

**R·S·G·B**

# **BULLETIN**

JOURNAL OF THE RADIO SOCIETY OF GREAT BRITAIN

**July 1946**

*The original front cover for this edition was not available.*

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# AROUND



# THE DISTRICTS

## DISTRICT 1 (North Western)

*D.R.:* H. W. Stacey, B.E.M. (G6CX), "Sandreas," Eddisbury Road, West Kirby, Cheshire. Hoynlake 337. *Scribe:* A. B. Wright (G6FW), 106 Knowsley Road, St. Helens.

*P.D.M.*—To enable the General Secretary to attend, arrangements have been made to hold the P.D.M. in Manchester on October 13 instead of on September 29.

*Manchester.*—There was an attendance of 82 at the meeting held on June 25. It is hoped to hold a further meeting on or about July 25 at the Y.M.C.A. Arrangements have been made for G3MR (1975 kc/s.) to announce the actual date over the air. He will be on schedule on Wednesdays at 2000 B.S.T. and on Sundays at 1100 B.S.T.

*General.*—The D.R., who is still engaged in the purchase and distribution of Admiralty Electronic Scrap, wishes to thank G6OM (the acting T.R.) for his invaluable assistance in the Manchester area. At this stage no letters of authority for individual purchases can be issued but when all bulk purchases have been made the position can be reviewed subject to the approval of the Admiralty. Members are reminded that this scheme was originally intended for the benefit of the Universities and Educational Authorities and that the Society was included only through the persistent efforts of Council and the General Secretary. In these circumstances every member *must* comply strictly with the conditions imposed by the Admiralty. Supplies to any Group in the North-West whose members fail to observe the conditions will be cut in fairness to the membership as a whole. G6CX.

[The remainder of the Notes from District 1 were received too late for publication.—Ed.]

### STAMPED ADDRESSED ENVELOPES PLEASE

When writing to your D.R. on any Society matter please enclose a stamped addressed envelope if a reply is required.

## DISTRICT 2 (North Eastern)

*D.R.:* C. A. Sharpe (G6KU), 56 Moore Avenue, Wibsey, Bradford. Bfd. 10772. *Scribe:* H. Beadle (G8UO), 13 Chandos Street, Keighley, Yorks.

*Bradford.*—Meetings at Cambridge House continue to be well attended. Most stations are active on 1.8. G8JD (Chief R./O. M.N.) is still around the Med. but hopes to be home soon. He sends 73 to 2FUD, 2FWK, 3HC and 2UY.

*Doncaster.*—The local society meets every Wednesday at the Leopard Hotel at 7.30 p.m. 3NJ is getting good results on 1.8. *Skipton.*—8676 (R.A.F.) is now operating ZB2A. The licence is held by G8BI. 8676 is building a 6V6-807 transmitter.

*Keighley.*—Mrs. G2VO acquired a very nice "flit" while serving with the W.A.A.F.; we hope to hear her on the air soon with her own call. G2CPF worked GW, GM and GI in three consecutive QSO's using a 6L6 CO on 1.8.

*Halifax.*—The Scribe recently visited G8SJ and was much impressed with his gear. 2DUX, 39 Fountain Street, Sowerby Bridge, would like to hear from S. E. Richards, BR86642. 5386 is in hospital and we wish him a speedy recovery. Congrats to 6807 on his engagement.

*Huddersfield.*—2AJH, 2BMC, 3CD, 3VP, 5VD, 6201, 6268, 6340, 6943 and 12441 attended recent meetings.

*Wakefield.*—G5LH who has been visiting GI got rather a shock when he found that G16YW had obtained a couple of 10 watt amplifiers among his electronic scrap!

*Sedburgh.*—G8TP is now demobbed and active on 1.8.

G8UO.

## DISTRICT 3 (West Midlands)

*D.R.:* V. M. Desmond (G5VM), 92 Worcester Street, Birmingham, 5. *Scribe:* E. J. Wilson (G2FDR), 48 Westbourne Road, Olton, Birmingham.

*Birmingham.*—At a meeting of M.A.R.S. held on June 18 when 59 members and visitors were present, Sq./Ldr. J. Rockall, G2ZV gave an interesting talk on R.A.F. Signal Equipment.

*Covenry.*—At the A.G.M. of the C.A.R.S. the following officers were elected:—Chairman, G5GR, Hon. Secretary, G2YS, Hon. Treasurer, G2LU.

Through the good offices of G6WX (Manager of the G.E.C. Tele-communication Dept.), several members were able to visit the works.

*Wolverhampton.*—A meeting of the W.A.R.S. was held on June 3, when several new members attended.

G3XV is sending slow Morse on 1883 kc/s. every night except Sunday at 8 p.m., G8KL is also providing a similar service on 1888.5 kc/s. every night at 10 p.m. The following are also active: G6FK, 2DUK and HUR.

BRS12043, now in Colombo, has made good friends with VS9RP.

G2FDR.

## DISTRICT 4 (East Midlands)

*D.R.:* J. Ridgeway (G2RI), 90, Romway Road, Leicester-Phone 24295.

The D.R. is receiving many applications for a letter of authority to visit Naval Stores. Members should bear in mind that these letters can only be had for a short period and as much notice as possible should be given of the intended date, otherwise it becomes impossible to fit the common need. From information received it would seem that opportunities will be better later on, the selection of gear just now being very restricted.

*Derby.*—Meetings are progressing at the new H.Q. (see June BULLETIN) but the continued absence of so many BRS members is causing concern. The T.R. would be glad to have information on crystal frequencies in order to compile a register for circulation. Meetings will be held on August 11 and 25.

*Nottingham.*—A discussion on aerials was opened at a recent meeting by Mr. B. H. Singleton and as this proved to be very popular it is being continued. Suggestions for further discussion will be welcome. G2A00 and G2FXV are welcomed to the air. The T.R. did not have a single reply to his request for crystal frequencies and would like information as soon as possible. He would also like to see some of the older members at meetings; his phone number is Nottingham 84491.

*Leicester.*—June 2 was the occasion of our P.D.M. and a proud day for the district. The Council members who attended said we had produced a record attendance and were kind enough to express complete satisfaction with all arrangements. Dud Charman did his wonderful best and has our very sincere thanks. Arthur Milne does not carry a black book but t'would seem he can talk as long and as convincingly as does our old friend Clarry. We had a grand time and DX members present were from XU and VK. The D.R. would like to acknowledge the work of G2IX, G3BU and 2BLR in connection with the P.D.M.

There is a meeting in Leicester every third Sunday of each month at 27 Belvoir Street, 2.30 p.m.

The P.D.M. photograph did not turn out too well, but the T.R. has arranged for a reduced price. Inquiries should be addressed to G2IX, 27 Francis Avenue, Leicester. G2RI.

## DISTRICT 6 (South Western)

*D.R.:* W. B. Sydenham, B.Sc. (G5SY), Sherrington, Cleveland Road, Torquay. Torquay 2097.

*Torquay.*—A good attendance was recorded at the meeting held on June 22 when several new members as well as G2CWR and 3171 recently demobbed were welcomed. The T.R. dealt with Society business, and also with the question of Admiralty Electronic scrap.

After a discussion had been opened on recent 58.5 Mc/s. work G2BMZ gave an account of conditions and achievements in the South West. Several members reported on the reception of Television programmes which they had witnessed in Torquay. Next meeting July 20 at the Y.M.C.A. G2GK.

*Taunton.*—At the meeting held on June 16, a lecture was given by Mr. Swanson on Radar. This was aptly delivered and much appreciated. Members present were:—G2JM, 40M, 5AK, 5LM, 5UY, 6LY, 2DRW, BRS10230, 10253, 12283 and 12471.

*North Devon.*—In extending a hearty welcome to the new members who have recently joined the group, the T.R. regrets that it has not yet been possible for him to make personal contact but he hopes to do so in the near future.

G6GM, 8US and 2CVY (the latter a new member but an old hand), are active on the top band. 6GM and 8US are on 14. Members will be pleased to hear that G6GM's brother (ex-VS6AH), is now residing near Bridgwater; his call is G6NC. G3BO.

*Penzance.*—At the Penzance meeting on June 6, it was decided to form "The West Cornwall Radio Club," to work in close harmony with R.S.G.B. The meetings which will be joint affairs as members of the club must be members of R.S.G.B., will be held on the first Thursday in the month at Penzance, and on the third Thursday at a venue to be fixed in Falmouth. The following were elected to office:—Mr. D. J. Beattie (G2WW), President, Mr. R. V. Albright (G2JL), Hon. Secretary, Mr. H. Wright (G6LV), Assistant Hon. Secretary. G2DDR, 2DFH, 2FQD, 2NL, 2JL, 2WW, 4IV, 6BC, 6LV, BRS1859, 7222, 10083 and Mr. Caddy were present. G2JL.

*General.*—The D.R. wishes to make it clear to all who are interested in Admiralty scrap that as far as Devonport is concerned, there is nothing doing at present. Certain other interested

groups with higher priority have not yet been satisfied, in addition there is very little gear available which is of value to the average member. Whether there ever will be is by no means certain.

G5SY.

### DISTRICT 7 (Southern)

*D.R.:* W. E. Russell (G5WP), "Milestones," Mayford, Woking, Surrey. Woking 1589.

*Coulsdon.*—At the June meeting of the Surrey Radio Contact Club which was again well attended, G5BT concluded his series of talks on "Getting Started Again." The T.R. recently had the pleasure of a visit from ZS6DO.

Next meeting August 13, at Blacksmith's Arms, South End, Croydon, at 7.30 p.m. G2ANR is now on 28. BRS3003.

*Cheam.*—BRS7605, 5, Priory Crescent, Cheam, is investigating the support likely to be given to local meetings in this area, and would like to hear from others interested in the project.

*Dorking.*—BRS6870, "The Bush Inn," Horsham Road, Dorking, is also anxious to start meetings.

*Croydon.*—A sale of gear was the main feature at the last combined Districts 7 and 13 meeting, when a collection for Field Day expenses was taken. It is hoped to find a new venue for meetings in Croydon and to make an announcement next month. G2DP.

*Guildford.*—The next meeting will be held at G2YL, Petersmead, Meadow Walk, Walton-on-the-Hill, Tadworth, on Sunday, August 25, at 2.30 p.m. A postcard to Miss Corry if you intend to be present, please.

*Naval Surplus.*—The Portsmouth Dockyard will have, from time to time, gear for disposal to members. The letters of authorisation are only available, in the first instance, to T.R.'s who, it is hoped, will be able to make arrangements for bulk local purchases. Later on it should be possible to look after the needs of the smaller groups in the remoter parts. There are T.R.'s, or acting T.R.'s, in Basingstoke, Bournemouth, Coulsdon, Croydon, Guildford, Maidenhead, Portsmouth, Reading, Southampton, and Weybridge. G5WP.

### DISTRICT 8 (Home Counties)

*D.R.:* S. J. Granfield (G5BQ), 47, Warren Road, Cambridge. Tel.: Cambridge 54644.

At a District Meeting, held at "The Jolly Watermen," Cambridge, on June 14, a most interesting talk was given by Mr. L. Bennett on Frequency Modulation.

*Cambridge.*—G5DQ and 8FF now home from the Services are reconstructing. 5BQ is also rebuilding. 2XV and 5JO are using very satisfactory pre-selectors, the circuit for which was worked out in the sands at Gt. Ormesby, during an Easter Holiday! 2DT who drove a G.P.O. mobile transmitter in the Victory Parade is still active on 1.8. 8SY has completed a three-element rotary beam. Zero Hour on 14 Mc/s. was eagerly awaited by the locals. One well-known member spent the previous day in bed so that he would be well rested to work the long line of DX stations he confidently expected would be waiting to hook up with him!

*Peterborough.*—In ten weeks 2NJ had 300 contacts on 1.8, largely from his London QRA. His best report was S7 from Berlin. He uses a 6L6 as C.O.

*St. Ives.*—Welcome to new member, Mr. F. Jones of Bluntisham. G5BQ.

### DISTRICT 9 (East Anglia)

*D.R.:* H. W. Sadler (G2XS), The Warren Farm, South Woolton, King's Lynn, Norfolk. Castle Rising 233.

*Kings Lynn.*—At least 9 stations are active on 1.8, we wonder if this is a record for a town of its size. Welcome back on the air after a very long illness is 2JS. 2HBZ home again is making himself very useful to us all. We regret that last month we referred to 2AOZ as 2AOG. 4LO also back hopes soon to be on 1.8.

*Ipswich.*—A meeting will be held on Sunday July 21. Those able to attend should contact Mr. Pepler (G2JD), 162 Sidgate Lane, Ipswich, for particulars. 8MU and 2AN both active on 1.8 will soon be joined by 8WW of Felixstowe. G2XS.

### DISTRICT 10 (South Wales & Monmouthshire)

Mr. Alan Dyer, GWSUH, 29 Ladysmith Road, Penylan, Cardiff, has been appointed Deputy D.R. for South Wales and Monmouthshire. Mr. Dyer will act on behalf of the D.R., Mr. Hugh Phillips, GW4KQ, who is seriously ill.

*Cardiff.*—At a well attended meeting held at the Park Hotel on June 17, the members present discussed methods of assisting BRS members who wish to qualify for a licence by examination. It was decided to inaugurate a series of instructional classes on Monday evenings throughout the winter session, commencing on September 2. These classes will be under the capable guidance of BR88367 and are to be held at the QRA of BRS10,722. Those wishing to participate are requested to communicate with the acting T.R. It was also decided to devote some period during the regular monthly meetings to a "Brains Trust," the members of the trust to be drawn from those present at the meetings.

Some misunderstanding has arisen regarding the status of the Cardiff meetings and it should be clearly understood that they are in no way official District 10 meetings, but organised for the benefit of members in Cardiff and surrounding areas, but all who can attend will be welcomed.

Congrats. to 2FVD on passing his Morse test.

BRS10,374.

*Swansea.*—Meetings continue to be held every fortnight and are well attended. On May 29 BR55882 brought along his 100 kc/s. sub-standard bar and calibrated a couple of receivers. GW4CC.

*Abergavenny.*—G2BG has a list of local members and is endeavouring to start meetings. Will all those interested please communicate with him.

*General.*—All District 10 will be sorry to hear of Hugh Phillips' serious illness and will wish him a speedy recovery and a quick return to Ham Radio. GWSUH.

### DISTRICT 11 (North Wales)

*D.R.:* F. J. E. Starkey (GW6KY), "Endon," Granat Road, Prestatyn, North Wales. Scribe: C. Spillaine (BRS1060), 14 Queensway, Prestatyn.

*Prestatyn.*—The monthly meetings held at the Savoy Café are being well supported. On June 23 our visitors included GW3JI, 4MZ and 4OH from Llandudno. GW3CF, GW5FU, 6KY, 5YP, 2DAH, BRS1060, 2731, 11,062 and 12,298 were also present. Until some of the other areas can find a venue for meetings they will continue to be held in Prestatyn. The next will take place at the Savoy Café on July 21, at 3 p.m., and all are welcome.

GW3CF has been conducting QRP experiments on 1.8 and on one occasion after having cut his power down to 1.1 watts and removing his aerial was still heard by G8TI, Fleetwood! 6KY is now active on 1.8 but is having receiver trouble.

*Llandudno.*—Mr. Jones, GW3JI, "Palm Villa," 1 Victoria Street, Llandudno, has offered to act as T.R., so will all local members please contact him at the above address. 4MZ is using crystals in series.

*Morfa Nevin.*—BRS2731 spent a recent vacation in this area and contacted G6BR on a yacht in Nevin Bay.

*General.*—The September P.D.M. arrangements are well in hand and full details will be published next month. In the meantime to assist with catering arrangements will all those who intend to be present please notify GW6KY or BRS1060 as soon as possible.

G5YP has returned to his former occupation in Shrewsbury, and will now be residing in that area. BRS1060.

### DISTRICT 12 (London North and Herts)

*Deputy D.R.:* S. A. Howard (G8TY), 92 Arlington Road, Southgate, N.14. (Enterprise 3219).

Due to pressure of private business, Mr. Stevens has been compelled to relinquish his duties as District Scribe. Mr. E. H. Laister (BRS3386), 22 Church Hill, N.21, has agreed to take over.

*North London.*—The 40 odd members who were present at the meeting held at Merryhills on June 7 enjoyed a further talk by Mr. Kassia (ex-SPIHH). On this occasion he gave details of a new universal aerial coupler, the basic design for which was worked out during the war for reception of weak signals from "Underground" transmitters. Mr. Kassia stressed the importance of correctly matching the impedance of an aerial with the input circuits of both transmitter and receiver.

Later, BRS3386 discussed the results of the recent harmonic check tests carried out between a group of N. London stations transmitting on 28 Mc/s. and a number of listeners receiving on 56 Mc/s. Although the tests failed to produce any concrete data, the information correlated was noted with interest. G8SK followed with an informative talk on recent 58.5 Mc/s. activity.

*Enfield.*—At the June meeting which was well attended, a keen discussion arose on the subject of electronic scrap. This was followed by a talk on the subject of U.H.F. superhets sponsored by G2NR who used his own receiver for demonstrations. U.H.F. transmitters were due to be discussed at the July meeting.

*St. Albans.*—A unique opportunity will be provided at the meeting to be held on July 18 when a complete station (the property of ex-G5NQ) will be offered for sale in convenient lots, including transmitter, receivers, amplifiers, etc.—in all about £200 worth of good quality gear. On this occasion the meal will commence at 7.15 p.m. sharp. Please notify 3412, 18 Sandfield Road, if attending.

The June meeting produced a record attendance of 22 to hear G5UM's description of the Franklin oscillator he uses on 1.8 Mc/s. on which band 2CN, 8PM, 8LN and 8TK are also active. Congrats to 11636 on his recent marriage. Visits are being arranged to the B.B.C. Brookmans Park, and Murphy Radio—details from 3412.

*General.*—The D.D.R. will be pleased to hear from members in Watford and Potters Bar who are willing to act as T.R.'s until the elections. The new scheme of representation, insofar as it affects North London, will be discussed at the meeting to be held on August 2nd at Merry Hills Hotel, Enfield West.

Members will be sorry to hear that Mr. Buckingham (G5QF), is again in hospital. We wish him a speedy return to good health. G8TY.

### DISTRICT 14 (Eastern)

*D.R.:* L. J. Fuller (G6LB), Meadow Brook, Vicarage Lane, Great Baddow, Chelmsford, Essex. Tel.: Gt. Baddow 224.

*Chelmsford.*—Interest is growing rapidly, with more stations using 1.8. Congrats to 2HPF on getting his G. Seventeen members attended the June Meeting, a post-war record.

*Brentwood.*—G8RC is on 58 and appeals for more activity, while 1.8 claims most of the local attention. G3LA is acting as T.R. until further notice.

*Grays.*—The last meeting was attended by G2YH, FTM, BOU, 3GF, LM, LW, 4FN, 2CGW, BR84601, 11,753, Messrs. Edmunds,

Spokes, Wallace and Wood, the latter being the latest R.S.G.B. member. G2CMW and 2AYJ also attended from Southend. G2FTM demonstrated his D.F. receiver made after G2KH's fine lecture, and this led to a discussion on a D.F. Test in the Grays area on which subject it is hoped to have news in the near future about portable permits.

**Chingford.**—Eighteen members attended the last meeting, while activity "on the air" continues at a high level. The next meeting will include a talk on power packs. G2XG wants suggestions for future talks.

**Southend.**—Members are getting going again, with G2KH and 2SO busy on 1-8. The July P.D.M. is a subject of much activity, and local members are giving the D.R. some very welcome help. G6LB.

**DISTRICT 15 (London West, Middlesex and Buckinghamshire)**

**D.R.:** H. Y. Wilkins (G6WN), 539, Oldfield Lane, Sudbury Hill, Greenford, Middlesex, BYRON 3369. **Scribe:** E. Holt, (2FZQ), 36 Bulstrode Road, Hounslow, Middlesex.

A very successful District meeting, held at The Pack Horse Hotel, Staines on June 22, was attended by 26 members. The D.R. outlined the future plans of the Society and explained the aims and objects of the P.W.P.C. He stated that the main difficulty, especially as so few attend local meetings, lay in acquainting members of the various activities which are being organised and which, if generally known, would bring about greater support. To overcome this difficulty it has been decided to revive the District magazine to supplement the space allotted to us in THE BULLETIN. As the magazine will contain articles of interest to all, it will be advantageous for every member in the District to support it. Further details will be given later. During question time a keen discussion arose as to whether the Society's subscription should be increased or a levy made on all members in order to cover the expense of local activities. The opinions expressed were sharply divided and no unanimous suggestion could be reached. Before the meeting closed G6RS proposed a hearty vote of thanks to the D.R. for his talk and this was acclaimed most enthusiastically.

**Hounslow.**—The usual six who attended the meeting on June 7 were given a talk on "Elementary Trigonometry for Radio Calculations" by Mr. Donaldson, BR89621. The meeting of the Hounslow and District Radio Society, held on June 12th was attended by 22 members who were given a talk on super-heterodyne receivers by Mr. Boswell, who explained their intricacies in a most lucid manner.

**High Wycombe.**—No local member should miss the attractive District Meeting on July 21, which includes a visit to Messrs. Ernest Turner's Electrical Instrument Works.

**Twickenham.**—An excellent meeting was held at G2VV on June 23. Seventeen members were present 15 of whom were fully licensed members. What has happened to the BRS? VU2AA was warmly welcomed. P.W.P.C. proposals were discussed and afterwards 2VV's station was seen under operational conditions and much admired. Special thanks are due to Mr. and Mrs. Roe for their kind hospitality. A television show completed the evening.

**Ruislip.**—At the first post-war meeting 14 members gathered to listen to the D.R. give the latest gen on the surplus gear position. The post-war plan was fully discussed and G6LC and ex-2BIM were paired off to make a start. The A.T.R. makes a special appeal to new members to support local meetings. 2FZQ.

**DISTRICT 16 (South Eastern)**

**D.R.:** W. H. Allen, M.B.E. (G2UJ), 32, Earls Road, Tunbridge Wells, Kent. **Scribe:** E. H. Trouell (G2HKU), 27, Unity Street, Sheerness, Isle of Sheppey, Kent.

**North Kent Group.**—An average of 15 members have attended the recent meetings and Morse classes are now in progress. All members are active and we still extend an invitation to Sidecup members to join us. GM3LG now resides at Crayford.

**Sheppey.**—G3GW has a V.F.O., in operation on 1-8. Both he and G2HKU welcome visitors but kindly send a card in advance as inconvenience has been caused by surprise visits.

**Herne Bay.**—G3NQ is active and is prepared to hold a meeting at 104 High Street, if sufficient support is forthcoming.

**Tunbridge Wells and Tonbridge.**—We are sorry to say goodbye to 5KV, who has been such a staunch upholder of local activity in the past, and we wish him every success in his new job in Henley-on-Thames where, owing to the acute housing shortage, he will probably be living on a barge! 50Q continues to work DX on 28, 2UJ now has a PT15 as a 28 Mc/s. P.A., but had some trouble getting it completely stable. 51P, following improvements to his gear, is now working some DX. 4FB and 4IB are both active.

**General.**—It is proposed that a crystal register be prepared covering those stations in the North Eastern part of the District. While we are about it, why not a complete District register? Details to 2HKU please. 5DW (H.O. Wireless Station, Cranbrook) would like to contact local members. 1P, 366, of West Grinstead, an L.A.C. in the R.A.F., wants to meet anyone using a Type 1155 receiver and is anxious to meet local members. G2UJ.

**DISTRICT 17 (Mid-East)**

**D.R.:** A. C. Simons (G5BD), "The Elms," Church Road, Mablethorpe. Phone 69.

The D.R. thanks all those who supported the P.D.M. and hopes they enjoyed the event. Criticisms for future guidance will be appreciated. G5LL and G5BD have broken the ice on 59 Mc/s.

with contacts on phone with G6VX, F3JB, 11FA and 11AY. They are on every evening and would be glad to fix schedules.

**Sleaford.**—BRS4315 organised a well attended meeting on June 23. GSOL, 2CSX, SRW and 8FC are active on 1-8 whilst 6TV and 2CSX are almost ready for 60, 4DV is just home from Burma, 6NZ is stuck for a 6F7, 4315 and 8RW have erected a 28 Mc/s. rotary at the latter's station, 6NZ drew a blank at Warrington.

**Boston.**—G6GH, 8BQ, 8GI, 2UK, 6LH and 2BQC are active on 1-8. BQC seeks news of 4GI and other Lincoln members.

**Gainsborough.**—G4OF, 3OS, 3WB and 400 are working on the DX bands.

**Grimby.**—G4GX, 4GZ, 2VY, 2AJB, 8KH, 4IF, 8FN are active. 6UG having rejoined is seeking local contacts. 2QA who was awarded the M.B.E. and Lloyds Gallantry Medal during the war is still at sea, and hoping for permission to work from his ship.

**Grantham.**—11063 is going ahead with plans to form a club and is contacting the local A.T.C. squadron on the subject.

**Spalding.**—2DRT has a new transmitter and QRA—both keep him busy. 2FT is doing well on 1-8. 5CY has rejoined and is adding a tower to his new workshop. Congrats to 2AUR on the arrival of a daughter. BR88912 and 10726 have visited the D.R. G5BD.

**DISTRICT 18 (East Yorkshire)**

**D.R.:** A. G. Dunn (G3PL), 79 Hayton Grove, Hull.

**Hull.**—At the first meeting in the new club-room, 7345 gave an interesting lecture on the theory of aeriels. Twenty members were present. The first session of the Radio Course was well received; don't forget, every Friday evening, 7.30 p.m., at 30 Prince's Avenue. Other dates to note are July 17 (Receivers), 30 (for the 5 metre enthusiasts), August 7 (discussion on Transmitters) and August 15 (Aeriels). We hope no one was misled by the error in Forthcoming Events last month; for June 22 read July 22.

Congrats to 2CCB on his recent marriage. Most members have been getting ready for 0001 hours, June 30. 2BIP has built a 5 metre converter. 2HAD has been receiving harmonics of 28 Mc/s. stations on 56. Several stations have recently put up rotary beams.

**Brough.**—2AFV of Borsley is stationed here and has been able to get to some of the Hull meetings.

**Bridlington.**—10.357 has offered to act as T.R.; his address is D. Dixon, 15 St. Martin's Grove. G3PL.

**Scotland**

**Scottish Records Officer:** J. Hunter (GM6ZV), 51 Camphill Avenue, Langside, Glasgow, S.1. Langside 237.

"A" Area (Glasgow and surrounding counties).  
**A.R.:** D. R. Macadie (GM6MD), 154 Kingsacre Road, Glasgow, S.4.

At the May meeting Mr. J. B. Rimmer gave a talk on gear for the beginner. There was an attendance of 44 members at the June meeting when GM3PB spoke about the 1154 transmitter. 5ST then followed with a brief account of his "backyard aerial" which has proved its merits by working Japan, Australia and Chile. Later 8MJ gave details of his "Lazy H" aerial while 2DI spoke on his Sterba array. A welcome was extended to GM4NC, 6CM, 8RU and old timer 2FV.

"B" Area (Aberdeen and the North).  
**A.R.:** A. G. Anderson, B.Sc. (BR85857), 87 Braemar Place, Aberdeen. Aberdeen 2676.

GM3RI, has been active on 1-8 and 28. 6LG is still putting out a consistent signal on 1-8. Mr. Taggart, ex-GM5TA has applied for a new licence. His main trouble is "mains" trouble! 5JK has acquired a new receiver in the course of his rebuilding activities. BR85857 and 11264 hope to be on the air this summer. 11264 is on the look out for a small sectional shed. If any member can help, please contact the A.R. BR85857.

**SOUTH-EASTERN  
PROVINCIAL DISTRICT MEETING**

to be held at

**THE PANTILES GRILL,  
THE PANTILES, TUNBRIDGE WELLS**

on

**SUNDAY, SEPTEMBER 1st, 1946**

**PROGRAMME:**

Assemble ... ..	12.15 p.m.
Lunch ... ..	1 p.m.
Business Meeting ... ..	2.15 p.m.
Tea ... ..	5.0 p.m.

Inclusive Charge, 5/6

Reservations to the D.R., Mr. W. H. Allen, M.B.E. (G2UJ), 32 Earls Road, Tunbridge Wells, Kent, by not later than August 24th, 1946.



**"C" Area (Dundee, Forfar, Perthshire etc.).**

A.R.: T. Reay (GM3IX), 36 Park Avenue, Dundee.

Due to pressure of business Mr. J. Gouck (GM3NH) has been forced to resign as A.R. and Mr. Reay, GM3IX has been elected to fill the vacancy. Thanks 3NH for your work in the past. The last meeting was devoted to a post mortem on the Glasgow Conventionette. Active on 1.8 at present are GM4HR, 2FXN and 3IX, while 3IX is getting ready for 7 and 14. 4NR is building for 1.8. GM2HVF hopes to be on the air soon.

**"D" Area (Edinburgh and Midlothian, etc.).**

A.R.: J. Wilson, C.A., 52 Macdowall Road, Newington, Edinburgh, 9. Edinburgh 42153.

Local activity continues on a high level. 2HDH is now licensed and looking for DX. The District has survived the invasion during the Conventionette time. Sorry time was so short but we made the most of it. Meetings will be resumed in September so watch for particulars in "Forthcoming Events."

**"E" Area (Ayrshire and South West Scotland).**

A.R.: D. A. MacQueen (GM4PW), 37 Apr Road, Prestwick, Prestwick 78375. Scribe: Miss J. A. C. Rainie (BR5988), 6 Montgomery Terrace, Ayr. Apr 2375.

At the meeting held on June 12 BR5594 presided. GM2BUD, 2FKV, BR56140, 10053 and four other members were also present. There was a long discussion on Admiralty scrap and plans for utilising various members' purchases. BR5594 gave a short talk on L.F. amplifiers. 2BUD is working on a radio controlled aircraft idea. 6140 reports a poor attendance at the Morse class but excellent progress was made. Meetings are held on the second Wednesday of each month in Y.W.C.A. rooms at 7.30 p.m. Mr. G. Percy (GM30L) of Westland, Pleasance Avenue, Dumfries, is willing to attempt to stir up enthusiasm in that area and asks members interested to get in touch with him.

**"F" Area (Stirlingshire, etc.).**

A.R.: C. M. Winton (GM6XW), The Point, Stenhousemuir, Larbert.

Our best wishes for a speedy recovery go to the A.R., GM6XW, who was suddenly taken ill with pneumonia and rushed to Falkirk Infirmary. In view of this no notes are to hand at the time of writing.

**"G" Area (Borders).**

A.R.: J. P. Blair (GM5FT), 35 Market Place, Selkirk.

At the June meeting held at the home of GM2IA an interesting talk was given by GM6UU, who also displayed some of his gear. This feature was much appreciated by all present. The next meeting will be held in Berwick on July 21.

**"H" Area (Fife, etc.).**

A.R.: W. N. Craig (GM6JJ), 18 Kirkton Road, Burntisland, Fife.

At the last area meeting GM4FK gave the second part of his talk on aerial systems. It was most instructive and aroused a lively discussion. Many stations are preparing for the re-opening of 7 and 14.

**Channel Islands**

With skip very short on 28 Mc/s. GC3GS, 4LI and 8NO have been working G. GC2CNC is now on 14,280 with a battery-operated 2 watt transmitter. All reports will be answered, and QSO's will be valued.

GSJC paid us his promised visit, whilst Z2C is still here, trying to trace some of the gear which he left in the Islands before the occupation.

Details of the Field Day Contest will be published next month. GC2CNC.

**Coventry Amateur Radio Society**

The General Secretary has accepted an invitation, extended to him by the Committee, to become a Vice-President of the Coventry Amateur Radio Society. Mr. Clarricoats has for some years been a Vice-President of the Midland Amateur Radio Society and other prominent Provincial Societies.

**Stourbridge and District Radio Society**

BRS members of the Stourbridge Radio Society have made arrangements to operate a local monitoring service for the benefit of licensed amateurs. All bands will be monitored.

Lectures and visits are a regular feature of the activities of this go-ahead Society. The Secretary is Mr. D. Rock, G8PR, "Sandhurst," Vicarage Road, Amblecote, Stourbridge, Worcs.

**South Shields Amateur Radio Club**

Meetings are held every Friday in the St. Paul's School Room, Westoe, South Shields, commencing at 7 p.m. Morse practices are followed by lectures. Messrs. Teasdale, G8VV, and Boad, G8IF were recent speakers.

The Secretary (Mr. W. Dennell, BR511,775, 12, South Frederick Street, South Shields) will be pleased to hear from R.S.G.B. members who wish to join the club.

**Dum Dum Radio Group**

A.C.1 Owen, BR5673, Radar Section, 52 Squadron, R.A.F. A.C.S.E.A., reports that the Dum Dum Radio Group, continues to function efficiently, with V.H.F. experiments predominating. Visits have taken place to the Dum Dum factory of H.M.V. and to the studios, control rooms and transmitters of All India Radio, Calcutta.

During his activities on behalf of the Group, A.C.1 Owen has met many outstanding personalities in the world of radio. He has also visited the Bose Institute (founded by Sir J. C. Bose, a pioneer micro-wave investigator) where he was shown a micro-wave transmitter and receiver constructed in 1895.

**Model Control Group**

The letter budget is still held up for lack of material, but it is hoped to issue a small one shortly. Neither the first nor the second budget has yet returned to the organiser. Please hurry these along as there are several new members waiting to read them.

Ft./Lt. Dykes is experimenting with a crystal controlled three valve transmitter for the new frequency of 460.5 Mc/s. If successful, details will be circulated in the next letter budget.

Items for inclusion in budgets should be sent to Ft./Lt. J. O. Dykes, Sunnybank, Llanthony, Nr. Abergavenny, Mon.

**Congrats**

● To Major E. Y. Nepean, R. Signals, G5YN, whose wife presented him with a daughter on June 3, 1946. G5YN is now at Catterick Camp, Yorks.

● To Major M. Bisdce, G5DZ (ex-V87MB) on the birth of a son, Graeme David, on May 10, 1946.

● To Sq./Ldr. A. Bulgin, BR510531, who has been awarded the M.B.E. (Military Division) for his work in connection with the Air Training Corps.

● To Mr. G. Wakefield, G5WG, and his wife, on the safe arrival of Nina Elizabeth.

● To Mr. W. E. Russell, G5WP, and his wife on the birth of a son.

● To S/Ldr. H. E. Bennett, G8PF, now in India, whose wife presented him with a daughter on May 27th, 1946.

● To Mr. Ron Reed, G2RX, of Hampstead, who was married on 15 June, 1946, to Miss Mary Dyer.

**Stray**

● Pte. Pitts, BR54748, Hut 42, Camp 2, would welcome visits from R.A.S.C. members stationed in Cirencester.

**FORTHCOMING EVENTS**

July 17	District 6 (Exeter), 6.30 p.m. at Y.M.C.A.
" 18	District 6 (Falmouth), 6.30 p.m.
" 18	District 12 (St. Albans), Monthly Dinner and Sale of gear, 7 p.m. at Jack's Cafe, Verulam Road.
" 19	District 14 (Chelmsford), 7.30 p.m. at 184 Moulsham Street.
" 19	District 14 (Grays), 8 p.m. at Bairds Cafe, Orsett Road.
" 20	District 6 (Torquay), 6.30 p.m. at Y.M.C.A.
" 21	DISTRICT 14 P.D.M. AT SOUTHEND.
" 21	District 15. Visit to G4NT (for details see last month's Forthcoming Events).
" 21	District 13 (S.E. Area), 3 p.m. at 63 Erlanger Road, S.E.14 (New Cross Gate).
" 22	District 2 (Bradford), 8 p.m. at Cambridge House, 66 Gt. Horton Lane.
" 22	District 18 (Hull), 7.30 p.m. at 30 Prince's Avenue.
" 23	District 14 (Brentwood), 7.30 p.m. at 27 Mount Crescent.
" 23	District 14 (Chingford), 7.30 p.m. at The Temperance Cafe, Main Road, S. Chingford (near the Royston Arms).
" 24	District 2 (Sheffield), 8 p.m. at the "Dog and Partridge," Trippett Lane.
" 25	District 4 (Nottingham), 7 p.m. at The Foresters Hall, Peachey Street.
" 25	District 15 (Ruislip), 7.30 p.m. at BR53718, 17 Hill View Road, Hatch End.
" 28	District 15 (Twickenham), 6 p.m. at G8IP, 23 Warfield Road, Hampton.
" 31	Scotland "A" Area, 7 p.m. in the Institute of Engineers and Shipbuilders, 39 Elnbank Crescent, Glasgow. All members welcomed.
Aug. 2	District 12 (North London), 7.30 p.m. at Merry Hills Hotel, Enfield West.
" 2	District 15, 7 p.m. at The Scouts Hall, Sutton Estate, Great West Road, 30 yards east of Vicarage Farm Road.
" 5	District 2 (Bradford), 8 p.m. at 66 Great Horton Lane.
" 7	District 15 (Hayes), 7 p.m. at The Labour Hall, Uxbridge Road, Southall.
" 9	District 15 (Harrow), 7 p.m. at 153 Belmont Road.
" 8	District 4 (Nottingham), 7 p.m. at The Foresters Hall, Peachey Street.
" 19	District 2 (Bradford), 8 p.m. at 66 Great Horton Lane.
" 19	District 18 (Hull), 7.30 p.m. at 30 Princes Avenue.
" 31	District 1 (Liverpool & Merseyside), 2.30 p.m., Stork Hotel.

# R.S.G.B. BULLETIN

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No. 1

## THE BULLETIN COMES OF AGE

By H. BEVAN SWIFT, G2TL.

(Honorary Member and President 1931-3.)

THE June issue of THE BULLETIN was the last of the twenty-first volume. The present issue marks its coming of age. I am proud to be spared to witness this important occasion and to express my satisfaction that a merely tentative idea has developed into such a healthy and important publication. It hardly seems twenty-one years since Mr. J. A. J. Cooper and the writer sat down in the old Victoria Street offices to make up No. 1 of the first volume, a copy of which lies before me as I write. At that time we did not think that our puny efforts were to be the forerunner of twenty-one volumes to follow; in fact, we were surrounded by sceptics who maintained in vigorous terms that it was impossible to run a magazine in the manner we proposed and that two or three numbers would be all that would appear. The answer to that is twenty-one years of existence. Even the war did not bring about our decease although we were compelled by force of circumstances to curtail our pages and tighten our belts.

### How it all Started

It may interest members to know how THE BULLETIN actually came into existence. It was born in a Lyons' tea shop over a cup of coffee. In the early days of the Society, a Section was formed known as the Transmitter and Relay Section whose members were drawn from a former organisation called the London Radio Transmitters' Society. This had become merged with the R.S.G.B. under an agreement known to "old timers" as "The Fusion." The number of members in the Section, however, was not great and some apprehension was felt that those who lived outside London got little in return for their subscription, in fact some were beginning to voice a very active complaint. It must be remembered that in those days there were none of the amenities now available to Provincial members. As Chairman of the T. & R. Section, this state of affairs was somewhat alarming to me, and it was obvious that something had to be done quickly if the coming disaster was to be avoided. With this thought in mind Mr. Gerald Marcuse (G2NM) and the writer resorted to the tea shop to discuss what could be done. It was then thought that if we could only issue a bulletin, say once a month, detailing the activities of the Section, it would give the Provincial membership some satisfaction. The original idea was a simple four page leaflet without advertisements.

A rough draft was prepared and taken to a Committee meeting of the Section, who immediately approved the idea and further suggested that instead of a leaflet an actual magazine should be issued. As the Committee was only concerned with the work of the Section and could not in itself embark upon the necessary expenditure, the matter had to go before the Council of the Society for sanction. Here the proposal received only lukewarm support, because the Society already had an arrangement with *Wireless World* which published reports of its meetings and other information. It was suggested that this medium should continue to be used instead of publishing a separate journal. At that time broadcasting was foremost in the minds of the public, and the pages of the popular radio magazines were naturally devoted to descriptions of broadcast receivers and equipment. Very little attention was given to amateur radio and, in consequence, the members of the Section felt that their interests could hardly be covered by this proposal. The result was that the Section Committee decided to go ahead with the production of THE BULLETIN and to shoulder the expense as best they could among themselves. To lighten the burden, it was resolved to include a few advertisements. Fortunately, the Committee had among its members Mr. Arthur Hambling, who undertook to approach the trade for advertising. This he succeeded in doing, and the first issue of THE T. & R. BULLETIN duly made its appearance complete with several pages of advertisers' announcements. Mr. J. A. J. Cooper acted as Editor, whilst various members of the Committee and others contributed articles and reading matter. The writer explained in an Editorial the purpose, hopes and intentions of THE BULLETIN.

The appearance of Vol. 1, No. 1, was hailed with general approval. Compliments were showered upon us from every quarter. Some wanted a Bulletin every week instead of every month and twice the size. These commendations were duly appreciated by the Section who felt that the threatened resignations were eased and the grumbling was over.

### Teething Troubles

But THE BULLETIN thus started, in a somewhat light-hearted manner, had to be kept going and this was no easy matter once the initial enthusiasm had died down. As the revenue from advertising did not cover the cost of printing and distribution, the

question of safeguarding the financial position had to be tackled vigorously.

One of the direct results of the inception of THE BULLETIN was a large increase in the membership of the Section, consequently it outgrew the membership of the main body of the Society. Furthermore, the members of the Section did not possess full Corporate status in the Society. This anomaly, coupled with other circumstances, led to a drastic reorganisation of the whole Society, with the result that the Section as such ceased to exist; instead it became the controlling factor in the Society. Investigation then showed that the finances of the Society were in none too happy a state and steps had to be taken at once to place them on a sound basis, at the same time keeping THE BULLETIN going. How this was done will only be known to those who participated in the work. Fortunately some good friends of the Society came forward, but the hectic work of those early days will be long remembered by the "old timers."

### Retrospection

Looking back over those twenty-one years, it is pleasing to recall some of those who have helped to

make THE BULLETIN a success. Mr. J. A. J. Cooper the original Honorary Editor who, with the writer, spent many an anxious moment over the first few issues; Mr. G. W. Thomas (ex-G5YK) who did such valuable work in its development; Mr. A. O. Milne (G2MI), who has drawn hundreds of diagrams for its pages and undertaken much essential work, and many others. The chief praise must, however, go to Mr. John Clarricoats (G6CL), our indefatigable General Secretary, who has borne the brunt of the editorial work for the past fifteen years. Only those who have had experience of journalism can know what this means and what a vast amount of detail it involves. Under his Editorship THE BULLETIN grew in size to a 64-72 page journal when the war intervened.

We have also to thank our Advertisers who have so generously supported us and made our progress possible. Their co-operation, and the help given by our Advertising Manager, Mr. Horace Freeman, cannot be over-estimated.

And so as THE BULLETIN reaches maturity, may I again express the hope, as I did in the very first Editorial, "That it will provide a means of mutual exchange of ideas among members of the Society for the common good of all."

## THE BIRTH OF THE "BULL"

By JOHN A. J. COOPER (HONORARY EDITOR 1925).

I HAVE been asked to write a few lines about the trials and troubles of the early days of THE BULLETIN.

Needless to say, although those days are now a long way back, my mind is still quite clear as to those difficulties, which, had it not been for the able and tremendous assistance rendered by a few enthusiasts, would have been well nigh insurmountable. I particularly remember such people as Bevan Swift, Jamblin, Hampson, Freeman of Parr's Advertising, our printers (then Loxley Bros. of Southwark), Ralph Royle of W. R. Royle and Sons, our blockmakers, all of whom helped to make the life of an Honorary Secretary-Editor just bearable!

I suppose that few concerns have started off with such great ambitions and enthusiasm and so little beyond those desirable qualities as we did. The membership was small (but be it said of very high quality), and our finance therefore somewhat limited. Each month we cut our paper (or our pages) to our income so as not to burden the Society with debt, and our anxieties on this account lasted until we were about to go to press with THE BULLETIN. We also had to wait "on the brink of disaster" for suitable copy and be prepared to produce our own to take up space almost at a minute's notice if none was forthcoming. Much "midnight oil" was burned in those days, particularly at a time which I suppose was a critical period in the history of radio—the first "round the world" two-way transmissions on "uncommercial short waves," and certain Heaviside Layer tests (Solar Eclipse) which we did in co-operation with the Department of Scientific and Industrial Research and other important bodies. We had to time our

appearance to fit in with important announcements about these things and yet appear strictly monthly. Late appearance, or even early appearance, called forth a good-natured reprimand from our grand old man Bevan Swift who, although he was aware of our troubles, never could quite see why we could not choose a date and stick to it! I never had the courage to tell him that our appearance without an awaited page of advertisements might mean the loss of many pounds, and that promised copy simply never arrived on time. I felt it better that he should grumble happily than sympathise miserably!

Although difficult, they were great days. We had no full-time staff, but developments have shown that the time which we put into radio for radio's sake was well spent, and that only during this war has it been possible to gauge the value to the nation of this band of "amateur" engineers. We photographed, drew line pictures (and sometimes others), wrote stories and articles, gave lectures, attained something approaching editorial perfection against great odds, and now, when you see the productions of the Society in all their perfection, if you pause to consider, you will appreciate that these odds were sometimes formidable. Even so, in our "spare" time we were able to produce a handsome Diary-Log Book (including a complete list of experimental transmitters), a copy of which I greatly treasured until somebody relieved me of it. It was the forerunner of our present "Radio Handbook and Supplement"—quite a humble beginning, but produced literally during the midnight hours. I do not think that I shall ever again recapture the thrill which was the urge in those days of endeavour and achievement.

THE PRESIDENT, COUNCIL AND EDITORIAL STAFF RECORD THEIR THANKS  
TO ALL WHO HAVE HELPED IN ANY WAY TO MAKE IT POSSIBLE FOR  
THE BULLETIN TO ATTAIN ITS MAJORITY.



# BULLETIN REVIEW

By UNCLE TOM

ONE reason why I don't object to being called "OT" on the air is that I have in the Shack a copy of T. & R. BULLETIN No. 1, and also every other copy from then until now. This means that I must be at least 21 (speaking as a ham) because the date on that first BULLETIN is July, 1925. This is the 21st Birthday Number of THE BULLETIN, and I have been asked to write a short history of its life.

Fortunately the history of THE BULL is the history of Amateur Radio, and therefore, interesting for its own sake. Both of them have grown up since 1925 (although I can't refrain from saying that both of them can still be pretty childish on occasions).

## The First Volume

However, the T. & R. BULLETIN, as it then was, burst on the startled ham world with 12 pages of type, nearly five of which were advertisements. Its high spots were a description of a new superhet mixer circuit called the "tetrodyne" (it used one of those new valves with four electrodes!); a circuit for reception of the 20-metre band (very difficult, then); and various bits and pieces which are so cryptic that they don't mean a thing to me now (e.g. "Readers will be pleased to learn that 2SH is quite certain that his rectifying valve is still in circuit"). Could it be that 2SH was scattering some T1 stuff? Yes, by gosh, he did—I remember now!

You see, the ham fraternity was so small then that everyone knew everyone else, and probably that particular crack echoed round the British Isles.

Also in that first number is an article by Gerry Marcuse (G2NM)—whom I worked only the other day—on the International Amateur Radio Union and their meeting in Paris during Easter, 1925. The very first published hint in this country of an international order of radio amateurs.

Well, so much for No. 1. Not impressive—in fact, the make-up was terrible and the general appearance couldn't have been more amateur, but it started something!

Nos. 2 and 3 were much the same, but increasing in size. No. 4 is interesting—it carries an article on "Hertz Aerials" by C. W. Goyder (G2SZ), one of the DX record-breakers of that time. Also the germ of District Notes was beginning to bite. An article by P. P. Eckersley in that issue suggests experimenting with "high-frequency magnification on transmitters"; which proves that the transmitter of those days was an oscillator straight on the aerial!

In January, 1926, we read of "The Overcrowded Ether," by G5LF. Little did he suspect... Also Frank Neill (5NJ) describing the first Transatlantic contact from Ireland, and first contact with Indo-China.

## 1926

Early in 1926 there was a memorable article on low-power work by G5SI, which, I remember, influenced me and my results at once. G5SI had worked New Zealand, India, U.S.A., Canada and many other DX countries with 15 watts, and the U.S.A. with .6 watt. Not bad for 1926, you 25-watters; and all done with a straight TP-TG circuit and an M-L converter giving a maximum of 30 mA at 500v.

By March, 1926, there was a QRA and QSL Section; and by April, G2VW was describing experiments on 5 metres and G5LF lamenting the fact that his crystal controlled job (which had been on the air for six months) was "off," on account of a cracked crystal. 1926, mark you!

July, 1926, was memorable for the announcement of the First British Amateur Radio Convention, followed by a banquet. According to the October number this was a great success. The same number announced the first low-power tests, with a very strange restriction—no voltages above 220 allowed. Perhaps they didn't have milliammeters in those days. Interest in quartz crystals was mounting, and the "44-46 metre band" was all the rage. (This was a liberal interpretation of a "spot-wavelength" of 45 metres.)

Christmas 1926 saw an article by Cecil Goyder on crystal control, including a CO-PA circuit that would still do its stuff to-day, and another by E. J. Simmonds (G2OD), holder of many DX records at that time. One of the main points of interest so far is that the station photographs (even of well-known record-breaking stations) show a state of hay-wire that would shock the average ham of to-day. If this means anything, it's probably that they were experimental stations and not mere QSO factories.

## 1927

Jan., 1927—and the first contact ever with Singapore, to the credit of Gerry Marcuse, G2NM. This and the following issues—all of 24-28 pages—seem to consist mainly of correspondence and lists of Calls Heard, which were rapidly becoming a menace. Hertz aerials and crystal control were the main technical topics, showing that most people were thinking in the right direction even then. Twenty-metre work was coming up, and the Solar Eclipse Tests of that year brought some fresh interest to bear on short-wave work.

Then, for a while, the old chestnuts held the fort: "Is QRP worth while?"; "Phone versus C.W."; "Aerial system at G2\*\*." Apropos the latter, so



many outstanding successes were attributed to special aerial systems that one might hazard a guess that any piece of wire would give freak results if put in the right place. The strength of the R.S.G.B., by the way, in November, 1927, was 1,200 members. In that same issue was the first announcement of "Contact Bureau" by T. P. Allen (GI6YW)—another one who is still going strong. This was the first organised attempt to form an experimental section to help members with some particular problem on their minds, and it went down very well. December, 1927, contains the first mention I can find of "Break-In"—by G2ZC (he's also still on the active list).

## 1928

May, 1928, announced the opening of the new 10-metre band; everyone in the world invited to transmit over two week-end periods! They took 17 years to co-operate. The new 20-, 40- and 80-metre bands were also announced, replacing the 23-, 45- and 90-metre wavelengths previously in use.

For quite a time thereafter every issue included articles on a super-super receiver, a ditto transmitter, a wavemeter and notes on tuning up transmitters. Together with correspondence, District Notes and Calls Heard, these made up the bulk of THE BULL. But we can't go on at this speed, or we should fill an entire issue. Perhaps these first years were most interesting to an old fogey.

The end of 1928 found us with the new International Prefixes and an official veto on the previous procedure, under which a G station (unofficially EG) called an American (NU) by sending "1BB 1BB 1BB NU-EG 5XX 5XX 5XX." Henceforth we had to be good boys and use "de" as the licences told us to! The new Q-code arrived; the new frequency-bands were in operation. In fact, no further major change has occurred since then, except that "QSA 5, R7, T9" has very sensibly been shortened to "RST 579."

## 1929

February, 1929, saw the first "Special 28 Mc. Number" and announced a series of tests. Several G's had already worked U.S.A. and South Africa, and there had been a few contacts with VT2KT in India. The tests stepped up the activity on the band considerably.

The R.S.G.B. Short-Wave Four, in the 1929 Convention Number, was a true representative of its time, but looks rather funny now; a straight R.F.-detector-2 L.F., it is about twice the size of an H.R.O., and a battery job at that! By the end of 1929 THE BULLETIN had grown up to 30 pages or so and was definitely the forerunner of THE BULL. as we knew it immediately before the war—not the present emaciated production.

## 1930

February, 1930, issue divided up the world for the issue of a W.B.E. Certificate. April, 1930, saw "Uncle Tom" burst into print for the first time. May announced the opening of the 3.5 Mc/s. band. September, the Convention Number, carried a Short-Wave Three as big as the previous Four! November, 1930, went to town on 56-Mc/s. gear (all quench receiver and wobbly transmitter, of course).

## 1931

January, 1931, announced some 2 Mc/s. tests. Although we probably did not realise it at the time, it is obvious now that a state of stagnation prevailed during these years. Nothing startling was developed, and everyone was busy playing with Hertz aeriels, crystal control and straight receivers. 28 Mc/s. was working; 56 Mc/s. was playing—"squirt-and-

squeleh" gear being in use. The few exceptions to this must forgive me; the general state was definitely stagnant.

In February, 1931, Contact Bureau announced "One-Watt Week"—an idea for some tests in 1946? But the real event was "British Empire Radio Week"—the forerunner of the series of B.E.R.U. Contests. The 1931 Convention number ran to 40 pages; the prices of parts on sale at Radiolympia make one's mouth water, but they don't look impressive to 1946 eyes.

## 1932

January, 1932, saw Dud Charman (G6CJ), the proverbial aerial wizard, writing at length on the subject in an article that would still be interesting to present-day members. Set designs had by now begun to switch over to the superhet, although crystal filters had not yet found their way across to the U.S.A. and back again.

The 1932 B.E.R.U. Contest really got going, and started this series off; compared with the first one, in 1931, this was a bumper affair, and the future Contests were modelled on the same lines. B.E.R.U. was definitely on the map. THE BULL. for the whole of 1932 shows an improvement in the way of technical articles, but it is still rather surprising to note the small number of really original contributions (I don't mean that the others were pinched, but that the subjects are all conventional and "straight").

## 1933

From 1933 onwards we are right in the middle of the prosperous times of Amateur Radio. All bands open, crystal control almost universal, superhets becoming rationalised, cheap components . . . almost too easy! But this is a review of THE BULLETIN, not of the history of ham radio, so it is sufficient to say that THE BULLETIN fed the members successfully with the latest "gen," advertisements of the latest parts, and reviews of activities on the air. Uncle Tom, in 1933, began "Soliloquies from the Shack" with a series so rude that they make me blush to-day! But judging from the tirades on Bad Operating, Bad Manners, Bad Notes and Bad Phone, something of the sort must have been necessary.

"Band Occupancy Checks" were started in 1932 and reviewed in 1933; this is mentioned because it would be a good idea in the coming autumn and winter. The check in March, 1933, revealed 153 stations on 1.7 Mc/s., 187 on 3.5 Mc/s. and 351 on 7 Mc/s.

Volume IX, starting in July, 1933, had 446 pages—an average of nearly 40 per issue—and it concluded, in June, 1934, with the R.S.G.B.'s 21st Birthday Number, the London Wireless Club having been formed on July 5, 1913.

## 1934

Volume X, 1934-35, broke the record with 484 pages; THE BULL. was really quite a fat handful by then. Really full station descriptions were becoming one of the more attractive features. One particular article that I have never forgotten was "Across the High Voltage," by G6QX, who came as near to "buying it" as any ham has ever done, but lived to tell the tale. It might well be reprinted for the benefit of the many new members who are handling high voltages daily, and perhaps without the proper respect.

## 1935

By Volume XI, 1935-36, the particular amateurish charm that characterised the earlier BULLETINS has departed. It is a rather standardised commercial publication averaging some 44 pages, and devoted to amateur radio! (What else could it be, anyway?)

Technical articles, Contest Reports, District Notes, Correspondence, Convention Issues, and the like, fill it up. And through the palmy years of 1936-1939 I find very little to review. The main receiver design for 1936 was a Single Signal Superhet (as it was then the fashion to call selective superhets) designed by G5ZZ, ex-ZL4AI. It was a good deal smaller than some of the three- and four-valvers I have already referred to, and was a worthy forerunner of the specialised jobs we have all round us to-day.

#### 1936

Volume XII came with a flashy new cover and 610 pages—over 50 per month! It includes, among other things, a 56-Mc/s. crystal-controlled transmitter and a crystal-gate superhet. 28-Mc/s. was wide open again, and 56-Mc/s. activity increasing apace (though still, largely, with squirt-and-squelch methods).

#### 1937

Volume XIII—716 pages—saw amateur radio well into the commercial stage, if you know what I mean. Cracks about people who used “bought” receivers were beginning to stop, and a few even used commercial transmitters, though not without protests from “genuine amateurs.” “R.E.S.” (Research and Experimental Section) was going strong by then—an admission that the R.S.G.B. as a whole was no longer research-minded.

#### The War Years

And so THE BULL. continued, swelling in size until the last pre-war issue (August, 1939), which ran to 68 pages and gave no hint of what was to follow. September, 1939, the historic issue which dealt with determination of licences, impounding of apparatus, and so on, was by no means the emaciated BULLETIN we have to-day. As a matter of fact THE BULLETIN remained a fairly robust job until July, 1942, when the present cover and the title “R.S.G.B.” instead of “T. & R.” was adopted. The war-time issues all contained news from serving members and technical articles. But as for size—the whole bundle from July, 1942, to December, 1945, is almost exactly the same size as the one Volume XIV—1938-39. Such is the effect of the Paper Control—and may it soon be lifted, along with many other cramping restrictions. There would not be the slightest trouble in filling a 72-page BULLETIN again, and perhaps in another 21 years' time I shall be able to write a review showing how the BULLETIN increased in stature in the post-war years.

Meanwhile, Many Happy Returns to THE BULLETIN and, in particular, to all those worthy amateurs who have been with it throughout its 21 years. If all those who can make this claim would like to drop me a postcard, c/o The Editor, and tell me so, we will endeavour to publish a special Roll of Honour for Old Timers next month.

## CONGRATULATIONS

#### From Lt. Col. SIR IAN FRASER, M.P., President, 1928

*During the early 1920's we had a revolution in the little world of British Amateur Radio. The young enthusiasts who were keen on experimenting with radio transmitters of their own broke away from the parent Society and formed the Radio Transmitters' Society and I became its first President. The leaders of that day subsequently led the Radio Transmitters' Society back into the parent society and the Radio Society of Great Britain took on a new lease of life.*

*Looking back, we may ask ourselves if the revolution was worth while, since in the end we went back to the Society from which we had broken away. I think it was abundantly justified, for we young fellows wanted to have a say and we got it, and the whole affair brought nothing but good to the amateur movement by stirring it up and causing discussion and starting it off again with more vigour than ever. The Society has gone on from strength to strength; the young men of the 20's are now in middle life and many have played an important part in radio engineering both in peace and in war. To-day, some thousands of ex-Service men, who used radio in the recent war, as well as many younger men who were below military age, contribute towards the membership of the Society along with a considerable body of “old sweats” from the first war and a few real veterans. As the radio experimenters of to-day will become the engineers and technicians of to-morrow, I cannot imagine a more useful service than that rendered by the Society and THE BULLETIN in encouraging the art of amateur radio.*

*I earnestly hope the Government will grant every possible facility for those who have a taste for amateur experimental work to carry on. If I can help you in Parliament in any way, you have only to call upon me. I wish THE BULLETIN the very best of good-luck on the occasion of its Coming of Age.*

#### From Mr. GERALD MARCUSE (G2NM), President, 1929-30

*As one of those enthusiasts who were present at the Council meeting when it was first suggested that British radio amateurs should have their own journal, I should like to express my delight and pleasure that the project, which was launched with some opposition in 1925, has survived for a period of 21 years.*

*I am particularly glad to know that THE BULLETIN, during recent years, gave pleasant reading to many of the younger members of our great fraternity serving in remote parts of the world. To those who kept the flag flying during the war years, I offer my warmest congratulations.*

*Now that we are once again on the air, let us enjoy our “rag-chewing,” and extract all the pleasant benefits we can from “Ham Radio.”*

#### From Mr. ARTHUR E. WATTS (G6UN), President, 1934-36, 1938-40

*Having been a reader of THE BULLETIN from the first issue, I appreciate how large a share it has had in the success achieved by the Society.*

*I am delighted to think that THE BULLETIN comes of age in July, 1946, and send my best wishes for continued success in the future.*

#### From Mr. E. DAWSON OSTERMEYER (G5AR), President, 1937

*Having served as an officer of the Society for many years and having watched the progress of THE BULLETIN from the beginning, it gives me much pleasure on the occasion of its Coming of Age, to offer my heartiest congratulations to all who have contributed in any way to its success. I look forward with confidence to its expansion as soon as the paper position permits and to its continued usefulness to the amateur in the future as it has been in the past.*

**From Mr. A. D. GAY (G6NF), President, 1941-43**

*Having watched the growth of THE BULLETIN for many years, it is indeed satisfactory to know that it has reached the age of manhood with the strength and virility that it possesses to-day. A great deal of this strength has been gained by a succession of "live" Councils and a loyal and energetic Secretary and assistant.*

*May the next phase of the Society's life bring to fruition many of those cherished plans which will further the interests of the Radio Amateur.*

**From Mr. E. L. GARDINER (G6GR), President, 1944-46**

*This issue marks the Coming of Age of THE R.S.G.B. BULLETIN, the origin and development of which are described in messages from those who helped to create it.*

*As yet THE BULLETIN has not recovered from the restrictions and limitations imposed upon it by a state of war. The Amateur Radio movement which it represents, however, stands on the threshold of unprecedented opportunity. Never before has the British amateur been so strong in numbers, in organisation and in finance, or in the expectation of such generous treatment under revised regulations. As more paper becomes available the Society's publications will rise to these new opportunities, and provide the widest possible range of interest and information.*

*It is with the amateurs themselves, however, that the future of this scientific hobby rests, and it will be for the readers rather than the producers of this BULLETIN, to choose between an orderly and disciplined enjoyment of the improved facilities—won for them through the efforts of the Society—or a state of chaos. This responsibility is already upon us.*

**FROM THE RADIO TRADE****A. F. BULGIN & CO., LTD., Barking, Essex**

*Heartiest congratulations on having published THE BULLETIN for the past 21 years without a break.*

*This proud record marks another milestone along the road of radio progress and is proof, should any be needed of the high merit with which the publication is regarded by all amateurs and enthusiasts.*

**THE MULLARD WIRELESS SERVICE CO. LTD., Century House, Shaftesbury Av., London, W.C.2**

*Hearty congratulations and best wishes to the Official Journal of the Radio Society of Great Britain on reaching its twenty-first birthday.*

*A twenty-first birthday, when concerned with an individual, is always regarded as a turning point in his or her lifetime. The crossing of the threshold into majority while usually celebrated with rejoicing, is nevertheless tinged with a certain solemnity, and the proud possessor is credited with the acquisition of new dignity, new responsibility and an added stature.*

*The same may be said of the "Bull." Its birthday coincides with the advent of what many have been pleased to call "the brave new world." How this will shape, no man can tell. What is quite certain is that THE BULLETIN of the Radio Society of Great Britain will serve the interests of its members with the same integrity as in the past, quick to grasp opportunity where it presents itself, and conscious of the value of twenty-one years of faithful service.*

**SIR ISAAC PITMAN & SONS LTD., Parker Street, Kingsway, London, W.C.2**

*We have given advertising support to THE R.S.G.B. BULLETIN over a period of many years. Being a publishing house we naturally have not done this solely for sentimental reasons, but because THE BULLETIN has always produced results. We attribute this success to a keen readership and to the obvious enthusiasm of an ever-increasing membership. Somehow THE BULLETIN has always reflected the happy and close relationship that seems to exist between the officers of the Society and its members.*

*It is a great achievement for THE BULLETIN to be celebrating its twenty-first birthday without having had a break in publication even during the most difficult period of the war.*

*We send you all good wishes for the future.*

**RADIOMART, 48 Holloway Head, Birmingham, I**

*We have seen THE BULLETIN grow to an organ of great importance. This despite the fact that at times the horizon has looked very dark. However, not only has the storm been weathered but circulation has increased—and so has the interest.*

*We take this opportunity of wishing THE BULLETIN every success and we look forward to the day when it is again of a size in keeping with its importance.*

**From STRATTON & CO. LTD., Birmingham**

*Please accept our hearty good wishes on the occasion of the 21st Birthday of THE R.S.G.B. BULLETIN. We are delighted to observe the steady growth and undoubted enthusiasm of the membership and we wish the Society every success in the future. May we add our hope that the time is not too distant when an easing of the paper restriction will allow THE BULLETIN to expand in keeping with an ever increasing membership.*

**WEBB'S RADIO, Soho Street, London, W.1**

*As THE BULLETIN reaches its majority, may we record our appreciation of the 21 years of unbroken service in the cause of Amateur Radio.*

*Our congratulations to all who have done such an invaluable job through good and bad times.*



# PRACTICAL BREAK-IN OPERATION

By W. H. ALLEN, M.B.E. (G2UJ).\*

THOSE who have listened on the 28 Mc/s. band when it is "open" will not need reminding that interference between stations is one of the pressing problems confronting operators on that band of frequencies at the present time.

This problem is likely to become more and more acute as an increasing number of amateur stations become active all over the world, until "40 metres on a Sunday" which used to represent the quintessence of QRM to pre-war operators will be looked upon as not so bad after all.

It may be felt that we are taking too pessimistic a view of the future and that things will right themselves now that further bands for amateur operation have been released, but the writer considers that the number of active stations which will exist when things really get started and the new licenses are issued will justify this somewhat gloomy prophecy.

It is, therefore, up to us to do what we can to mitigate this interference, and that means using our time on the air to the best advantage, and avoiding all unnecessary transmissions.

As interference becomes more intense there is, naturally, more risk of a message being missed either wholly or in part. A repetition is then requested, and in the end a message which should have taken, say, two or three minutes to send will occupy from twice to several times as long thus even further decreasing the traffic-handling capacity of the band.

The question is, how are we to cut this vicious circle of interference causing further interference? The answer is by using break-in working, for if one is able to listen during intervals in one's own trans-

mission to the distant station, then the latter can ask for a repetition *at the time anything is missed*, as well as give the sending station "K" (transmit) or "AS" (wait) as the state of reception demands.

## Practical Requirements

We now come to the provision of these desirable facilities at the amateur station, the C.W. case being taken first.

The requirements are :

- (1) There shall be no signal from any stage of the transmitter when the key is up.
- (2) Receiver "muted" during key-down periods, returning to full sensitivity within .5 to .75 seconds after the release of the key to enable signals from the distant station to be heard.
- (3) The signal from the monitor should appear in the headphones or loudspeaker uninterrupted by key-clicks.
- (4) The R.F. stage of the receiver is to be protected against excessive input from the transmitter.
- (5) No change-over switching shall be required when passing from send to receive or vice versa.

Taking the above five points in order, a practical solution will now be indicated.

## The Transmitter

The oscillator must be keyed, and all following stages be capable of running without excessive anode dissipation in the absence of R.F. excitation. Theoretically, an oscillator may be keyed by breaking either the cathode, screen-grid or anode circuits, or by

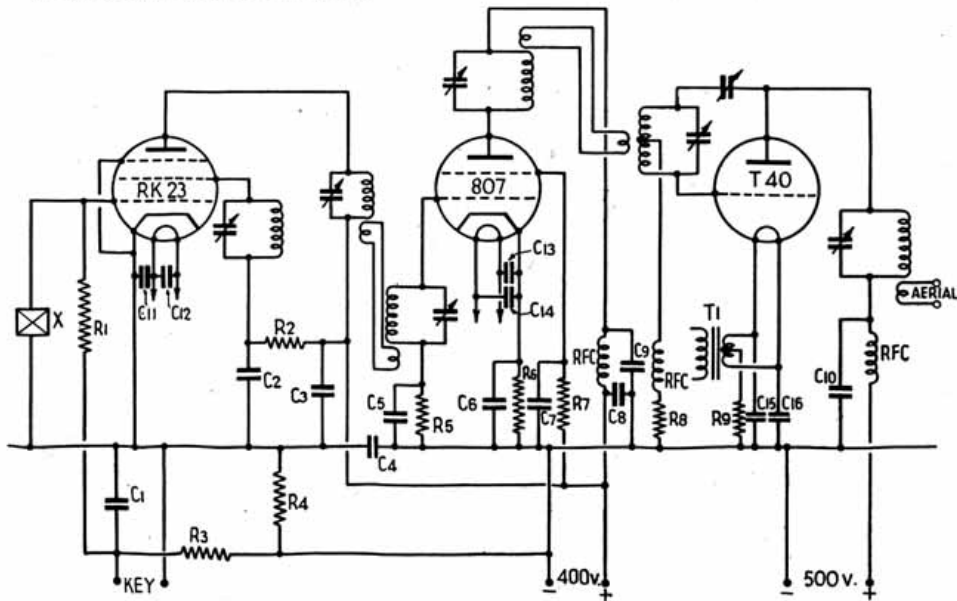


Fig. 1. SELF-BIASED 28 MC/S. TRANSMITTER DESIGNED FOR BREAK-IN WORKING.

C1, 2, 3, 4, 7, 11	.01 $\mu$ F.
C5, 6	200 $\mu$ F.
C8, 9	100 $\mu$ F.
C10, 13, 14	500 $\mu$ F.
C12, 15, 16	2,000 $\mu$ F.
R.1	200K 1 watt.
R.2	20K 5 watt.
R.3	250K $\frac{1}{2}$ watt.

R.4	10K 5 watt.
R.5	25K 1 watt.
R.6	500 2 watt.
R.7	15K 5 watt.
R.8	5K 5 watt.
R.9	250 20 watt.*
T.1	7.5 volt filament transformer.
X	7 Mc/s. band crystal.

\* 32 Earls Road, Tunbridge Wells, Kent.

applying a paralysing bias from batteries or some other source, to the control grid, this bias being removed when the key is depressed.

The last method involves breaking a very much smaller current than does keying any of the supply circuits, and is likely to cause little interference with broadcast and other receivers in the vicinity. In addition, the customary keying filter may often be dispensed with, and it has been found in practice that "grid-block" keying enables rapid operation even with crystals which prove difficult to start when keying is by more conventional methods.

Those stages following the oscillator may either have working bias supplied by batteries only, in which case no anode or screen current will flow in the absence of R.F. drive, or only part of the bias may be so derived, and the remainder obtained from grid-leaks. In both these cases, conditions are made rather hard for the components in the H.T. power packs where, during key-up periods, the output voltage will rise well above the working figure unless exceptionally good regulation obtains.

This voltage rise entails the provision of more expensive smoothing condensers capable of standing this higher voltage indefinitely, as this is the condition appertaining in the transmitter during reception.

The transmitter at the writer's station derives all its working and keying bias from a combination of cathode and grid circuit resistors, the values of which are given in Fig. 1.

R1 is the normal grid leak, and should be made as high as possible to ensure good harmonic operation. R4 will vary according to the type of valve used for V1; low- $\mu$  valves requiring higher bias for cut-off and hence higher resistor values than those possessing a higher mutual conductance. As voltage dropped across R4 means less available for screen and plate, a high- $\mu$  valve at V1 is desirable. In fact the RK23 valve shown in Fig. 1 requires rather too much bias for cut-off to enable maximum output to be achieved with the value of H.T. shown, although actually the excitation available for the following stage is quite adequate in this case.

In the frequency-doubler stage bias sufficient to limit the standing current to a safe figure is provided by R6. When R.F. drive is applied, some 80 to 150 volts of additional bias is produced across the grid leak R5, and the total negative voltage available ensures efficient operation of the stage.

Conditions in the output stage are similar, standing bias being provided by R9 and operating bias by R8. The former should be adjusted, in the absence of drive, of course, so that the current passed by the stage is not excessive, at the same time keeping the resistance as low as possible to avoid losing plate voltage. R8 is proportioned for greatest efficiency.

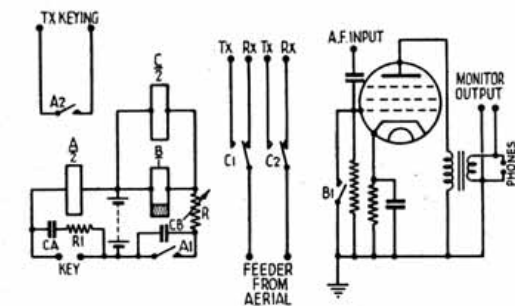


Fig. 2.

Relay Wiring Diagram. Aerial change over contacts are shown to suit a twin-wire feeder.

CA 2  $\mu$ F. R and battery To suit relays.  
CB 1  $\mu$ F. R.1 100 ohms.

## The Receiver

Turning now to the receiver, we will deal with points 2, 3 and 4. Receiver muting may be done in several ways, but the making and breaking of the main H.T. or the screen supplies is best avoided as it sets up undesirable surges which may lead to trouble. The method used in the author's receiver is shown in Fig. 2, and requires a slugged relay, B, capable of rapid operation on "make" but with a delay on "break" of some .5 to .75 seconds. This relay is operated via two contacts on the keying relay, A, and it will be seen that its contacts short the grid of the output valve to earth when the relay coil is energised. Due to the delayed break action, the relay remains closed at ordinary keying speeds thus avoiding clicks in the headphones, yet a pause of a second or less in keying enables the distant station to be heard.

Signals from the monitor, which may be of any type, are fed into the phones as shown in the diagram.

For protecting the receiver against overloading from the nearby transmitter several methods may be employed.

- A negative bias may be applied to the grids of the R.F. and I.F. stages under key-down conditions sufficient to cut them off completely and so prevent grid current flowing.
- A low impedance diode may be connected across the input to the receiver and arranged to conduct when the R.F. input exceeds a certain figure, this value being well above that of any signal normally received.
- Delayed A.V.C. may be employed in the receiver, with the delay so arranged that the B.F.O. does not operate the system, such that sufficient negative voltage is developed by the nearby transmitter to bias the controlled stages to a point where grid current is not excessive.

Method (c) is employed in the receiver previously mentioned, and has the advantage of not requiring additional components or circuits as would (a) or (b). The detector, B.F.O. injection and A.V.C. circuits are as shown in Fig. 3.

## Aerial Switching

So long as the aerial has to be changed over from the transmitter to the receiver at the conclusion of a period of transmission we have neither satisfied requirement 5 nor is true break-in working being achieved. The simplest solution is, naturally, to use separate aerials: equally naturally, however, the better aerial is always reserved for the transmitter, so the use of an inferior receiving aerial may lead to results being below optimum. This argues the employment of one aerial for both transmission and reception and its automatic connection to either transmitter or receiver as occasion demands. Here again a relay is required, this time provided with low-loss contacts suitable for handling the R.F. output from the transmitter. A dual-contact change-over component will be necessary when twin feeders are in use, while a single pole change-over type will suffice for either end-fed aerials or the Windom variety.

As in the receiver muting relay, an action which does not follow normal-speed keying is needed, so that as soon as the key is depressed the aerial is connected to the transmitter, and remains in that position until a pause of a second or less in keying allows the relay to de-energise and reconnect the aerial to the receiver. It will be seen that the aerial relay operates under the same conditions as that used for receiver muting, i.e. it is energised during transmission only, so they may both be operated in parallel. Now it so happens that when a slugged and an unslugged relay are connected in parallel the unslugged component will also exhibit a delayed break action, caused by the back E.M.F. from

the slugged relay holding the armature in the closed position until such E.M.F. has been dissipated. It is only necessary, therefore, to choose muting and aerial relays to operate from the same voltage supply and to arrange that a slug on either of them gives the required delay. It will be found when dealing with slugged relays that the delay depends to a certain extent upon the voltage applied to the coil, a higher voltage resulting in a longer delay, and *vice versa*, so that by adjusting the resistance R shown in Fig. 2, the delay on the two relays may to a certain extent be controlled.

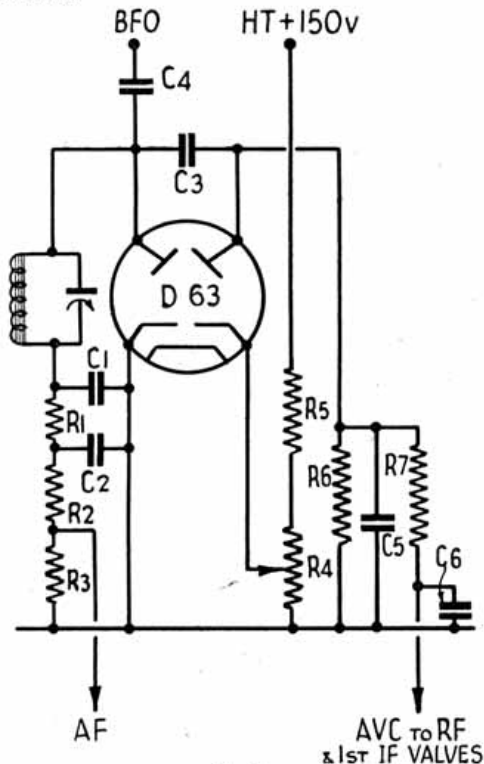


Fig. 3. Receiver Detector Circuit showing delayed A.V.C.

- |        |                        |        |                          |
|--------|------------------------|--------|--------------------------|
| C.1, 2 | 300 $\mu\mu\text{F}$ . | R.1    | 50K $\frac{1}{2}$ watt.  |
| C.3    | 100 $\mu\mu\text{F}$ . | R.2    | 100K $\frac{1}{2}$ watt. |
| C.4    | 10 $\mu\mu\text{F}$ .  | R.3, 7 | .5M $\frac{1}{2}$ watt.  |
| C.5    | .01 $\mu\text{F}$ .    | R.4    | 5K potentiometer.        |
| C.6    | .02 $\mu\text{F}$ .    | R.5    | 40K $\frac{1}{2}$ watt.  |
|        |                        | R.6    | 1M $\frac{1}{2}$ watt.   |

**Telephony Operation**

Break-in operation when using telephony may be achieved by a "push to talk" switch taking the place of the telegraph key in the C.W. layout just described. In order to avoid damage to the modulator should the microphone be spoken into when the switch is open, contacts on the keying or muting relay should be arranged to open the modulator H.T. supply, short circuit the microphone, or otherwise prevent the operation of the audio side of the transmitter when the power amplifier is not running.

If entirely automatic operation is desired, comparable to that outlined for C.W. working, it may be obtained by rectifying a portion of the output of the modulator and using the voltage so obtained to operate the keying relay A in Fig. 2. It will be appreciated, however, that "A" will have now to be slugged in order that the transmitter does not go on and off the air with every syllable of speech, while the receiver muting and aerial change-over relays may be of the quick make and break variety.

**RADIO AMATEURS' EXAMINATION**

For the information of members we publish below a list of the questions which were set at the first Radio Amateurs' Examination.

1. A 100-ohm resistor and a 300-ohm resistor are joined in parallel and connected to a battery of e.m.f. 7.5 volts and negligible internal resistance :—
    - (a) What is the total current taken from the battery ?
    - (b) What power is dissipated in the 100-ohm resistor ? (10 marks.)
  2. What do you understand by the term "resonance" ? If an inductance of 100  $\mu\text{H}$  is connected in parallel with a capacitance of 100  $\mu\mu\text{F}$ , what is the resonant frequency of the circuit ? (10 marks.)
  3. Draw a diagram of a self-oscillating valve circuit and explain simply its method of functioning. (10 marks.)
  4. Why are quartz crystals frequently used in radio transmitters ? Describe, with diagram, a typical crystal-controlled oscillator. (10 marks.)
  5. Explain why "standing waves" are undesirable in a feeder system connecting a transmitter to an aerial. How would you detect their presence and minimise them ? (10 marks.)
  6. Describe an "artificial aerial." How can an "artificial aerial" be used to measure the power output of a transmitter ? (10 marks.)
  7. In what ways may a low-power transmitter interfere with radio and television reception ? What precautions should be taken to minimise such interference ? (20 marks.)
  8. What are the conditions laid down by the Postmaster-General for the frequency measurement and control of amateur transmissions ? (20 marks.)
- Candidates were invited to attempt as many questions as possible. The maximum possible marks for each question is shown in brackets.

**SUBSCRIPTIONS**

Now that the war emergency is deemed to have ended, the Council have resolved that, as from **October 1, 1946**, the statutory subscription rates, as laid down in Article 19 of the Articles of Association, shall again apply to all Corporate Members.

The subscription rates will be as follows :—

	Per Annum
Town Corporate Members...	21/-
Country Corporate Members ...	15/-
Dominion, Colonial and Foreign Members residing outside the British Isles ... ..	12/6
Associates ... ..	10/-

Town Corporate Members are those whose residence or usual place of business is situate within a radius of 25 miles from Charing Cross. Other Corporate Members resident in the British Isles are Country Members.

Town Corporate Members using the Bankers Order system are requested to instruct their Bankers to modify their order in accordance with the terms of this statement. Corporate Members who have previously taken advantage of the reduced Service rate of subscription, and have used the Bankers Order system, are also requested to instruct their Bankers to modify their order accordingly.

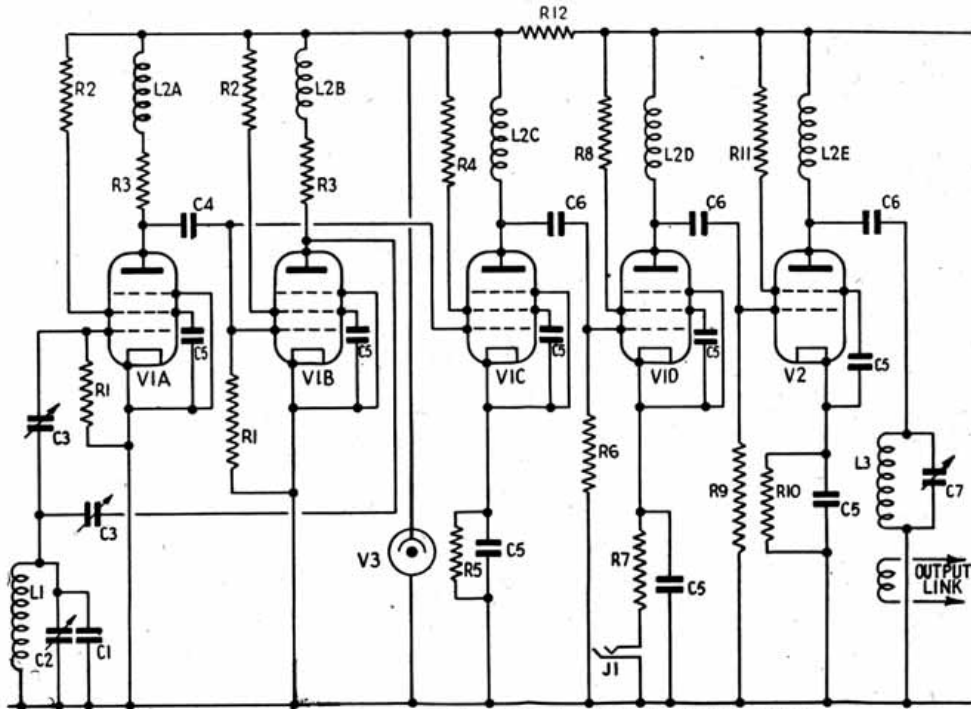
# VARIABLE FREQUENCY EXCITER UNIT

By G. MICHAEL KING, B.Sc. (G3MY).\*

JUST before the outbreak of war, the writer was experimenting with a self-excited oscillator which would give results in all respects comparable with those obtained from a crystal controlled oscillator. Unfortunately the war prevented the unit being put to full use, but preliminary tests showed that the circuit is remarkably stable and that it produces a note which is rather better than that obtained from a transmitter using a keyed Tritet or similar type of oscillator.

physical size plus the fact that a metal shell is provided makes for good heat-radiating properties and good shielding. The single-ended type of construction is also very convenient for keeping leads short and rigid.

The oscillator valves are American type 6SJ7 pentodes connected to the tuned circuit by means of two small air dielectric trimmers (C3). These trimmers are of the concentric type, made by Dubilier, with a capacity range of from 1 to 6  $\mu\text{F}$  and in actual



CIRCUIT DIAGRAM OF VARIABLE FREQUENCY EXCITER UNIT.

C1	500 $\mu\text{F}$	L2 A-E	2.5 mH. R.F.C.	R6	150K.
C2	100 $\mu\text{F}$	L1	(see text)	R7	0.2K.
C3	1-6 $\mu\text{F}$	L3	To suit output frequency	R11	10K.
C4	100 $\mu\text{F}$	R1, 8, 9	100K.	R12	5K.
C5	0.01 $\mu\text{F}$	R2	80K.	V1 A-B	EF50
C6	100 $\mu\text{F}$	R3	30K.	V1 C-D	EL32
C7	160 $\mu\text{F}$	R4	75K.	V2	6V6/6L6
		R5, 10	0.5K.	V3	VR150/30

## Circuit

As will be seen from the circuit diagram the exciter makes use of a Franklin type of oscillator. The writer was first introduced to this circuit through an article by our President (Mr. E. L. Gardiner, G6GR) which appeared in the T. & R. BULLETIN dated July, 1939. As originally described the circuit made use of two small battery-type triodes as oscillator valves, but it was decided to make the new version entirely mains-operated.

A pair of single-ended metal type R.F. pentodes were chosen for the job. These valves are particularly suitable for this work as they have short direct leads inside the valve and the whole electrode assembly is extremely firmly supported. Further, their small

operation, are set at practically minimum capacity.

The frequency determining circuit (L1) consists of 12 turns of 20 S.W.G. enamelled hard drawn copper wire, wound on a ribbed ceramic former 1½ in. diameter. The turns are spaced to give twelve turns per inch. This coil is paralleled by C1 which is a zero-drift ceramic condenser with a capacity of 400  $\mu\text{F}$ . Tuning is affected by means of C2, a 100  $\mu\text{F}$  microvariable. The circuit tunes from 3.5 to 3.8 Mc/s.

The first buffer valve, V1C, is connected directly to the grid of the second oscillator valve V1B. This valve works in strict Class A and has an R.F. choke in its plate circuit. A second buffer V1D follows V1C and its circuit is exactly the same as that of the first. The second buffer also has an R.F. choke in its plate circuit and keying is carried out in its cathode circuit.

The last valve in the exciter is a beam tetrode of

\* 51, Springfield Road, Sheffield 7.



the 6V6/6L6 type which derives its excitation from the second buffer stage. In the plate circuit of the output stage there is a circuit which may be tuned to 7 or 14 Mc/s. The output from the exciter is quite sufficient to drive an 807 or similar valve on 7 or 14 Mc/s.

The power supply, which is perfectly straightforward, consists of a 300v-0-300v transformer, and a 5V4 rectifier. Smoothing is achieved by a midge 20 Henry 60 mA choke and an  $8 \times 8 \mu\text{F}$  condenser. The oscillator valves and the first buffer valve are fed from a VR150/30 (V3), which provides further smoothing and also stabilises the voltage. The second buffer and the output stage receive the full output of the power supply, which is about 310 volts.

#### Operation

The unit is left running the whole time and when the key is "up" there is just sufficient signal from the oscillator and untuned first buffer to give an S3/4 signal in the receiver. It is thus quite a simple matter to tune the transmitter to a quiet spot in the band and then be ready to go as soon as the key is pressed. The two untuned buffer stages generate a considerable amount of harmonic output in their plate circuits and this accounts for the relatively good efficiency with which the output stage works when tuned to 7 or 14 Mc/s.

Owing to the extremely loose coupling between the frequency determining circuit and the oscillator valves, heating up of the valves produces very little change in the oscillator frequency, in fact it is possible to change the oscillator valves without shifting the frequency more than about 100 cycles.

A drift of about 100-200 cycles occurs in the first two or three minutes, after that the frequency remains absolutely steady for as long as the oscillator is left on.

The note produced when the oscillator is keyed leaves nothing to be desired and is as good as that obtained with the most carefully designed and operated crystal oscillator.

#### Conclusion


From the description given it will be appreciated that the design and building of a really good self-excited oscillator is a far more difficult and expensive job than the building of a crystal oscillator of comparable stability. However the flexibility which such an exciter gives, coupled with its ability to slide out from under heavy interference into any quiet spot in the band, more than compensates for the added expense and patient labour which goes into its construction.

For those seriously interested in post-war planning the unit described provides a very good answer to the exciter problem.

*Author's Note.*—It would probably be better to replace the 6SJ7's at V1C and V1D with small output pentodes such as EL32's. The circuit diagram would be the same except that R4 and R8 would be reduced to 30,000 ohms each. Results would probably be improved on the high frequencies and might even permit operation at 28 Mc/s.

#### Side Slips

In the article entitled "A Battery Operated V.H.F. Receiver," published last month the Cossor output valve was referred to as type 220. This should have read 200 OT. The resistors R5 and R8 are 10,000 ohms not 100,000 ohms as stated in the caption to Fig. 1.



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**MORE TECHNICAL ARTICLES WANTED**

# THE MONTH ON THE AIR

By A. O. MILNE, (G2MI)\*

## Bad Boys

IN our recent travels around the country attending P.D.M.'s, we have found that each District seems to have its own particular "public nuisance" on the air. In one place it is the owner of a V.F.O. who parks himself on someone's frequency and calls the DX station they are working or else obliterates said DX station with remarks such as "Hold him for me, please!" In other places there are the local over-modulated 'phones who wipe out large chunks of the band with spits and splatter. Again there is the owner of really fearsome key clicks who will do nothing about them. Now we just cannot afford to tolerate this type of behaviour. If these people won't see reason, then go round to their shacks in a body and read the riot act. For your own sake, and the future of amateur radio, be frank and candid and if it loses you a friend, then count him well lost if he is a devotee of ungentlemanly conduct on the air.

## Licence News from Here and There

Your scribe is writing this on holiday and will not be present when the first crashing CQ shakes the ether on June 30. If it helps to lessen the QRM on 1.8 it will be worth it!

OKIAW tells us that the following calls have been reissued to their pre-war holders: 1AA, 1AU, 1FF, 1FR, 1JR, 1KX, 1PJ, 1RY, 1SB, 2DD, 2DF, 2EL, 2FL, 2HY, 2MA, 2RA, 2VZ, 2XY. Maximum power is 50 watts (C.W. only at present) on the following bands: 1.8, 28, 56, 112, 224, 408, 2,300, 5,250, 10,000 and 21,000 Mc/s.

Some Rumanian amateurs are on the air but as yet unlicensed. A number of cards have arrived from YR stations. YR5X, XQ4BB, PR1AA, YR5USA and RL1RV are one and the same station! QSL via HB9AG.

In a letter to the QSL Bureau, OH2NQ says that the Finnish Government is now considering the re-issue of licences.

British West Indies local administrations seem to be very slow in re-activating their amateurs. News is through that the Jamaica P. & T. Dept. has at last released 28 but the power limit is 25 watts C.C. only. The following are active: VP5AD, DX, EM and MU. In Barbados some VP6's are on the air without official authorisation (VP2AT worked G6CL on 14 Mc/s. on June 30 so presumably the licence position in B.W.I. has improved.—Ed.). We hear via G8QX, that the South Africans have been granted full use of 3.5 as from June 6.

## Notes and News

G6LB has been heard on 1.8 at 349 off the coast of Tunis. 3WL put his transmitter on the air on May 16 and had worked 20 countries by the 31st. VQ6MI is now ET6MI and is operating from Addis Abbaba. QSL via R.S.G.B. EA1D is leaving Madrid. QSL to J. L. Mohn, 306 North Willomet, Dallas 11, Tex. FA8B is on 58040 every day from 1800-1900 G.M.T. There are now several stations on in Burma. XZ4AR is G2CNT, XZ2AB is BRS6515.

VS7CX/G2CX expects to be home soon. His shack is on the first floor of an old Indian-style house right on the beach and the spray from the sea is quite a problem. Coils, condensers, etc., shine with a sticky brine deposit and everything metal corrodes quickly. The aerial is indoors, a couple of feet above CX's head and two lamp pendants hang between aerial and reflector!

VS3JH is still in the same place but has suffered another change of call sign. He is now VS4JH. He uses 50-100 watts to an 813. W9VND is QSL'ing via G6ZY. Please send your cards direct to 304 Mill St., Alton, Ill., U.S.A. for QSO's with W9VND, ZC4VN, ZB1VN, AR8VN, etc.

BRS6596 at Yeovil has heard both sound and vision signals from A.P. and suggests that a regular watch on these frequencies outside the service area might provide an interesting pointer to conditions on 58 Mc/s.

BRS10132 at Mhow, India, hears all the "rare" DX at S9! Says W9HCT/VK9 is on Admiralty Is. XZ2DX is now back home. He is GW3AL, QSL direct to 4 Wood St., Port Talbot, S. Wales. He originally operated in Burma as GW3AL but as the locals thought he was DX, changed it to XZ3AL and later to XZ2DX.

AC4AB is operating with 2½ watts from Tibet and reports will be welcomed. He is Ft./Lt. Wells on leave from Burma. QSL all Burma stations to AHQ, R.A.F., Burma, S.E.A.A.F.

BRS7594 has had a card from YI3R and learns therefrom that he was operating from Adana, Turkey. Anyone land that rare one?

The 28 Mc/s. band has opened up for short skip contacts several times recently and has also provided queer conditions with European and DX contacts sandwiched together.

BRS10132 in India sends a very detailed list of G stations heard on 28. The significant point to note is that in most cases they were calling other G's! The "band dead" no doubt!

## New Zealand Listening Post

A letter comes from Mr. C. L. Sutton, 29 Keppel St., New Brighton E.3, Christchurch, N.Z., who listens every day between 7 and 8 a.m. N.Z. summer time on 14 Mc/s. for 'phone stations. He specialises in sending detailed reports to anyone requesting them and all you have to do is to call Test N.Z. Judging from past experience the work of these N.Z. listeners is first rate and one of their reports really well worth having.

Have a care for those 3rd harmonics from 14 Mc/s. 73 and CUL.

## Stop Press

Zero hour found many hundreds of G's on 14 Mc/s. QRM was terrific in London but DX could be worked. Best phone station heard on opening day was EP1C—the voice of Persia—in Iran. During the first 48 hours G6CL contacted CE, CO, TF, VP2, W6, EP, VO, VE4, FM8 (Martinique) as well as a number of Europeans, including D4's in the U.S. Zone of Germany. The W's came on at 0200 E.S.T. July 1, but none were received strongly that day.

## Keep Mum

The British amateur won a splendid reputation for trustworthiness during wartime. Now that inter-G QSO's are taking place again on a large scale, many discussions will doubtless be held on technical information which has been obtained during the war. The amateur should not forget that some of this information is still on the Secret List and those who possess it should be careful not to give it away by some careless or casual reference.

## Can You Help?

Mr. T. G. Ward, G2FKO, Tormeen, Marytavy, Tavistock, Devon, requires the loan of the T1154 transmitter circuit diagram or the appropriate Service booklet. In return he can give information on the R1154 receiver.

\* 29 Kechill Gardens, Bromley, Kent.

# THE MONTH ON FIVE

By W. A. SCARR, M.A. (G2WS)\*

As anticipated, the last few weeks have provided many opportunities for long distance communication on the band and the results achieved would probably have been even better had normal summer weather been experienced. Nevertheless, many fine contacts have been made, and there has been a gratifying increase in activity on the Continent.

For those who are new to the band, and especially those listening stations who have recently started making observations on 50 to 60 Mc/s., a few notes on the ways in which signals may be received on these frequencies will probably be of interest.

## How Reception Occurs

Generally speaking, we may classify reception into three groups. Firstly, direct-ray, optical or quasi-optical reception, where a direct air-line exists between transmitter and receiver. This condition may obtain between an aeroplane and a ground station, even when the two are many miles apart. Contacts of this nature are established in field work by taking apparatus on to hill-tops, as was done on numerous field-days prior to the war. Experience shows that slight bending or scattering of the rays always occurs on these frequencies, making "quasi-optical" reception possible at all times for medium distances.

The second method of reception is obtained when peculiar temperature conditions occur in the lower atmosphere. If, after a hot day, air near the earth's surface cools rapidly and air several hundred feet above remains warmer, a "temperature inversion" is said to exist and under these conditions, V.H.F. waves are refracted to a very great degree and may remain trapped as it were in the layer of cool air near the ground, thus following the surface of the earth rather as sound waves in the whispering gallery of St. Paul's follow the walls by successive reflections and pass round the dome. Most of the long-distance inter-G contacts of this year have been made under these conditions. Normally they are associated with long spells of calm, warm weather, and give the best results an hour or two before dusk.

The third method of reception and that which gives the type of DX which we associate with other bands, is caused by the reflection of signals from the E or Heavyside layer. Normally, the ionisation of this layer is insufficient to reflect waves in the region of 60 or even 30 Mc/s. During magnetic storms and other disturbances, however, it is possible for small areas of the E-layer to reach enormous ionic intensity, and on these occasions, which are often quite brief, signals on the band may be reflected and received at great strength by distant stations. Whereas with the second type of reception, highly efficient aerial systems are desirable, with this type of reception the receiving aerial is of relatively little importance. Signals are usually received in this way from transmitters 300 to 600 miles distant, though it is likely that under ideal conditions, "multi-hop" reception may before long establish new records in two-way working on these frequencies.

## Recent Achievements

To turn to recent achievements, many British stations have succeeded in the last month in hearing and contacting the Continent. The patient work of the Mablethorpe pair, G5BD and G5LL, has at last been rewarded and both have submitted very fine logs; F3JB, I1AY and G6VX have been worked by both.

G2XC (Portsmouth) has just completed a 3-element rotary beam and is heard almost nightly in London.

His recent contacts include F3JB, I1AY and I1FA.

G5MP (Hythe) sends his first post-war report and is listening regularly on a 4-valve straight receiver. He asks, as many of us do, why the 56 to 58.5 Mc/s. portion of the old band should remain closed to us though apparently unused by anyone else.

G6DH (Clacton) sends an interesting log. His signals are now being heard in London and he is operating nightly from 20.30 G.M.T. onwards, using a 3-element rotary beam.

G6CW has been on the air on all but two days during the last month, and has worked many G's in all parts of England as well as F3JB. His log includes an interesting list of commercial harmonics heard on the band and he is watching 30 Mc/s. conditions carefully with a view to forecasting conditions for reflection on 60 Mc/s.

G4CI (New Malden) has now worked 55 stations on the band and his latest log shows QSO's with G5BY (Devon), G6YQ (Prestatyn), G6YU (Coventry), G2AK (Birmingham), and G2ZV (Warwick).

G3NR (Chiswick) has made many contacts with only 8 watts and an indoor 2-element beam. He has contacted G5TX (Isle of Wight) on 'phone.

G2AK (Birmingham) contacted I1AY at 19.00 G.M.T. and I1DA at 20.45 G.M.T. on June 24. His signals were S9 in both cases. I1AV (S5), F3VV (S7-9) and I1SS (S9 plus) were also logged. G5LJ worked I1AY at 19.05 G.M.T. on the same evening.

With the prospect of real "DX weather" everyone will doubtless be on their toes during the next few weeks. There may be a great opportunity for GI, GM and GW stations to set up new records by contacting the South and Midlands. Reports from them would be very welcome and in the meantime the G's will be listening for their signals whenever the band is open.

## Stop Press

BRS2744 of Belfast, reports reception of I1AY and I1DA. He is keeping a sharp watch for G stations.

## Standard Racks and Panels

Sound Sales Ltd., West Street, Farnham, Surrey, are now in a position to deliver from stock, standard racks and panels. Panels are slotted on a multiple of 1.75 in. to match 1.75 in. drilling centres on the racks. All panels are flat, machine slotted for accuracy and guaranteed square within fine limits. Complete interchangeability is possible using stock panels, thus providing for a wide range of equipment. The racks are given a standard B.B.C. grey finish. Sizes: Height overall, 6 ft.; width overall, 1 ft. 9½ in.; total space available for panels, 5 ft. 7½ in. Every effort will be made to deliver standard rack equipment in 24 hrs. and panel drilling and cutting within 48 hrs. The Type D.S. rack with double sided support, occupying a floor space of 21½ in. by 21½ in., is priced at £3. Standard panels vary in price from 12s. to 6s. 6d.

## Can you Help?

Major L. J. Ralli, G4AJ, Beaurepaire Park, Basingsstoke, Hants, seeks particulars, especially base connections, of a 3-cathode ray tube picked up in Tokyo. Only markings are BG-75A.

## OUR FRONT COVER

TECHNICAL data and advice on the applications of the QVO4/20, the Double Beam Tetrode illustrated on the cover, and other transmitting and industrial valves can be obtained from The Mullard Wireless Service Co., Ltd., Transmitting and Industrial Division (Technical Service Department), Century House, Shaftesbury Avenue, London, W.C.2.

\* 8 Beckenham Grove, Shortlands, Kent.

## ACTING TOWN REPRESENTATIVES, 1946

The following is a list of those members who are serving as Acting Town Representatives. This information has been furnished by the District Representatives who will be glad to hear of any errors or omissions.

District	Town	Name, Address and Call Sign of Acting T. R.	District	Town	Name, Address and Call Sign of Acting T. R.	
1	Ashton-under-Lyne	MR. J. PARTINGTON (G5PX), 8 Hutton Avenue.	12	Enfield ..	MR. T. VICKERY (G5VY), 48 Willow Road.	
	Blackpool ..	MR. H. FENTON (GSGG), 25 Abbey Rd.		St. Albans ..	MR. C. E. ADAMS (BRS3412), 18 Sandfield Road. Phone: 5848.	
	Bolton ..	MR. G. E. SHACKLE (G2DVQ), 32 Bromwich Street.	15	Aylesbury ..	MR. C. R. LAST (BRS6014), 91 Molefield Estate, King Edward Avenue.	
	Burnley ..	MR. P. NICHOL (G5ZN), 35 Reedley Rd.		Harrow ..	MR. S. G. MACE (BRS6527), 153 Belmont Road.	
	Darwen ..	MR. H. HARGREAVES (G8FI), 15 Earndale Road.		Hayes ..	MR. H. C. BOSTOCK (BRS5246), 1 Grange Road.	
	Liverpool ..	MR. R. SPEARS (G8AZ), 72 Rocky Lane, Broadgreen.		High Wycombe	MR. C. M. FREER (BRS4751), 37 Melbourne Road.	
	Manchester ..	MR. I. D. AUCHTERLONIE (G6OM), 4 Stand Close, Whitefield. Phone: Whitefield 2058.		Hounslow ..	MR. J. A. V. CLARKE (BRS9094), 124 Springwell Road.	
	Oldham ..	MR. F. LEES (G3PD), 26 Bargap Road.		Ruislip ..	MR. F. FLETCHER (G2FUX), 11A Ickenham Road. Phone: 2763.	
	Preston ..	MR. A. ADAMS (G5AD), 11 Priory Crescent, Penwortham Hill.		Slough ..	MR. J. J. PAINE (G6PR), 31 Alpha Street.	
	Rochdale ..	MR. G. T. BUTLER (BRS7083), 331 Manchester Road, Sudden.		Sunbury-on-Thames	MR. R. K. SHEARGOLD (G6RS), "Digswell," The Avenue.	
	Warrington	MR. F. A. VOST (G2DF), 26 Pinewood Avenue.		Twickenham	MR. G. F. BARRETT (G8IP), 23 Warfield Road.	
Whitehaven	MR. W. H. HODGSON (G3BW), 53 Hill Top Road, Arrowthwaite.	West London		MR. R. G. HINDES (BRS6275), 51 Rushall Avenue, Chiswick, W.4.		
2	Barnsley ..	MR. C. T. MALKIN (G5IV), 5 White Hill Terrace, Dodworth Road.	16	Beckenham & Bromley.	MR. L. R. K. GREGORY (G2AVI), 18 Upper Park Road, Bromley. Phone: Ravensbourne 2071.	
	Brighouse ..	MR. H. BINNS (G8TF), 119 Rastrick Common, Rastrick.		Bexley, Bexley - Heath Crayford, Dartford & Erith	MR. H. L. OVERTON (G4CW), 6 Lower Station Road, Crayford.	
	Doncaster ..	MR. H. FLINTHAM (BRS193), 50 Burton Avenue, Balby.		Maldstone ..	MR. T. D. EAVES (BRS7387), "Ashmore," Ashford Road. Phone: Bearstead 6118.	
	Huddersfield	MR. J. DALE (G5VD), 12 Langley Terrace, Crosland Road, Oakes.		Medway Towns	MR. S. A. HOWELL (G5FN), 28 Rosebery Road, Gillingham.	
	Keighley ..	MR. H. BEADLE (G8UO), 13 Chandos Street.		17	Boston ..	MR. G. HUTSON (G6GH), 11 Wide Bargate.
	Morley ..	MR. H. BEAUMONT (G5YV), 8 Ashfield Avenue.			Gainsborough	MR. F. GREEN (G3OS), 24 Woods Terr.
Sheffield ..	MR. E. WALKER (G2LT), 11A Welwyn Close, Intake.	Grimsby & Cleethorpes	MR. F. COLE (G4GX), 33 Douglas			
3	Birmingham	MR. G. BROWN (G5BJ), 94 Sunnymead Road, South Yardley.	Sleaford ..	MR. T. R. BROOKES (BRS4315), 19 Westgate.		
	Burton-on-Trent	MR. R. C. HARRISON (G2RH), 1 Springfield Villas, Words Lane, Hapenhill. Phone: 2458.	18	Hull ..	MR. A. BELL (G2XA), 22 Orchard Road, Anlaby Park.	
	Cannock ..	MR. K. R. BOOT (G2FZG), 77 Beech Tree Lane. Phone: 3175.		19	Newcastle-on-Tyne	MR. W. HALLEY (BRS5236), 43 Hyde Terrace, Gosforth.
	Coventry ..	MR. L. W. GARDNER (G5GR), 40 Medina Road.			South Shields	MR. J. MONAGHAN (G5SB), 60 Lemon Street, Tyne Dock.
	Newcastle-under-Lyne	MR. P. A. ARNOLD (G2ARR), 17 Bramfield Drive.			Sunderland ..	MR. W. STOCKBURN (G2TG), 40 Netherburn Road, Newcastle Road Estate.
Shrewsbury	MR. E. R. WESTLAKE (G6KR), "Ardlui," Wenlock Road.	West Hartlepool			MR. R. P. MCCONWAY (BRS4649), 75 Arncliffe Gardens.	
Wolverhampton.	MR. F. WYER (G8RY), 20 Lawnswood Rise, Blakeley Green.					
4	Derby ..	MR. A. BRYAN (G8BN), 150 Littlelover Lane.	<b>Around the Trade</b>			
	Leicester ..	MR. J. FAIRLEY (G2IX), 19 Francis Avenue.	<i>British Insulated Callender's Cable, Ltd.</i> , Norfolk House, Norfolk Street, London, W.C.2, have issued an illustrated brochure describing a 10,000 Mc/s. (3 c.m.) Waveguide Test Bench, which has been designed by them in collaboration with Nash and Thompson, Ltd.			
	Mansfield ..	MR. E. S. K. VANCE (G8SA), 43 Blackwell Road, Huthwaite. Phone: S in A 192.	<i>Amateur Radio Service (G6HP)</i> , 27-29 Canning Street, Burnley, Ltd., have submitted details of a 50 watt transmitter for amateur use. The complete equipment, comprising R.F. unit, speech amplifier and modulator unit and power supplies unit is assembled into a black cracked spot welded angle steel framework rack measuring 14 in. x 11 in. x 26 in. Prices are as follows:—R.F. Unit £13 10s., Speech Amplifier and Modulator Unit £11, Power Supplies Unit £21 10s.			
	Nottingham	MR. A. CLIPSTONE (G8DZ), 77 Julian Road, West Bridgford.	<i>Labgear</i> , Willow Place, Cambridge, have sent details of their range of high-class components suitable for amateur transmitting. The list includes condensers, inductances, coils and chokes. Crystal calibrators and rota-beam aerials are also described.			
	Worksop ..	MR. H. S. CHADWICK (G8ON), 25 Raines Road.	<i>Hamrad Wholesale, Ltd.</i> , 348 Portobello Road, North Kensington, W.10, have issued a detailed list of valves, components and other items which they now have available for the amateur.			
9	Ipswich ..	MR. L. H. PEPLER (G2JD), 162 Sidegate Lane.	* * *			
	Norwich ..	MR. M. NICHOLSON (G2MN), 78 Wroxham Road. Phone: 21524.	Copies of these lists and publications can be obtained, on application, from the addresses quoted.			
	Yarmouth ..	MR. A. F. THOMPSON, The Hermitage, Stokesby.				
10	Cardiff ..	MR. W. H. WESTACOTT (BRS10,374), 48 Hamilton Street, Canton. Phone: Cardiff 7940, Ext. 229, during office hours.				
	Swansea ..	MR. W. BOWEN (GW4CC), "Thistle, Dhu," Upper Killay. Phone (evenings): Sketty 8842.				
11	Bangor ..	MR. R. THOMAS (BRS9017), Golenfryn, Cwm y Glo, Caernarvon.				
	Colwyn Bay	MR. E. JONES (GW3JI), 1 Victoria Street, Craig-y-don, Llandudno.				
	Rhyl ..	MR. E. FOULKES (GW5FU), Katheric, Kinnaird Drive.				



**COUNCIL 1946****President:****ERNEST LETT GARDINER, B.Sc., G6GR.****Executive Vice-President: S. K. Lewer, B.Sc., G6LJ.****Honorary Secretary: H. A. M. Clark, B.Sc. (Eng.), G6OT.****Honorary Treasurer: A. J. H. Watson, F.S.A.A., G2YD.****Honorary Editor: Arthur O. Milne, G2MI.****Immediate Past President: A. D. Gay, G6NF.**

\* \*

**Members: P. C. G. Bradley, G8KZ, C. H. L. Edwards, G8TL, R. H. Hammans, G2IG, F. G. Hoare, G2DP, S. E. Langley, G3ST, Capt. J. W. Mathews, G6LL, K. Morton Evans, O.B.E., GW5KJ.****G.P.O. Liaison Officer: Arthur E. Watts, G6UN.****General Secretary: John Clarricoats, G6CL.****May Council Meeting***Résumé of the Minutes of a Meeting of the Council of the Inc. Radio Society of Great Britain, held at New Ruskin House, Little Russell Street, London, W.C.1, on Monday, May 13, 1946.*

*Present.*—The President (Mr. E. L. Gardiner in the Chair), Messrs. Bradley, Clark, Edwards, Evans, Hammans, Hoare, Langley, Lewer, Mathews, Milne, Watson, Watts and John Clarricoats (General Secretary).

1. It was resolved to elect one Life Member (Mr. I. A. Hennell, G2HJP), 304 Corporate Members, 43 Associates and 11 Junior Associates. Six Junior Associates applied for, and were granted, Corporate membership. Total elected 365.

2. The Radio Society of City and Guilds College were granted affiliation.

3. It was resolved to accept and adopt the Balance Sheet for the period ended March 31, 1946, and the Cash Accounts for the months ending March 31 and April 30, 1946.

4. It was resolved to subscribe the sum of £7 7s. to the International Press-Cutting Bureau for a total of 500 press cuttings.

5. It was reported that a meeting had taken place between representatives of the Society and the Ministry of Supply in regard to the disposal of surplus Army and Air Force equipment. The Director of Disposals had expressed his personal regrets that it had not been found possible for the Ministry to deal direct with the Society or with its accredited representatives. The suggestion was made that the Council should invite one or more trading concerns to offer for sale to members surplus equipment at prices approximately the same as those which had previously been put forward by the Society. After consideration Council resolved to take no action on the latter suggestion in view of the fact that a number of trading concerns were now offering equipments at prices lower than those originally suggested by the Society.

6. It was reported that several members had received an unsolicited communication from a concern at Ruslip, Middlesex, offering to supply type 58 Mark 1 Walkie-Talkie sets at £8 12s. 6d. each. At the meeting with the Ministry of Supply the Society's Representatives had been informed that no Walkie-Talkie equipment had been offered for tender. They had also been advised that certain items of surplus transmitting equipment were at present "frozen" as the result of discussions which had previously taken place between the Society and the G.P.O.

7. The Secretary reported upon the arrangements which had been made with the Admiralty for members to purchase scrap electronic equipment direct from Naval Stores at a price of 50s. per cwt.

8. A copy of a pamphlet dealing with the Royal Canadian Air Force Amateur Radio System was tabled. The aim of the organisation is to provide additional channels of radio communication throughout Canada, which may be used to augment or replace the telephone and telegraph in times of civil emergency or disaster. The Air Ministry had been advised of the scheme and had agreed to institute enquiries.

9. A copy of the Annual Reports of the Officers and Directors of the A.R.R.L. was tabled.

10. It was reported that the total cost of the D.R.'s Conference amounted to £204. The official party numbered 39.

11. Mr. R. H. Hammans, G2IG, was appointed to represent the Society on the B.S.I. Committee on Radio Equipment.

12. Mr. Milne presented a report dealing with the QSL Section and approval was given to the arrangements which he had made for the establishment of a stop-gap service.

13. It was reported that 1,217 members had returned the Memorial Fund circular. Mr. Morton Evans was appointed to study the returns and to report further to the Council at its July meeting.

14. It was agreed to register a protest with the G.P.O. regarding the interference which is being caused by RKD—a U.S.S.R. station—operating on 28060 kc/s.

15. The Secretary and Mr. Milne were requested to prepare designs and obtain estimates for the supply of standard log pads for transmitting and B.R.S. members.

16. It was agreed that Messrs. Milne and Watts should discuss with the Secretary matters relating to the issue of B.E.R.T.A., W.B.E., and H.B.E. certificates. It was also agreed to publish in THE BULLETIN a statement to the effect that no claims for these certificates can be accepted until further notice.

17. It was resolved to appoint Mr. S. A. Howard, G8TY, Deputy Representative for District 12, and to write to Mr. Seymour Buckingham, G5QF, conveying the good wishes of the Council for a speedy recovery.

18. In consideration of a letter from Mr. Fuller reporting upon a meeting held in S. W. Essex at which criticism was directed against the Society, it was agreed to authorise Mr. Fuller to convene a P.D.M. in Ilford on June 30, and to request the Secretary to address the meeting.

19. Mr. Watts reported that no reply had yet been received from the G.P.O. regarding the issue of licences for portable work. The G.P.O. had, however, informed him that there were no legal objections to one licence covering the operation of amateur transmitting equipment from two fixed addresses.

20. The G.P.O. had been asked to agree to the establishment of two official broadcast stations. A proposed schedule of transmissions had been submitted.

21. The report of the D.R.'s Conference was submitted and approved with an accurate record of the business transacted. Arising therefrom it was resolved:

(a) To make arrangements for the holding of elections for Town or Area Representatives during the month of October, 1946; such representatives to hold office for one year as from January 1, 1947.

(b) To adopt the Regional scheme in principle and to make arrangements for the holding of elections for County Representatives and London District Representatives during the month of October, 1946; such representatives to hold office for one year as from January 1, 1947.

(c) That the Council shall, at its meeting in January, 1947, nominate and appoint the requisite number of Regional Representatives from the then District Representatives, who shall hold office until such time as a meeting takes place between the Council, the Regional Representatives, and Delegates drawn from the County Representatives.

(d) That as from January, 1947 "District Notes" will be submitted to Headquarters on a Regional basis, and that the Regional Representatives will be responsible for collating the notes received from their County Representatives.

(e) That as from January, 1947, C.R.'s will deal direct with their Regional Representative on all matters affecting the local membership, and not with Headquarters.

(f) To prepare a special Petty Cash voucher for use by D.R.'s and R.R.'s in claiming out-of-pocket expenses.

22. It was resolved that, as from October 1, 1946, the statutory scale of subscriptions, as laid down in Article 19, shall again apply to all Corporate members.

23. It was agreed to ask the G.P.O. for an assurance that steps will be taken to trace the persons responsible for the unauthorised transmissions taking place in the 7 Mc/s. amateur band.

The meeting closed at 9.35 p.m.

**R.S.G.B. Slow Morse Practices**

Mr. D. Rock (G8PR), "Sandhurst," Vicarage Road, Amblecote, Stourbridge, Worcs., organiser of the R.S.G.B. Slow Morse Practices appeals to members who have operating frequencies close to those of the stations giving Morse practices, to remain off the air on weekday evenings at the times when the transmissions are taking place. Many recent practices have been completely ruined by strong telephony and telegraphy signals. The current schedule is as follows:—

Mondays	21.30 B.S.T.	..	G2CPF, G2BJY, G6GD.
Wednesdays	21.30 "	..	G2CPF, G3LP, G6GD, GW3GL.
Saturdays	21.30 "	..	G2BJY, G6GD.
Sundays	09.00 "	..	G3LP, G3JK.
"	10.30 "	..	G5UM.
"	11.30 "	..	GW3GL.

**FREQUENCIES:—**

G2CPF (Yorks.)	1,892 kc/s.	G5UM (Herts.)	..	1,900 kc/s.
G2BJY (Staffs.)	1,930 "	G6GD (Ches.)	..	1,885 "
G3JK (Notts.)	1,865 "	GW3GL (N. Wales)	1,965 "	
G3LP (Glos.)	1,865 "			

**Radio Ltd.**

Those members who subscribe to *Radio* will have noticed that the publishers claim, on the title page, that the R.S.G.B. is their Great Britain representative. This is not the case, and the publishers were asked last September to omit the reference from future issues. As this has not been done we consider it desirable to advise members that the Society does not represent any U.S. publishing concern. It does, however, accept subscriptions for *Radio* and *CQ* which are publications of *Radio Ltd.*

## EXCHANGE AND MART SECTION

**MEMBERS PRIVATE ADVERTISEMENTS.** Due to pressure on our limited space no guarantee can be given that publication will be made in the issue following receipt of order. **RATES.** 18 words or less 3/-. Maximum number of words accepted 50, at 2d. per word. **TERMS.** Cash with order to Parris Advertising Ltd., 121 Kingsway, London, W.C.2.

**A**MATEUR Wireless Supplies (incorporated in Radiocraft Ltd.) have a large selection of gear in stock, and invite your inspection and enquiries. Raymart, Denco, Cyldon, S.T. & C. valves, transformers and chokes, high voltage condensers. Open all day Saturday.—11 Church Road, Upper Norwood, London, S.E.19.

**A**RMV Officer, available July, seeks situation as travelling representative, world coverage for electrical and electronic products. Technically qualified, pre-war traveller European countries, personality, linguist, unmarried.—Box B/7, PARRS, 121 Kingsway, London, W.C.2.

**B**ARGAINS in "Ham" equipment. Must dispose surplus new valves and components including a receiver and 25-watt transmitter. S.A.E. for list.—G3LB, 25 Clothierholme Road, Ripon, Yorks.

**C**ALLBOOKS.—New 1946 spring edition Radio Amateurs Callbook, 10s.—B. HAYES, 8 Althorpe Crescent, New Bradwell, Bletchley, Bucks.

**C**HASSIS, racks, cabinets, panels, aluminium sheet 16 and 18 gauge. S.A.E. Lists.—AMATEUR RADIO SERVICE, G6HP, Canning Street, Burnley.

**C**OUPLPHONE Radio, Station Road, New Longton, Nr. Preston. Return of post mail order service. Eddystone short wave components. Eddystone Model 504 communications receiver. Complete range of equipment for Amateurs.

**D**ISPOSAL of surplus Ham gear. Meters M.C. 0-50mA, 70s.; 0-50mA, 35s.; 0-100mA, 30s.; 0-200mA, 30s. 0-10mA rect. instr., 45s. A few new valves, 955, 27s. 6d.; 956, 32s. 6d.; 6N7, 25s.; 6AG5, 35s.; 6J6, 40s.; 6C4, 30s.; 6AC7, 10s.; 6S7, 10s. Also miscellaneous types.—Enquiries to 2FJG, 145 Manchester Road, Burnley.

**E**X-ARMY No. 19 set chassis, less meter and valves, £5.—46 Grosvenor Road, Harborne, Birmingham, 17.

**F**OR SALE.—Crystals, genuine Standard Radio quartz 1000kc. crystals mounted in pressure holders. For frequency meters, etc. Will grind to 1.8Mc., 3.5Mc. or 7Mc. bands. No station or serviceman complete without one, only 10s. each, or 3 for 25s. erg. paid. Limited quantity available.—MORTIMER, Dore, Sheffield.

**F**OR SALE.—Hallcrafters Sky-Chief, 6 bands, 220-250 volt., 1939 model.—Offers to WRIGHT, 48 Stoke Road, Shelton, Stoke-on-Trent.

**F**OR SALE.—Weston Analyzer 772 (20,000 o.p.v.), Yankee valve voltmeter, Avo's, etc. No fancy prices. Satisfaction assured.—BCM/METERS, London, W.C.1.

**F**OR SALE.—8-valve communications receiver, 12-2000 metres, built-in power unit, B.F.O. and A.V.C. switching, first-class condition, £25 or offers.—G3WS, 558 Upper Brentwood Road, Gidea Park, Essex.

**G**4BG offers for sale complete phone transmitter with P.A. capable of 200 watt output with full ratings to 100 Mc/s. 6L6-6L6-RK20-PP4304CA's (equiv. 834). Separate built-in suppressor-grid modulator. Cost of gear over £100. Best offer over £120.—G4BG, 15 Albert Road, Morecambe, Lancs.

**G**RAND Arcade Radio.—We have in stock Q.C.C. crystals, Sifam D.C. and R.F. meters, Woden modulators, transformers and chokes. Complete phone and C.W. transmitters. Eimac 35T and DA41 (T740) and everything for the "Ham."—6 Grand Arcade, Leeds 1. Phone: 22175.

**H**R.O. 2 coils, no power pack, spare valves, £30. 955, RK34 807, U17 (2.5KV), SU2130A, U22, MU2 (5KV), 25s. ILN5, IT4, ILH4, ILD5, 12v. vibrators, 7-pin, 20s. GTIC, 40s. S130, 30s. Vibrators, 4-pin, 6v. and 12v., mixed valves, 10s. C.R.T.S. 5in., £9. 2 crystals, 1 & 5 Mc s., 70s. Midget T/R 6-9 Mc/s., £25.—S.A.E., Box A/101, PARRS, 121 Kingsway, London, W.C.2.

**H**ALLICRAFTERS S20 "Sky Champion" as new, unscratched; full instructions. Best offer by end of month secures. Purchaser must collect.—G2XV, 89 Perne Road, Cambridge.

**H**ALLICRAFTER Super-Skyrider SX9, excellent condition throughout, nearest £35.—2CWU, 30 Shipton Road, Sutton Coldfield, Warwickshire (Sutton 3958).

**I**NTRODUCING Radio Supplies (Romiley).—Everything for every man. Stamp for preliminary list.—RADIO SUPPLIES, Romiley, Cheshire.

**M**.L. Motor-Gen., 210/240v, D.C. in, 400v. 150mA out, perfect, £3.—G2JB, 257 West Barnes Lane, New Malden, Surrey.

**M**OVING Coil Meters, 150mA, 30mA, also thermo-coupled R.F. types, .5a, 1.5a, 2.5a, 15s. each. Silver plated tank coils, 17 turns 3/4 in. diameter, variable tap, tap counting dial, low loss construction, 6s. 6d. Transmitting valves DET25, 10s.—STAMFORD RADIO, 199 Stamford Street, Ashton-under-Lyne.

**N**EW Member wants to buy back numbers of BULLETINS from 1930 onwards. Details and prices to J. B., 4 Melthorne Drive, Ruislip, Middx.

**N**EW.—TZ40, 807, 2-RKR-72's, thermocouple A.E. amp. 0-3-5, lot £4.—BR10229, BEECH, 100 Ladybarn Lane, Fallowfield, Manchester.

**P**ATENTS and Trade Marks. Handbook and advice free.—KING'S PATENT AGENCY LTD. (B. T. KING, G5TA, Mem. R.S.G.B. Reg. Pat. Agent), 146A Queen Victoria Street, London, E.C.4. Phone: City 6161. 50 years' reiss.

**Q**SL's and Log Books. Samples free. State whether BRS, Q or G patterns required.—ATKINSON BROS., Printers, Park Road, Eiland.

**Q**SL Cards.—For all your printing requirements write to 75 St. Andrew's Avenue, Elm Park, Romford, Essex.

**S**ALE.—Billey H.F.2 crystal and holder, 29,340kc/s., £3.—ARNOTT, Yew Tree House, Cheadle, Stoke-on-Trent.

**S**ALE.—Eddystone 358X, double crystal, complete set coils, hardly used, what offers?—J. M. OSBORNE, 6 Longworth Road, Oxford.

**S**ALE.—Communication receiver, R.C.A. A.R.88, 540kc/s-32Mc/s. in very good condition with 8 in. speaker and servicing data, £50.—CHAPMAN, 49 Sandy Hill Road, Plumstead, London, S.E.18.

**S**ALE.—Hallcrafters SX24 in absolutely new and perfect condition, £50 or best offer. Taylor meter model 90A, £14 3s. 6d. or best offer. Hunts capacity and resistance bridge, type C.R.B., £18 18s. or best offer. Also Universal Avomitor, £8 10s. or nearest. All above are in new condition having had practically no use.—Box A/107, PARRS, 121 Kingsway, London, W.C.2.

**S**ALE.—National 81X.10 tube receiver, band-spread on all Ham bands, £35, or nearest offer. Reservation by P.C. Write GW3AX, "Roseland", Kittle, Bishopston, Swansea, Glam.

**S**ALE.—New valves, 1 each—14A7/12B7, 12SQ7, 7A7E, 6B7, 1Q5GT, 7B6, 7B5, 1A5GT, KT41, A/SP3, 6D6, 416, all 10s. each. 1 only 12SA7, 14s. 1 only, 3Q5GT, 50L6GT, OZ4, 12/6 each. 1 only RK62, gas triode, 27s. 6d. Hallcrafters 455 kc/s. filter crystal, 25s.—G4QG, "Roselia", Carlton Road, Ryde, Isle of Wight.

**S**ALE.—New unused Army set 58MK1 receiver 5-valve transmitter 3-valve, complete with vibrator unit and box, battery and box, two 2v. accs., 2 sets microphone, headphones, etc., all interconnecting plugs, instruction book, two canvas carrying cases; £18 10s. or over.—F./O. SHIRT, 127 Birkwood Avenue, Cudworth, Nr. Barnsley, Yorks.

**S**ALE.—N.C.100X, 160 to 10 metres, 12 valves, crystal gate. Laid up 1939, £40.—G5KX, 1 Balmoral Drive, Southport.

**S**ALE.—R.M.E.69 crystal gate, excellent condition, little used; service manual, £50 or near offer.—Box B/1, PARRS, 121 Kingsway, London, W.C.2. or Tel.: Pinner 3189, weekend.

**S**ALE.—Several transmitting and receiving valves and miscellaneous components too numerous to list. Send 2d. stamp for details. Moving into small flat, must dispose all equipment not actually in use.—Box D/A, PARRS, 121 Kingsway, London, W.C.2.

**S**ALE.—Universal Avomitor, complete, leather carrying case, £8. Wanted: to buy or borrow, circuit of simple television receiver for use on current frequencies.—COLLETTE, 37 Rusper Court, Clapham Road, London, S.W.9.

**S**KY Champion receiver, recently overhauled, 550kc/s. to 44Mc/s., best offer above £25. New valves 7s. 6d. each: 6K8G, 6A8, 6J5GT/G, 6K7G, 6B8G, 80.—G3SS, 345 Stockfield Road, South Yardley, Birmingham, 25.

**S**X28 receiver, realigned and fitted new valves. Ampex 28Mc. beam, dual elements, rotating head, woodwork. National oscilloscope, F.I. moving-coil mike on floor stand. 30-watt Sound Siles amplifier. Quantity American and British valves. Equipment tested as good as new. Offers for whole or part wanted.—GM6RG, The Hollies, Galashiels.

**T**ANK Coil assembly with either 5 or 10 metre coil, 30s. Alternative coil 5 or 10 metres, 6s. 6d. each; 20 metre, 8s. 6d. 40 metre, 10s. 6d.—AMATEUR RADIO PRODUCTS, 50 Glassly Road, Crouch End, London, N.8.

**T**HE ideal shack, 10 ft. x 6 ft. x 9 ft., sectional, linked, stove, benches, ventilators, etc. Buyer collects from Southend-on-Sea. £30, no offers.—BR11975, 102 Lowestoft Road, Gorleston-on-Sea.

**V**ALVES.—955's, 9001's, 6AK5's, 20s. each. 832's, Eimac, 15E's, ceramic bases for above valves. Also selection condensers, 3,000v. All new, best offer.—BR59344, 13 Wynchgate Northolt, Middlesex.

**V**OIGT twin cone unit wanted, 15 ohm speech coil preferred.—51 Fairway, Stafford.

**W**ANTED.—Instruction book for Hallcrafters SX24, purchase or loan.—CHRISTOPHER, BR56256, 55 Spring Gardens, Anlaby Common, Hull.

**W**ANTED.—Wooden hut for use as "shack," size approx. 6 foot by 4 foot.—D. B. DRAGE, G2BNI, 17 St. John's Wood Road, London, N.W.8.

**W**ANTED.—National H.R.O., R.M.E.69 or similar communication receiver. Pair 866's. T40, T55. High voltage variable condensers, also split stator. 0-1 millimeter. Varimatch modulation transformer.—Details to G8JO, 22 Pembroke Terrace, South Shields.

**W**ANTED.—40 to 60 watt modulator and power supply; Avomitor or similar; crystal mike.—G2YV, Hilderstone, Church Street, Cannock, Staffs.

**W**HAT Offers?—Western thermo ammeter 0-1-5 amps., Model 425, new.—3 Castle View Gardens, Ilford, Essex.

**1**D8GT required.—DANIEL, Rising Sun, Harrowbarrow, Callington, Cornwall.

**3**Mc. I.F. Amp., with 3 valves, 50s. 112Mc. copper resonator, 5s. 4-gang-0005, 15s. 4 BC coils, 10s. T5E4, 6s. IL23DD, 2s. Other useful gear. S.A.E. for more details.—G2NR, 1 Fordwich Road, Welwyn Garden City, Herts.