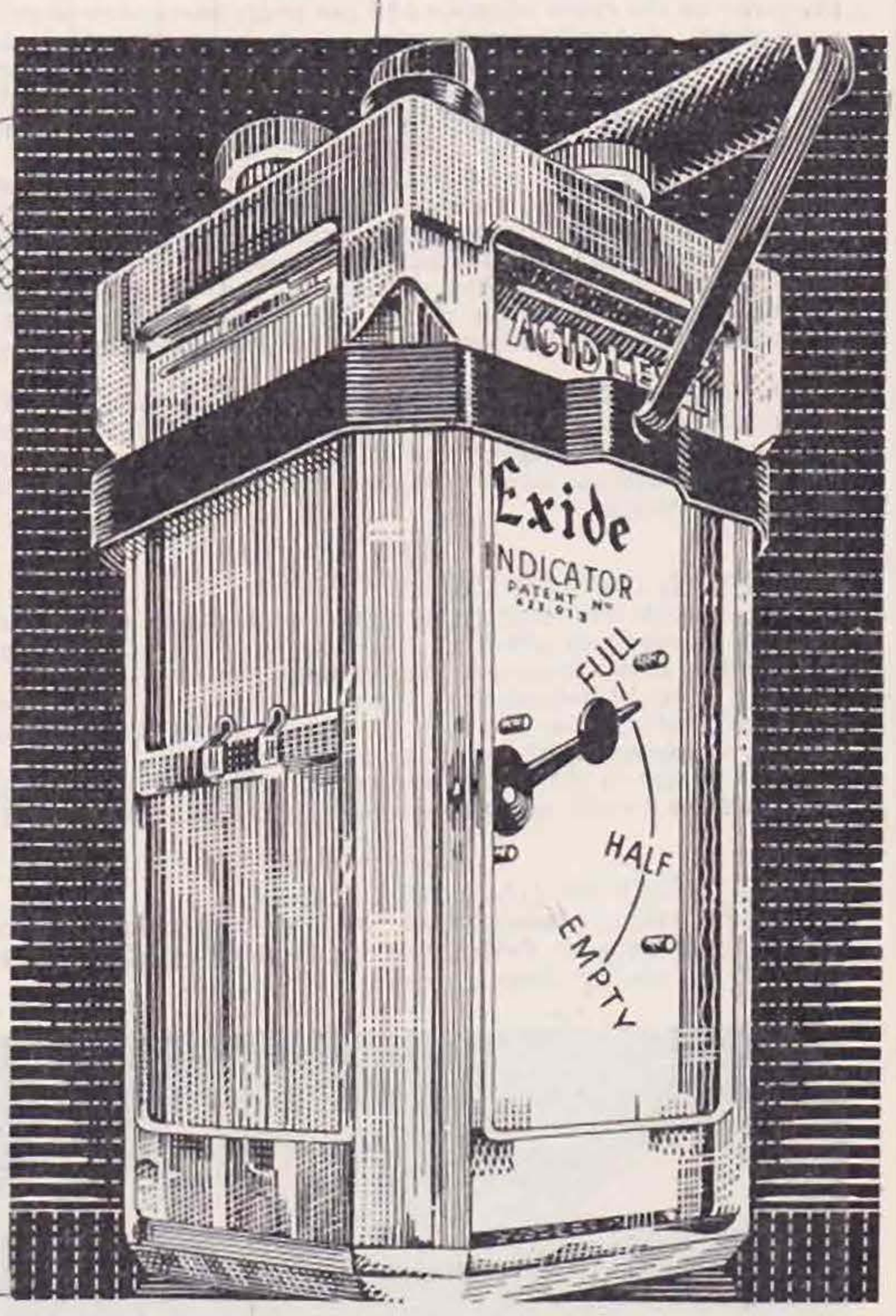
Care must be taken when mounting the coil and valve holders to see that the correct pins are facing in the right direction in order that the grid leads may be as short as possible. The grid pin of the aerial coil must face towards the back and towards the valve holder. Terminal No. 1 of the 6-pin holder must face towards this grid pin, so that the .0001 μF condenser may be joined directly between them. The vertical screen is 4 in. from the right-hand side looking from the back.

Practically all the wiring is carried out underneath the chassis. But before proceeding with this operation the two 2μF condensers must be screwed

MARCONI'S FIRST INDUCTION COIL AND SPARK GAP



First used by Marconi in 1899, this type of oscillator held its own until the coming of the thermionic valve. Just as more Exide Batteries than any other were used for operating spark transmitters, so it is with modern equipment. The Exide Battery remains pre-eminent.



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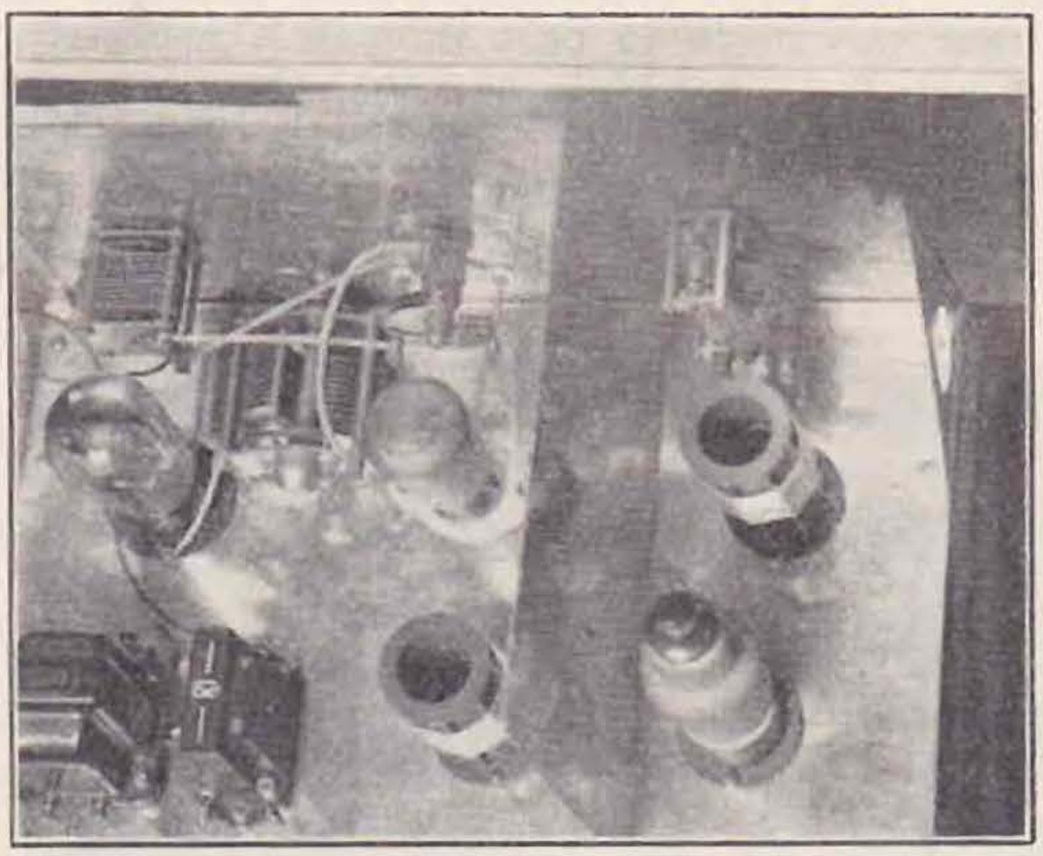
to the bottom, the detector decoupling condenser being connected between the valve holder and output pentode, whilst the other is taken to choke and transformer. The 50 $\mu\mu$F pre-set must also be screwed down, close to the aerial terminals. It might be advisable to mount this on top so that adjustments may be made more easily : but this is a matter of choice. The numbers and connections on the coil holders are given in a separate diagram (Fig. 2). The small ½-watt resistances, the H.F. choke, and the tubular condensers are held firmly by their own wires, so require no mounting.

The leads from the components above the chassis are brought underneath through small holes. Although all the panel components, with the exception of the toggle switch which is itself insulated, are at earth potential, it will be seen that the moving vanes are connected together and then to the chassis : this is in order to minimise hand-capacity effects.



This illustration shows the clean and neat layout of the receiver. The H.F. stage is completely screened from that of the detector and L.F.

The controls reading from left to right on the front panel view are :—The aerial R.F. tuning condenser, the band-spreading condenser of the detector grid coil. Below ; the reaction condenser, above this to the right the band-set tank condenser, and below this the on-off switch. The coils are *Eddystone* products.

Valves.

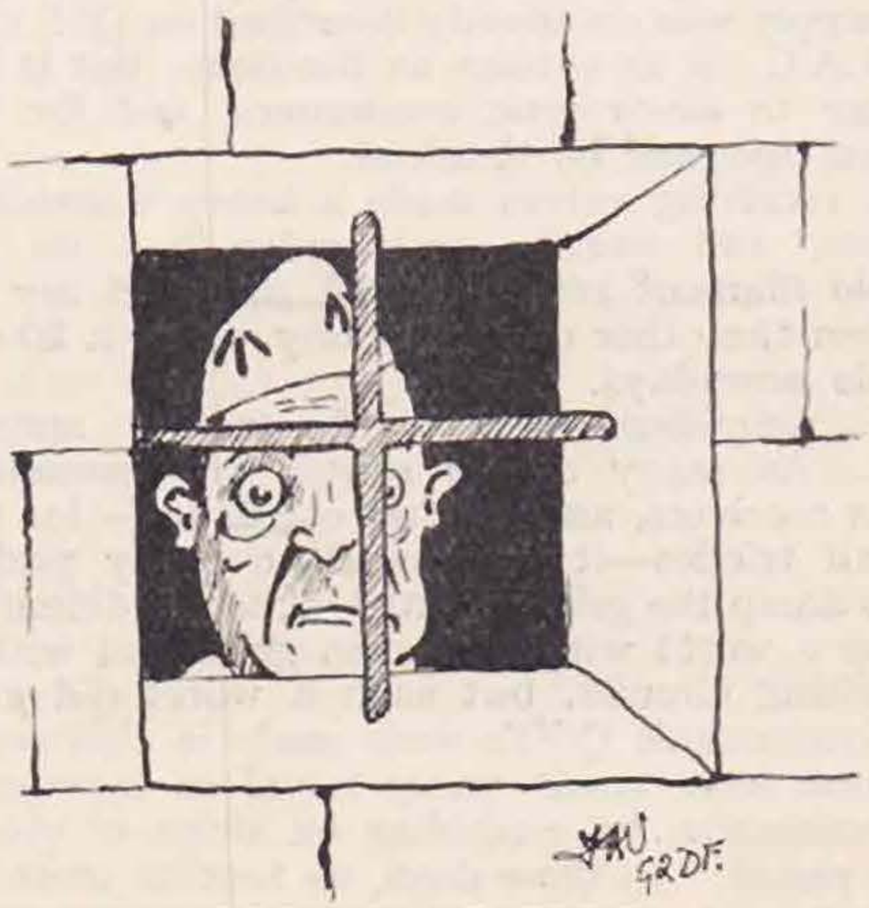
As already mentioned the H.F. valve is a 4 or 7-pin *Cossor* H.F. pentode type 210.S.P.T. The detector can be of the HL class : the PM 1 HL used was found very satisfactory, giving smooth reaction, besides being sensitive.

The output valve must be chosen to suit the constructor's pocket with regard both to price and HT consumption. A small power valve such as the PM2A or LP2 with H.T. consumption of 4 milliamps has proved satisfactory, but does not give so great an output as the Pen 220, which however demands more current. For a still larger output and for those who can supply 18 milliamps the Pen 220A is the best valve. This can be run from a mains unit supplying 150 volts at 25 milliamps.

This receiver has proved quite hum-free when working off an eliminator, but this must have generous smoothing.

"Twelve Years Back"

Dear Uncle Tom, I've read your Notes,
As twelve years back my mem'ry floats.
For these were days, when Hams were Hams,
And "forty-five" was free from jams.
Transmitters and receivers which
Worked, both of them, devoid of "spitch."
No crystal monitors at hand
Had we, to keep us in the band.
Our "end-on" Hertz with bulb alight,
We hoped would waft our signal's flight.
While I remember we stood-by,
And failed to hear our neighbour's "cry."
Yet listened we just by the hour
To catch a trace of his low power.
And "hay-wire" sets were all the vogue,
You can't deny it ? You old rogue !
Yet, after all—it might be said,
'Twere better that we both were dead
Than live to see the present time,
Where everything seems out of line.
Transmitters now are freely bought,
Where dials show plus and minus nought,
At where you set them to the book
That's given with them—if you'll look.
And superhets, and super keys,
With super valves in twos or threes,
While to obtain your "QSL's"
You press the key and help yourselves.
And if you want your voice to flow,
You turn your power "QRO."
On fourteen megacycles call
The Ham who lives o'er garden wall,
And few now listen, how they send,
When with "bug-key" the air they rend,
And "DX" hounds don't fix a "sked,"
"Hullo—Good-bye" 'tis all that's said.
You curse your neighbour when he dare
With "QRM" your speech impair.
And lots of this I'd tell to you,
But all of it is nothing new,
Though it all makes me sigh in pain,
Oh ! give us back twelve years again,
And I'll your nephew ever be,
Affectionately—Two ZC.



Difficulty in Getting Out.

Things We Used to Do

By S. K. Lewer (G6LJ) *

As I sit and listen to the QRM and cast my eye around the shack, wondering whether the game is worth the candle, I often recall the "good old days" when things were very different from what they are now. We had our grumbles then, of course, but as time passes we tend to forget the troubles of the past and remember only the high-lights of our early experiences. But it is interesting, and sometimes quite instructive, to go back a few years and review the improvements that have taken place.

Let us talk for a while of the things we used to do in the days before crystal-control and superhets. For instance, there was the everlasting problem of getting our accumulators charged, for all receivers were battery-operated, and bright-emitter filaments usually took 0.7 amp apiece. Accumulator charging plants were very expensive, and metal rectifiers were not yet on the market. I remember my efforts at trying to prevent the old chemical rectifier, using aluminium in ammonium phosphate solution, from boiling itself dry under a 3-amp load. Tantalum, at 4s. 6d. a square inch—sufficient for 1-amp—was a distinct improvement over aluminium as far as efficiency was concerned.

I sometimes think that the chemical rectifier was the centre of attraction in the station of those days—sometimes it was the cause of all the trouble. We used to have large racks full of separate cells for the H.T. supply. They were certainly very popular, and the total number of test-tubes, potted-meat jars, or jam pots, that were acquired by hams for this purpose must have run into hundreds of thousands. It was a good sight to watch the gentle blue sparkling of the electrodes under load. That usually meant that all was well, but the day soon came for washing out the whole box of tricks and renewing the electrodes. Probably more sheet aluminium was used then for H.T. rectifiers than for screens and chassis in ham stations nowadays—and it was chemically pure, too.

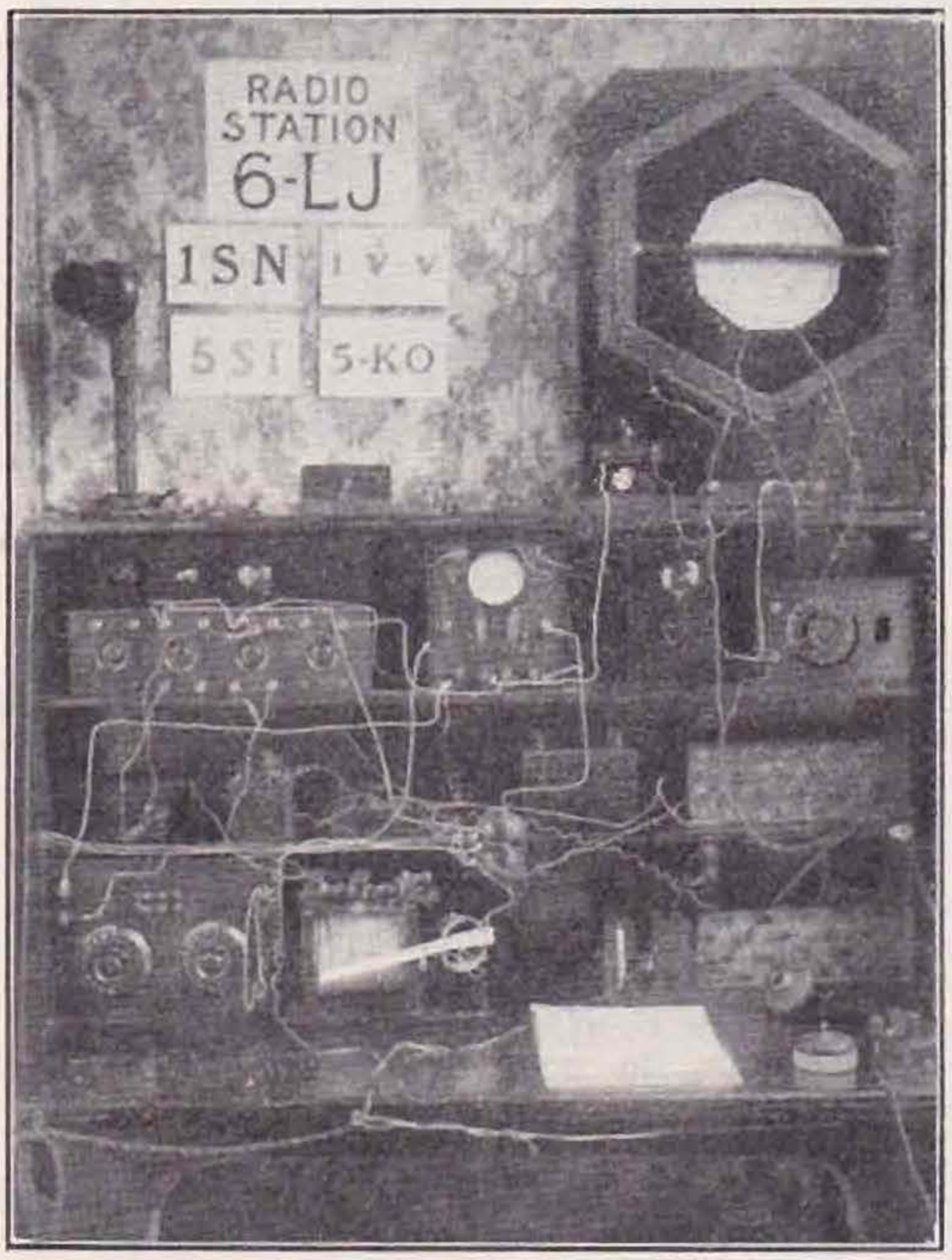
The "chemy-rec," once so popular that the H.T. supply was commonly described on QSL cards as C.R.A.C., is as extinct as the dodo, but it lead the way to electrolytic condensers, and for that we must for ever be thankful.

Yes, receiving valves made a heavy demand on batteries, and usually each valve had its own variable filament resistance. I scrapped my last specimen the other day. Nobody wants a 20-ohm variable nowadays.

R.F. amplifiers used to be rather amusing affairs. As many as six stages were sometimes used in receivers, and to stop oscillation—for they were all triodes—it was usual to apply positive bias to damp the grid circuits! It seems difficult to imagine a world without screen grids and without neutralising circuits, but such a world did exist, and Transoceanic QSO's were made in that world.

I must have spent many hours in making up high resistances by scribbling on strips of ebonite with a pencil. In these days, we tend to treat high resistances as we treat pieces of wire, but then they used to be quite a problem. Some of the manufacturers tried to sell us variable grid leaks of the screw-in or compression variety, but our home-made "fixed" ones were quite variable enough to give the desired value at least one day a week.

For the grid leak in the transmitter—there was only one valve and one leak in those days of self-excited sets—I used a water resistance for a long while. Tap water was quite suitable, provided the current was made to pass through a reasonably long and restricted path, and that the water was changed periodically. Of course, the water leak was by no means constant, and the quality of the note was likewise variable as a consequence. It was one of the most difficult problems we had, to produce a good note in a self-excited single valve transmitter, with an insufficiently filtered H.T. supply. Many of the more active stations could be recognised by their characteristic notes without any difficulty. The American 60-cycle ripple showed up clearly against our 50-cycle ripple.



A Photograph of Mr. Lewer's Station taken in February, 1924.

Variable condensers were shockingly expensive things before the first broadcasting boom, but when that happened, there was hardly a radio shop where you could not buy any desired assortment of vanes, spindles, spacing-washers, and so on, and make up your own condensers.

* Mr. Lewer is one of our senior members having been an active transmitting amateur for the past 14 years. Editor.

The insulator we all used was ebonite, and we certainly used plenty of it. I once had an ebonite panel more than 3 square feet in area, carrying an assorted array of valves, condensers, multi-stud switches, plug-in honeycomb coils, and what-not. We were told in the journals how to prepare a matt surface so as to ensure good insulating properties, by rubbing with emery cloth and polishing with oil. The insulating material used nowadays must surely be a hundred times smaller in quantity and a hundred times better in quality than it was in the "ebonite era."

A single-wire aerial was considered to be a rather inferior affair. Every respectable station had at least a two-wire aerial with spreaders up to 8 feet wide. But other forms were not unknown. I once had a cage aerial of four wires carried on three hoops each 4 ft. in diameter, but it was too heavy to stay up for long.

Talking of aerials reminds me of flying a kite aerial on Beachy Head in 1921, listening to the Eiffel Tower and the Channel shipping on a single-valve portable. Lugging a 6-volt accumulator up to the cliff top was the only real snag about it.

Before the broadcasting boom in 1923-24, our coils were usually of the "loose-coupler "variety—that is to say, solenoids of several inches diameter and anything up to 18 inches in length, with a slider to vary the amount of inductance in circuit, no variable condenser being required for tuning. During the boom, all sorts of coils appeared: honeycomb, duolateral, pancake, basket, and so on. The present-day I.F. transformer is a pleasant reminder of the old honeycomb.

Before I built my first valve receiver, I used to listen for hours on a crystal detector without hearing more than a couple of stations, while the family thought I was going "nuts." The old spark set at the Eiffel Tower on 2,650 metres was a favourite. The tonic-train transmissions from GFA in Kingsway were a good second. Apart from these two, there were the ships and coastal stations to break the still silence. Who could forget GNF's old spark—and FFB at Boulogne?

I worked on spark myself for a time, before it was forbidden, and my best DX was seven miles, but spark soon gave way to C.W. However, the spark coil was not completely put aside, for it provided a source of H.T. supply for the valve transmitter. Of course, it took several amps out of the poor accumulators, and made a dickens of a noise, but it was at least one solution of the problem. They've modernised the idea now for car radio, and nobody seems to worry about it. The ex-Army T.V.T. units were rather popular as spark-coil H.T. supplies at one time. The primary took about 6 amps at 6 volts and gave a very peaky output of several hundred volts. I still have the one that I used as the H.T. supply on 440 metres.

When H.T. batteries were put on the market, I used up to 400 volts in the transmitter for a short time, but before that the only dry batteries that could conveniently be used were pocket flash-lamp batteries. Some manufacturers actually sold small brass clips for joining up long rows of them in series, to save the trouble of soldering them.

To effect an economy, I once made my own Leclanché H.T. battery, using old carbon centres from worn-out dry cells, and strips of zinc in containers made of paper soaked in molten candle-wax.

Most of the apparatus we used in those days was home-made. It had to be so, because it was impossible to buy many of the components that were wanted. Amongst my list of home-made components, I can include coils, condensers, both fixed and variable, high resistances, variable filament resistances, valve-holders, audio-frequency inter-valve transformers, mains transformers, microphones, batteries, meters of the moving-iron and hot-wire types, switches, chemical rectifiers, electrolytic condensers, buzzer rectifiers, and I think the only essential components which could not be included are valves, phones and accumulators.

All this constructional work naturally hindered experimental development, but it was very instructive, and it should be remembered that transmitters and receivers were very simple affairs in those days, so that quite a reasonable amount of time was available for operating.

Haywire was not frowned upon then as it is now—at least, not quite so severely! The majority of amateur stations were good examples of Heath Robinson's principles with string, Meccano, cardboard and Plasticene to be found in the most unexpected places. Our equipment was not cut to a pattern as it so commonly is to-day. We used our ingenuity more freely—by necessity. We learned more about the equipment we used, knowing most of its faults, by starting so often from sost principles and raw material. It is a pity, I firmetimes think, that it is so easy to get so much of our apparatus ready-made as it is to-day. It takes the edge off the enjoyment of achievement. I still get a greater kick out of re-modelling an antiquated piece of gear, making it work better than the designer ever intended, than out of the orthodox use of a modern manufactured component. But seriously, there is so much research behind the apparatus available nowadays that we don't always realise what it really is that we are using. We learn very little by using it, and the manufacturer can tell us more about it than we are likely to find out by ourselves.

Let us deviate more readily from the orthodox principles, give our imagination and ingenuity more exercise, and we shall not only make more progress as experimental radio men, but we shall more often come across something which is new.

Reports Wanted

G5DA (London, N.) on his 7 and 14 Mc. 'phone and C.W. transmissions.

G6WI on his 14 Mc. C.W. transmissions. All reports, which will be acknowledged, should be sent direct to 3, The Cottages, Beacon Hill, Rubery, Worcs.

G8AF.

Mr. N. S. Byers, owner of the above call, is now working exclusively on 56 Mc., therefore any transmissions on 7 Mc. can be credited to an unlicensed station. Mr. Byers was recently informed by the G.P.O. that signals from a station signing G8AF had been heard off frequency.

THE 28 Mc. BAND

By Nelly Corry (G2YL).

A LIST of calls heard during December includes stations in 46 countries in all continents, which seems to prove that conditions have not deteriorated appreciably. They were certainly excellent at times, *e.g.*, December 21, when all continents were heard on 'phone, but it must be admitted the band was usually less lively than in the two preceding months. Activity was particularly low in the early mornings, an exception being December 29, when G6DH worked VK3YP, VK5LJ and ZT6S before 10.00 G.M.T.

Signals from Oceania generally peaked at about mid-day, and G2XC had five QSO's with VK2UD, 3YP, 5KO and 5LJ at this time, receiving S6/7 reports on his 12 watt signals. Other Australians were VK2GU and VK3CP, the former using 'phone and c.w., and PK3BM was also heard on several days around 13.00 G.M.T. This winter is certainly the best ever as regards VU activity, thanks to VU2AN, 2AU, 2CQ and 2FV, who continue to work G on 'phone and c.w. The only other Asiatic signals reported during the month were U9MI and U9ML.

From Africa sixteen or more stations were heard in CN, FA, FB, ST, SU, ZS1, 2, and 6, and included ST6KR, two CN 'phones, and five Southern Rhodesians. ZS1AH reported on December 30 (when his signals peaked to S8), that conditions had been very poor during the month, the high spots being two QSO'S with VE5.

In South America HK1Z and YV5AK were heard on 'phone, and PY1AZ and PY1DI on c.w., in addition to the "regulars," viz.: LU3DH, LU7AZ, OA4J, PY2AC, PY2CW and PY3AB. Seventeen stations in Central America and the West Indies were reported, new ones being VP9R and HR5C, the latter worked on 'phone by G5ML on December 12. Other 'phones were HI7G, K4EIL, K4EJG, K4EMG, K4EZR, TI2FG, TI2RC, VP6YB and XE1GE, and c.w. stations included FM8AD, K4DDH, K5AG, K5AN, VP4OR and XE1CM. All districts of U.S.A. and all except the fifth in Canada were heard during the month, but West Coast signals were scarce. G6DH worked W every day except December 1, and all districts except W7 on 'phone, while G6QX worked all except W7 on c.w.

Stations in Eastern Europe, *i.e.*, in ES, LY, OH, SP, SV, YL, YR and U came through very strongly at times, particularly between 11.00 and 14.00 G.M.T. Ten countries further West were also heard, their QRK's decreasing with their QRB, *i.e.*, the ON's and PA's were usually only S2/3 in the South of England. G activity has declined somewhat with the deterioration in conditions, but many new stations are to be heard. G6ZO and G8HH, who tried the band for the first time towards the end of December, both raised W3 with their first Test Calls.

Will G's claiming first 28 Mc. contacts please inform the writer of these notes, instead of (or as well as), their D.R's or T.R's? Many thanks to G2XC, 6DH, 6QX, 6YL, 6YR, 6ZO and BRS25 for their reports.

THE 56 Mc. BAND

By L. G. Blundell (G5LB).

AS would be expected, there is very little news to hand of what has been happening during the last month. Since most of this time is devoted to the preparation for and execution of the season's festivities it is rather unreasonable to expect even the normal amount of activity. Again, a number of the "regulars" are known to have spent the last few days of the year in "polishing up" both transmitter and receiver in readiness for the contest.

However, 1937 provides a final query. This comes from GW6AA who has for some time past been hearing some intriguing signals in the region of 56 Mc. Also two signals are heard regularly on 42 and 46 Mc respectively, when 28 Mc. skip is short between the hours of 15.00 and 17·00 G.M.T. They are both PDC in tone, and one has modulation of low order which is unreadable. High-speed fading or "flutter" is always observed on these signals and it appears that the transmissions are of some fairly distant origin. GW6AA would appreciate a few lines from any other station who has also heard these or similar signals.

In the November notes mention was made of signals from SU1FT being received by G8JV in Nottingham. Definite information has since come to hand from SU1WM via G8QC (recently in SU) to the effect that the call 1FT is non-existent. So that's that!

G6YL reports continuance of the schedules with G5QY in order to find and fix daily variations in signal strengths. 6YL also furnishes additional information regarding the activities of OH7ND on this band. This station reported via 28 Mc. that he is active from 11.00 to 12.00 G.M.T. every day on a frequency of 56.6 Mc. This is understood to be in addition to the period as given in last month's notes.

And that is all for the present. Now, '38 has arrived. Contest zero hour is passed and the fight is on. Remember how fickle were conditions on "ten"?—the same goes for 56 Mc.—only more so. Keep your activity up to highest possible pitch and remember that stations in all parts of the world are making a determined effort to break through the silence which, up to now, has had all its own way.

In all probability it will be months before a DX contact is made, but at the same time there is a good chance of touching a short spell of good conditions in which anything may be accomplished.

THE MONTH ON THE AIR

December, 1937

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

IT is indeed an achievement to make a first contact with a country to-day, irrespective of frequency used, and congratulations go to Mr. G. Hutson, G6GH, for his contact with VR4AD on December 24 at 12.00 G.M.T. Frequency is 14,310 with T9 note. His full QRA : A. T. Dickes, Tualagi, Br. Solomon Is. Another unusual country to make a reappearance is Northern Rhodesia. G2YL worked VQ2HC for his first G contact. QRA is : W. H. Christie, Box 27, Nkana, N. Rhodesia, and frequency 14,140, and ST6KR was heard on approximately the same spot in the band. G5LA heard YN1AA on the H.F. end of 14, so the " odd " countries are treating us to an unexpected burst of activity.

It is now suggested by G8DA that the sins of the G8's be passed on to the G3's ; that's a good idea, so don't let's hear any more about those rotten fists and notes and operators signing with a G8 call ; but don't forget all you G8's, you must live up to this new-found reputation ; no more double sending (unless the other station asks you to QSZ), no more calling test 20 times and signing twice, no more badly adjusted ECO equipment chirping from inside to outside the band and no more local 'phone chats on 14 Mc. That about covers the major sins which have now been officially passed to the G3's for a New Year present, but there is a large sin committed by certain G's of all numerical values, and that is of calling " NST " for " TEST." Let those who suffer from this affliction make a New Year's resolution abolishing " NST " from the air for ever.

G8DA has heard J8DZ 14,280, HS1BJ 14,350, and HC2MR 14,020. G3BQ, our first supporter of the G3 fraternity, starts in the DX game with a bang. After having his licence one week he raised W6JMR after a test call with 9 watts to a 6L6G tritet and asks details of UX5KS. He is a portable in Ukraine S.S. Rep. with a portable call. U is the prefix for private station throughout U.S.S.R., UK for a club station, UE for a laboratory or special experimental station.

Don't think you have worked Trinidad if you raise VP4AA. G6ZO tells us he is G8DF operating a South American Expedition ship, and was worked just off Trinidad on 7 Mc. Other calls heard on 7 Mc. were YQ1SL, XSM5WC (Swedish ship bound for Venezuela), ST1AB (sounds suspicious), EA6AF in Balearic Is. and XOZ3G calling XOZ3OA with no details known of either. On 14 Mc. G6ZO worked CR7AY (14,042), K4ESH, K4DUZ and OXVC, who now signs ZB2-OXVC to tell you that he is not anchored off Greenland, and heard CR7AL, 14,120, CR7AU 14,280, and ZD1K, whom he believes to be a pirate, B2A is on a motor yacht, and XZ2C tells everyone he is near Gibraltar. ZO visited XOH5NK when he was in London and sportingly presented him with 500 cards. His QRA is S/S *Kurikka,*" bound for U.S.A., where he hopes to buy parts for a c.c. transmitter instead of his " rock crusher."

It is rumoured from West London that there are four genuine amateur stations in Turkey, and these are operated by soldiers with Army equipment. TA1N is one of the calls, but details are lacking of the others ; is TA1CC genuine, then ? TA1AA (14 L.F.) was heard by BRS2292, of East London, who sends in a list of suspicious European calls heard, as well as VT3AB on 7 Mc., CR7AD, CR7AU, ST6KR and FB8AA on 14 Mc. On December 26, at 17.10 G.M.T., he heard W2CNC on 7 Mc., and is anxiously awaiting confirmation as this is indeed an extraordinary time to hear U.S.A. BRS3101, of N.W. London, has heard on 14 Mc. VP1WB, J8CF, ZD1D, K7FY1, CR7GF, XU8RL, FI8AC, VS7JW, and supplies us with the interesting information that FQ8AB is returning to France in the spring or early summer. BRS3101 complains of the ham (so called) who does not reply to a good report when a reply coupon is enclosed. In these days when there are so many certificates to be obtained which rely solely on written proof by QSL, our opinion of the man who does not have the decency to reply when postage is prepaid does not bear to be seen in print here.

ZB2A and ZB2AB are both active on 14, and are asking for QSL's to be sent *via* the R.S.G.B. We have no knowledge of these two. ZU and ZT prefixes are dropped in favour of ZS, and all calls will be adjusted in alphabetical order, e.g., ZU1D becomes ZS1CH.

G6YR worked St. Lucia (a very rare one) on 7,020 ; VP2LA was the call, at 22.00 G.M.T. He heard K7GIE 14,100, K7FNE 14,050, and FX7C (ship in North Atlantic). G8IS raised OXAA, which is another Danish ship call on 14,200. He complains of lack of cards from U9AL and FP8PX, the former is holding his WAC certificate in indefinite abeyance until he works another Asian. Other DX worked : FY8A, HH3L, and FR8VX, all with genuine QRP. G8MX, our 25-watt 'phone friend, managed to overcome the poor conditions and had contacts with ZS6AJ, KA1ME, ZT2G, YV4AK and FB8AF. G4FR, on the yacht *Valdora,* was also worked in the Mediterranean with SV1AZ at the mike. SV1AZ is now active again on 7 Mc. CW. G6YL corrects us again, and states that XOH2PW is not on a ship, but is a portable station in Lahnas, Finland. XZN2B, heard by G8KP last month, is not the old owner of this call, and the full name of the ship operating under the call W6BOY (mobile) is S/S *Barbara Cates,* which is now nearing Europe. Full QRA of ZS3F is :— G. W. Dehaas, Box 358, Windhoek, S.W. Africa.

Talking of ship calls, G6WY had a very pleasant visit from HO2U, but is not allowed to divulge his identity. The call is not likely to be heard again, but all contacts have been QSL'ed direct at con-

* 9 The Mead, Beckenham, Kent.

siderable expense. Quite a large number of contacts were made when the ship was berthed at Aden and Suez, and therefore these contacts would count as a new country for the lucky ones. This call was heard all the way from California to England, *via* the Orient.

GM6JD has heard much but worked little. CR7AY, FB8AA, HI2K, I7EY (Ethiopia), ST6KR, VP4CF, YV5AD on L.F. end of 14 Mc., and on the H.F. end CT2AB, HH3L, VO6D, VP2CD, VP6HK and many ZS's. G8JR produces a real mysterious one. FE3B worked on 14,350, requested QSL to be sent *via* REF and is presumably in Fr. Cameroons. G5FA worked ST1AB on 7 Mc. and requests details. Our friends in Khartoum should be the best ones to advise on this point. VP4AA should be back in England at the end of January. TF3C was worked by G5FA and has been very active on 7 Mc., and QSL's too. G8RL also worked him and FT3AT (presumably in Tunisia) and on 14 Mc.; KA1SL and U9AX were raised. DX heard by G8RL includes K6MOJ, CN1CR, VP6CV, K4AHZ, K5AG, VO1K, VP4AA, ZL2BD, ZL1BR, ZL2JV, ZL2IW, ZL4FO, LU2BA, PY1BS and EP2RK, all on 7 Mc., and queries the authenticity of EP2RK. We do not believe he is genuine, any more than the odd ZA calls heard. There is one European country, not far from Albania, where licences cannot be obtained, and one case is known where a ZA call was used by an unlicensed amateur in that country, so don't believe any ZA, EP or TA calls until some confirmation is received, and if and when it is received, please advise us.

Mentioning QSL-ing again, we must tell you that cards for PK3BM, 1RL, 1MF and 1BO were returned to the R.S.G.B. by the QSL bureau of the N.I.V.I.R.A. (Dutch East Indies). These stations are known to be genuine, so send cards direct to them.

And now for some Empire news. BERS195, in Darwin, logged VP3THE on 'phone, giving him his 145th country heard; VO4Y, VP4CF and YV5AK were all "firsts" for him. He is another to have heard B2A and understood that he was W8IGQ operating on board the yacht *Yankee*; ZZ2A was heard 300 miles from New York. VZ2RP was a mysterious call heard and he asks for details. XE3AE was the first 3rd District Mexican heard. VS4CS is now back in Sydney for good from British North Borneo, as is the expedition station VK5NO. BERS195 sends through some details of VK4KC, the only active ham in Papua. VK4KC only uses 14 watts from two 6L6's in parallel. The other call in Papua is VK4HN, who hopes to be on the air soon. SU2TW returns to this page by announcing a contact with K6TE, in Wake I. on October 8. Unfortunately, K6TE has now returned to California. He confirms that B2A is the yacht *Yankee* and heard XZ3P calling ST6KR, and logged CX8AB on 14,300. Other DX worked included HS1BJ and CT2BC. He forwards a message received from VK5RL to the effect that a World Radio Convention will be held in Sydney during April, as part of the celebrations associated with the 150th anniversary of Australia. All amateurs invited.

G6RB and G6WY have managed to contact the East Coast of U.S.A. on 3.5 Mc. during the month, but conditions have been extremely bad and unexpected for December on this frequency. Europeans, however, have put through remarkably good signals with very low power, and "80" seems to have taken the place of "40" for real inter-Europe ragchewing, as almost complete fade-out was experienced on 7 Mc. during many evenings of the month. On 7 Mc., G6WY worked ZL4FB and ZL2IW, giving them first G contacts on this frequency. XE3Y was heard but would not listen for European calls. G2ZQ worked U9 and EA8 on 7 Mc., and heard YV4AX, CR7AL, ZS1CP and CR6AF in Angola.

G2YV gives us further information about XOH5NK and confirms that he is on s.s. *Kurikka*, the official call of which is OHHG. His note is T6, but we would rather suggest T1.

G6OM is again active and received the following from VU2FH for this page: VK4RF worked RX1B, who gave his position as being off Accra, Gold Coast, so this seems to confirm that RX1B is indeed a ship call. He also heard TF3AZ, who has not been reported by any G station, so he appears to be suspicious. VK4EL worked EA7AV, which is a real feat these days. G6NF was informed by VE5LD that he no longer operates from an igloo as winter as set in; he now works from the expedition ship shut in the ice and cannot answer QSLs until next spring.

G8GG appeals for more use of the RSMQ code in reporting 'phone reception. Many stations contacted do not appear to understand its use, although prominence has been given to it in this journal. * He further suggests that when a station intends to sign off, but to listen for the final remarks of the station he is working (CW), he uses "SK.K." and the station being worked signs off with "SK.SK." thereby removing the all too common occurrence of fruitless calling when the operator called is still listening to the signal he is working. The correct procedure, of course, is never to use "SK" until you have completely finished your contact. QRZ can then be called once or twice to show that you intend to listen for other signals.

VE5RE is a new member of the Society and informs us he uses 150-400 watts on 14 Mc., and is anxious to make G contacts, both on CW or 'phone. 45 watts are used on 28 Mc. He is situated in between very high mountains which screen him from Europe, and he still requires this continent for 28 Mc. WAC. Another active DX man in his locality is VE5MZ (ex-ZS3D), who uses 300 watts CW on L.F. end of 14 Mc.

SV1RK is another who has also heard TA1AA giving his QRA as Angora, but as this town is known now as Ankara, somebody must have been studying an old atlas. He also reports XZ3P calling ST6KR and ST2CM. BRS1066, of Burton, who is one of the few BRS-HBE holders, has heard FI8AC, CR7AY, FB8AD, U6ST, CM8SH, CM8AQ, CM2OP, and gives us details of VP3THE. This station is the Terry Holden Expedition in British Guiana studying natural history, both flora and fauna. G2AI, 6AG and 8IG, G6AG and G8IG are among the British 'phones who have contacted this station.

G6UR has relinquished his call and has been issued with ZB1R, thereby swelling the Malta calls by one. OHKI reported last month as an honest,

(*Continued on page* 402)

*May, 1936, p. 441.

GENERAL SPECIFICATION

Features—Four wavebands :
(1) 11.3—35 metres. (2) 35—100 metres.
(3) 195—580 „ (4) 725—2,000 „
Circuit—8 valves. R.F. Amp.—mixer—oscillator—I.F. Amp.—twin diodes—L.F. stage — output stage — rectifier. Separate bass and treble controls. Electronic tuning indicator—Undistorted output 5 watts.

CONTROLS LAYOUT . . . .

1. Brilliance and two-position selectivity.
2. Wavechange switch.
3. (centre) Two-speed tuner.
4. Volume control and on-off switch.
5. Bass control.

The wavechange switch operates the wavescale indicator located in the top left-hand corner of the scale by means of a spring-loaded chain. In the opposite corner is found the electronic tuning indicator which has a variable-mu characteristic to avoid overlap.
The field winding of the electromagnetic loud-speaker is used for smoothing purposes in conjunction with an additional choke and three electrolytic condensers. These latter items are heat-insulated from the speaker frame.

SIGNAL FREQUENCY AMPLIFIER

The signal-frequency amplifier, W63, amplifies the incoming transmission at its original frequency and this stage is provided to ensure a good signal noise ratio, some degree of selectivity, and freedom from self-generated whistles.
The aerial is coupled to this valve by means of the series-connected aerial coils which are wound adjacent to their respective tuned circuits. The fact that these aerial windings are connected in series whilst the tuned circuits are not, has no particular significance as it was done to effect certain economies in switching. Tappings are brought out from the tuned circuits and taken to the anti-static aerial socket so that line matching is effected without the use of a separate transformer.
The signal-frequency amplifier is coupled to the frequency-changer, X.64, by the conventional tuned-anode method which enables maximum gain to be obtained from this stage, with much simplification of coil assemblies and switching. Even so, the coils tend to become complicated when as many as four bands are wound on the same former.

FREQUENCY CHANGER & OSCILLATOR

As its name implies, the frequency-changer, X.64, serves the purpose of converting the signal frequency into that of the intermediate frequency, namely, 465 KC/S, and a separate oscillator, Z.63, tuned by this amount above the signal frequency is coupled to the oscillator grid of the X.64.
This system of using a separate oscillator is fast becoming standard practice in the better type of receiver, as it is usually easier to obtain the relatively large voltage output, minimises interaction between signal and oscillator circuits (pulling) and permits the use of circuit arrangements giving great frequency stability—a point of importance when going down as low as 11.3 metres.

I.F. AMPLIFIER & VARIABLE SELECTIVITY . . . . . .

Signals of intermediate frequency appearing in the anode circuit of the X.64 are passed on to the grid of the I.F. amplifier, W.63, via one of the new iron dust-cored transformers and thence, after amplification to one diode of a twin diode valve, D63, for detection.
These I.F. transformers provide genuine variable selectivity which has no deleterious effect in the Selective position and affords a nicely flat-topped resonance curve in the Quality position.
The variable selectivity is actuated by the Brilliance control and is, in fact, a D.P.D.T. switch arranged so that maximum fidelity is obtained when this knob is turned fully anti-clockwise. A small movement in the other direction operates the switch and gives high selectivity. Further rotation in the same direction results in an increasing cut of the higher audio frequencies.

A.V.C. . . . . .

The signal and A.V.C. diodes are used in a conventional manner, care being taken, however, to proportion the AC/DC load of the former correctly to avoid all distortion of deeply modulated passages.
The A.V.C diode is fed from the same I.F. coil tapping through a small condenser, and its load is split so that the I.F. valve can be provided with half the available voltage drop; it must be remembered that this valve handles a considerable voltage swing particularly when receiving local stations which is where the backing-off voltage is greatest, and a large amount of distortion can easily be introduced if the valve is not working on a relatively straight part of its characteristic.

L.F. STAGE & AUDIO TONE CONTROLS

A Z63 with its anode and screen grid strapped is used in the L.F. or driver stage. the result being a medium-impedance triode.
The bass-cutting control consists of a small condenser in series with a larger one whereby the effect of the former is varied. Variation in top response is obtained by controlling the effective capacity across the L.F. transformer secondary.

The Reception of 14 Mc. Signals off the North African Coast

By L. E. H. SCHOLEFIELD (G5SO).

British amateurs have probably wondered what their signals sound like in the Near East, and the writer (who was operating his own station in England ten days previously) intends in this short article to give his impressions of a full day's listening, while steaming along the North African coast, south of Malta. The receiver was of the communications type, the ship's lighting mains being used for supply, the aerial was 100 feet in length. Previous listening had been done during week-days, but very few English amateurs were heard until early evening, and darkness brought with it the general fade-out.

It was decided that Sunday, December 13, would be the best day to make a careful survey; accordingly the receiver was switched on at 0930 G.M.T. The band was then alive with phone stations, which were coming over at terrific strengths, the majority of which were British. The intensity of the signals increased until about 1100 G.M.T., at which time most of the regular stations that can be heard in England under short skip conditions could also be received here in the Mediterranean. Amongst the loudest were G8TX, 5RV, 2MF, 5VM, and 5ML. Some of these stations were putting out a signal that was audible several cabins away. The skip apparently was short as reception of inter-England contacts was effected, and if a station was working duplex, both sides of the conversation could be followed from one station.

At this time, many CW stations could be heard, but they were too numerous to log. The English stations held the air all day until about 1800 G.M.T., when all but two began to fade out. The exceptions were GI2CC and G8MX, these two rose in strength for about an hour after sunset. This rise was not the result of freak conditions, as it has been confirmed on other occasions. By 1900 G.M.T. the only stations heard were the South African phones, which were coming in at good strengths, varying from S5 to S8.

A point that is most striking and worthy of stress being made upon it, is that when British Isles stations are working other stations about a hundred or more miles away, they think that the skip is short, because only a few Continental stations are coming through, whereas their signals are getting out a lot further than they think, and causing terrific QRM in other countries, This should be kept in mind when working local contacts on 14 Mc. The fact is proved, as over 50 British stations were heard on phone alone.

The writer also spent some time searching the 7 Mc. band, but no signals from England could be heard. Having due regard to the prevailing conditions on this band when the writer was operating in England, he does not doubt their existence! It is hoped, at a later date, to give another report regarding reception conditions in the Red Sea, together with a full report of both CW and phone signals, and also a list of calls heard.

Station G6RL For Sale

Arrangements are being made to dispose of the radio equipment owned by the late Mr. R. Loomes, G6RL, and members who are interested in any of the material listed below are invited to communicate with Mr. G. Exeter, G6YK, 29, Askew Crescent, Shepherd's Bush, London, W.12.

The material is as follows:—

One complete transmitter 150 watts, with 7 Mc. crystal for 'phone or C.W., complete with 1,000-volt power supply; Collins' coupler fitted with Weston thermo-ammeter and five .Weston milli-ammeters for various stages; UX852 in final, all doubler, etc., valves; mains control box with neon pilot indicators, also contains monitor. Sell complete if possible.

One 1-V-1 mains-operated receiver, complete; one Phillips condenser mike with built-in head amplifier, table pattern; one Rothermel Turner crystal mike (new, unboxed); one French calibrated absorption wavemeter, sub-standard instrument, 2,000-5 metres; one General Radio ditto; one transverse current mike with stand and transformer; one Phillips carbon mike, table pattern, with transformer; one battery-operated portable 3-stage amplifier for transverse current mike; one 14-watt P.A. speech amplifier with mixer controls, complete with power supply; several M.C. speakers, some in cabinets.

One mains gramophone turntable and pick-up, suitcase portable type; one 300-volt power pack; one 9-volt, 1-amp., Westinghouse charging rectifier; one battery valve code set with key, etc.; six pairs 'phones various makes; one Paul decade-resistance box; one 100 kc. bar in enclosed holder, one 1,000 kc. ditto, one 3,650 kc. crystal in enclosed holder; one Service and valve test equipment with 4 meters and all U.S.A. and English valve adaptors (portable); one new calibrated frequency meter monitor in solid aluminium box; one complete *Wireless World* test oscillator; several m.c. milli-ammeters, various makes and ranges; one Hay-beard first-grade 0-3 mA. m.c. meter, also calibrated in ohms; one Hammarlund 6,500-volt split stator condenser 100 $\mu\mu$F (new); one bug key (new); one battery monitor, calibrated; 1,200-volt H.T. and various filaments power pack.

Two UX210 valves, Sylvania carbon anodes R.F. type; two Western 4211E valves; several large output triodes, various makes (400 volt); several rectifiers, various makes; Bulgin and Eddystone components, valveholders, resistances, condensers, screening boxes, coils, extension handles, etc., all new; copper tubing, wire and cables of all sorts.

Technical Information Bureau

The writer, who is responsible for the T.I.B., wishes to offer an apology and an explanation to those who may have sent in queries during the last month or six weeks. Due to a change of QRA and all the consequent dislocation, the work of the Bureau has become rather in arrears and at the moment of writing there are some twenty queries requiring attention. These will probably all be cleared by the time this is in print, or very shortly after.

Intending querists—if we can use such a word—need not fear that their problems will receive anything but the best and quickest attention of which the Bureau is capable from now on. G6FO.

A Bi-Metallic Thermostat

By A. D. Gay, (G6NF).

FOR those amateurs who wish to experiment with constant temperature devices, a simple thermostat, which will control the temperature within $\pm\frac{1}{2}^{\circ}$ Centigrade, will be found extremely useful. A mercury-toluol thermostat is a fragile piece of apparatus, and whilst it will give an extremely accurate degree of temperature regulation, the robust type of bi-metallic thermostat will be quite accurate enough for most purposes.

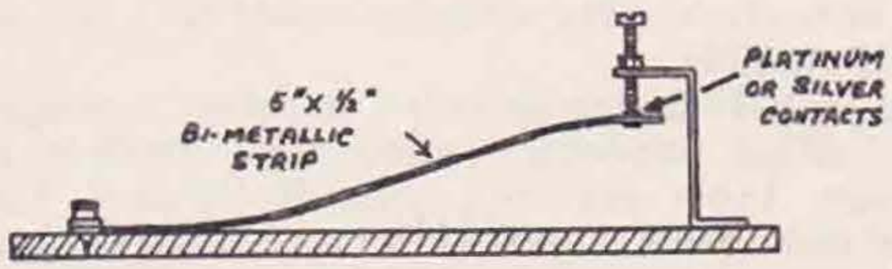


Fig. 1.

Sectional sketch of Bi-metallic Thermo-Regulator.

The principle of this type of temperature regulator is dependent upon the difference in expansion co-efficients of the two metals which form the bi-metallic strip. Brass and invar-steel form two sides of a curved strip 5 ins. long by ½ in. wide. The brass is on the inside of the curve and expands at a rate approximately twenty times the rate of the steel. This causes the strip to straighten with any increase in temperature. If contacts are arranged at the end of a piece of this strip, one end of which is fixed, it will be seen that as the temperature rises, the strip tends to straighten out and the contacts open. This principle is also used for light flashing devices and thermal-delay switches by incorporating a heater winding around the strip.

By reference to Fig. 1 the principle of this device and the method of construction can be easily followed. The contacts may consist of old spark coil trembler parts, relay or other similar contacts from the junk box. These may be soldered or rivetted to the strip and contact screw. They only have a small amount of current to break so that soldering has been found quite satisfactory.

A 16 C.P. 230 V. carbon filament lamp is a convenient form of heating to employ for an experimental oven, and a 0.25 μF condenser with 100Ω in series across the thermostat contacts will cut down interference to nearby receivers. An oven, to be efficient, should be carefully lagged and insulated, but quite useful experimental work can be conducted in a thick sided wooden box covered with an old sack or overcoat to keep the heat in. The circuit diagram is given in Fig. 2 A piece of bi-metallic strip of the above dimensions can be obtained from *Messrs. Griffin & Tatlock, Ltd.*, Kemble Street, W.C.2.

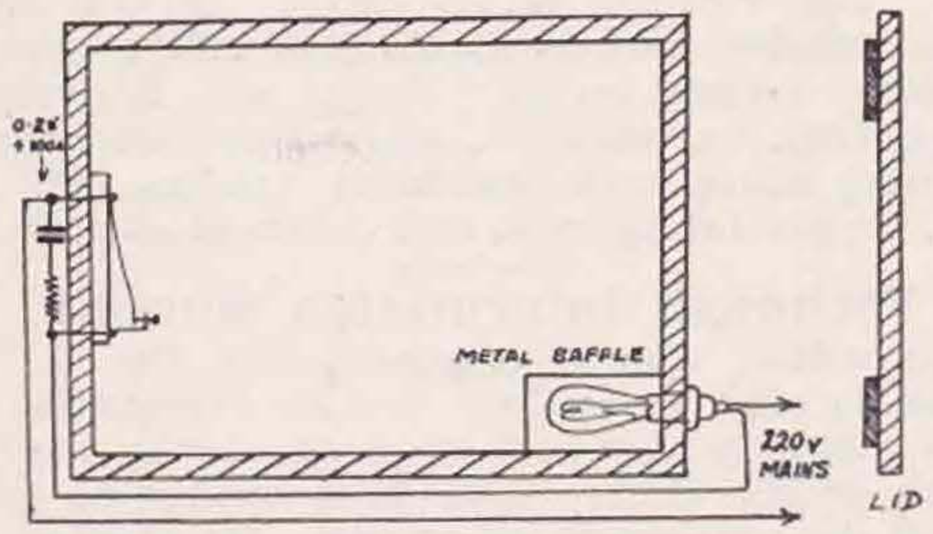


Fig. 2.

Plan of oven and circuit diagram. The lamp is surrounded by a metal baffle to make heating more uniform. The apparatus to be tested is placed as far from the lamp as possible. If it is desired to make frequent adjustments to the thermostat it may be advisable to mount it so that the top contact is adjustable from outside by means of a length of 4B.A. brass rod.

How to be a "Ham"

NEVER fail to QSL any Station that you work for the first time no matter whether it be in Timbuctoo or only in the same County. Always remember that a QSO worth making is worth acknowledging and, the card you *didn't* send might have put some heart into a beginner struggling with the vagaries of his first Rig.

Don't ignore a Test Call because it is from a G3 or because the man behind it does not happen to be in your "*clique.*"

Don't break off an incompleted QSO without the slightest explanation.

Don't work with a Bug Key unless you really know how to use it. While it may look smart to a lay visitor it will probably be kicking up a racket at the other end that sounds like a regiment of French Cavalry passing through a field of clog irons.

Don't send faster than you can receive; if the other chap comes back like a Wheatsone tape you may have to beg for a full repeat.

Don't work Duplex 'phone for hours on end merely to discuss your mutual holidays, your best round of golf, or the highlights of your family history. This will not impress the G.P.O. authorities, but it will most certainly clog up two fat slices of somebody's band and perhaps ruin several serious QSO's. Never forget that the Amateur bands are the equal and joint property of all license holders and not the playground of a favoured few.

Don't growl about QRM. Your own station may be contributing very liberally towards the general Bedlam.

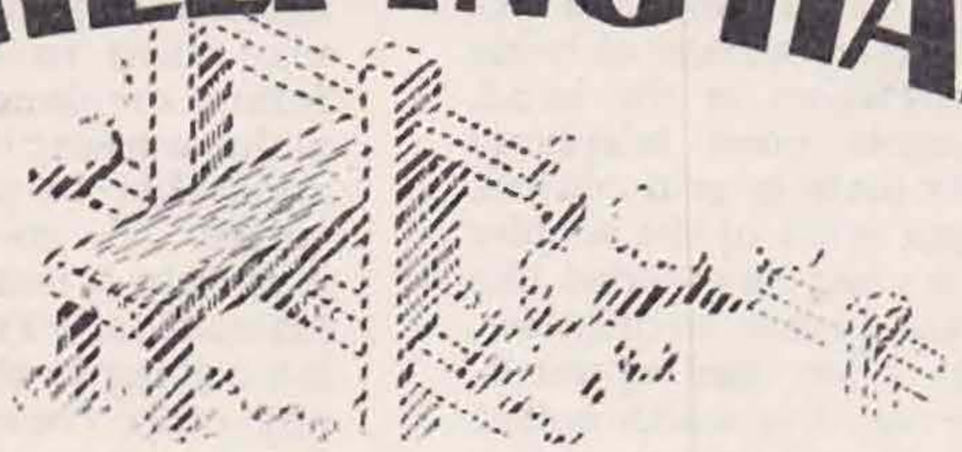
Never use the ether to exploit your pet grievances. The nearest pillar box will accommodate all you may have to say.

Don't whine for more concessions unless you are certain that you are not flagrantly abusing the ones already granted.

Make your Station a success, but never at the expense of the other fellow. Keep in your heart the deep traditions interwoven with this glorious miracle of our time and Play the Game—in other words *Be a "Ham."*

G2OB.

THE HELPING HAND



By Austin Forsyth (G6FO).

PART X.—SOME PRACTICAL A.A. WORK

TO those who may be regular readers of this section of the Bulletin, we must first offer an apology for our non-appearance last month, due to a sudden and unexpected change of QRA and all the bother and turmoil associated therewith. We also missed our opportunity of wishing readers the season's greetings, but we can now say "A Happy and Prosperous New Year," without being too late with it.

This month, we propose to devote some space to a general discussion on transmission experiments from the point of view of the beginner. More advanced work is very well covered in the new *Guide to Amateur Radio* and similar publications, and apart from anything which may appear here, we cannot do better than to refer readers to the *Guide*, suggesting that they read carefully Chapters II, III and IV, from which a great deal of very valuable information can be derived.

At the same time, we hold strongly to the opinion that for those commencing amateur transmission, it is important that they should work from the ground up; that is to say, start with the simplest type of apparatus. It too often happens that an enthusiastic beginner, primed with vague ideas by some more experienced friend and fortified by what he reads in certain publications which not only assume a fair degree of knowledge but also work on the suggestion that 50 watts is low power, is led into embarking on the construction of a comparatively expensive three- or four-stage transmitter with which he soon finds himself in all sorts of trouble. If he is somewhat ignorant of fundamental electrical principles, costly damage not infrequently follows. The blame is laid on the designer, the components or, more usually, "the circuit"; we put this last in inverted commas because it is the old stand-by and practically never true. The only factor which receives no condemnation is the operator's own lack of knowledge and experience; he knows he has done as the book says, so he can't be at fault. The result of all this is unending bother for our friend's amateur neighbours who are asked to untangle the mess, and ends either in the construction of a simple CO-PA on which something can be learnt or, if money is no object, the installation of a commercial transmitter, which closes his mind to anything which is in the slightest degree difficult or "technical" and finally vitiates any possibility of his becoming a useful amateur.

This sounds a lugubrious and unlikely story, but it happens far more frequently than might be supposed, and must touch the experience of many readers on a few points at least. For our part, we are always running up against similar cases, and if our advice is sought by beginners, it is always the same: Commence with something which helps to develop what we can only call "feel," that subconscious understanding of what to do with the knobs and what to expect on the meters. It can only be gained by patience and the tackling of difficulties as they arise, but it is a most valuable asset and enables one to face a complicated circuit with confidence and ability. It is probably safe to say that something like two-thirds of the amateur transmitters in this country are using apparatus which they do not really understand, in spite of the fact that they may be putting in a lot of power and never lose an opportunity of quoting learnedly over the air on 7 Mc. 'phone. But we must not let that band lead us off our theme, though it is populated, from the gentleman at the L.F. end with a plum in his mouth to he with the too-Oxford accent at the H.F. end, by people who are apparently mesmerised by what they see in foreign periodicals. This must not be taken to mean that there are not a lot of amateurs who are extremely competent, nor that everything which is not published in this country is necessarily unsound. Far from it. But it seems to us that too often inexperience and an incomplete understanding is brought in contact with methods and ideas which belong more properly to the commercial field.

But this is not solving our beginner's problems, though it may suggest the line which he might with advantage avoid.

Self-Excited Oscillators

There will probably be gasps of horror and a general throwing up of hands at this sub-title, but it is a fact that the A.A. man cannot do better than build himself a self-excited oscillator in order to get a grasp of what does happen with simple circuits and to help him develop that "feel" of which we have already spoken. A very good one

which will illustrate a number of interesting points is the parallel-fed Hartley, shown in Fig. 1. Where the licence conditions allow it, this circuit can also be used very effectively as a low-power C.W. transmitter on 1.7 Mc., where with careful design and loading it is possible to radiate a signal which is C.C. in character with the additional advantage of being able to set the frequency anywhere in the band. Under certain conditions, quite good telephony can also be obtained by either plate or grid control, but generally speaking this and other of the simpler types of self-excited oscillator must be avoided like the plague for working on the higher frequencies, due to their low stability at 7 Mc. and upwards. As a matter of interest, however, it is worth noting here that a competent operator can make such a circuit give perfectly satisfactory signals on 14 Mc., while we know of straight MO-PA transmitters—in which the drive side or master-oscillator consists of a simple circuit of the kind described—producing 28 Mc. signals that are always reported T9. We do not advise our readers to try this sort of thing—except perhaps as an experiment when using an artificial aerial—because for one thing practically all full licences nowadays stipulate that crystal-control must be used on the air, while for another it really does take something to get an H.F. MO-PA working like a C.C. transmitter; thirdly, satisfactory 'phone is almost impossible.

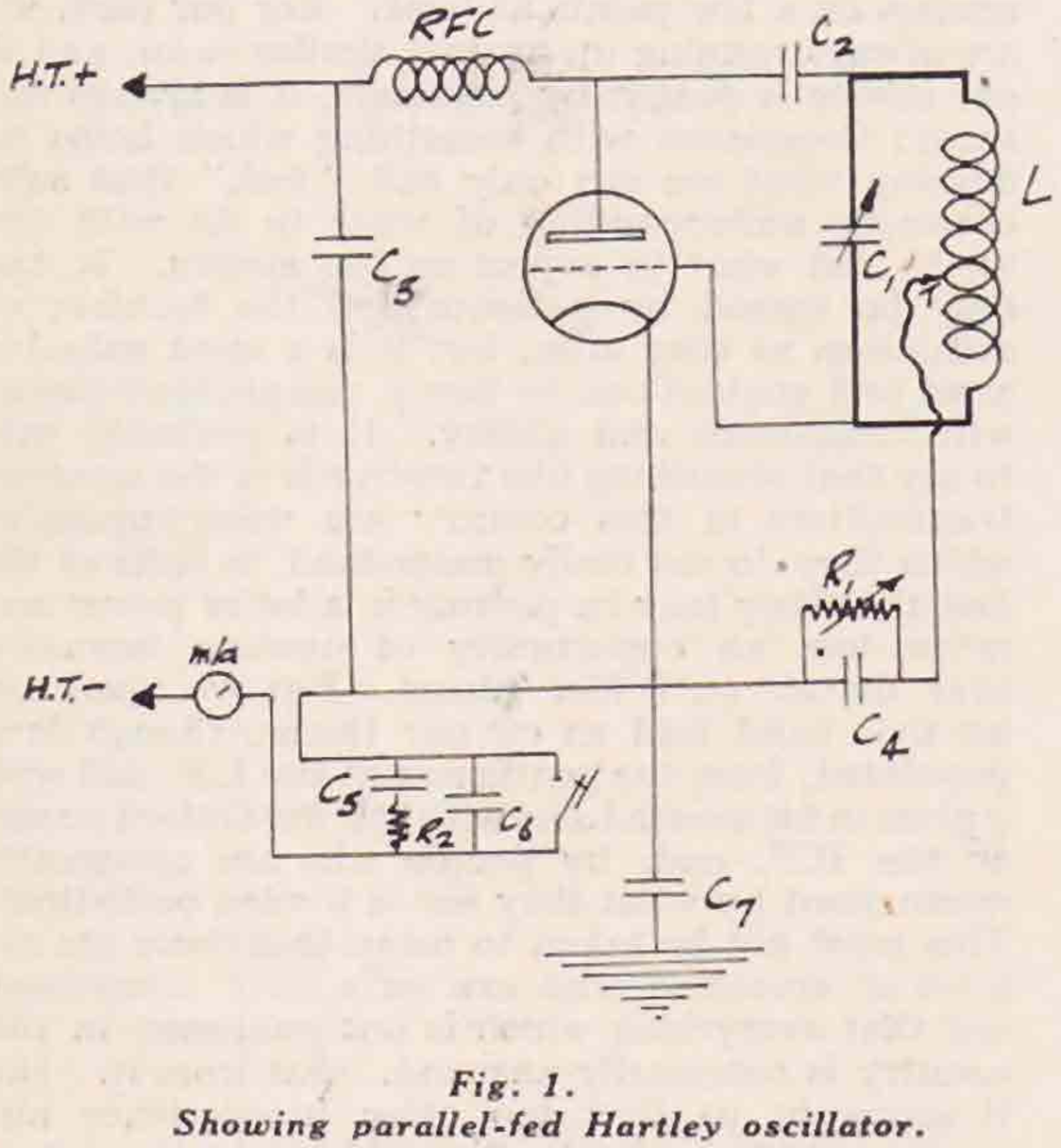


Fig. 1.

Showing parallel-fed Hartley oscillator.

L. For 1.7 Mc., 30 turns No. 14 enamelled, 3 in. diameter, spaced 3/16" between turns. R. V. Transmitting Inductances.
C1.—.0005 µfd., good receiving type.
C2, C4.—.002 µfd. mica (T.C.C., Dubilier) or paper (Epoch). C2 must be rated at twice the working plate voltage.
C3.—.0003 µfd., mica (T.C.C., Dubilier) or paper (Epoch).
C5.—0.1 µfd., mica (T.C.C., Dubilier) or paper (Epoch).
C6.—.005 µfd., mica (T.C.C., Dubilier) or paper (Epoch), to work at three times the plate voltage.
C7.—0.5 µfd. (T.C.C., Dubilier, Epoch). Not always necessary.
RFC.—Q.C.C., Raymart, Eddystone, etc. See text.
R1.—50,000-ohm variable resistor, Varley 3-watt type.
R2.—10,000-ohm 3-watt, Dubilier, Bulgin, etc.
M/a.—0-50 moving-coil dead-beat milliammeter. Ferranti, Bulgin.

The Hartley oscillator illustrated is easy to build and can be relied upon to give good R.F. output in relation to the input, particularly if it is first arranged for experiments on 1.7 Mc. Practically all the components will be available in the average amateur's spare parts supply, and anything which may have to be bought should be chosen with future requirements in mind. Either battery or mains working is possible, the circuit as drawn being applicable to battery or indirectly-heated mains valves. To complete Fig.1 for battery operation, it is only a matter of taking the other side of the filament to L.T. plus, L.T. minus from the accumulator going to the upper, or non-earthy, side of C7; any other convenient point between the key and the junction of C4 with R1 will do. With an indirectly-heated mains valve, the circuit is left just as it stands, the heater terminals being taken to a suitable L.T. supply.

In the case of directly-heated mains valves, however, a modification is necessary in the heater circuit, this being shown in Fig. 2. If the filament of such a valve is to be run from an L.T. accumulator, the circuit reverts to that of Fig. 1.

The tank circuit, shown in heavy lines, consists of the inductance and condenser L-C1, with values as given under the diagram for 1.7 Mc. operation. Since all the R.F. energy which can be usefully employed is generated in this circuit, it should be made as low-loss as possible. The coil can be mounted on a couple of stand-off insulators at one side of a baseboard 9" by 9", raised on runners 3" deep. C1 should be placed so that its connections to the coil are as short and direct as can be managed, these two particular leads being at least as heavy as the wire used for making the inductance. The rest of the parts can then be arranged such that the lay-out follows the circuit diagram, *i.e.*, working from right to left across the baseboard, there will be first the tank circuit, C1-L, then the valveholder placed so that there is enough room for the valve to clear the condenser, followed by the R.F. choke R.F.C. on the side remote from the tank. It is important that R.F.C. be well out of the field of C1-L. The other components can be mounted either on top of the baseboard or in the subspace, using No. 18 enamelled wire for connecting up, which should be insulated where it passes through to the sub-

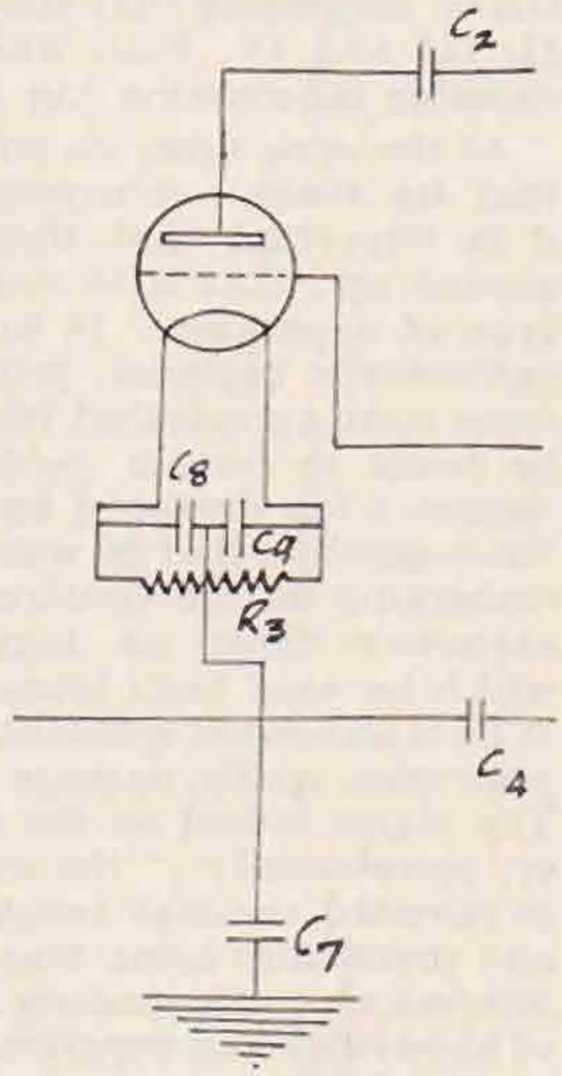


Fig. 2.

Filament arrangement for directly-heated mains valve. R3-50-ohm "humdinger" resistor, C8, C9-.01 µfd. All other connections and values as given for Fig. 1. The centre-tap of the filament transformer must be left open.

space. Terminals or jack plugs should be provided for H.T., L.T., key and meter leads, or the meter can be wired in and mounted on the baseboard ; place the variable grid-leak R1 so that it is within easy reach for adjustment.

As indicated by Fig. 1, a flexible lead is required for the tapping point T, this being taken from the junction between C4 and R1. The lead should have enough slack to enable it to traverse at least half the coil when working from the grid end ; a crocodile clip is the most convenient and obvious way to terminate it, but if the windings are too close together to avoid short circuiting between adjacent turns by the clip, the latter will either have to be flattened or small L-shaped pieces soldered on to the coil windings. The best way to overcome this annoyance is to make up a coil having something like 3/16″ spacing between turns.

Choosing a Valve

For either mains or battery working, any good L.F. triode of the power type, as used in the final stage of a receiver, can be worked at inputs of from 3 to 10 watts. The limit for battery valves in the P220 category is about five watts, corresponding mains valves usually being good for ten watts or so maximum input. We dealt with this question of valves in a previous article in the series, though no particular mention was made of triodes for use in self-excited oscillators. The point to grasp is that any L.F. triode in good working order can be satisfactorily used in this circuit provided it is not grossly abused by being heavily over-run. It happens that practically all British valves will stand considerable over-running, but it has to be done with understanding, because there are ways in which an over-loaded valve—from the point of view of maker's ratings—will be damaged, whereas under certain conditions it is possible to exceed even this input without harming the valve in any way.

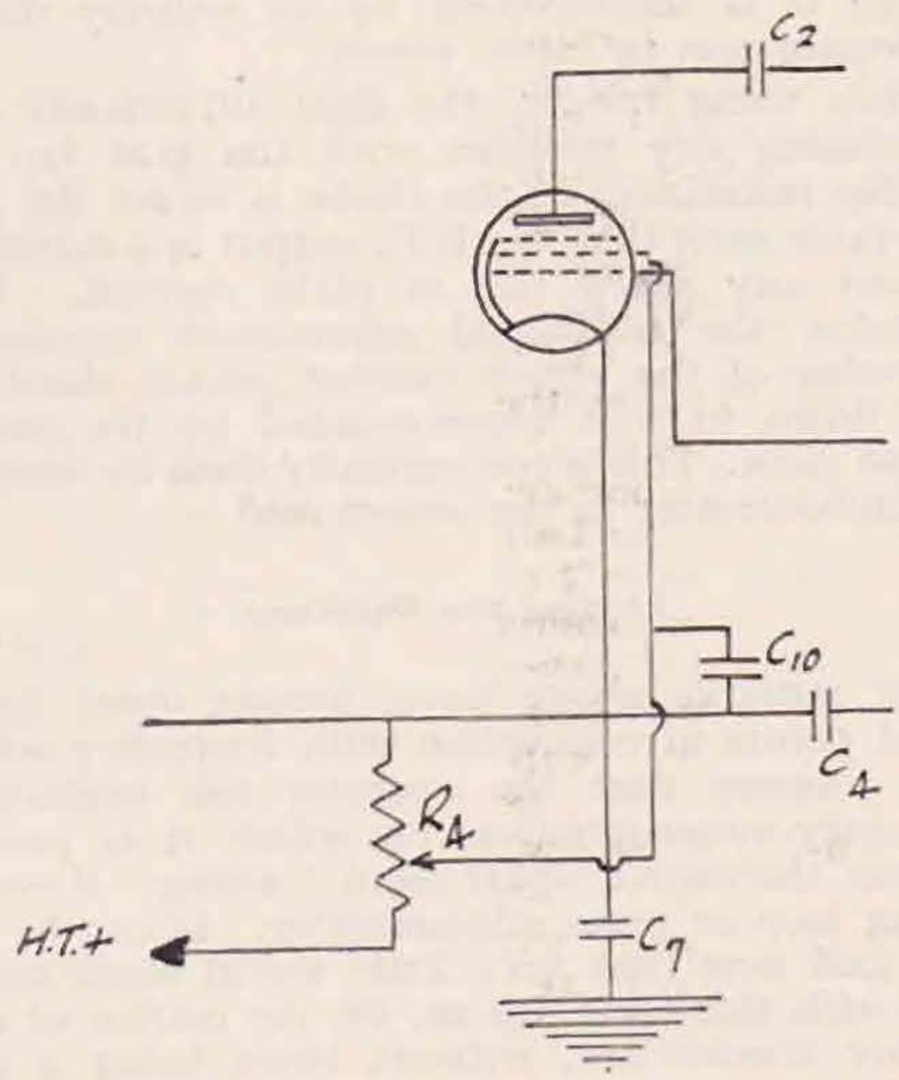


Fig. 3.

Using an L.F. pentode in the circuit of Fig. 1. R4-30,000-ohm 10-watt Varley variable resistor, C10-.002 μfd. mica by-pass condenser. All other connections and values as given for Fig. 1.

Where there happens to be no triode of the type mentioned available and a purchase is contemplated, it is better not to buy one unless there will be some use for it later. This sounds something of a contradiction, but is really a question of economy because if a valve has to be bought, one might just as well have something which can be usefully employed afterwards as, say, a modulator. In the previous article already mentioned, several good triodes were suggested as modulators, any of which would be suitable as an oscillator in this circuit, even if operated at a comparatively low plate voltage. While the R.F. output would not be very great, it would be enough to follow the workings of the transmitter, which is what we are concerned with at the moment.

If there are no triodes handy, it is likely that one of the L.F. pentodes, such as the AC2/Pen. or MPT4, will be in stock and doing nothing. Valves of this type can also be used very successfully, though the circuit will have to be modified to the form given in Fig. 3. The question of employing an L.F. pentode raises another point, in that they are always useful in transmitting work for a variety of purposes. As a triode modulator for choke control is quite a big valve and fairly expensive, where economy is an important consideration, a *Mazda* AC2/Pen or *Hivac* AC/Y would be a better proposition, since it is not only suitable for a Hartley oscillator, but would also have very definite applications later.

Where the mains connection is D.C., the *Ostar-Ganz* range are worth considering, since they have high-voltage heaters which work direct from the D.C. (or A.C.) supply, eliminating any need for separate L.T. or heater windings on the power transformer. The connections when using an *Ostar-Ganz* M43 pentode with D.C. mains are given in Fig. 4.

Tuning and Adjustment

Having, as we hope, satisfactorily settled the question of valves, the next point is to set the oscillator going. Depending on the valve used and the type of supply available, an H.T. voltage of something between 100 and 500 volts can be employed, but in general it is better not to exceed 200 volts with battery valves, 300 with the ordinary mains types, going up to 500 volts only with a valve like the DO24 or " 362 " PX24. In any case, it is advisable to have some means of reducing the plate voltage to half or even less for the initial adjustments.

With the valve lit and H.T. off (key up) the grid tap should be set so that it is about one-third the way up the tank coil from the grid end. Then, with reduced H.T., press the key and watch the meter while swinging the tank condenser C1 from maximum towards minimum. Various things will probably happen during this operation. First, the meter reading may be quite high, say 30 mA or more with a battery valve and 100 volts H,T. With mains valves, the readings might be higher still. As C1 is varied, note whether there is any tendency for dips or flicks of the meter needle. If so, stop moving the condenser at one of these, and test for R.F. output, which will show as a glow in the tuning lamp ; in case anyone wants to know what this is, it consists of a flash-lamp bulb-holder with a single turn of wire, approximately equal to the diameter

of the tank coil, connected across the holder. This should be mounted on a wood or ebonite handle so that the loop can be coupled to the tank coil without any danger of shock or burns ; it is also advisable to use insulated wire for the loop and one of those almost-insulated bakelite holders, into which a low-consumption bulb is screwed.

As has been said, R.F. output will show as a glow in this bulb, or tuning lamp, and once having obtained that, the oscillator can be adjusted for maximum output and correct operation. The latter occurs when the plate current reading is a minimum, say something between 5 and 15 mA, this minimum reading holding constant or nearly so as C1 is varied from full capacity right out.

If no indication of R.F. output can be obtained at any setting of C1 with the tap on the original point, leave the condenser about half-mesh and then vary the position of the tap till the meter needle starts falling back. When this happens, it will be found that as the plate current drops, so the R.F. output shown by the tuning lamp will increase. A word of warning is very necessary here. *Never remove the grid tap with the H.T. on.* The reason for this has nothing to do with the possibility of shock, though that is an obvious danger, so much as the certainty of doing serious damage to the valve. When the grid tap is removed, the bias obtained through R1 automatically fails, with the result that the valve experiences a sudden surge of plate current up to the limit of the filament emission and the meter needle wraps itself round the back stop. The correct sequence of tap adjustment is therefore : Key up, tap on, key down, read meter, key up, change tap, and so on till minimum plate current reading is obtained.

During these preliminary adjustments, the variable grid-leak can be left set at about half scale, to 25,000 ohms.

Though it may be possible without much trouble to get minimum plate current and a good degree of R.F. from the oscillator with C1 at some fixed setting, the difficulties usually start when the tank condenser is moved to some other value. If the oscillator is working properly and all components are as they should be, variation of C1 from maximum to minimum ought not to result in a change of plate current of more than a few per cent. either way. If sharp dips or high peaks occur, with a triode valve the reason is nearly always that the R.F. choke R.F.C. is resonating at different frequencies within the range of the condenser. And the worst resonance effect is certain to be on the desired working frequency ! This oscillator forms a convenient means of testing R.F. chokes, since for the high frequency bands it is only a matter of winding a suitable tank coil for L. and then carrying out the adjustments along the lines described. For instance, if the chokes in use in the " standard " 7 Mc. transmitter are suspect, they should be inserted in turn at R.F.C. and the tank condenser C1 varied such that the 7 Mc. band, and a few hundred kc. either side of it, covered by the tuning. If, after setting the grid tap, the plate meter needle remains stationary through a range 6,800 to 7,500 kc. or thereabouts, the choke can be regarded as satisfactory. It is too much to expect that any choke, however well advertised, will not show resonance peaks somewhere in the range over which it is supposed to have a constant impedance. But so long as these peaks do not occur too near the various bands on which maximum efficiency is required, it can be passed as sound. Resonances between chokes in the same transmitter can be checked in a similar way. If the grid and plate chokes both show resonance peaks at the same setting on the oscillator tuning dial there is an obvious danger of self-oscillation occurring on a frequency different from that to which the set may be tuned. This can usually be overcome either by by-passing the chokes—from the low-potential end to ground—with different values of fixed condenser, or by putting two dissimilar ones in series.

Getting back to our Hartley, the latter expedient is nearly always the cure for resonance peaks, which are in many cases more troublesome on 1.7 Mc. than any other band. The reason for this is that most commercial R.F. chokes are so designed that they cannot be effective round frequencies of 1,800 kc. or so ; this does not apply in every case, of course, as the makers always state the frequency range over which the choke should be used. On 1.7 Mc., therefore, it is always a good plan—as a matter of general practice and not only in this circuit—to put a standard short-wave and an ordinary broadcast choke in series. Such a combination should show no pronounced peaking as the frequency is varied from 1,700 to 2,000 kc.

When using pentodes, a secondary effect sometimes appears which has nothing to do with resonance peaks in the choke. This is due to incorrect setting of the screen in relation to the plate voltage, and is the reason why the former should always have a variable control. The peaking effect occurs in the same way as far as the plate milliammeter is concerned, but is detected in the tuning loop as a sharp diminution in R.F. output ; whereas, with choke resonances, R.F. output sometimes increases, though it is accompanied by an entirely disproportionate rise in input power.

When using triodes, the final adjustment after overcoming any troubles with the grid tap and possible resonances in the choke is to set the grid-leak value such that the R.F. output is a maximum without any sharp rise in plate current. With pentodes, the additional adjustment required is the value of the screen current, which should be kept down to that recommended by the makers and no more. This is conveniently done by inserting the milliammeter in the screen lead.

Loading the Oscillator

Our remarks above have, among other things, raised points in connection with frequency *setting*. This assumes that the operator has available a frequency-meter-monitor, on which it is possible to hear the signal, apart from " seeing " it on the tuning loop or plate milliammeter. It can be said here and now that very little useful work can be done with this oscillator or, for the matter of that, on any transmitter, without there being a good monitor on which the signal can be checked for quality and stability. Earlier articles in this series covered practical points about frequency meters and monitoring, so that we shall not discuss them further here.

Having made sure the frequency is in the band by means of an absorbtion wavemeter, get the signal on tune in the monitor. It should be clean and quite steady, particularly if battery or D.C. mains supplies are used. There should be no lag or chirp on keying, and if the key produces noise and splashes on the signal, alter the constants of the filter network C5, R2, C6. This network can never be accurately specified, because it is bound up with keying speed, key gap, and H.T. voltage regulation, which must vary widely in different cases. The only thing to do is to start with the values suggested and vary them up and down till clean keying is obtained without sparking at the contacts. This is not very easy, incidentally, but is extremely instructive.

If chirp persists irrespective of key-filter values though without thumps being audible in the monitor, alter the setting of the grid tap a turn or two either side of the optimum point as indicated on the plate meter. This may cause a slight rise in the minimum reading, but is often necessary to get a clean signal.

All self-excited oscillators are necessarily affected by mechanical vibration, due to jarring of the bench or table on which the set rests, the shaking of the house by passing traffic, and so forth. This difficulty can easily be overcome by mounting the baseboard on a few thick wads of sponge-rubber and using loose, flexible leads for connecting up the supplies and key.

With an A.C.-operated oscillator, the note often sounds "furry" due to bad adjustment of the centre-tap resistor R3 across the heater terminals where directly-heated valves are used, and to A.C. coupling where the valve is indirectly heated. In the former case, it is a matter of varying the slider while listening to the signal till a clean note is obtained, while in the latter it may be necessary to by-pass the heater terminals to ground through .01 μf. condensers. Both these suggestions assume a smooth, well-regulated power supply on the H.T. side. Large condensers across both input and output sides of the smoothing choke often improve the quality of the H.T. considerably.

The simplest way to load the oscillator is to use a loose-coupled circuit similar to the ordinary "artificial aerial," as described and illustrated on pp. 121-123 of the new "*Guide*." In the circuit Fig. 1 on the first of these pages, a hot-wire aerial ammeter reading to 1 amp. or a six-watt motor sidelamp bulb can be inserted in series with R to give a visual indication of what is happening in the load circuit. As a matter of fact, all sorts of interesting things happen. As shown in Fig. 5, three different methods of coupling can be used, and each will require adjusting in a different way to obtain the same degree of glow in the bulb, or equal deflections on the hot-wire meter.

Coupling A.—*Inductive.*—It is as well to arrange matters so that the degree of coupling between the oscillator and the load can be varied. This is best done by extending on the anode side of the oscillator tank coil a pair of wooden "rails" on which the artificial aerial coil can be moved up and down; the latter is connected by heavy flexible leads to its variable condenser, mounted on a board together with the rest of the A.A. circuit. The first point which will be noticed is that as the coupling is increased and the A.A. brought near resonance, the tune of the oscillator will be affected. This can be detected by listening to the signal on the monitor, which for all these tests should be in continuous operation. The aim of the whole adjustment is to obtain maximum glow in the bulb—or the greatest possible deflection of the ammeter needle in the A.A. circuit—together with a pure and steady note and minimum plate current reading. There are, therefore, three variables involved: The coupling between the coils, the setting of the oscillator tuning condenser and the tune of the A.A. circuit. With the coupling fixed at, say, 3 ins., the A.A. circuit should be brought into or near resonance, indicated by a rise in plate current to the oscillator and a glow in the A.A. bulb or a deflection on its meter. While listening on the monitor, the frequency of the signal will be heard to change; it can be brought back by adjustment of C1, which will involve a further variation of the A.A. tuning condenser to keep up the same R.F. indication in that circuit. As the A.A. is brought nearer and nearer to dead resonance, the circuits will react on one another more and more, till it will only require a slight touch on either tuning condenser to affect the R.F. in the A.A., the frequency of the signal, and the plate current reading at resonance. With regard to the latter, let us suppose that the reading for minimum plate current with the oscillator *unloaded* is 7 mA at the desired frequency. Having gone through all the tuning adjustments described above and arriving at the point where the oscillator is loaded, it will be found that the plate current reading has risen to, say, 22 mA. If the plate voltage is 250v., the power input to the oscillator is 5.5 watts—250 times 22 divided by 1,000.

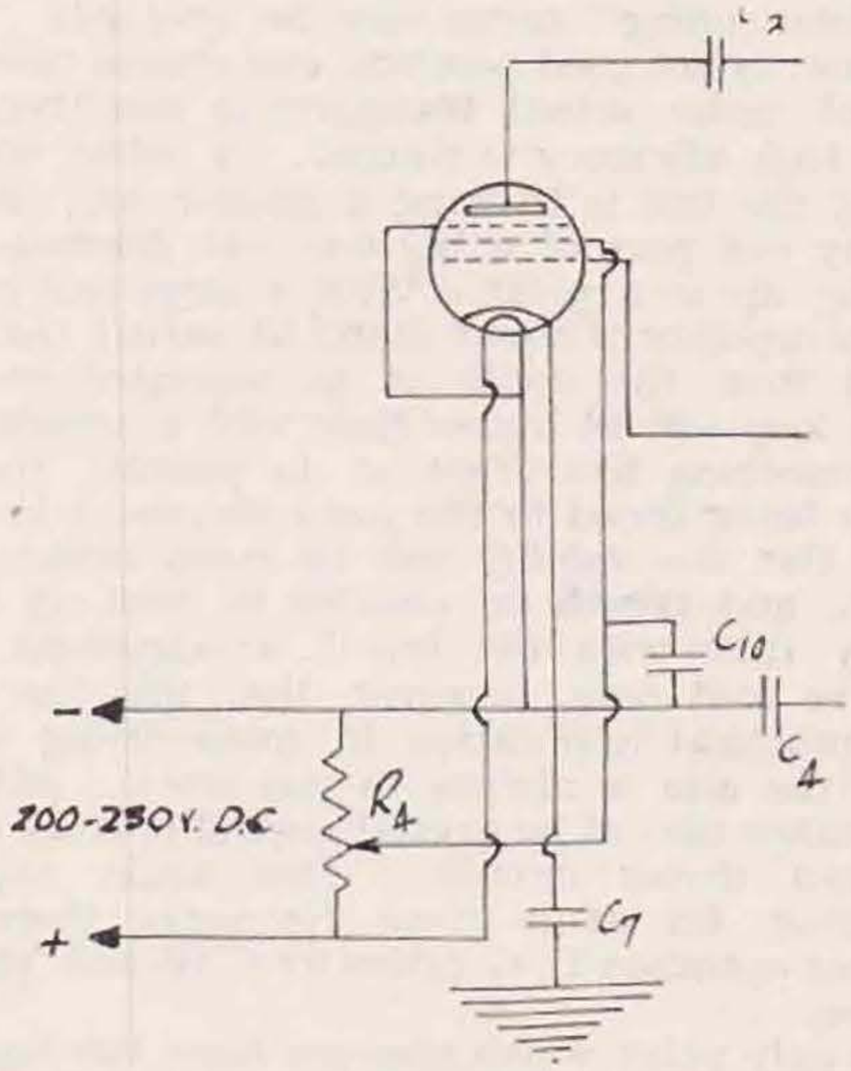


Fig. 4.

Arrangement for Ostar-Ganz M.43 pentode, using D.C. mains. All other connections and values as previously given. The condenser C7 is essential in this circuit.

The next step is to listen to the signal as it is keyed. If the oscillator is properly adjusted and loaded, the note should be clean and sharp. Chirpiness may be due to the several causes already mentioned earlier, or to too heavy a load on the oscillator. If the latter, the remedy is to back off the coupling and re-tune, carrying this on till the note sounds really good. On the other hand, the original coupling chosen may be on the light side, in which case the coupling can be increased so long as the note remains C.C. in character. It will not be possible to carry this very far, as a matter of fact, because a self-excited oscillator will not load up heavily and yet give a clean, sharp signal.

There are still several other experiments which are worth trying. Get back to the original loading and screw down the key, since this one has nothing to do with the quality of the signal. Then go on increasing the coupling, keeping both circuits tuned to dead resonance and the signal at the same frequency. A point will soon be reached where, though the plate current is increasing rapidly, indicating a much greater input, the R.F. in the A.A. circuit is falling off. This is a most instructive example of over-loading due to too tight a coupling, and is commonly encountered in all types of transmitter, crystal control or otherwise. The R.F. output from the oscillator is killed by the heavy load, due to the " flywheel effect " in its tank circuit slowing down. Putting this another way, too heavy a load on the oscillator or on the P.A. stage of a C.C. transmitter is analogous to trying to force a car up a steep hill in top gear. The revs. fall off, and though the throttle is wide open, the engine develops less and less power.

A second experiment is to vary the L.-C. ratio of the oscillator tank circuit, nothing the effect on R.F. output and stability. This involves altering the size of the coil, which in this case can be done by " dead-ending " turns from the grid side. This, of course, is not good practice, and should never be adopted under actual transmitting conditions or where high efficiency is wanted. A better way of making the test is to wind a smaller coil, though shorting out part of a big one will illustrate our meaning up to a point. With a large coil and a parallel capacity of about .00015 μf. actual, the R.F. output from the oscillator as indicated on the tuning loop will be higher than with a smaller coil and something like .0004 μf. in parallel, the oscillator being tuned to the same frequency in each case. But the *stability* will be much better with high-C., and it will be possible to load up more heavily than with the low-C. arrangement. It must be said here, however, that this has very little practical application in transmitting work, where the aim is always to use low-C., stability being taken care of by crystal control or some other stabilised driver circuit. This again requires qualifying, for at a given frequency there are different optimum L.-C. ratios for C.W. and 'phone-working.

The only point which emerges from this high-C., low-C. experiment is that when using a self-excited oscillator on 1.7 Mc. for actual transmission, a high-C. tank circuit with something like .0004 μf. actual capacity is desirable in the interests of C.W. stability and easy modulation.

Coupling B.—*Capacity*.—In this arrangement, energy is transferred from the oscillator to the A.A circuit *via* the coupling condenser C.c., introducing an additional variable. The A.A. coil should be placed at right angles to the oscillator tank coil, and about a foot or so away, so as to prevent any inductive effect taking place between them. All the tests and adjustments already described under " Coupling A " can likewise be carried out with this circuit, the degree of coupling being varied by alteration of C.c. A further interesting experiment is to take the A.A. circuit on its baseboard further and further away, so that the lead from the oscillator has to be made progressively longer. There will be a notable reduction in transfer of energy as this lead is increased, and the result of capacity between it and ground can be tested, as well as the inductive effect of long leads at high frequencies. The main point which comes from this experiment is that when using capacity coupling, the leads must be kept as short as possible. This result is even more marked as the frequency is increased, and with the oscillator on 14 Mc., it would probably not be possible to get any transfer at all with a lead two or three feet long between tank circuit and A.A. The experiment can also be worked the other way : Bring the A.A. coil as near as possible to the oscillator, but screen them so that inductive coupling is a minimum. Then introduce the capacity C.c., and it will be found that transfer efficiency will be nearly as good as with inductive coupling.

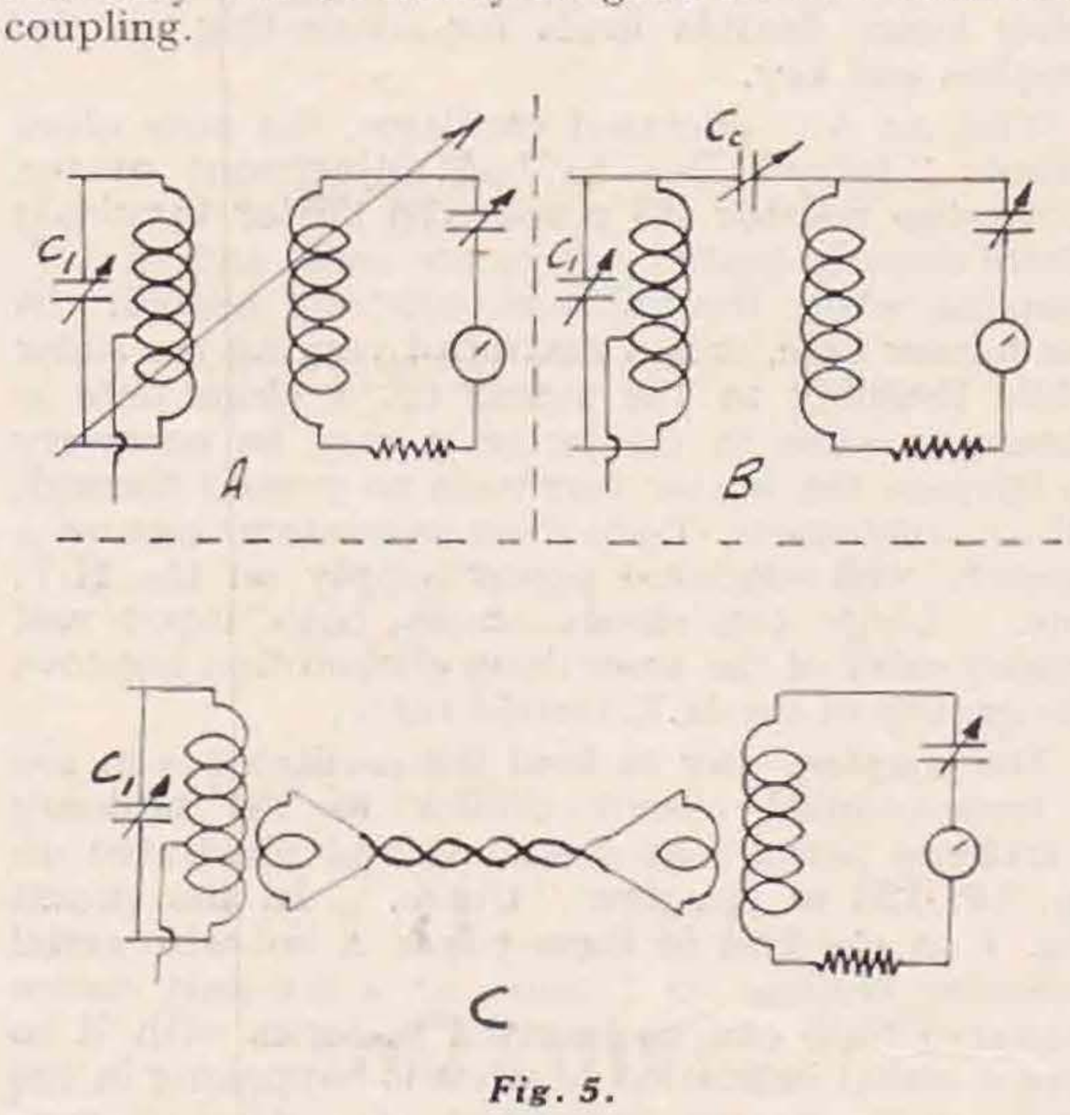


Fig. 5.

Showing three methods of coupling an A.A load, fully discussed in the text. The left-hand section in each diagram represents the tank of the Hartley oscillator, and the right-hand side an artificial load. (See p. 121 of the new " Guide ".) The A.A inductance can be the same size as the Hartley tank coil, on each band.

Coupling C.—*Link*.—This is probably the most interesting in its effects, and after handling the two methods already described, the results are surprising. The links should be made by winding about 10 per cent. of the total number of turns in each coil over a sleeve which can slide on the inductance. If there are 25 turns in the oscillator tank coil, three turns of insulated wire on a celluloid strip 1 in. wide can be used for the link on that side, with the same coupling to the A.A. tuning

coil. The two should be connected together by a length of ordinary flex. Parallel feeders and flat-twin cable are also recommended, but in practice flex is the easiest to install and manage, particularly in an experimental lay-out such as this.

Coupling between the two circuits can be varied by sliding the links up and down the coils, and an optimum point will be found for the position of each. In comparison with capacity coupling, it will be found that the length of the flex lead between the two circuits will have little or no effect on transfer efficiency. A good way to prove this is first to tune up with the coupling lead about a foot long, and then, without touching any of the adjustments, take the A.A. circuit over to the other side of the room. Connect up the necessary length of flex—it might be twenty feet or more—and switch on. It will be found that the indications will have changed very little, if at all, and any loss or mis-tuning can be made up by a slight re-adjustment. A long link will naturally have some capacity to ground, and it is only this which will alter the tuning.

Link coupling undoubtedly offers tremendous advantages over all other methods, especially on the high frequencies and where circuits which are some distance apart physically have to be brought into electrical contact. A case in point is the coupling between the PA. stage of a transmitter and its aerial tuning network. Due to the disposition of the aerial or feeder termination, it may be necessary to have the transmitting gear on one side of the room and insert the aerial tuning panel at the other, or even somewhere else in the house, to take an extreme example. Link coupling between the two will be entirely satisfactory, though this sort of thing should not be carried too far, as capacity to ground has to be considered. This could in any case be minimised by running the line on long stand-off insulators.

We feel that those readers who may take the time and trouble to build this oscillator and go systematically through the experiments suggested will be well rewarded for their patience, whether they be recently-licensed A.A. men or active transmitters. The whole process can be taken several stages further by setting up the oscillator on each band in turn—our remarks having dealt largely with 1.7 Mc., as being the most convenient and the easiest on which to get results—and noting all the effects.

This will not only give many weeks of useful and instructive work, but we guarantee that the nett result will be a clearer understanding of many things which may now seem difficult and obscure, so putting the beginner well on the way to developing "feel" and the confidence to manage the transmitter he hopes eventually to have on the air.

Trade Notes

At the conclusion of Mr. J. N. Walker's article dealing with his new 50 watt 56 Mc. c.c. transmitter published in our last issue, mention was made of the fact that a low capacity, split stator condenser of a type not ordinarily available was urgently required. The author went on to say that *Messrs. Stratton's* had offered to produce such a condenser.

We are glad to inform members that the Eddystone Type 1087 Condenser has now made its appearance in answer to Mr. Walker's appeal. It is in every way a fine piece of work. Its main features are solid brass construction, Frequentite insulation, max. working voltage 2750v D.C., spacing between stator and rotor plates 5/16", weight 14½ ozs. The capacity of each section is 6-27 μμF. In parallel the two sections have a min. capacity of 12 and a max. capacity of 54 μμF. In series the figures are 1 and 10.5 μμF respectively. The overall length from end of spindle to back clamp is 6".

This condenser is the finest British condenser of its type so far examined. Big sales seem assured. The price is 15s.

Stratton's have also produced a neutralising condenser (Type 1088) especially suitable for ultra-high frequency circuits employing low-capacity triodes. The condenser, formed by two suitably spaced 1½" circular brass discs is mounted on a Frequentite pillar about 3" high. The capacity, which varies from 1 to 8 μμF, is adjusted by opening or closing the air gap between the discs by means of a threaded screw operated by an ebonite handle. Connecting tags are fitted at the base of a Frequentite supporting bracket. The max. working voltage is 2000 v. D.C. The price is 6s. 6d.

Two new Eddystone Control knobs have also made their appearance. The first, Type 1086, has a diameter of 1⅜", and is fitted with a single grub screw. The other, Type 1089, is an instrument type knob of similar diameter but fitted with two grub screws and brass insert. The 1086 is listed at 9d. and the 1089 at 1s. 3d. Both knobs are of the 8-sided bakelite type facilitating ease of operation.

Central Radio and Television, Ltd., who have recently removed to 53, Lancing Road, Newbury Park, Essex, are now distributing the well-known American-made Johnson products.

Samples of transmitting valve sockets, stand-off insulators and through panel insulators have been examined, and, as would be expected, the quality is of the highest order.

The small stand-off insulators are made of white porcelain and arranged for two-hole fixing. The following sizes are stocked :—1 in. at 4d., 1⅝ ins. at 6d. In addition a 3-in. unbreakable base type of stand-off is available, price 1s. 3d.

The white porcelain through panel insulators are stocked in the following sizes :—1 in. at 7d., 1½ ins. at 10d., and 1¾ ins. at 1s.

The Alsimag transmitting valve sockets, which are made in 4-pin, 6-pin and Octal sizes, sell at 1s. 9d. each. The Octal type is numbered on the base to facilitate ease in wiring. Elongated fixing holes permit latitude in mounting, an advantage if the holes in the chassis vary slightly.

BOOK REVIEWS

THE RADIO AMATEUR'S HANDBOOK. Fifteenth (1938) Edition. By the A.R.R.L. Headquarters Staff. 564 pages profusely illustrated with diagrams, photographs and charts. Published by the A.R.R.L., West Hartford, Conn., U.S.A. Price $1.00 in U.S.A. and $1.25 elsewhere. Obtainable from the R.S.G.B. Sales Department, 5s. 6d. to members, 6s. to non-members, post free in both cases.

There is no need to draw attention to a book which has run to 450,000 copies and 24 printings. But as a new edition of the Handbook is now considered almost as necessary as a licence, and perhaps in misguided cases more so, the writer's problem is to compare the new issue with the last and comment, usefully it is hoped, on any changes which have been made.

The Handbook contains the " facts without the fancies " in that the circuits and practices are well tried and no freak or semi-experimental technique appears. It therefore deals only with sound practice, and there is plenty of that.

This edition has had extensive re-writing and 100 new illustrations have been added. The chapter arrangement has been altered somewhat as new chapters have been added and others modified.

The early section on principles has been divided into two parts: the first deals with the very elementary theory and is written by a contributor who is a specialist in teaching this subject; the second part is more advanced and is written by Mr. J. J. Lamb. The more elementary chapter is sure to be a great help to beginners and is particularly good on units; there is a useful list of circuit diagram symbols.

A new chapter on workshop practice deals with the working of sheet metals, coil winding, layout of work benches and operating tables, construction of transmitter racks, neuting condensers, Faraday shields, baffle boards, feeder spreaders, etc.

The theory and construction of receivers is now covered in a single chapter but occupies about the same space. This enables the practice to be considered immediately after the design and permits the reader to correlate the two without the disturbance of having to search through another chapter. The same change has been made with the treatment of theory and construction of transmitters, and, again, with radiotelephony. This is very definitely a change which will be welcomed. The two-valve coil-switching receiver will attract attention.

In the Ultra-short-wave transmitter section considerably more data have been given about crystal-control of these frequencies, and several transmitters described.

Half-wave loops, V aerials and rhombic aerials are given generous treatment in the aerial chapter, and much design detail such as formulæ and charts are supplied for the rhombic types. The directivity charts for ordinary horizontal aerials will demand, but repay, a spot of concentration.

The section on Power Supply now contains a handy full-wave rectifier and filter chart. The large chart of design data for iron-cored chokes has been " sent down " to the Appendix for some reason.

A new chapter is added to cover emergency and portable equipment, dealing with batteries and service hours, vibrator transformers, simple emergency and portable transmitters, and aerial couplings suitable for this work.

The question of masts is given very meagre consideration : only one page and two illustrations. How many amateurs know how to make a proper concrete foundation, for example ?

In the interests of standardisation it would seem advisable to include the word-list adopted for radiotelephone procedure by the Washington Convention, as well as the Western Union list given in the Handbook, especially as international amateur 'phone work is now an everyday event.

The appearance of the Handbook has been enhanced by several changes. The chapter titles are printed in a most attractive script type, and the titles of sub-sections use a large heavy type face which is easily read when searching for some particular section. The page numbers are just under ½ in. high and the chapter number is printed in words beside each page number. The latter innovation is a happy one, and in the writer's review of the 1936 edition he welcomed the large page numbers, but he has a definite feeling that saturation point in this direction has been reached ; already the page numbers tend to obtrude when one is reading the text.

So once again the A.R.R.L. Staff have surprised us by improving on what was already a splendid job, and again amateur radio is indebted to them.

T. P. A.

BUILDING AN AMATEUR RADIOTELEPHONE TRANSMITTER. 27 pages and 25 illustrations. Published by the A.R.R.L. Price 25c.

This booklet in the familiar format of " QST " is obviously meant for the tyro, and gives a simple and brief survey of the principles of telephony before explaining the construction of a breadboard-type transmitter, a chassis-type modulator unit using 6L6's in Class A, and a power-pack. The input to the final stage is 30 watts, easily modulated by 6L6's without using Class B.

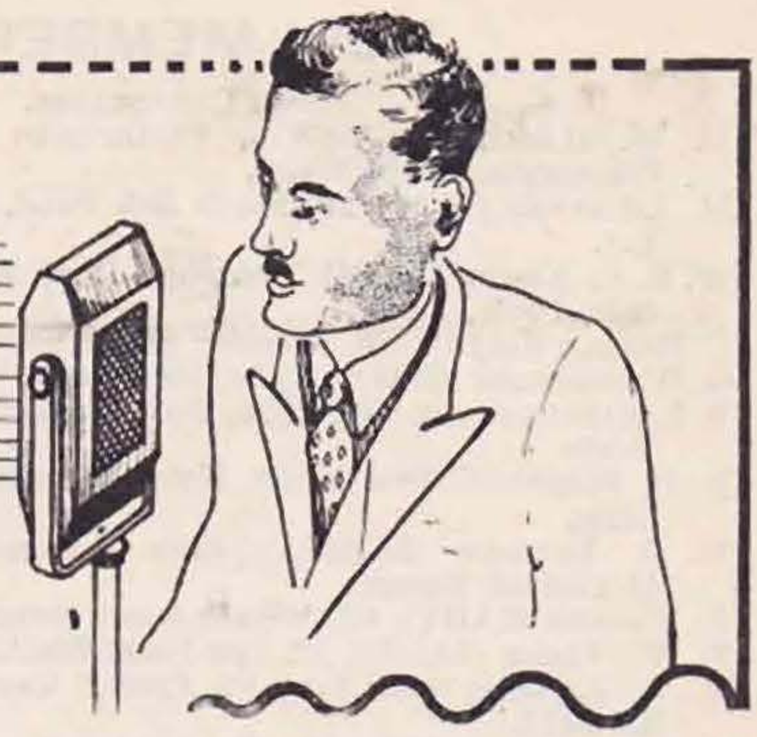
The radio-frequency end consists of a '41 CO, using the pentode connection, and this drives either a '41 connected as a triode for doubling or a triode '41 connected as a neutralised amplifier-doubler. The final stage is two '42 valves in push-pull connected as triodes. It is thus possible to work on the fourth harmonic of the crystal.

The booklet opens with " a mild word of discouragement." It is such sound common-sense that it should be printed in heavy type : " Don't *start* with telephony." " The heart of any 'phone transmitter is a first-rate telegraph transmitter. The background for the technical ability to operate a 'phone transmitter is a year's experience in radiotelegraphy alone."

Full constructional details are given, and the booklet should prove of interest to the beginner.

T. P. A.

HEADQUARTERS CALLING



I.E.E. Meeting

At the January meeting our new President, Mr. Arthur Watts, will be installed. It is hoped that all London members will attend on this occasion to welcome his return to the presidential chair and also to wish him " bon voyage " on his impending journey as our representative to the Cairo Conference.

Mr. D. W. Heightman (G6DH), holder of the Powditch Transmitting Trophy, will then deliver his lecture on the subject of " Recent Observations on the 28 and 56 Mc. Amateur Bands."

The meeting will commence at 6.45 p.m., being preceded by tea, which will be served free of charge from 6 p.m. The I.E.E. will be open from 5 p.m. for informal discussions.

The subject of Mr. Heightman's lecture is one of very great importance at the present time.

Book the date now: Friday, January 28, 6.45 p.m., at the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, W.C.2.

Appreciations

The Secretary and his staff wish to thank all members at home and abroad who sent Christmas and New Year greetings. These expressions of good will were very much appreciated.

"Radio Digest" and "Radio"

Arrangements have been made with the publishers whereby subscriptions for the bi-monthly publication *Radio Digest* can be accepted by Headquarters at the rate of 7s. 6d. for six, or 12s. 6d. for twelve issues.

Radio Digest contains reprints of the more important technical articles published in world's radio Press.

Arrangements have also been made to accept subscriptions to *Radio*, the American monthly publication, at the rate of 14s. 6d. per annum.

Sales Dept. Notices

Our first large consignment of Winter Call Books has been sold out, but a new delivery is expected shortly. G8 calls are included up to the letter W, but there has been insufficient time to include the first of the new G3 calls.

Over 100 copies of the 1938 Edition of the A.R.R.L. Handbook were sold within a few days of receipt. A new consignment is *en route* and will probably be available by the time this issue appears. To be sure of your copy order at once.

The 1938 edition of the Jones " Radio " Handbook is available, price 6/6 post free to members, (7/- post free to non-members).

Full stocks of Hints and Kinks and Calculators are available for immediate delivery, as are *Webb's Radio* Maps and Globes.

To meet a demand we are pleased to announce that a new brooch type of R.S.G.B. emblem is now available, price 1s. 6d. each post free.

Old Timers' Dinner

The Old Timers' Dinner will take place at the Florence Restaurant, Rupert Street, on Saturday, January 22, commencing at 7 p.m.

The chair will be taken by Past-President Gerald Marcuse, G2NM, who will be supported by Past-Presidents Sir Ian Fraser, Bevan Swift, Arthur Watts and E. D. Ostermeyer. Among other " old timers " who hope to attend we have pleasure in mentioning the names of our distinguished vice-presidents, Messrs. Leslie McMichael, Rene Klein and P. P. Eckersley.

The 80 members who have signified their intention to be present have been advised by post of the arrangements. Those who have failed to inform the Secretary that they wish to attend are asked to do so immediately.

Informal dress will be worn and the price of tickets is 7s. 6d.

QSL's for K6 and K7

Arrangements have been made to forward cards direct to the A.R.R.L. QSL Managers controlling the Bureaux in Hawaii and Alaska. Headquarters are now in a position to accept listener reports addressed to amateur stations in the above areas.

NEW MEMBERS.

HOME CORPORATES.

L. W. HANCOCK (GW2XZ), Penturnpike Road, Dinas Powis, Glamorgan, South Wales.
H. J. CARTER (G3AI), 29, South Esk Road, Forest Gate, London, E.7.
W. E. C. KNOTT (G3BM), Henning's Dene, Dorchester Road, Oakdale, Poole, Dorset.
C. HINDLE (G8JA), 308, Wensley Street, Blackburn, Lancs.
G. WHITEHOUSE (G8WA), 2, Taunton Road, West Bridgford, Notts.
F. E. STALLWORTHY (G8WS), 3, Farwell Road, Rawdon, Near Leeds, Yorks.
E. H. ROBINS (GW8WU), 58, Kyle Crescent, Whitchurch, Cardiff, Glam.
D. G. RUMARY (2AHR), "Cave Cottage," Alexandra Road, Heathfield, Sussex.
F. WALTON (2AHV), 62, Walter Road, Swansea, Glamorgan.
W. W. TABER (2AKK), 12, Lee Park, Blackheath, London, S.E.3.
R. W. ASCOMBE (2AKT), "Fir Croft," Cavendish Avenue, Dore, Sheffield.
G. WHITESIDE (2AQI), 11, New Market Street, Blackburn, Lancs.
L. M. JONES (2AQJ), 4, Cranley Drive, Ruislip, Middlesex.
G. H. SMITH (2ASO), Goshen Villa, Saints Road, St. Martin's, Guernsey, C.I.
R. A. AMEY (2BAY), 2, York Street, Gosport, Hants.
J. P. SAYWOOD (2BIG), The Hawthorns, Wentbridge, Pontefract, Yorks.
R. J. WARD (2BSW), 110, Cob Lane, Bournville, Birmingham, Warwicks.
J. PATTON (2CDD), 63, Belvoir Street, Belfast, Northern Ireland.
J. NELSON, JUN. (2CGK), 16, Accrington Road, Blackburn, Lancs.
S. WILKINSON (2CNG), The Bungalow, Bentham, Lancaster.
P. W. J. GAMMON (2COW), "Sunnyside," Fernhurst, Haslemere, Surrey.
J. R. HUGGON (2CWH), 168, Dalston Road, Carlisle, Cumberland.
E. W. O. VINCENT (BRS3132), 46, Cavendish Avenue, Cambridge.
J. C. WILKINSON (BRS3133), 69, Whalley Road, Clayton-le-Moors, Lancs.
W. GRIMBALDESTON (BRS3134), 13, Marlton Road, Blackburn, Lancs.
F. BURY (BRS3135), 99, Blackburn Road, Darwen, Lancs.
L. E. ILLINGWORTH (BRS3136), 25, Bay Street, Blackburn, Lancs.
H. R. DURRANT (BRS3137), "Fimwood," Clovelly Road, Bideford, Devon.
C. J. SHUFFLEBOTHAM (BRS3138), Woodlands Cottage, Park Lane, Macclesfield, Cheshire.
F. BARNARD (BRS3139), 30, The Village, Charlton, London, S.E.7.
T. WATT (BRS3140), 17, Deanston Drive, Glasgow, Scotland, S.1.
R. C. FISHLOCK (BRS3141) 96, Lower Hillnorton Road, Rugby, Warwicks.
G. J. CARPENTER (BRS3142), 259, Ladbroke Grove, W.10.
E. W. J. THEOBALD (BRS3143), 10, Eastbury Road, Fishponds, Bristol, Glos.
W. G. LEWIS (BRS3144), 189, Warwick Road, Sparkhill, Birmingham, 11.
F. P. JOHNSON (BRS3145), 3a, Ireland Street, Widnes, Lancs.
W. D. E. CLAYTON (BRS3146), 95, Lichfield Road, Sutton Coldfield, Warwicks.
A. SANDERS (BRS3147), 23, Ampton Street, Gray's Inn Road, London, W.C.
S. C. HARVEY (BRS3148), 24, Alwyne Road, Canonbury, London, **N.1.**
L. S. GUMBRILL (BRS3149), 108, Sandgate Road, Brighton, 6, Sussex.
A. W. R. FORBES (BRS3150), 7, Daisy Street, Glasgow, S.2, Scotland.
W. G. HOPCROFT (BRS3151), 2, McKenzie Street, Sinclairtown, Kirkcaldy, Fife.
J. M. C. PINKHAM (BRS3152), 127, Dartmouth Road, Cricklewood, London, N.W.2.
A. GOODE (BRS3153), 5, Silverdale Avenue, Mansfield Woodhouse, Mansfield, Notts.
L. J. COUPLAND (BRS3154), 41, Horncastle Road, Boston, Lincs.
H. O. BRADSHAW (BRS3155), 1197, Bristol Road, Northfield, Birmingham, 31.
F. HOLLINGSWORTH (BRS3156), 119, Club Garden Road, Sheffield, 11.
L. WATT (BRS3157), 53, Park Road, Aberdeen, Scotland.
F. S. ADAMS (BRS3158), 51, Woodhall Lane, Welwyn Garden City, Herts.

(In our last issue MR. A. E. ROYLE (BRS3082) was incorrectly given as A. E. Royal.)

DOMINION AND FOREIGN.

DR. H. C. DECKEL (D3BMP), Solln bei Muenchen, Albrecht, Duerer St. 20, Germany.
W. D. WADSWORTH (VE5RE), 1506, Cedar Avenue, Trail, B.C., Canada.
PROF. D. R. PARANJPE, M.Sc. (VU2DG), College of Science, Nagpur, India.
G. C. GAMMELL (W4CFD), 471, Glenwood Avenue, S.E. Atlanta, Georgia, U.S.A.
G. H. LUNNON (ZS1N), 2, Frank Robb Street, Brooklyn, Maitland, South Africa.
B. B. WOOD (ZT6AD), c/o Meter Reader's Branch, City Treasurer's Department, Municipal Offices, Johannesburg, South Africa.
LT. W. H. L. GORDON (BERS417), The Gold Coast Regt., Kumasi, Gold Coast, West Africa.
A. D. SIMKIN (BERS418), 26, Ockerse Street, Hospital Hill, Johannesburg, South Africa.
LT. H. F. TREWBY (BERS419), c/o Grindlay & Co., Ltd., 54, Parliament Street, London, S.W.1.
G. M. BONNICI (BERS420), 259d, Sda. S. Ursola, Valletta, **Malta.**

W.B.E. and H.B.E. Certificates

The following certificates have been issued :—

W.B.E.

R. C. Kaye	G6RO	November	3, 1937
R. A. F. Farquaharson	VS7RF	,,	9 ,,
F. L. Hawthorn ...	ZL1GX	,,	11 ,,
L. F. Viney ...	G2VD	,,	17 ,,
F. A. Vost	G2DF	,,	18 ,,
F, G. Whinfrey ...	G8IW	,,	22 ,,
J. H. Emmerson ...	G8HA	,,	24 ,,
V. D. Morse... ...	G8IK	,,	24 ,,
C. Taylor	G2ZT	,,	26 ,,
J. R. Tuck	G6TD	December	9 ,,
G. Evans	G6YO	,,	16 ,,
N. Landles	GM2LQ	,,	17 ,,
H. H. Eyre	G5KM	,,	21 ,,
A. L. Sherriff ...	G5CJ	,,	30 ,,

28 *Mc.*

F. C. Whitmore ...	ZE1JJ	November	9 ,,
F. L. Hawthorn ...	ZL1GX	,,	11 ,,
E. J. Laker ...	G6LK	,,	30 ,,
J. H. Wetherill ...	G2TK	December	7 ,,
R. A. Bartlett ...	G6RB	,,	15 ,,
J. R. Adams ...	GM5KF	,,	17 ,,
H. V. Wilkins ...	G6WN	,,	22 ,,
R. W. Rogers ...	G6YR	,,	30 ,,
A. C. Simons ...	G5BD	,,	30 ,,

Telephony.

M. Tapson	G6IF	November	17, 1937
R. Palmer	G5PP	,,	23 ,,
W. E. Marsh ...	SU1WM	,,	24 ,,
D. G. Richardson ...	ZS1B	,	25 ,,
E. J. Laker ...	G6LK	,,	30 ,,
J. Dale	G5VD	December	7 ,,

H.B.E.

W. N. Craig... ...	GM6JJ / BRS2138	November	19, 1937
R. A. Bartlett ...	G6RB	December	22, 1937

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.

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 and numbers utilising the service. If, however, a reply is desired, a stamp should be sent. As will be noticed below, two stations in the "H" District of Scotland are now providing a service on the 7 Mc. band. Will stations in areas not at present served offer their services to Mr. T. A. St. Johnston (G6UT), "Ardnanane," New Barn Lane, Great Hallingbury, Essex. (Telephone: Bishops Stortford 785.)

SCHEDULE OF SLOW MORSE TRANSMISSIONS.

1938.			G.M.T.	kc.	Stations.
Jan.	20	Thursday ...	1930	7096	GM8MQ
,,	20	Thursday ...	2230	7184	G6UA
,,	22	Saturday ...	2300	7145	GI5QX
,,	23	Sunday ...	0945	7155	GI5UR
,,	23	Sunday ...	1000	7260	G5JL
,,	23	Sunday ...	1015	1920	G6VC
,,	24	Monday ...	2315	1741	GI6XS
,,	25	Tuesday ...	1930	7137	GM8KR
,,	25	Tuesday ...	2200	7184	G6UA
,,	26	Wednesday...	2315	1741	GI6XS
,,	27	Thursday ...	1930	7096	GM8MQ
,,	27	Thursday ...	2230	7184	G6UA
,,	29	Saturday ...	2300	7145	GI5QX
,,	30	Sunday ...	0945	7155	GI5UR
,,	30	Sunday ...	1000	7260	G5JL
,,	30	Sunday ...	1015	1920	G6VC
,,	31	Monday ...	2315	1741	GI6XS
Feb.	1	Tuesday ...	1930	7137	GM8KR
,,	1	Tuesday ...	2200	7184	G6UA
,,	2	Wednesday...	2315	1741	GI6XS
,,	3	Thursday ...	1930	7096	GM8MQ
,,	3	Thursday ...	2230	7184	G6UA
,,	5	Saturday ...	Senior B.E.R.U. Contest.		
,,	6	Sunday ...	Ditto.		
,,	7	Monday ...	2315	1741	GI6XS
,,	8	Tuesday ...	1930	7137	GM8KR
,,	8	Tuesday ...	2200	7184	G6UA
,,	9	Wednesday...	2315	1741	GI6XS
,,	10	Thursday ...	1930	7096	GM8MQ
,,	10	Thursday ...	2230	7184	G6UA
,,	12	Saturday ...	Senior B.E.R.U. Contest.		
,,	13	Sunday ...	Ditto.		
,,	14	Monday ...	2315	1741	GI6XS
,,	15	Tuesday ...	1930	7137	GM8KR
,,	16	Wednesday...	2315	1741	GI6XS
,,	17	Thursday ...	1930	7096	GM8MQ
,,	17	Thursday ...	2230	7184	G6UA
,,	19	Saturday ...	Junior B.E.R.U. Contest.		
,,	20	Sunday ...	Ditto.		
,,	21	Monday ...	2315	1741	GI6XS

Stray

How many members observed that on January 1, JNJ was sending "VVV a Happy New Year de JNJ," in place of the usual string of V's?

To The Editor

THE 1.7 AND 3.5 Mc. BANDS

To the Editor, T. & R. BULLETIN.

DEAR SIR,—Surely it is logical that more use should be made of the 1.75 and 3.5 Mc. band for local and semi-local work, as the ground wave is less rapidly attentuated, and skip is shorter. Furthermore, B.C.L. QRM is not so troublesome now as it was some years ago, because more selective B.C.L. receivers are in use. The trouble when it exists is seldom impossible to cure, and in any case the problem is, in itself, an interesting one to solve.

Radiating systems, though small in terms of wave-length, can be made remarkably efficient, whilst transmitters can be designed for high efficiency and easy coil change on the higher frequencies, and operated on the lower frequencies with somewhat incorrect L.C. ratios. This latter is not as unpardonable as some amateur practices!

Much interesting local work can be done on these frequencies, and I suggest they be made more use of, thus keeping the higher frequencies clear for DX.

Yours truly,
W. K. WALKER (GW2WO).

THE POWER QUESTION

To the Editor, T. & R. BULLETIN.

DEAR SIR,—Being interested in the power input question I must say that I disagree with G6GR's remarks.

How many amateurs with an available 1,000v. would use a large transmitting valve (which is implied) under the conditions mentioned by G6GR?

I venture to suggest that if 350v. were the limiting factor for a 10-watt licence, perhaps the bands would be of more use than they are at present.

I cannot believe that any man who has an available 1,000v. is going to keep to a 10 watts input.

Yours faithfully,
F. J. RUMARY, G2YT.

Radcliffe Bay,
Portishead, Som.

THE 1.7 Mc. BAND

To the Editor of T. & R. BULLETIN.

DEAR SIR,—I have read with much interest the article by GW5KJ, giving reasons for the little use of the 1.7 Mc. band.

Whilst agreeing that telephony transmissions on the 1.7 Mc. band may cause interference during broadcast hours (I do uot use 'phone here), it is quite possible to use C.W. at any time of the day. I can and do work on C.W. here, irrespective of broadcast hours. By careful adjustment and the

(*Continued on page* 402.)

MINUTES OF THE ANNUAL GENERAL MEETING

Held at the Institution of Electrical Engineers, London, on Wednesday, December 29th, 1937

The chair was taken by Mr. E. Dawson Ostermeyer (President), supported by Mr. H. Bevan Swift (Executive Vice-President), Mr. A. E. Watts (Past-President), Mr A. D. Gay (Hon. Treasurer), Messrs. Milne, Page, Dedman, Whyte, St. Johnston and Clark (Members of Council), J. Clarricoats (Secretary) and about 60 members.

The Secretary read the notice convening the meeting.

It was proposed and seconded that the minutes of the previous annual general meeting, as published in the January, 1937, T. & R. BULLETIN, be taken as read. The proposal was carried.

Mr. A. D. Gay proposed, and Mr. J. W. Mathews seconded, that the Hon. Treasurer's report be adopted. Carried unanimously.

The Secretary read the Annual Report of Council. (The report appears elsewhere in this issue.—ED.) Mr. A. O. Milne proposed, and Mr. Kempton seconded, that the report be adopted. Carried unanimously.

The President announced that the following members had been elected to serve on the 1938 Council :—

President : Mr. A. E. Watts.

Executive Vice-President : Mr. A. D. Gay.

Hon. Treasurer and Hon. Secretary : Mr. A. O. Milne.

Hon. Editor : Mr. H. Bevan Swift.

Members : Messrs. H. A. M. Clark, F. Charman, H. A. M. Whyte, H. C. Page, Viscount Carlow, J. D. Chisholm and J. W. Mathews.

The Chairman, in thanking the retiring Council for their work, mentioned in particular the names of Mr. T. A. St. Johnston and Mr. E. A. Dedman, expressing the hope that they would continue their interest in Society activities.

The Chairman proposed a hearty vote of thanks to the scrutineers, Messrs. B. E. Sadler, B. Evans, W. Carment and M. Newman. Carried unanimously.

Mr. H. A. M. Whyte proposed, and Mr. J. D. Chisholm seconded, that Mr. Ockleshaw be appointed Hon. Auditor for the year 1938. Carried unanimously.

Mr. H. Bevan Swift moved, and Mr. Wallace supported, that a hearty vote of thanks be accorded the President and Council of the Institution of Electrical Engineers for their kindness in continuing to allow the Society to meet in their building. The motion was carried with acclamation.

This concluded the formal business.

* * *

At the conclusion of the annual general meeting the President awarded the Powditch Receiving Trophy to Mr. T. A. F. Iserbyt, BRS25, and the new Braaten Trophy to Mr. A. D. Gay, G6NF. The Secretary made a brief reference to the work which had been achieved by the recipients. Acclamation followed the presentations.

The President then called upon Mr. A. O. Milne to address the company. In a brief speech he mentioned that it had been decided some time previously to invite the membership to subscribe to a presentation to the Secretary to mark the completion of ten years' active association with the executive side of the Society's work. He announced that the response to the invitation had surpassed all expectations, and as a result it had been possible to purchase a National NC101X superhet receiver and speaker.

Mr. Ostermeyer made the presentation. Mr. Clarricoats (who had been kept in complete ignorance of the presentation) thanked all members who had subscribed.

Mr. Geoffrey Parr then delivered his lecture (which will appear later in this Journal) on " Recent Developments in Television Reception." Mr. Humphries, Mr. H. A. M. Clark, Mr. Exeter and Mr. Wilkins joined in the subsequent discussion.

The meeting closed at 8.30 p.m.

OBITUARY

The terrible railway disaster at Castlecary on December 10 took from us one who a few years ago was one of the keenest amateurs in the Society.

H. F. B. Sharp, of Hill of Tarvit, Cupar, perhaps better known to us as G2SR and GC2SR, and one of the best of good fellows, at the early age of 40 was deprived of his life in circumstances most tragic. Having recently become engaged to a West of Scotland lady, Mr. Sharp was on his way to visit her when his life ended. A man full of enthusiasm and the joy of life, he will be sadly missed in the many directions in which his interests led him.

From an amateur radio standpoint, he was tremendously active between 1927 and 1930, and it was a source of never-failing regret to him that his business activities put to an end a period of active participation in amateur matters.

Mr. Sharp was a keen sportsman and his sporting interests were legion.

Although young, honours had not passed him by. Commissioned to the R.G.A. in 1916, he was the recipient of the Military Cross (with bar), Croix de Guerre and the Italian Order of Valour. In addition, he was three times mentioned in despatches and once in French Army orders. He was also a member of the King's Royal Bodyguard of Archers.

To his sorrowing relatives and fiancée we extend our heartfelt sympathy in their sad loss.

GM5YG.

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

DISTRICT 8 (Home Counties).
(Beds., Cambs., Hunts and the towns of Peterborough and Newmarket.)
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 (GW6MX), "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), "Normandale," New Barn Lane, Little Hallingbury, Bishops Stortford.

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).

District Representative : J. Noden (G6TW), "Fern Villa," Coppice Road, Willaston, Nantwich, Cheshire.

District Scribe : H. W. Stacey (G6CX), "Sandleas," Eddisbury Road, West Kirby, Cheshire.

Town Representatives :

Birkenhead : G. Russell Lee (G6GL), 25, Boundary Road, West Kirby, Cheshire.

Blackburn : A. Tomlinson (G2QN), "Waverley," Feniscowles, Blackburn.

Blackpool : H. Fenton (G8GG*), 25, Abbey Road, Blackpool, S.S.

Burnley : P. Nicoll (G5ZN), 35, Reedley Road, Burnley.

Bury : T. C. Platt (G2GA), 64, Holcombe Avenue, Bury.

Liverpool : J. Davies (G2OA), 13, Exeter Road, Wallasey, Cheshire.

Manchester : W. Lucas (G2OI*), 25, Boothfields, Winton, near Manchester.

Nelson : R. Hardy (G2RB*), 10, Westcliffe Walk, Nelson, Lancs.

Preston : H. Jones (G5ZT*), 109, New Hall Lane, Preston.

Rochdale : T. A. Whiteley (G6QA*), 82, Molyneux Street, Rochdale.

Warrington : F. A. Vost (G2DF), 11, Glebe Avenue, Chester Road, Grappenhall, Warrington.

The District Scribe regrets that the publication of the Notes for November and December did not quite work out according to plan. The Blackpool Notes for November are published in this issue with his apologies for the delay, and if any of the December Notes have been omitted he tenders his regrets in advance as he has an idea that one report has been mislaid. If T.R.'s will mark the envelopes enclosing their Notes with the words "District Notes" across the top left-hand corner it will assist considerably in sorting the mail!

* Appointments have not been confirmed for 1938 and no nominations received at headquarters.

FORTHCOMING EVENTS

Jan. 16.—District 11, 6.30 p.m., at GW5OD, "Rocklyn," Marine Road, Penrhyn Bay.
,, 19.—District 1 (Liverpool Section), 7.30 p.m., at 38, Mason Street, Liverpool.
,, 19.—District 14 (East Essex Section), 8 p.m., at G6IF, The Chalet, Woodside, Belfairs Garden Estate, Leigh-on-Sea.
,, 19.—Scotland "H" District, 7.30 p.m., in district clubroom, Bank Street, Kirkcaldy.
,, 20.—Scotland "A" and "E" Districts, 7 p.m., in Room 119, Natural Philosophy Section, Royal Technical College, George Street, Glasgow.
,, 20.—District 13 (Anerley, Balham, Kennington and New Cross Areas), 8 p.m., at Brotherhood Hall, West Norwood.
,, 20.—District 6 (Torquay Section), 7 p.m., at "Sherrington," Cleveland Road, Torquay.
,, 20.—District 10, 7.45 p.m., at the Roath Park Hotel, City Road, Cardiff.
,, 21.—District 6 (Plymouth Section), 7.30 p.m., at G8HF, Futtrells, Horn Lane, Plymstock.
,, 21.—District 12, 7.30 p.m., at the Orpheum Cinema, Temple Fortune, N.W.11.
,, 22.—Scotland "H" District, 2nd Annual Dinner, 7.30 for 8 p.m., at Station Hotel, Kirkcaldy. Tickets 6s. 6d., from Mr. A. W. Lawson (2ANL), on or before January 17.
,, 23.—District 4, 3.30 p.m., at the Rutland Hotel, Ilkeston. Discussion on 56 Mc. in 1938, and arrangements for N.F.D.
,, 26*.—District 15, 7.30 p.m., at 2BVX, 35, Green Lane, Terriers, High Wycombe, Bucks.
,, 26.—Scotland "A" and "E" Districts, 7.30 *prompt*, in Small Hall, Institution of Engineers and Shipbuilders, 39, Elmbank Crescent, Glasgow. Display of R.S.G.B. Films at this meeting.
,, 27.—S.L.D.R.T.S., Annual Dinner at Half Moon Hotel, Herne Hill.
,, 28.—London meeting at I.E.E. Commence 6.45 p.m. Tea from 6 p.m.
,, 30.—District 7, 2.30 p.m., in Tumble Down Dick Hotel, High Street, Farnborough, Hants.
Feb. 2.—S.L.D.R.T.S., 8 p.m., at Brotherhood Hall, West Norwood.
,, 2.—Scotland "H" District. Details as above.
,, 4.—District meeting in Cambridge.
,, 9.—District 1 (Liverpool Section), 7.30 p.m., Special meeting at 38, Mason Street, Liverpool. Display of Society films.

* Sale of disused apparatus at this meeting.

Liverpool.—The last meeting of 1937 was attended by about twenty members, who listened to a talk on "Amplifiers, Class A and B," delivered by G2OA. A committee is to be formed for the purpose of arranging suitable technical talks to be given throughout 1938. It is felt that talks dealing with a subject in a detailed manner will be of greater interest than those on general lines, and the suggestion has been made that short descriptions of their stations shall be given by individual members from time to time, three stations being dealt with at each meeting. No individual reports of particular interest have been received, but the usual activities prevail. Will members please note the special meeting referred to in the District Calendar at which the R.S.G.B. films will be shown.

Blackpool.—The Blackpool and Fylde Short Wave Radio Society is acquiring new quarters, and it is hoped that these will be more suitable for all concerned.

G2HL, who has come to live in Poulton, is welcomed to the District; he is busy trying 7 Mc. telephony with the aid of 2CMC. Individual reports have been received from 5MS, 6VQ, 8AK, 8GG, 8NU, 2CQQ, 2CWW, 2CKO and 2COR, all of which stations are active in one way or another. 8GG has had little success with 28 Mc. and would appreciate reports on his transmissions on this band during week-ends.

Members spent an amusing evening recently with G5SO's bug key, an Audio oscillator, a loudspeaker, and all members who thought they could use the key. A new alphabet was evolved which explains some of the peculiar noises heard on 7 and 14 Mc.

Burnley.—G8TD is active on 7 and 14 Mc. After trying a 210 and a T20 in the PA, he has gone back to the 6L6 and now reports perfect neutralisation and still has hopes of getting out on 28 Mc. 2RB has fitted bandspread to his E.C.O. and is now using remote-control of the Tx from the house to his garden shack. 8UA is off the air due to illness, but we all hope he will soon be fit again. 8FI still keeps his daily schedule with 6GY. 2CT asks for reports on his 1,760 kc. QRP C.W. 22.30 to 23.30 G.M.T. daily. 2CVI finds time very scarce. 2BFB is busy checking up the local members on his new Dynatron meter. BRS2951 is visiting the local stations during his vacation. 5ZN is now using a 6L6G in the PA with very fine results.

Blackburn and District.—A record number of members participated in the informal rag-chew at 2QN on Sunday morning, December 12, 1937. Mrs. 2QN, to whom thanks are due for the welcome extended, wanted to know afterwards whether the gang sat on the picture rail! Discussion centred around the N.F.D. proposals, the conjested state of the 7 Mc. band and a scheme to run Morse practice transmissions for the local members with QRP on 1.7 Mc. The local branch, since its introduction some months ago, has been instrumental in obtaining seven new members for the R.S.G.B., with more to follow.

Activity is reported as follows:—G2HW at work in Manchester maintains twice-weekly schedule with 2QN on 3.5 Mc.; 8JA commenced Morse practice on 7 Mc. for B.R.S. members; 8LZ has more time for radio now exams. finished; 2AQI

and 6BH busy with seasonal business, former buying "All-World Two" as Christmas present, 2CRM rebuilding. Several members awaiting issue of B.R.S. numerals.

Bury and District.—Members had a very enjoyable joint meeting with the Rochdale members on Sunday, December 12, at Rochdale by the kind invitation of G6QA. An interesting afternoon was spent at the Rochdale Fire Station, which is very efficiently equipped with radio, followed by a visit to a local cinema, where the talkie apparatus was ably demonstrated by G6QA. The party then adjourned to 6QA for tea and the rest of the evening was devoted to a most pleasant rag-chew. The Bury members would like to thank G6QA for his hospitality. The following were present:—G2GA, 8QS, 8NF, 8NL, 2BGF and BRS770, from Bury, and 3BN, 6QA and two prospective members, from Rochdale.

G2GA is now settled at his new address and will soon be active on 7 and 14 Mc. 8NL, who is on 1.7 Mc., is rebuilding for 1.7 Mc. contest and has a schedule with 6QA every Sunday on 1.7 Mc. 2BGF is busy with code practice and building CO with 6L6. BRS770, who has passed his Morse test and is awaiting full ticket from P.O., is also building tritet CO with 6L6. 8NL also reports active.

DISTRICT 2 (Yorkshire).

District Representative: L. W. Parry (G6PY), 13, Huddersfield Road, Barnsley.

District Scribe: C. A. Sharp (G6KU), 316, Poplar Grove, Great Horton, Bradford.

Town Representatives:

Barnsley: T. Malkin (G5IV), 5, White Hill Terrace, Dodsworth Road.

Bradford: C. A. Sharp (G6KU), 316, Poplar Grove, Great Horton.

Halifax: J. S. Kilpatrick (G5QS), Lynn Cottage, Lightcliffe.

Huddersfield: J. Dale (G5VD), 12, Langley Terrace, Crosland Road, Oakes.

Ilkley and Otley: J. W. Hemingway (G8ID), 17, Thwaites Avenue, Leeds Road, Ilkley.

Leeds: W. F. Wilson (BRS2317), 4, Stratford Street, Leeds 11.

Sheffield: A. Pemberton (G2JY), 57, Tillotson Road.

Wakefield: W. L. V. Parker (G6WJ), Chalfont, Thornes Road.

Sheffield. The annual dinner was held on January 15, and those members present had an enjoyable time; the remaining part of the evening was spent at the theatre. The next meeting is on January 20. Ex-G6PJ hopes to be on the air again soon with a new call. Best wishes to our new members, Mr. Muteham and Mr. Hollingsworth. The following report active: G2AS, 2DJ, 2JY, 2XH, 2LT, 2JI, 5HK, 5TO, 6LF, 8KT, 8NN, 8JP, 2BXA, 2CBQ, BRS 2293, 2282.

Halifax. The local Radio Society held its annual meeting on December 29, and has a membership of 40. Activity in the area is largely on the 56 Mc. band, and American police signals are heard just below 10 metres. Following stations are active: G5QS, 8CB, 2ABC, 2AKO, 2BHI, 2CMP, 2CKH, 2CYM.

Barnsley. Will all members interested in N.F.D. please notify G5IV? Following stations are active: G2BH, 5UA, 5IV, 5KM, 5DW, 6PY, 6LZ, 6AJ, 6XG, 8NM, 8TZ, 8IJ, 8WF, 8PK, 2AYZ, 2CGD, BRS3068.

Huddersfield. The December meeting at G6RO was attended by six members and four visitors, and a very enjoyable evening was spent. G8DF is welcomed to the membership. 5VD is now WBE and WAC on telephony. Will those requiring transport to the Barnsley meeting in January communicate with the T.R.? It is hoped every member will take part.

DISTRICT 3 (West Midlands)

District Representative: V. M. Desmond, 199, Russell Road, Moseley, Birmingham, 13.

District Scribe: L. W. Gardner (G5GR), 40, Medina Road, Coventry.

Town Representatives:

Birmingham: Geo. Brown, (G5BJ), 62, The Ring, South Yardley.

Coventry: L. W. Gardner, 40, Medina Road.

Shrewsbury: E. R. Westlake (G6KR), Ardlui, Wenlock Road.

Birmingham.—The MARS/CARS Contest proved a great success, the winners being Mr. V. Morse (G8IK), for transmitting, and Mr. K. Basterfield, receiving. M.A.R.S. continues to grow and is the hub of local activities. All R.S.G.B. members are invited to meetings. For details communicate with the T.R. or 'phone him on Midland 3771, Ex. 54. Active stations are G5SS, 5VM, 6DL, 2LB, but all report bad conditiens. Congratulations to G2PW and 6WI, who have received radiating permits.

Shrewsbury.—Regular fortnightly meetings are taking place during the winter months and as a result activity is increasing. Local members are asked to get in touch with the T.R. G5YP has a new QRA and is rebuilding. Congratulations to G8JC on his new call.

At a meeting of eight local members, G6KR gave a talk on Aerial Coupling Methods. There are five A.A. men working on morse and good progress is being made. The following report active:—G5YP, 6KR, 8JC, 2BMN, 2CCS, 2CJO, 2CZV, 2DAQ, BRS2457.

Staffordshire.—G6SW is doing good work with his class "B" 'phone. G2YV is working 7 Mc. and testing "BK" with GM6IB.

DISTRICT 4 (East Midlands).

District Representative: G. W. Slack (G5KG), "Inglenook," Racecourse Road, Mansfield, Notts.

Town Representatives:

Derby: R. H. Streete (G2SD), "Grey Roofs," Princes Drive, Littleover, near Derby.

Ilkeston: W. A. Scarr, M.A. (G2WS), "Wharfdale," Heanor Road, Ilkeston, Derby.

Leicester: W. M. Vendy (G6VD), 9, Cecilia Road, Leicester.

Mapperley: F. H. Spencer (2ARN), "Redlands," Bonnington Road, Mapperley, Notts.

Mansfield: Dr. E. S. Vance (G8SA), "White Hart" Inn, Huthwaite, Notts.

Nottingham: J. Lees (G2IO), 17, Trevose Gardens, Sherwood, Nottingham.

Northants: L. F. S. Parker (G5LP), 22, Second Avenue, Wellingborough, Northants.

Worksop and Retford: H. W. Chadwick (G8ON), 25, Raines Road, Worksop, Notts.

A very successful meeting was held at the Trent Bridge Hotel, Nottingham, on December 19, when an excellent lecture was given by Mr. Oxley (G8MW) on Direction Finding. He described all the important systems of direction finding apparatus used on land, sea, and in the air. He dealt with the electrical and mechanical construction of these systems, and went on to tell some of his own experiences when he was a Marconi operator aboard ship. He also showed some very interesting lantern slides kindly loaned by the *Marconi Co.*; these helped to make the lecture a great success. All present thoroughly enjoyed Mr. Oxley, and we hope he will give us more in the future.

Mr. Curnow (G6CW) then gave the newer members some excellent help in regard to the Council elections. While not recommending any candidate in particular, he made it much easier for the members present to decide for themselves. This was followed by a general discussion regarding the A.A. and BRS membership in the City of Nottingham. As no one could be found to take on the job of T.R. for West Bridgford, it was decided that Mr. Spencer, T.R. for Mapperley, should look after the whole of the AA and BRS membership of the city, and Mr. Lees (G2IO) would look after the interests of the transmitting section. The two T.R.s will work in close co-operation, and members are asked to give them both their support. After this, a junk sale followed, and a few members went home with good bargains, and others definitely richer than when they came. The D.R. wishes to record the hope that all members in the District will have a happy and prosperous New Year.

Nottingham. There is no outstanding 56 Mc. matter to report this month, although activity is good with crystal-controlled transmitters, and all A.C. straight receivers. Stations continue to work the neighbouring towns, and good reports are given and received after getting the right aerial for the particular district. On the lower frequencies, G2HD reports an improvement in 14 Mc. conditions during December.

Mapperley. A meeting for AA and BRS members is called for Sunday, February 6, at 6 p.m., at the T.R.'s QRA, "Redlands," Bonnington Road, Mapperley. It is hoped that a representative for West Bridgford will be found.

Northants. G5LP has been testing a transmitter designed by G5GQ, and described in the Short-wave Magazine. It proved excellent in operation, and uses a new *Mullard* R.F. Pentode, the PVO5-15, which only needs one-fifth of a watt audio to fully modulate a 10-watt carrier, using suppressor grid modulation. 5LP is building a transmitter using the Jones 6L6G three-band exciter, link-coupled to a *Mullard* TZO5/20 in the final. The affiliated societies, at Kettering and Wellingboro', are holding regular meetings, and Kettering recently had a show of the R.S.G.B. N.F.D. film. 2CSH is listening on 56 Mc., but no signals have been heard yet. 2CTZ also reports active.

Mansfield. The next local meeting will be held at the Swan Hotel at 3 p.m., Sunday, February 6. The last meeting proved very successful, members from Tibshelf, Sutton, Huthwaite, Chesterfield, Worksop, Warsop, and Mansfield were in attendance. The following members report active: G8GO, G8OT, and 2BLV. G8GO has made contact with VO6JQ, HH3L, and ST6KR, whose QRA is Khartoum, and frequency 14,300 kc. VO6JQ is now VO6J, Sandgist Lake, Labrador; he also operates under the call VE2JQ from Montreal. He returns from Labrador in June. G8OT and 2BLV are busy with 56 Mc. The latter is erecting a ½-wave dipole aerial. Both are busy testing 56 Mc. receiver circuits.

Worksop. G8PO is testing suppressor grid modulation, using an RK23. He has also WAC on CW, and has applied for a 28 and 56 Mc. permit. G8ON is erecting aerials, and also preparing to go on 28 and 56 Mc. He hopes to be active on both bands shortly. 2CAJ is working on receiver design, and working at the code. No other reports are to hand. Two new members are expected shortly in G8SD, of Oldcoates, and 2CTW, of Bawtry. It is hoped to see 56 Mc. activity in this section as soon as the G.P.O. permits come through.

Buxton. The D.R. has been in communication with all the members in Buxton, and it is hoped that a T.R. will soon be appointed. The D.R. wishes to thank G2HA, G6TM, and BRS3080 for their kind co-operation and their replies to his letters.

Leicester. Thirty members and friends attended a dinner and Christmas party at the Victoria Hotel, Leicester, on December 16. It is hoped to make this an annual gathering in Leicester. New calls are G5GN, ex 2CKW, 3AN, ex 2BHT, 3BU, ex 2AIK, and 2CAF, who was BRS2850.

District Meeting. The next District meeting will be held at the Rutland Hotel, Ilkeston, on January 23, at 3.30 p.m. A discussion will be held on 56 Mc. in 1938. *Important:* N.F.D. will be discussed at this meeting, and if possible, finally arranged. All T.R.s are asked to make a special effort to attend.

DISTRICT 5 (Western).

District Representative: J. N. Walker (G5JU), 4, Frenchay Road, Downend, Bristol.

Town Representatives:

Bath: G. R. Marsh (G2IW), Oriel Lodge, Lower Swainswick, near Bath.

Bristol: R. Griffin (G5UH), 4, Nailsea Close, Bedminster Down, Bristol, 3.

Cheltenham: W. G. H. Brown (G5BK), 200, Prestbury Road.

Gloucester: J. W. Hamilton (G5JH), Brook Cottage, Bristol Road, Hardwicke, Glos.

Above will be found the names and addresses of T.R. so far appointed. Members are earnestly requested to keep in touch with, and report regularly, to them. If other towns within the District, possessing five or more members within a reasonable radius, desire to have a T.R. will they please nominate one and advise the D.R.?

The festive season has had its effect on radio activities and there is not a great deal to report. The December meeting in Bristol was in the nature of an annual general meeting and was devoted entirely to business. 2AJW, hon. secretary to the T.R., gave a résumé of the year's work, and satisfaction was expressed at the progress made. Votes of thanks were passed to Mr. H. Martin, BRS686, the retiring T.R., and to 2AJW, to mark the extremely good work they have put in on behalf of the Society during the year.

G2HX was a welcome visitor and we are sorry to learn that he has left Gloucester to take up a position in Plymouth. Good luck, O.M. !

In Cheltenham, G5BK has moved to a new QRA, given above, whilst 8LB is following suit. G6ZQ and 8ML are active on 1.7 Mc. 2CSR and 2CTU are busy preparing for 56 Mc. reception. G5BM's class B transformer gave way under the strain of constant use and a replacement is on order.

G5JH is active on 7 Mc. using " break-in " C.W. and will welcome contacts. He is busy with solar observations, frequency measuring experiments and " press button " remote control systems. A new call has been heard in Gloucester and G5JH would like to get into touch with the owner.

Many amateurs throughout the District are busy preparing for contests.

DISTRICT 6 (South Western).

District Representative :—W. B. Sydenham, B.Sc. (G5SY), Sherrington, Cleveland Road, Torquay.

Town Representatives :—

Torquay.—L. G. Mays (2CWR), 185, Windsor Road, Torquay.

Exeter.—H. A. Bartlett (G5QA), Lendorie, Birchy Barton Hill, Heavitree, Exeter.

N. Devon.—D. H. Jones (G3BO), Westover, Windmill Lane, Northam.

Plymouth.—D. E. Herbert (G6RF), 3, Hill Lane, Hartley, Plymouth. (Scribe : C. Newton (G8PN), 6, Savery Terrace, Lipson, Plymouth.)

S.W. Cornwall.—J. C. P. Clark (2CGC), Goonhavern, near Truro.

Taunton.—Dr. D. A. Iles (G5LM), Shutterne House, Taunton. (Scribe : A. O. Kellaway (G5AK), 10, Winchester Street, Taunton.)

The D.R. takes this opportunity of wishing all members of the District a very Happy and Prosperous New Year, with many interesting contacts, and plenty of *real* experimental work thrown in.

There have been two changes in T.R.s for the coming year, G6FO, of N. Devon, being replaced by G3BO, and 2CAA, of Torquay, giving way to 2CWR. We thank both retiring T.R.s very much for their help in the past. G6FO drops out because he has, at very short notice, left the district. He has done noble work in N. Devon during the short period he has been there, and has turned the area from an almost dead one into a very active centre of Amateur Radio. We are extremely sorry to lose him.

We wish the new T.R.s success in their positions, and hope that they will enjoy their terms of office.

N. Devon.—Owing to G6FO's departure coming earlier than was anticipated, the usual monthly meeting could not be arranged, and apologies are due to members accordingly. Two more local stations are now on the air, G3AM (ex-2CBK) Barnstaple, and G3BO (ex-2ADJ) Northam, to whom we offer sincere congratulations. 2CHY has applied for her full ticket, and should also be in action on 1.7 Mc. shortly. 2BAD will be too busy. (Sounds like an unconscious joke here !—D.R.) for radio for some time, but G6GM, G8US, G2ID, BRS2970 and BRS3081 are very active in their several ways.

As these are the last notes to be contributed by G6FO, he takes this opportunity of saying that he leaves the district with the greatest regret, but with very happy memories of a friendly group of real hams. G3BO has been nominated as the new T.R., and it is hoped that he will have the same support and co-operation as was so generously given to G6FO. " Good-bye, and 73 for the New Year."

Taunton.—A very happy band of members met at the Bristol Arms Hotel, Bridgwater, on December 12th. Great progress is evidently being made in the area, as all the eleven members present were either A.A. or full permit members. It was decided to hold an informal meeting on the second Thursday in January. Members present included G2JM, G2AS (ex-2BJC), 5AK, 5GT, 5TN, 6LQ, 6LY (ex-2BVC), 8JF, 2BFI, 2BXZ, and 2DBB. 2CMJ is now G3AS.

Exeter.—At the meeting on December 15th, there was an attendance of ten. VP2GC was present, and gave the members a very interesting talk on radio conditions in VP2.

Torquay.—A meeting was held at G5SY on Thursday, December 16th. Those present were : G2FP, 5GD, 5QA, 5SY, 6RF, 2AUI, 2BXU, 2CMF, 2CWR, 2CRL, BRS2649, 2816, 2927, 3072.

The most interesting event of the evening was the presentation to Mrs. SY, by G5GD on behalf of members of Torquay and Exeter areas, of a very fine case of fish knives and forks as a mark of appreciation of the way in which she has provided light supper to the members on the occasion of these meetings. In making the presentation, GD said how much the members looked forward to these meetings, at which the refreshments given by Mrs. SY formed no small part of the enjoyment. The lady made a short speech of thanks, and said she was only too happy to do what she could to help. (H.Q.s also appreciate your help Mrs. 5SY.—Ed.)

Plymouth.—Those present at the December meeting were :—G6RF, 8HF, 8PN, 2AHX, 2CYJ, BRS2932 and 2997. Discussion centred on 56 Mc., and it was decided that something must be done about it this coming summer, especially as several have built suitable receivers. The next meeting will be at G8HF, 8 Futtrells, Horn Lane, Plymstock, on January 21st, at 7.30 p.m.

DISTRICT 7 (Southern).

District Representative : E. A. Dedman (G2NH), 75, Woodlands Avenue, New Malden, Surrey.

Town Representatives :

Croydon : E. W. V. Butcher (G5AN), 16, Manor Gardens, Purley Surrey.

Guildford : W. E. Russell (G5WP), " Milestones," Westfield Road, Mayford, Woking, Surrey.

Kingston : R. F. Pottinger (2BNS), 1, Aldridge Rise, New Malden, Surrey.

Oxford : H. J. Long (G5LO), Stanton Harcourt, Oxford.

Portsmouth : L. E. Newnham (G6NZ), 145, Victoria Road North, Southsea, Hants.

Reading : A. Lambourne (G5AO), 31, Baker Street, Reading, Berks.

Reigate : L. G. Knight (G5LK), " Radiohme," Madeira Walk, Reigate, Surrey.

Southampton : L. G. Stoodley (G8DM), 31, Ripstone Gardens, Highfield, Southampton, Hants.

Will all members of No. 7 please note that there

is an important change in the date of the next meeting. In order to avoid clashing with B.E.R.U. there will be no meeting on the first Sunday in February, and this meeting has been brought forward to January 30. Time, 2.30 p.m. Venue: The Tumble Down Dick Hotel, High Street, Farnborough, Hants.

All attendance records were broken at the December meeting held at G2YL, when over 60 sat down to tea. The Field Day and London District films were shown and were thoroughly enjoyed by all. The D.R. takes this opportunity of thanking Mr. and Mrs. Corry, and G2YL, for their marvellous hospitality to us during the past year.

We are now very hard up for subjects for talks and discussions at our meetings, and the D.R. would be grateful for any offers from members or friends for talks at our monthly meetings. Offers from outside No. 7 would be particularly welcome, and in return G2NH would be willing to attend any other district meeting and give a talk in exchange. Any offers?

Guildford.—Welcome to old-timer G2ZC moving into the district with his sub-standard frequency meter. G5RS completing amateur bands 10 valve super. G6GS denies seventeenth re-build, says it is only the sixteenth. Class B modulating T20 final. G6LK building to separate finals for each band. G8IX has completed his really FB shack. Vacationing G8LT returns to the district; his 12 crystals, holder and switching must be seen to be believed. G8RH knocking off DX in fine shape with T20 final. Apologies to the rightful owners of calls misprinted last month; the new calls on 7 Mc. are G6YZ and G8UG. G5WP bench testing new 28 and 56 Mc. rig.

Croydon.—Owing to indifferent conditions prevailing on most of the higher frequencies, members are using the time on re-building and trying out new ideas. G2MV has erected a 56 Mc. beam, and has had some very good reports; he deplores the lack of 56 Mc. enthusiasts in the district. G8BX has worked VS2 on 'phone, 14 Mc. G2KU will be out on 56 Mc. and would appreciate reports. G2DN is nearing completion of his rig and will soon be out on 14, 28 and 56 Mc. G5AN is still managing some DX on 14, and would use the 28 and 56 Mc. bands if it were not for being on the main road with all the motor car noises upsetting things. Now that there are such a number of amateurs in this area, the T.R. appeals for local chin-wags with full power on to be kept to a minimum, especially as DX is not too good. Even though there may not sound to be many on the air, plenty are listening for some DX to break through, and these local ragchews can spoil a good contact.

Reading.—At the December meeting of the R.T. and R.S. 13 members were present, and the evening was given to general discussion. Another new A.A. call in Reading is 2BFD. G8MS has a cathode ray tube oscillograph going, and nearly burnt out the screen. G6CU has been working on a coil switching arrangement using 6F6, 6L6 and T20 valves. G8MG has worked KA1ME on 14 Mc. 'phone, and is trying out a doublet aerial. G6WO is rebuilding. G6KB has now got going on 1.7 and 7 Mc. with both C.W. and 'phone. G2IT, 2GG, 5AO, 5HH, 5TP, 6GT, 8KJ and A.A. members all report active.

New Malden.—As there are about a dozen members in or around New Malden who do not know each other, and probably do not even know of each other's existence, it is proposed to form a local group for meetings. Will those who would be interested write to J. D. Kingston, 51, High Drive, New Malden, or telephone Kingston 4361.

DISTRICT 8 (Home Counties).

District Representative: G. A. Jeapes (G2XV), 89, Perne Road, Cambridge. ('Phone 87156.)
Town Representatives:
Bedford: H. R. Jeakings (2AWH), c/o Jeakings and Son, Mill Street, Bedford.
Cambridge: L. W. Jones (G5JO), "Mella Loona," 16, Leys Road, Cambridge.
St. Ives: C. D. Whaley (G6WA), "Danum," Ramsey Road, St. Ives, Hunts.
Peterborough: W. Carter (G2NJ), 1, Gladstone Street, Peterborough, Northants. ('Phone 3587.)

Eleven members (ten of whom were fully licensed) attended the District meeting held on December 3 at the Fitzroy Arms, Cambridge. The absence of B.R.S. and A.A. members from recent meetings is rather marked, and the D.R. would be interested to hear if there is any reason for this, as it is surely realised by all that any member is welcome. A telegram was received at the above meeting regretting the inability of certain members of the Bedford group to attend, and this kindly thought was appreciated by all. Dates and venues for District meetings in 1938 were fixed, and a junk sale of goods provided by G2NJ was a great success.

Reports this month are scanty, but activity is on the increase. G5JO is to be heard on most bands, including 28 Mc.; 5DR has nearly completed his new rig, and has been heard testing; 2PL, 8FF, 5BQ, 6HB are known to be active, and 2XV has received two reports on his 7 Mc. 'phone from U.S.A., one at a strength of R7/8 at 8.30 G.M.T. 2BQC, of March, now becomes 3BK, and started off with good DX, but finds difficulty in convincing stations contacted that he is not a pirate. 2NJ and 2UQ are getting out well with improved aerials. 2CCF and BRS2075 are making code progress.

The next District meeting will take place on February 4 in Cambridge; details will be notified to members as usual by post.

The D.R. takes this opportunity to couple his good wishes with those of the T.R.'s to all for a bumper new year.

DISTRICT 9 (East Anglia).

District Representative: H. W. Sadler (G2XS), Warren Farm, South Wootton, King's Lynn, Norfolk.
District Scribe: F. L. C. Firmin (G5QO), 2, Hall Park Villas, Oulton Road, Lowestoft, Suffolk.
Town Representatives:
Ipswich: S. G. Keeble (G2AN), 139, Sidegate Lane, Ipswich.
Lowestoft: R. Tunney (G8DD), "Kelley Bray," Colville Road, Oulton Broad, near Lowestoft.

Mr. C. C. White, Heathfield House, Ipswich Road, Norwich, has kindly offered the use of his house for a District meeting to be held on Sunday, January 30, at 3 p.m. It is hoped that as many

as possible will attend this meeting, in order that future activities of the District may be discussed, and further meetings arranged. Kindly inform the D.R. by postcard of your intentions to be present before January 25 as Mr. White has kindly promised to provide refreshments and would therefore like to know how many to expect.

Ipswich.—The local Radio Society is now defunct owing to general lack of interest. R.S.G.B. members are meeting *pro. .tem.* at G2AN's every Saturday evening at 8 p.m. New members are especially invited. G2JD and 6TI are busy with S.S.S. receivers and working good DX. G8KB, 8CU and 8IS are busy rebuilding. G8AG states that his call is being pirated. He is still QRT owing to business QRM. 2AGO is learning Morse and building a new rig ready for when he gets his full call. G2AN is now T.R. for the town, and would be glad to receive reports of activities from members.

Lowestoft.—G8DD, who is the only member active, is doing a considerable amount of original work with aerial systems on 14 and 28 Mc.

Norwich.—G6QZ and his gear are now installed at a new QRA and tests have commenced with new aerial systems for 28 and 56 Mc. All other members appear to be QRT, no reports being received.

Great Yarmouth.—BRS2999 reports success with a new aerial using a modified Collins coupler for reception.

DISTRICT 11 (North Wales).

At the November district meeting the writer was criticised for not forwarding regular notes for publication in this section. He pointed out that only one report of any activity had been sent to him during the previous six months. The complainants then promised to forward regular reports of their activity in order to obtain the publicity they desired. No reports have been received. Obviously the D.R. cannot fill this section with glowing reports of activities if members are incapable of the effort required to write to him.

GW5OD has offered to send regular slow Morse transmissions if at least four members will write to him signifying their willingness to become pupils.

DISTRICT 12 (London North and Hertford).

District Representative : S. Buckingham (G5QF), 41, Brunswick Park Road, N.11.

District Scribe : A. W. Hartley (2BTZ). 35, Essex Park, N.3.

Area Representatives :

Area 1.—Rep. : L. Gregory (G2AI), 71, Uphill Grove, Mill Hill, N.W.7.

Church End, Finchley (N.3), North Finchley (N.12), Whetstone (N.20), Hendon (N.W.4), Mill Hill, (N.W.7), The Hyde N.W.9), Golders Green (N.W.11).

Area 3.—Rep. : N. Haskins (G8JR), Dancers End, Fitzroy Park, N.6.

Islington (N.1), Finsbury Park (N.4), Highbury (N.5), Highgate (N.6), Holloway (N.7), Stoke Newington (N.16), Upper Holloway (N.19), Camden Town (N.W.1), Kentish Town (N.W.5).

Area 4.—Rep. : A. J. Mathews (G6QM), 74, Hawthorn Road, Hornsey, N.8.

East Finchley (N.2), Hornsey (N.8), Muswell Hill (N.10), South Tottenham (N.15), Tottenham (N.17), Wood Green (N.22).

Area 5.—Rep. : P. Solder (G5FA), 35, Torrington Gardens, New Southgate, N.11.

Lower Edmonton (N.9), New Southgate (N.11), Palmers Green (N.13), Southgate (N.14), Upper Edmonton (N.18), Winchmore Hill (N.21).

Town Representatives :

Potters Bar : R. Pidsley (G6PI), 118, Mimms Hall Drive.

Welwyn : J. Hum (G5UM), "Byeways," The Drive, Welwyn.

Watford : H. Gibson (BRS1224), 50, Oundle Avenue, Bushey. (This was incorrectly given as P. G. Spencer in last month's issue).

The December meeting held at the Orpheum Cinema, Golders Green, on the 17th, was attended by 34 members. The programme was of an informal nature, except for a short talk by G6CL on frequency checking, and other matters of general interest. Owing to the festive season and election of T.R.'s, reports this month are few, but from observations district activity on the air has been well maintained.

The D.R. wishes all the new T.R.'s and A.R.'s success during 1938.

DISTRICT 13 (London South).

District Representative : J. B. Kershaw (G2WV), 13, Montpelier Row, Blackheath, S.E.3.

Area Representatives :

Anerley : F. H. Lawrence (G2LW), 13, Cintra Park, S.E.19.

Balham and Tooting : G. Edwards (G2UX), 14A, Louisville Road, S.W.17.

Blackheath : J. Hunter (G2ZQ), 63, Hervey Road, S.E.3.

Brixton : L. Sanderson (G8TN), 104, Croxted Road, S.E.21.

Kennington : J. H. Payton (G2JB), 39, Penton Place, S.E.17.

New Cross : L. Shersby (G2GZ), 41, Reverdy Road, S.E.1.

Wandsworth : B. Sadler (G2RC), 40, Loxley Road, S.W.18.

Wimbledon : H. M. Blaber (2BMH), 9, Stanton Road, S.W.20.

Since the December BULLETIN appeared the D.R. has been informed that the statement that no meetings were held in November and December is inaccurate. Meetings were fixed and held in both months at the Brotherhood Hall. We would point out when the notes were written the D.R. had received no notice of any meetings and was exceedingly disappointed by the lack of reports of any activity. It should be remembered that all notes and news, including dates of forthcoming meetings, must be forwarded to the D.R. by the T.R.s not later than the 25th of the month. If such reports are not forwarded clearly they cannot appear in print. When writing the notes for the December BULLETIN the D.R. was, owing to illness, not in a position to enquire personally as to future events, and as no notice was forwarded it was naturally assumed that no meetings had been arranged. A meeting of T.R.'s was suggested for December, but as this had to be postponed it is hoped to arrange one in January. Matters of future policy will then be discussed.

Balham and Tooting Area.—G2JK is active on the 7 and 14 Mc. bands. 5PY is contemplating the construction of a portable 7 Mc. 'phone and CW

rig for holiday use. 2UX has decided to rebuild after all, using a 6L6 tritet and 6L6 doubler to an RK23 final, and has been experimenting on the 28 Mc. band. 2BKB has completed his 7 Mc. transmitter and has been co-operating with G2JK in the matter of B.C.L. interference. We welcome Mr. R. J. Bates, who is a new member of the District and reports for the first time. He intends making application for an A.A. licence in a short time.

Blackheath Area.—G8WO is not yet on the air owing to unavoidable delay with the transmitter. 2WV is hoping to get back on the air in a short time. BRS2913 reports active.

We would remind members that the annual dinner of the S.L.D.R.T.S. will take place at the Half Moon Hotel, Herne Hill, on January 27. The occasion of this dinner is always a very pleasant one, and we do ask every member to make a special effort to be present.

It is with regret that we have to announce that Herr Rosenlund, LA3G, has now returned home to Norway. It has been a great pleasure having him with us and we feel sure that all members will join us in wishing him every success in the New Year. We are very pleased to be able to offer our congratulations to Mr. Chisholm, G2CX, on his election to Council. Mr. Chisholm's work in the past on behalf of the Society is too well known to require elaboration here and we therefore content ourselves with wishing him every success in the future.

In conclusion, the D.R. would like to wish everyone a very happy and prosperous New Year.

DISTRICT 14 (Eastern).

District Representative : T. A. St. Johnston (G6UT), "Ardnanane," New Barn Lane, Great Hallingbury, Bishops Stortford. Tel: Bishops Stortford 785.

Town Representatives :—

Brentwood.—M. B. Edwards (2ALX), "Upwey," West Park Hill, Brentwood.

Chelmsford.—L. J. Fuller (G6LB), 85, High Street, Chelmsford. Tel.: Chelmsford 79.

East Essex.—C. J. Greenaway (G2LC), 24, Percy Road, Leigh-on-Sea.

East Essex.—At the December meeting held at G6CT, there was an attendance of 13, including G2WG from the Brentwood area. Activity is much the same as last month, but more local stations are using 7 Mc., owing to the return of DX conditions. A few are now regularly listening on 56 Mc. G2UK has heard several stations outside the local area on his new 0-V-1 receiver, and is sending reports to all heard. G2LC still has regular contacts with G6NU, 6DH, 2HG and 2MV on this band. It is anticipated that two or three in this area will enter for the 1.7 Mc. contest. The Morse classes, henceforth, will be held every Tuesday instead of Wednesday evening.

Chelmsford.—At the November meeting held at Chelmsford, the attendance was 17. A special welcome was accorded to VK2XC (now at Chelmsford), who gave an interesting talk on Amateur Radio in Australia. The meeting was unanimous in asking G6LB to stand again as T.R., and he reluctantly accepted!

East London.—There was no December meeting. A number of stations intend to take part in the 1.7 Mc. contest. G6UT is moving from Chingford to Great Hallingbury (Essex), near Bishops Stortford. An offer of a QRA for the February meeting is required.

Brentford.—2BKT and 2ALX are busy with code and will apply for full permits early in the new year.

DISTRICT 15 (London West, and Middlesex

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

Town Representatives :

High Wycombe.—V. O. Hawkins (2BVX), 35, Green Lane, Terriers, High Wycombe, Bucks.

North Middlesex.—J. Hearn (G8MA), 47, Eversley Crescent, Ruislip, Middlesex.

South Middlesex.—F. C. Crocker (G2NN), "Deepside," 17, Cross Deep, Twickenham, Middlesex.

West London.—H. B. Crowe (G6CO), 22, Chipstead Gardens, N.W.2.

West Middlesex—E. J. Napier (G8FA), 44, Cranmer Road, Hayes, Middlesex.

Only three T.R. have been nominated, but the names of two others who have served during the last year have also been included for the benefit of members wishing to send reports next month. If no others are nominated and with their consent they will continue in office. Representatives for the Slough and North Bucks areas are required.

The D.R. is meeting the T.R.'s on January 17, when it is hoped that some tangible scheme will be evolved enabling meetings to be held in more parts of the District. Suggestions should be communicated to your T.R. at once.

Christmas and New Year greetings sent to the D.R. are heartily reciprocated, but he finds it impossible these days to send cards to his many friends everywhere.

The January meeting is to be held at High Wycombe. Details will be found under Forthcoming Events.

West London.—G6CO has already fixed up local meetings and would like to hear from members who can offer accommodation. G6CO still rebuilding. 6WN received WBE for 28 Mc. 8WR doing little. 2CMG having blowouts; has been BRS3074 heard HH2B for 110th country since last January. 2CZV testing 6L6 for C.O., and BRS3147 reports for first time. Congratulations to 2AUB, who is now G3BQ, and worked 14 countries, including W6JMR, with nine watts input to single 6L6G tritet.

Middlesex (North and West).—G5JL on 1.7 and 3.5 Mc.; 6LJ busy with 56 Mc. equipment, also new superhet; 8FA using 33-ft. vertical Windom worked about thirty-two countries with eight watts input; 2CCJ is BRS2853, and we congratulate him.

Bucks.—G6JK and BRS2937 have built and rebuilt the Jones Super-Gainer; 6JK also built and tested Jones regenerative C.O., while he and 8JK are trying out telephony; 2RL still rebuilding; 8UZ active; 2BAO building power supply; 2AKZ and BRS2943 both active.

South Middlesex.—Why is it necessary for the T.R. to resort to telephone enquiries to find out

what is being done? G2KI has received two German listeners' reports on his 56 Mc. transmissions, both reports RST569; 2LA contacted ZS1AH and all W districts on 28 Mc. during two week-ends; 6GB built oscillator for morse practice classes, and used with Whetstone transmitter will demonstrate "copper-plate" sending. Active: G2NN, 2VV, 2ZY, 8FV, 8IH, 8MK and 2CZG.

DISTRICT 16 (South-Eastern)

District Representative: W. H. Allen (G2UJ), 32, Earls Road, Tunbridge Wells, Kent.

Town Representatives:

Brighton: C. F. Barnard (G8AC), 90, Coombe Road, Brighton.

Gravesend: R. S. Martin (G2IZ), 41, Mayfield Road, Gravesend.

Whitstable: W. Crossland (G5CI), 13, Queen's Road, Whitstable.

The above are the only T.R.'s who have so far officially been nominated. From what the D.R. has gathered, it is not generally realised that T.R.'s only hold their office for one year unless re-nominated, so it is probable that many Town Groups are under the mistaken impression that they have an official T.R., whereas, unless the man who served in 1937 has been renominated, they have not. In view of the success of the T.R. scheme since its inauguration, it is to be hoped that those towns not featuring in the above list will lose no time in sending in their nominations.

Bromley.—Seven members were present at the last meeting at which several "ham" and all-wave receivers were tested, including the HRO and the *Scott* 23. Congratulations to 2ALL, who is now G3BR. 2NK is on the air again after several months' absence, while 5LB is trying an RK34 on 56 Mc. The next meeting will be on January 22 at *ACS Radio*, Bromley, at 8.15 p.m.

Chichester.—2CIX building battery Tx. G2ZV on 28 Mc. 'phone worked W1, 2, 3, 8 and 9 with 15 watts on Sunday, December 12, from 15.00 to 18.00 G.M.T. 2PF on 14 Mc. C.W. 8RO rebuilding. 5PF on 7 Mc. C.W. 2BBB is rebuilding his 56 Mc. Tx. to 6L6 tritet, 807 quadrupler and T20 PA. 2BGH is constructing a television receiver. (Let's hear how you get on, O.M.—D.R.). BRS3025, 2960 and 2881 report active.

Gravesend.—On Monday, December 6, Mr. Stevens, of *Westinghouse*, lectured on "The Metal Way" and dealt most adequately with rectifier design, with special attention to the well-known Westinghouse Metal Rectifier. Mr. Stevens' talk was much enjoyed by those present, and was voted the best so far of the season. At the meeting held on the 13th, G6CT, supported by 2LC and 2AYJ, gave an interesting account of the Southend Society's direction-finding field days. All stations n the district are active, while 6VC has a 56 Mc. push-pull Tx. in operation, but so far has made no contacts. 2BDL, the secretary, is ill, and we wish him a speedy recovery.

Tunbridge Wells.—G5KV, 6OB and 2UJ are all active. With the aid of a new 132 ft. aerial the former is getting excellent results on all bands, while the latter has completed his T20 PA unit and is extremely gratified at its performance.

Whitstable.—The next meeting of the W.R.A. will be on February 5 at 13, Queen's Road, Whitstable. An interesting programme has been arranged and it is hoped that all within range will attend. Congratulations to 2AMY, who is now G3BD. He is using a 6L6-T20 Tx on 7 and 14 Mc. 5CI is on 7 Mc., while 2AAN and 2AXU are rebuilding.

DISTRICT 18 (East Yorkshire).

District Representative: Mr. W. A. Clark (G5FV), "Lynton," Hull Road, Keyingham, East Yorks.

District Scribe: Mr. A. W. G. Anderson (2AAX), 93, Maybury Road, Hull, Yorks.

Town Representatives:

Bridlington: Mr. T. Woodcock (G6OO), "Conakry," Cardigan Road.

Hull: Mr. A. Bell, (G2XA) 663, Anlaby Road.

Scarborough: Mr. H. Wiggins (G2CP), 1, Tindall Street.

Hull.—At the show of the N.F.D. Films, held on the 15th inst., a good crowd attended and had an enjoyable evening, for which we thank all those who helped to make it a success.

Local stations are very active at present, G2QO has had very successful results on his control carrier experiments. 5MN has been standing by for 5HA's transmissions on 56 Mc., and has reported him R7, which is very good considering local shielding, etc. 6UV testing out 6L6 and finds results satisfactory. 2FS having recently changed QRA is busy rebuilding. 6OS working on 28 Mc., finds DX very spasmodic. Other stations active include G5FV, 5JD, 2XA, 8IM, 2CAQ, 2ABK, 2AGK, 2AAX, also 2CFM, whom we must congratulate upon passing his morse test. Another new station is G8OU (ex YI2FU); we hope to see and hear him quite a lot in the near future.

Scarborough.—G5MV is rebuilding parts of his outfit. 5HZ is awaiting cards for claiming W.A.C. and W.B.E. on 28 Mc.; he is now using Class B modulation to a T20. 8KU is testing 6L6 tritet. 2CP is working DX with a 6L6, and has had his first African contact with FE. Morse practice continues with the A.A. and B.R.S. members.

Channel Isles.

Representative: J. Dowding (G8DO), 5, Well Road, St. Peter Port, Guernsey.

There is little to report from the Channel Islands this month. G8MF has been granted radiating facilities on 28 and 56 Mc., and is busily engaged in constructing a new transmitter.

There is still a complete absence of material for these notes from Jersey.

Northern Ireland

District Representative:—T. P. Allen (GI6YW), 62, Balmoral Avenue, Belfast.

Town Representative:—Belfast, S. Johnson (Gi5SJ), 10, Cyprus Avenue, Bloomfield.

Last month the D.R. mentioned as a sign of activity the 8-way local QSO's on 14 Mc. 'phone, and the Christmas post brought a large and heavy brick as a reward. It did not seem necessary when writing the notes to comment on the practice as it is well-known to be contrary to the consensus of amateur opinion.

Gi2UO is using a crystal frequency of 7176 kc., 8UW is experimenting with a W3EDP aerial, and has built a new modulator using 6L6's in Class A-B,

5SQ is building a new TX, 5SJ has installed a commercial receiver, 5HV has been busy getting a training centre opened for the RNWAR, 5MZ has been hum-hunting.

A recent debate at an R.T.U. meeting on the motion, "That operation, using telephony, on the 7 and 14 Mc. bands, is detrimental to the best interests of amateur radio," was concluded without a breach of the peace, and the motion carried by a majority of 1 vote. "*Gist*," the monthly magazine of the Union, continues to flourish right heartily, and a duplicator has been purchased. The Hon. Editor, BRS2868, deserves at this time our thanks and every commendation for producing in 1937 Gi's own magazine in such a capable way that *every* Gi should be proud of it.

Gi2SP leaves us for Edinburgh; even if he has a GM callsign he will always be a Gi to us. Ever-ready to help in all our activities he will be a valuable addition to the Scottish gang; he carries our sincere good wishes and our hopes that someday he will be amongst us again with a Gi callsign.

The N.F.D. films were shown (and explained) to Queen's University Engineering Society, and created considerable interest.

To all Gi's and friends of Gi everywhere, the writer sends greeting and sincere wishes for the New Year.

Belfast T.R.

Mr. S. Johnson (GI5SJ) was elected T.R. by 15 votes to 6.

Scotland

Hon. Scottish Records Officer:
James Hunter (GM6ZV), 51, Camphill Avenue, Langside, Glasgow, S.1.

"A" District, comprising City of Glasgow:
D.O.: D. M. J. Tyre (GM5TY), 71, Waverley Street, Glasgow, S.1.

"B" District, comprising North of Scotland, Aberdeen, etc.:
D.O.: D. W. Milne, Jr. (GM6BM), 37, Harcourt Road, Aberdeen.

"C" District, comprising Dundee, Angus, Forfar, Perthshire, etc.:
D.O.: J. G. Halley (GM8CF), 180, Lochee Road, Dundee.

"D" District, comprising Edinburgh, Midlothian, etc.:
D.O.: T. W. Readshaw (GM6UU), "Hollywood," Eskbank Road, Bonnyrigg, Midlothian.

"E" District, comprising West of Scotland, excluding Glasgow:
D. O.: J. R. Adams (GM5KF), 22, Wellhall Road, Hamilton.

"F" District, comprising Stirlingshire:
D.O.: D. M. K. Harrower (GM6NX), Forthbank Cottage, Stirling.

"G" District, comprising Borders:
D.O.: B. Groom (GM6RG), "The Hollies," Galashiels.

"H" District, comprising Fifeshire:
D.O.: A. W. Lawson (2ANL), "Makora," Kinghorn, Fife.

We wish all members a very happy and prosperous New Year, and thank all those who sent us good wishes. News is as usual scanty, the festive season evidently leaving little time for writing. To those who are discouraged by the progress they are making in learning morse the following extract from a letter by a BRS member should prove of interest, "particularly if they can learn morse code. I did this after I was 74."

"A" District.—Mr. Tyre (GM5TY) was the only nominee for the position of D.O. for 1938, and at the monthly meeting his re-election was formally carried unanimously. The second of the new mid-monthly meetings was very poorly supported, which fact may be partly explained by a misunderstanding on the part of many members as to the date of the meeting. Mr. J. Troy (GM8RJ) delivered a very interesting lecture on some of his difficulties in putting into operation his latest modulator, together with the solutions of the said difficulties. The next mid-monthly meeting will be held on January 20, and it is hoped that a good attendance will be present. Preliminary arrangements for that most popular event on the R.S.G.B. calendar, N.F.D., were discussed at the usual monthly meeting, and it was decided unanimously that last year's N.F.D. committee should be re-elected *en bloc* to conduct the necessary preliminary work. It has been arranged for the R.S.G.B. films to be shown at the January meeting on the 26th, and it is hoped that all members will make a note of this and endeavour to be present. As the meeting is expected to be busy, it will be necessary to commence the show of the films promptly at 7.30 p.m. A very cordial invitation is extended to the members of all districts to be present this evening. Two new licences have been granted—Mr. W. J. G. Gibson (2BGZ) is now GM3AK, and Mr. J. K. McDowall (2CLO) has become GM3AR.

"B" District.—The district are to be congratulated on their good fortune in acquiring a clubroom on such advantageous terms. Meetings on a fortnightly basis, on Friday evenings, have been arranged.

"C" District.—No news is to hand at time of writing.

"D" District.—It is understood that several A.A. members have received their full calls, but no news has been received from the district.

"F" District.—GM6XW has a new junior op. and also a Super Skyrider. Flitting has been in progress at GM6NX, and, as the result of much hard work, the shack has been safely moved to the new QRA. GM2UD has a fine all D.C. mains operated transmitter using 41 C.O., parallel M43 as doubler, and P.P. parallel 48 as P.A.

"G" District.—GM5FT joins the select and much envied band of H.R.O. owners. GM8NW has new ideas for aerials every week, and as a result is going through much aerial wire. 56 Mc. experiments continue at GM6RG, and DX is hoped for at any time now. Some receiver trouble at GM8RV has been cleared up. He is using three transformer-coupled L.F. stages!

"H" District.—The district continues in a flourishing state. Some much-appreciated renovations have been made at the district shack. The second annual District Dinner will be held in the Station Hotel, Kirkcaldy, on Saturday, January 22, 1938, at 7.30 p.m. for 8 p.m., tickets 6s. 6d. All members are welcome, and those intending to be present are asked to advise Mr. A. W. Lawson (2ANL) not later than January 17.

BRITISH EMPIRE NEWS AND NOTES

British West Indies (Eastern Group)

By VP2AT.

There was an increase in activity during the month in Antigua, but in the other islands very few stations appear to be active at present. 2TG, who has had trouble with his modulator, is back on the air with a new modulation transformer. 2BZ, after several setbacks with his motor generator, has discarded that, and in place has obtained a converter. 2AT has increased power by adding two more 45's to his final, which now consists of four 45's in push-pull parallel.

3THE is a new station in VP3. This station is operated by the Terry Holden Expedition of New York, and is located in the forest in the interior of British Guiana. They have been heard on phone working with amateurs in the 14 Mc. band. Their usual frequency is 13,740 KC., but they have been heard in the 14 Mc. band.

In last month's notes it was wrongly stated that 2AT worked ZU2J on October 23 for the first VP-ZU contact on ten. This should have been ZS2J and the date October 17.

The writer wishes all members a very Bright and Prosperous New Year.

Ceylon

By VS7RP.

No reports from active members were received during November and the few notes there are represent observations made at VS7RP. Conditions on 14 Mc. between the hours of 17.00 and 18.30 were quite good except for the last few days of the month, when there was an increase of QRN. Signals from ZL came in better than for some time past and all zones in this area have been worked. Quite a number of contacts have also been made with VK, but VK6 and 7 signals have been more or less absent. Further afield during these hours occasional W's and LU's have been worked, but signal strength has been on the whole weak. After 21.00 hours local time, signals from the African continent have come in, but unfortunately QRN tends to increase. Regarding the European area, not much listening has been done, owing to the difference in time, but on the few occasions the station has worked late, contacts with PA, HB, D and ON have been made with quite fair results.

The annual B.E.R.U. contests take place in February next, and it is hoped VS7 will be well represented. A small supply of entry forms are available on application to VS7RP. Attention is earnestly drawn to the request made by Headquarters for those not taking part in the contest to refrain from using telephony during the contest or at least to keep it down to a minimum.

It is sincerely hoped that with the advent of a New Year, members in VS7 will endeavour to support these notes with regular reports.

The writer wishes all other amateurs a Happy and Prosperous New Year.

Ireland (Southern)

By EI9D.

At a meeting of I.R.T.S. held in Jury's Hotel on December 10, a very interesting discourse was given by Mr. Alan Jackson, EI8L, on the subject of his 56 Mc. experiments.

EI7C, the call of the brothers Scott of Dublin, winners of the 1931 1.7 Mc. tests, was very well known up to about seven years ago. As G6TS it will not be so readily recognised in EI, but the purpose of this note is to say that Dr. R. D. Scott, 10, Bishop's Way, Andover, now G6TS, is active on 7 Mc. and anxious for EI contacts. He particularly requests reports from EI receiving stations.

To the undernoted new members we extend a hearty welcome :—

Mr. J. W. MacMullen, Faughts Cottage, Co. Sligo.

Mr. Ignatius Higgins, Garda Siochana, Tullamore, Co. Offaly.

Kenya, Uganda, Tanganyika and Nyasaland

By VQ4CRC.

Reports to hand indicate that for the last two months DX reception has, on the whole, been most disappointing, particularly in Kenya. Although listener reports in England have been received, great difficulty has been experienced in contacting G's on 14 Mc. Just recently South African stations, after an almost complete silence for six months, started to come in again, and reception from this quarter is improving almost daily. VK's and ZL's have disappeared completely during the last few months. One active VQ4 station complains that he is unable to contact a South American to give him W.A.C. From Tanganyika VQ3FAR reports contacts with PY, LU and CX. FAR has been experimenting with aerials, and finds that the "W3EDP" type is the best all-round aerial for his locality. It was on this that he raised the South Americans. He also reports that during a QSO with K6OVN, the latter mentioned that the OM prefix for Guam has been changed to K6, and that he, together with K6OJG and K6OCL, were on the lookout for VQ3/4/5.

CRE reports that early in the New Year he hopes to experiment with two beam aerials, one directed on England and the other on America ; he will welcome reports in due course. It is suggested that if G's are anxious to work VQ3, 4 and 5 they should erect a directional aerial.

When these notes appear VQ4CRH will be hibernating in England, whilst VQ3FAR will also probably be on his way home on leave.

We should like to remind G's that VQ4 is *East* Africa, not South or West Africa, as so many letters are now addressed.

Malaya and Borneo

By VS1AA.

No reports to hand. A new letter budget has been started, as the last one was never returned.

VS2AS has been making some contacts on 14 Mc., but nothing has been heard of 3AD. 1AA has been rebuilding his E.C.O., using an R.C.A. 802, and is very pleased with results so far. Quite a number of QSL cards have been received by 1AA from stations he never worked. A pirate is still at work. Seasonal greetings to all.

Malta

By ZB1E.

After a spell of six weeks of very erratic behaviour the 14 Mc. band commenced to improve from mid-December, and VK, ZL, PY and LU stations are now being heard and worked from 06.00 to 08.00, and 17.00 to 19.30 G.M.T. Deep slow fading is very marked on European signals. The 28 Mc. band is practically dead again.

ZB1C contemplates rebuilding for higher power on 28 Mc., and 1H will be off the air for a couple of weeks during rebuilding of the PA. ZB1J finds that the time he spent on trimming the new aerial was well worth the trouble, as DX is now at his beck and call. 1L is preparing to build an amplifier for use with a better but less sensitive microphone. On replacing an old full-wave mercury rectifier (83) feeding 400 volts to the PA of his transmitter, 1E found that his Class "A" modulator oscillated violently, this notwithstanding the previously effective decoupling and the fact that the modulator, together with its power supply, is fully screened and away from the RF and its power supply. It was found that the oscillations which were of the order of a few KC, were eliminated by resistance-capacity decoupling in the microphone and modulation transformers. Individual rectifiers of the same type required different values of resistance and capacity.

BERS416 and 1J's second operator deserve to be congratulated on their rapid progress in the morse code. We welcome G5FW, who has been posted to this station, and expects to be on the air with a ZB1 call in the near future.

New Zealand.

By ZL3AZ.

November saw more activity on the higher frequencies due to the better conditions prevailing. ZL3BJ followed up his good work with ZS5B by a QSO with ZE1JV, and then with ZE1JI. However, in order to do the thing decently, he has built himself a proper final stage, and not using it as a doubler! Using a pair of 210s with about 100 watts, he worked the two ZE stations referred to above. Not to be outdone, ZL3AZ managed to roll out of bed at 6 a.m. one morning and worked ZE1JV. European stations are easily contacted on 14 Mc. around 0800 and again about 1100 G.M.T. In addition to the above, ZL3BJ also contacted ST, which is rather an unusual country for us.

During the 56 Mc. tests from VK on October 23 last, VK2NO was logged in Wellington by Mr. R. A. Morrison on CW. This is the first time that the Tasman has been bridged on this band, and represents a step forward in this work.

Work on 28 Mc. has been carried out by ZL 3 DJ and 3AS. The latter had a QSO with ZS5U, but ZL3DJ went one better with two on October 31, and accomplished WAC in five hours. During this accomplishment he worked TI2FG on telephony.

VQ8AS continues to put a hefty signal into ZL on 14 Mc. between 1130 and 1230 G.M.T. Reports from Auckland indicate that the boys up there are working him easily. He uses only 270 volts from batteries, so his signals are getting out well. In case any readers have worked him and are getting anxious about a QSL, it may be mentioned that VQ8AS is visited by mail steamers only three times a year. All QSLs should be sent via VQ8AF.

If this should catch the eye of CT2BC, will he please note that the writer has called him for weeks on end at about 1830 G.M.T., but without success. In fact, after using many kilowatts of juice, a G station came back and offered to raise him! Any offers of help from readers? The writer's frequency is 14,365 KC. No prizes offered!

The compliments of the season to all readers from New Zealand.

North India

By VU2LJ *via* VU2FX, SU1WM, and G8MA.

BERS311 is now licensed and working under ths call VU2EO, with CO.PA running from 220 volts D.C. mains. VU2DR, 2FV, 2FX are putting out fine signals on 14 Mc. VU2AM is also active, but business curtails his hours on the air. VU2BG and 2LJ have been transferred back to Northern Assam. 2LJ is on the air again, but so far nothing has been heard of 2BG.

During most of the month conditions have been very good about sunset, but shortly after dark, most DX amateur signals fade out; this was most noticeable on December 22. During that evening the high-powered commercial and broadcast stations, from 31 metres down, disappeared after 13.30 G.M.T.

South Africa

Division One.—At our last meeting a very interesting talk was given by Mr. C. Gingold, B.Sc., on the oscilloscope and its uses. The apparatus demonstrated was home built, and caused a great deal of interest.

The 28 Mc. band has been very poor recently, very few stations coming through. The most active stations in this division are ZS1AH and ZS1AN; the latter is now getting his share of DX.

ZS1B compared results obtained between a full wave 20 metre Zepp and a half-wave 20 metre doubtlet. Increased signals were reported from North America and the Philippine Islands on the Zepp, while South America reported an increase in the doublet. In Europe there was very little difference on either aerial. Both aerials run north-east and south-west, with the feeders in the case of the Zepp at the south-west end. ZS1A has again shifted his QRA and hopes to be on the air again shortly. ZS1AN contacted a ship at anchor at Aden and wants to know whether this counts as a new country.

News has just come to hand that ZU6P has succeeded in putting his 56 Mc. signals into U.S.A. Congrats, O.M. Does this constitute a record?

ZS1B.

Division Six.—As previously mentioned in these notes, the radio call signs of many South African radio amateurs will be altered as from March 1, 1938. The prefix ZS will stand for the whole of South Africa, and the prefixes ZU and ZT, at present employed in addition to S, will fall out. The country is divided into six zones; each of these will be known as ZS1, ZS2, and so forth.

The principle of having one prefix for one country has been employed by most countries since the Washington Conference of 1929, and to avoid confusion in establishing the identification of South African amateurs, the authorities have decided to fall into line with the method adopted by these countries.

Members of the African Radio Research Union extend to ZU5B and ZU6C deepest sympathies in their recent sad bereavement in the passing of Mr. Yule, senior.

Our heartiest good wishes go to Mr. H. R. Owen, ZT6C, the Johannesburg wireless inspector, on his retirement from the Government service. All amateurs join with us in expressing the hope that he will live long to enjoy his pension. He was a real friend, and many will miss his help and advice.

We welcome two new amateurs, ZS6EN and ZS6EM. The latter operates on 14 Mc., and is keenly interested in DX. ZS6EN is active on 7 Mc. and keeps regular schedules with Division 5 stations. All members wish these gentlemen the best of luck.

Owing to illness in his family, ZT6X has been inactive. We hope affairs in his household will soon right themselves.

ZT6AQ was active on 14 Mc., and the impression we gleaned from his signals was that he used 50 watts input! Actually, an input of only 25 watts was employed.

We congratulate ZU6AD on obtaining his W.B.E. certificate; and ZU6P, who has received a verification of the reception of his 56 Mc. signal in the United States.

ZT6AD has contacted a number of W6 and W8 stations, and his average report is 56. He operates mostly on the 14 Mc. band.

ZT6R was heard recently working a VE station. In South Africa VE contacts seem as rare as ZL. We should be very pleased to know of the activities of ZS6C, 6M, 6Q, 6AM, ZT6M, and ZU6N.

ZS6T has dismantled his transmitter; he says the modern tubes may be satisfactory, but the lowly '10 takes a lot of beating!

ZU6V still maintains his 14 Mc. DX activity. Recent acquisitions are W4, K4, and FI8. ZU6V received a letter from W6LDJ, who stated that his C.W. signals were the most consistent in California; within the last few months he has contacted no less than 108 W6 stations.

Members are requested to report their activities not later than the 20th of each month.

ZU6V.

South Australia.

By VK5GR.

Conditions on 14 Mc. during November were good, but QRN spoilt operation on 7 Mc. The 28 Mc. band has been open, but it still lives up to its reputation by being erratic.

VK5HW, with an input of 20 watts, has been getting out well on 28 Mc. 5KO has several beams for this band, and is using a T55, 5HG is also on 28 Mc. with a similar final, and like 5NO, is using several directional aerials. 5YL, the first and only YL in VK5, travelled 130 miles to attend the recent W.I.A. Field Day and picnic. 5PN operates on Sunday mornings, giving W.I.A. news to the country members. 5WR is on 14 Mc. with an 802 and 800 combination, 5IT is active again with an 807 final.

During the recent N.F.D., VK5ZX operated portable at Mt. Barber, 2,200 ft. above sea-level. 5FM has an 808 and with his new aerial, is doing well. 5LD is not very active, whilst 5SU, 5MY and 5YK have not been heard.

VK5RJ and 5JC, prominent country stations, are active on 7 Mc.

(B.E.R.U. section members in VK are requested to send news for these columns, to VK2XC, 3MR, 4GK, or 5GR. It is hoped to appoint a VK Representative shortly.—Ed.)

Egyptian Notes

Conditions on 14 Mc., with the exception of VK, ZL, and ZS, have shown a gradual deterioration. A fade-out usually take place at about 17.00 G.M.T., and the only countries audible are those mentioned. The 7 Mc. band has been given a trial, but as far as Europe is concerned, the future of this band seems to be rather hopeless. Commercial interference is steadily increasing, and in addition the quality of the signals emitted gets worse day by day.

Two interesting visits have recently been paid by well-known amateurs. First, G8QC called on his way back to G after being in the Near East on business. As a result of a slight delay in his return arrangements, he was also able to be here on the same day that VQ4CRH arrived. The latter, too well known to need further introduction, was also on his way to G, on six months' vacation. Prior to his arrival, the writer had several R8/9 schedules on 'phone with VQ4CRE, and it was hoped to afford Mr. Lane the opportunity of a personal QSO with some of his fellow-amateurs in Kenya. Most unfortunately, however, fate decreed otherwise, as conditions on the night arranged for the schedule were very poor. However, a most pleasant meeting took place between VQ4CRH, G8QC, SU1SG and the writer, and it is sincerely hoped that we shall all be able to renew acquaintances when circumstances permit.

SU1RD, who has tried out the 6A6-804 combination mentioned last month, is again rebuilding after discovering that enough drive to the final could not be obtained from a 6A6 stage alone. Local tests and inability to effect outside QSO's proved his point of view, so the whole transmitter was pulled down. The next is to be a 42 C.O., 6L6G triode connected buffer, and 804 P.A. This should give all the drive required and it is hoped that when completed, everything will perform in a much more satisfactory manner.

SU5NK has also remarked on the changed conditions on 14 Mc. Activity has been irregular as a result and constructional work undertaken. His new transmitter consists of a 59 Jones Oscil-

lator, a 6L6 F.D. and the usual 801 P.P. final. Two new receivers have been built, one a super, for 56 Mc., and an ordinary straight three-valver. All the above are now working quite satisfactorily. In addition to the above, the power transformer supplying the Class AB modulator stage has been taken down to provide extra L.T. secondaries.

SU1RO, who has been on very little X has been checking and calibrating measuring instruments recently contructed. The two chief items concerned are a 0-320 AC voltmeter and a 0-100 vacuum tube voltmeter. A superhet. converter for 56 Mc. has also just been put on test but no details as to performance are, as yet, available.

SU1SG is now so busy on the work involved in presenting the *E.R.S.E. Bulletin* in its new and improved form that he has not been active on his usual transmitter. However, he carried out a very successful test with the writer on 7 Mc. with what is intended to be a trans-receiver using a Type 19 valve as a P.P. C.O. Only the transmitter portion has been tested, the power being taken from a small generator giving 150 volts at 50 mA, and which once did service in a motor-car radio set.

From SU2TW we hear that the modulator speech equipment is almost completed. He is now awaiting valve supplies for various purposes, including the 28 Mc. B.A. The receiver for this band is now working very satisfactorily, as is also the transmitter. Some experimental work using relays has been carried out, with the result that 100 per cent. break-in operation on C.W., has been achieved. On telephony, an electronic relay is at present under test with the same end in view.

Early fade-outs on 14 Mc. during the past month have curtailed the operating activities at SU1WM. Apart from W6 and 7, VK and ZL, only U8IB and TA1AA (?) are of worthwhile mention on this band. On some occasions a change-over to 7 Mc. has been made before the European QRM became intolerable. In reply to a CQ-U9, a very pleasant surprise came when an answering station signed UONB and gave Yakutsk as his QRA.

SU1MW.

Empire Calls Heard.

By Eric W. Trebilcock (BERS195), Darwin, North Australia. November, 1937.

7 *Mc. C.W.*—zs1cx (56), 2g (55), 6ej (55).
14 *Mc. Phone:*—vp3the (57), vs2ak (55), 6ab (56), vu2cq (56), zs5ab (56), zu6af (55).
14 *Mc. C.W.*—g2qt (44), 2xn (56), 6dt (44), 6rj (55), 8hh (55), gm5yg (55), su1ch (55), 1db (44), 1kg (44), 1ro (55), 1sg (55), 1wm (54), 2tw (43), ve1er (55), 2ge (55), 2li (44), 3agx (55), 3ahn (55), 3ci (44), 3fb (55), 3qh (55), 3qi (55), 4ro (56), 5 bi (33), vo4y (55), vp2cd (56), 2tg (56), 4cf (55), vq8ab (55), 8as (57), vu2ae (44), zb1h (56), 1j (55), ze1jg (55), 1ji (55), 1jv (43), 1jz (56), zl2cw (58), 2vc (55), 3az (57), zs1ah (57), 1al (56), 1an (55), 1av (45), 1ax (56), 1z (58), 1bd (55), 2f (45), 2g (54), 2p (54), 3f (55), 4h (55), 5ab (55), 6ad (55), 6aj (56), 6ba (54), 6k (55), 6w (54), zt2u (56), 5g (55), 5p (56), 5y (56), 5z (56), 6ad (44), 6ay (56), 6u (55), 6y (56), zu2b (56), 2g (55), 2j (55), 5aq (57), 6ad (56), 6af (57), 6am (55), 6c (45), 6u (33), 6v (55), zt1q (34), zu2x (55).

EDITORIAL—(*Continued from page* 349.)

No one can forecast the outcome of the Cairo Conference, but in wishing success to the efforts of our Representatives, we can take pleasure in the knowledge that no organisation has done more than the International Amateur Radio Union to safeguard the interest of its members, by careful spade work and friendly co-operation. J. C.

MONTH ON THE AIR—(*Continued from page* 368.)

pirate because he refused to disclose his identity, gave G8MS a QRA as being off Viborg, and is now believed to be a Finnish ship using his legal call.

I1IR (now H.B.E. holder) sends in an interesting report and tells us that he has received a card from SNTX, giving his QRA has: Chef Telegraphie, Barcelona, Espagne. Many years ago he received a card from OY1B, which was then the call of the s.s. *Lituania*, in the Baltic Sea. He queries if ON4CJJ (now OQ5AQ) and VS6AX send cards. The answer is "Yes" in both cases.

During the last few days of the old year several G's who had during past year's contacted ON4CJJ were pleasantly surprised to receive a New Year gift in the form of a QSL from the operator, who is now OQ5AQ, and was also formerly FC4CJJ. Motto: Never despair!

With this issue we present our long-awaited list of countries of the world with full explanations. The compilers hope it will set a standard for the British Empire. It has not been produced in a hurry, nor is it the opinion of one or two individuals.

CORRESPONDENCE—(*Continued from page* 385.)

use of a good key filter, it is possible to run my transmitter on the 1.7 Mc. band, whilst the B.C.L. receiver is being used in the next room, and cause no interference. Enquiries amongst near neighbours also result in negative reports. I hope this will be of interest and encourage others to try the 1.7 Mc. band before 22.30.

Yours faithfully,
P. G. Hester (G5HS).

Ham Movements

Mr. Jack Drudge Coates, G2DC, left for India on January 8, carrying with him the good wishes of the many G's who have had the pleasure of his friendship whilst resident in Liverpool and the South of England. Mr. Drudge Coates was co-operator at YDCR, the famous Indian amateur station operated during the years 1924-1928. His present QRA is Signal Training Centre, Jubbulpore.

C. P., India.

Mr. Andrew Boa, G5BO, has just left to take up a position, as Assistant Engineer, with the Eastern Telegraph Company, Malta. He has been a prominent North London amateur and expects to be licensed shortly under a ZB1 call.

QRA Section

Manager: H. A. M. Whyte, G6WY.

NEW QRA's.

G2CG.—C. W. Howse, "Kneesworth," Near Royston, Herts.
G2FX.—M. S. Bell, 17, Bainbridge Road, Leicester.
G2HX.—L. O. Rogers, "Hillworth," 1, Dean Park Villas, Plymstock, Near Plymouth, Devon.
G2IC.—G. A. Chapman, 19, Arundel Road, Margate, Kent.
G2JZ.—J. V. Rushton, 134, Mount Road, Wolverhampton, Staffs.
G2KL.—F. N. Evans, 15, Rochester Road, Gravesend, Kent.
G2MA.—D. D. Marshall, "Moorlands," Hall Road, Moorgate, Rotherham, Yorks.
G2PW.—D. E. Asher, 150, Boulton Road, Handsworth, Birmingham.
G2SD.—R. H. Streete, Grey Roofs, Princes Drive, Littleover, Derby.
G2SG.—V. Dunk, 50, Coniston Road, Muswell Hill, N.10, London.
G2SJ.—K. N. Franklin, 128, North Road, Hertford, Herts.
GM2SL.—S. S. Macilwain, 38, Ashburton Road, Glasgow, W.2, Scotland.
GW2UH.—E. A. Hayward, 44, Llanishen Street, Cathays, Cardiff, South Wales.
GW2XZ.—L. W. Hancock, Penturnpike Road, Dinas Powis, Glamorgan, South Wales.
G2ZZ.—W. H. Peek, 20, Hilditch Street, Poplar, E.14, London.
G3AA.—T. P. Summerton, 12, Roland Avenue, Nuthall, Near Nottingham.
G3AF.—N. K. Sunter, 148, Manchester Road, Manchester, 16.
G3AG (ex G6IN).—F. Inchley, The Elms, Chester Road, Castle Bromwich, Warks.
G3AH.—J. D. Wightman, 45, Davyhulme Road, Davyhulme, Near Manchester.
G3AI.—H. J. Carter, 29, South Esk Road, Forest Gate, E.7, London.
G3AO.—S. Levings, 55, Derbyshire Road South, Sale Moor, Cheshire.
G3AQ.—C. E. Sutton, 178, North Street, Coventry, Warks.
G3AS.—Fred C. Hinton, Penrice, Broadlands Way, Taunton, Som.
G3AT.—John H. Ayre, "Stel-Mar," Victoria Place, Eastbourne, Sussex.
G3AY.—W. N. Follis, 47, Stonewood Avenue, Hall Green, Birmingham, 28.
G3BD.—T. M. Elvy, "Thirlmere," Northwood Road, Tankerton, Whitstable, Kent.
G3BJ.—John Weaver, 29, Park Mansions, Hendon Central, N.W.4, London.
G3BK.—F. W. Crabtree, Marcroft, March, Cambs.
G3BM.—W. E. C. Knott, Henning's Dene, Dorchester Road, Oakdale, Poole, Dorset.
G3BO.—D. H. Jones, "Westover," Windmill Lane, Northam, North Devon.
G3BQ.—Hugh Banting, 35, Lime Grove, W.12, London.
G3BU.—H. G. Smith, 68, Balfour Street, Leicester.
G3BV.—P. A. Congreve, 8, Ilkestone Road, Bramcote, Notts.
G3BX.—C. J. Sanders, Rodings, Roding Lane, Chigwell, Essex.
GM3BZ.—J. Cleghorn, 37, Dundee Terrace, Edinburgh, 11, Scotland.
G5AS.—Jack Elphick, Burnham College, Somerset.
G5BK.—W. G. H. Brown, 200, Prestbury Road, Cheltenham, Glos.
G5DA.—R. J. Bee, 25, Craven Park Road, Stamford Hill, N.15, London.
GM5GK.—R. T. Batchen, 15, Charterhall Road, Edinburgh, Scotland.
G5NG.—M. Holford, M.A., Strode's School, Egham, Surrey.
G5PA.—S. R. Deards, 38, Marlborough Road, Queens Park, Bedford.
G5TG.—F. H. M. Anderson, Selby House, 9, South View Terrace, South Shields, Durham.
G5UJ.—S. G. Wood, "Sunnymead," 80, East Bawtry Road, Rotherham, Yorks.
G5WM.—J. H. Worrall, 80, Boileau Road, Ealing, W.5, London.
G5XV.—R. Y. Parry, 28, Tyndalls Park Road, Clifton, Bristol, 8, Glos.
GW5YB.—R. Ashton, Bryn Afon, Penmon, Anglesey, North Wales.
G6AO.—A. Oates, 74, Warren Street, Savile Town, Dewsbury, Yorks.
G6BU.—T. Biggerstaff, 42, Fulready Road, Leyton, E., London.
G6DH.—D. W. Heightman, 234, Burrs Road, Great Clacton, Essex.
G6FO.—A. J. E. Forsyth, 29, Stow Park Avenue, Newport, Mon.
G6HL (ex ST2D, SU6HL).—Sgt. I. E. Hill, No. 3 F.T.S., R.A.F., South Cerney, Near Cirencester, Glos.
G6JG.—C. W. Jennings, 22, Queens Drive, Bishopston, Bristol, 7.
G6KJ.—W. Krohn, 141, Chiltern Court, Baker Street, London. W.1.
G6LY.—C. T. Barrington, 49, High Street, Taunton, Som.
G6TD.—J. R. Tuck, 121, Grayswood Avenue, Coventry, Warks.
G6UM.—P. X. Fox, Newlaithes Cottage, Horsforth, Yorks.
G6UT.—T. A. St. Johnston, "Ardnanane," New Barn Lane, Great Hallingbury, Essex.
G6YZ.—A. W. Childs, 24, Horsell Moor, Woking, Surrey.
G8DY.—A. P. Morgan, "Hazlehurst," Main Street, Shilton, Near Coventry, Warks.
G8GH.—K. Butt, Linden Cottage, Shelley Hill, Highcliffe-on-Sea, Hants.
G8IV.—G. I. Vokes, 18, Broadfield Road, Catford, S.E.6, London.
G8IY.—T. Toward, 136, Reepham Road, Norwich, Norfolk.
G8JA.—C. Hindle, 308, Wensley Street, Blackburn, Lancs.
G8LI.—F. H. Babcock, "Gledhow," The Chase, Kingswood, Surrey.
GM8LJ.—James Marshall, 32, Kincardine Road, Crieff, Perthshire, Scotland.
G8MC.—Geo. H. Evans, 30, Perrywood Road, Great Barr, Birmingham.
G8NJ.—F. H. Clarke, 32, Alder Road, Longford, Coventry, Warks.
G8OF.—R. Taylor, 45, Everard Street, Crosland Moor, Huddersfield, Yorks.
G8PF.—H. E. Bennett, 227, Lexden Road, Lexden, Colchester, Essex.
G8QX.—K. Hopkinson, 4, Stephen Hill, Crosspool, Sheffield, 10, Yorks.
G8UN.—P. Harrad, 117, Heywood Road, Prestwich, Manchester.
G8VS.—G. Sellers, 177, Paley Road, Bradford, Yorks.
G8VV.—J. Teasdale, 1, St. John's Terrace, South Shields, Durham.
G8WA.—Geof. Whitehouse, 2, Taunton Road, West Bridgford, Notts.
G8WG.—E. Redfearn, 93, Gaythorne Road, West Bowling, Bradford, Yorks.
G8WQ.—Weymouth and District Short Wave Club, 15A, Hope Street, Weymouth, Dorset.
G8WS.—F. E. Stallworthy, 3, Farwell Road, Rawdon, Near Leeds, Yorks.
GW8WU.—E. H. Robins, 58, Kyle Crescent, Whitchurch, Cardiff, South Wales.
G8WV.—N. H. Sedgwick, 3, Grange Avenue, Woodford Green, Essex.
2AOV.—George W. Berry, 1569, Coventry Road, South Yardley, Birmingham.
2AUK.—J. R. Seager, The Laurels, Park Wood, Doddinghurst, Essex.
2AVQ.—G. V. Catt, 47, Church Street, Old Town, Eastbourne, Sussex.
2AZF.—L. King, 38, Portland Street, Daybrook, Notts.
2BAB.—R. C. Harris, 254, Woolwich Road, Abbey Wood, S.E., London.
2BHL.—W. C. Keasley, "Roborough," Shaw Crescent, Sanderstead, Surrey.
2BIY.—Rev. T. G. Geddes, The Rectory, North Tuddenham, Dereham, Norfolk.
2BKF.—G. E. Munro, 16, Lawrence Street, Long Eaton, Nottingham.
2BMD.—R. R. Eva, Laity, Wendron, Helston, Cornwall.
2BNH.—I. Hilton, 17, Buller Crescent, Leeds, 9, Yorks.
2BNN.—K. C. Ord, "Ellington," Tattershall Drive, The Park, Nottingham.
2BUC.—N. H. Clark, 32, Stella Street, Mansfield, Notts.
2BUV.—D. F. Waddington, 7, Court Drive, Sutton, Surrey.
2BYD.—W. V. Williams, Myrtle Glen, Wembley Avenue, Lancing, Sussex.
2CAF.—A. Mordey, Fernhill, Llantarnam, Near Newport, Mon, and at "Rutland Hall," Loughbro' College, Loughborough, Leics.
2CCK.—H. J. Hathrill, 11, Walton Gardens, Acton, W.3, London.
2CDL.—D. F. Davies, 51, Theresa Avenue, Bishopston, Bristol, 7.
2CDM.—W. W. D. Moore, 36, Beechwood Crescent, Newport, Mon.
2CFA.—G. R. Slaughter, 69, Bridge Street, Gainsborough, Lincs.
2CGO.—G. Gordon, Deecastle Dinnet, Aberdeenshire, Scotland.
2CHZ.—G. E. deM. Lewin, Rough Down, Salvington Hill, Worthing, Sussex.
2CIX.—A. S. Davey, 9, Russell Street, Portfield, Chichester, Sussex.
2CJT.—J. F. Chittenden, 50, Osborne Road, Willesborough, Ashford, Kent.
2CLR.—International Short Wave Club (London Chapter), 80, Theobalds Road, W.C.1, London.
2CMP.—W. L. Grummitt, 3, John Street, Greetland, Near Halifax, Yorks.
2CVT.—R. C. Frost, 44, Barrow Road, Streatham, S.W.16, London.
2CZP.—C. E. Parini, 19, Jubilee Road, Higher S. Badeaux, Devonport, Devon.
2DAB.—A. Graham, 39, Cartvale Road, Langside, Glasgow, S.2, Scotland.
2DBC.—J. R. Hooper, 30, Marmion Avenue, South Chingford, E.4, London.
2DCG.—E. R. Dolman, Holly Mount Cottage, Crosby Green, Liverpool, 12.
2DCL.—T. N. Lloyd, 45, Romney Road, Willesborough, Ashford, Kent.

Cancelled: G2DC, G2FQ, G2PH, G2PT, G2QV, G2RU, G2YU, G5AM, G5BO, G5LT, G5QB, G6HK, 2AAZ, 2ABQ, 2ADJ, 2AFW, 2AIK, 2AKI, 2AMW, 2AMY, 2AQX, 2ART, 2ARY, 2ASR, 2AUB, 2AXF, 2BAM, 2BHZ, 2BJC, 2BMU, 2BPC, 2BUD, 2BVC, 2BVT, 2CAG, 2CDF, 2CFI, 2CFJ, 2CGH, 2CHB, 2CKQ, 2CMJ, 2CPS, 2CQG, 2CQP.

Mr. C. R. Emary, G5GH, writing c/o The Foreign Office, tells us that his call sign is being pirated on 7 Mc. by a station who is getting T4 and T6 reports when not using over-modulated telephony. G5GH says he will not use 7 Mc. until a separate telephony band is allotted !

EXCHANGE & MART

(Continued from Back Cover)

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