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BULLETIN
JOURNAL OF THE RADIO SOCIETY OF GREAT BRITAIN

April 1946

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NEW MEMBERS

THE COUNCIL HAS PLEASURE IN ANNOUNCING THAT THE FOLLOWING HAVE BEEN ELECTED TO CORPORATE MEMBERSHIP OF THE SOCIETY

British Receiving Stations (B.R.S.)

11,386 R. MILNE, 8 The Quadrant, Penichik, Midlothian, Scotland.
11,387 F. H. GRANT, Strathspey, Carberry Park, Leven, Fife, Scotland.
11,388 J. S. MCCAIG, 9 Scott Crescent, Galashiels, Scotland.
11,389 A. H. G. WOODS, 35 Priors Park, Hornchurch, Essex.
11,390 C. W. F. HAMMOND, 20 Gael St., Greenock, Renfrew, Scotland.
11,391 R. T. CUNLIFFE, 68 Church Road, Stretton, Nr. Burton-on-Trent, Staffs.
11,392 R. W. BINNS, 20 Avenue Terrace, Clifton, York.
11,393 R. B. SPENCER, 18 Earl Road, London, S.E.1.
11,394 D. J. THOMAS, 5 Miner's Row, Llwydcoed, Aberdare, Glam.
11,395 S. GOLDBERG, 185 Holders Hill Rd., Hendon, London, N.W.7.
11,396 G. GRAHAM, 8 Geneva Road, Elm Park, Fairfield, L'pool.
11,397 R. BARTLETT, 29 Bunyan Rd., Walthamstow, London, E.17.
11,398 M. A. W. GRIFFIN, Ruthfield, Lower Tysoe, Warwick.
11,399 J. D. BROWN, 66 Church Rd., Norton Canes, Nr. Cannock, Staffs. (Transferred from Associate Grade.)
11,400 A. C. F. ROOKE, The Bungalow, Grange Park, Ealing, London, W.5.
11,401 H. MENKES, 40 Heber Road, London, N.W.2.
11,402 C. J. BURROWS, 30 Spencer Rd., Wealdstone, Middx.
11,403 H. HOWSE, 23 Raleigh St., Tantany, West Bromwich, Staffs.
11,404 G. H. BROADHURST, 36 New Road, Seven Kings, Ilford, Essex.
11,405 C. J. F. LAWSON, 21 Shepherd's Way, Rickmansworth, Herts.
11,406 T. TEMPLE, 98 Clay Lane, Stoke, Coventry, Warwicks.
11,407 R. A. BATSON, 100 St. Benedicts Road, Small Heath, Birmingham.
11,408 J. C. MATTHEWS, 9 Southwood Rd., Highgate, London, N.6.
11,409 W. T. HOLLIS, 143 High St., Amblecote, Stourbridge, Worcs.
11,410 J. E. ANDERSON, 33 Rosebery Tce., Consett, Co. Durham.
11,411 R. N. OGDEN, 924 Bristol Rd., Selly Oak, Birmingham, 29
11,412 K. HULTON, 80 Garthland Drive, Dennistoun, Glasgow.
11,413 F. E. MAY, 36 Highway Road, Leicester.
11,414 R. D. G. ROBERTS, 17 Manor Road, Churchtown, Southport, Lancs.
11,415 J. E. MCINTYRE, 31 Blyth Road, Whitley Bay, Northumberland.
11,416 C. HARBRON, 22 Avenue Road, West Bowling, Bradford, Yorks.
11,417 D. J. COLLINS, 14 Molesey Park Road, West Molesey, Sy.
11,418 J. THOMPSON, 9 Castle Gardens, Kirkcudbright, Scotland.
11,419 MISS C. JENKINS, 14 Keynsham Rd., Whitchurch, Cardiff.
11,420 G. TONGE, 1 Emerald Street, Bolton, Lancs.
11,421 J. ACKROYD, 128 Westgate, Cleckheaton, Yorks.
11,422 A. E. G. MITCHELL, 28 Sutton Rd., Maidstone, Kent.
11,423 A. E. PAULIN, 85 Downland Avenue, Southwick, Sussex.
11,424 J. KANE, 15 Apsley Street, Partick, Glasgow, W.1.
11,425 R. W. BELL, 100 Beltinge Rd., Herne Bay, Kent.
11,426 J. W. FORTH, 101 Osborne Street, Rochdale, Lancs.
11,427 P. F. ANDREWS, 164 Heene Road, Worthing, Sussex.
11,428 G. C. C. HIGGS, 69 Cumberland Road, Swindon, Wilts.
11,429 T. JACKSON, 17 Hudleston Rd., Wavertree, Liverpool, 15.
11,430 W. EARLY, 17 Irwin Crescent, Eastmoor Estate, Wakefield, Yorks.
11,431 S. WOOLLEY, 175 Kenrick Rd., Mapperley, Nottingham.
11,432 M. A. WHELAN, 20 Donnellan's Villas, Rosbrien, Limerick, Eire.
11,433 H. TACEY, Sylvan, Waddington, Lincs.
11,434 R. A. AMES, 1 College Ave., Fishponds, Bristol, Glos.
11,435 J. J. GURNEY, Tannery House, Thetford, Norfolk.
11,436 A. A. COPSON, 8 Cotton End, Northampton.
11,437 A. PAYNE, 5 Mount Pleasant Road, Dartford, Kent.
11,438 G. C. SMITH, 50 Foston Grove, Southcoates Estate, Hull, Yorks.
11,439 A. W. FULLER, Rookwood, Gretna, Nr. Carlisle, Cumb.
11,440 K. B. LINDSEY, 7 Shaftesbury Rd., Weston-super-Mare, Som.
11,441 C. A. J. BOSWELL, 87 Abbey Road, Smethwick, Staffs.
11,442 R. G. RICHARDSON, 10 Abbey Terrace, Abbey Wood, London, S.E.2.
11,443 R. J. CARLTON, 15 Glover Rd., Willesborough, Ashford, Kent.
11,444 F. S. PALMER, 69 Unett Street, Smethwick 40, Staffs.
11,445 A. E. STUBBS, 5 Broadfield Park, Avenue, Sheffield, 8.
11,446 E. AILMORE, Junction House, Ironville, Notts.
11,447 F. C. THOMPSON, 29 Gladstone St., Oatlands, Harrogate, Yorks.
11,448 H. DIXON, Spring Havon, Ripponden, Nr. Halifax, Yorks
11,449 L. V. JONES, 35 Monks Road, Winchester, Hants.
11,450 J. F. WORT, 42 Hermon Hill, Wanstead, London, E.11.
11,451 A. E. FOULSTON, 12 Walton Gardens, Folkestone, Kent.
11,452 L. E. FLINT, Pinecroft, Beech Rd., Rushmere, Ipswich, Suffolk.
11,453 G. S. HALL, 17 High St., Needham Market, Suffolk.
11,454 G. A. GOODWIN, The Common House, Sandbach, Ches.
11,455 C. R. LESTER, The Mount, Sandford-on-Thames, Oxford.
11,456 K. A. FLETCHER, 30 Felbrigge Rd., Seven Kings, Essex.
11,457 D. F. ABBETT, 24 Victoria Avenue, Camberley, Surrey.
11,458 C. H. MAY, 18 Adelaide Street, Oxford.
11,459 A. W. SISSONS, 23 Gamble Street, Nottingham.
11,460 F. C. BROCKLEHURST, 1 Greenwood Ave., Mile End, Stockport, Ches.
11,461 V. G. DARBY, 7 Buller Road, Brighton 7, Sussex.
11,462 A. P. SARGENT, Hawthorns, Kempsey, Nr. Worcester.
11,463 D. C. HUGHES, 164 Heneage St., Ashted, Birmingham, 7.
11,464 H. HUGHES, 18 Kingsland Road, Liverpool, 11.
11,465 D. J. BURGESS, 40 Commercial Arcade, Guernsey, C.I.
11,466 F. FOSTER, 19 Fairhaven Rd., Penwortham, Preston, Lancs.
11,467 G. T. BALMENT, 1 Egerton Cres., St. Judes, Plymouth, Devon.
11,468 E. KEOGH, Ivy Cottage, Staining, Blackpool, Lancs.
11,469 D. STONE, 32 Byfeld Gardens, Barnes, London, S.W.13.
11,470 J. E. MEAD, 1 Selborne Gdns., Horsenden Lane, Perivale, Middlesex.
11,471 A. W. HOUGH-GRASSBY, Langthorne Villa, Ringer Lane, Clown, Chesterfield, Derbys.
11,472 F. W. TYLER, Hilton Cottage, Steep Hill, Lincoln.

A CORDIAL WELCOME IS EXTENDED TO THE

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NEW MEMBERS WHOSE NAMES ARE LISTED

11,473 S. T. WAITE, 1 Westbrook Way, Wessex Lane, Swaythling, Southampton.
11,474 F. J. DEVLIN, 14B Fleuchar Street, Dundee, Scotland.
11,475 L. G. BOLTON, Warlands, Newbridge Hill, Bath, Som.
11,476 A. E. H. COX, 16 Lozells Rd., Lozells, Birmingham, 19.
11,477 A. B. HINDLE, 10 Persia Street, Accrington, Lancs.
11,478 D. A. CORRICK, 23 Belvedere Road, Taunton, Somerset.
11,479 T. D. TUDDENHAM, 9 Graham St., Longtown, Cumbs.
11,480 R. JAQUES, Styria, Bedford Rd., Rushden, Northants.
11,481 J. D. DENLY, Red Gables, Wey Down Road, Haslemere, Surrey.
11,482 J. BROWN, 7 Stanley Road, Higher Broughton, Manchester, 7.
11,483 W. H. MAY, 86 Daffodil Road, Sheffield, 5.
11,484 A. M. ROULSTON, 46 Edgcumbe Gardens, Belfast, N. Ireland.
11,485 D. K. GRUNDY, 3 Belfield Hse., West Rd., Bowdon, Ches.
11,486 W. REYNOLDS, 73 Meadway, Welwyn Garden City.
11,487 A. C. F. LEADBITTER, 65 Guinions Road, High Wycombe, Bucks.
11,488 K. SMITH, Etherley, Whitesmocks Ave., Durham City.
11,489 A. E. GREEN, 139 Laburnam Walk, Hornchurch, Essex.
11,490 W. E. FOULDS, 175 Beeches Road, Warley, Langley, Near Birmingham.
11,491 D. G. SULLIVAN, 7 Curre St., Cwm, Ebbw Vale, Mon.
11,492 A. C. MCGRAHAM, 47 Knockbreda Pk., Belfast N. Ireland.
11,493 H. I. SINDEN, 30 Percival Road, Hampden Park, Eastbourne, Sussex.
11,494 N. BURTON, 14 Apollo Ave., Whitefield, Manchester.
11,495 D. J. CRABB, 21 Avondale Road, Gelli, Ton Pentre, Rhondda Valley, Glamorgan, S. Wales.
11,496 G. A. LEASK, 106 Great Western Road, Aberdeen.
11,497 H. F. BLACKIE, 31 Laburnam Road, Wimbledon, S.W.19.
11,498 A. MCMILLAN, 3 Speeds Terrace, 8 Taits Lane, Dundee, Scotland.
11,499 W. WALKER, 90 Alexander Road, Acocks Green, Birmingham.
11,500 R. E. J. MITCHELL, 27 Fir Close, Willand, Nr. Cullompton, Devon.
11,501 S. MCHUNTER, 20 Beverley Road, Bromley, Kent.
11,502 W. DAVIES, 166 Norden Rd., Bamford, Rochdale, Lancs.
11,503 W. WARD, 20 Etna St., Gt. Horton, Bradford, Yorks.
11,504 K. W. HOLMES, 42 Knapton Lane, Acomb, York.

11,505 V. A. ROBINS, Oak Lea, Sandy Lane, Nr. Eastleigh, Hants.
11,506 D. E. MEEKINS, 24D West Street, Hertford, Herts.
11,507 A. B. PALMER, 178 Galliard Road, Lower Edmonton, London, N.9.
11,508 D. P. HOBBS, 21 Leyland Avenue, St. Albans, Herts.
11,509 F. KINGHORN, 17 Queen's Road, Bedlington Station, Northumberland.
11,510 R. C. G. SEYMOUR, 16 Poplar Ave., Leatherhead, Surrey.
11,511 J. MURRAY, 78 Elizabeth St., S. Shields, Co. Durham.
11,512 J. A. BARSON, c/o Mrs. Edmunds, 25 Victoria Road, Ripley, Derby.
11,513 I. J. STREET, "South View," 20 East Comer, St. Johns, Worcs.
11,514 D. MURRAY, 62 Nottingham Road, Kimberley, Notts.
11,515 H. C. STOKES, 17 Guildford Street, Healey Road, Ossett, Yorks.
11,516 M. O. RHODES, Whittlesey Road, March, Cambs.
11,517 S. R. COLLINS, 20 Wellwood Road, Goodmayes, Essex.
11,518 G. J. HARRISON, 21 Scotts Terrace, Burnley, Lancs.
11,519 L. R. WHITE, c/o Mrs. L. Harvey, Star Hill, Newport, Nr. Saffron Walden, Essex.
11,520 H. LANE, 118 Dudderston Mill Rd., Birmingham, 7.
11,521 D. B. APPLEBY, 44 Ring Rd., Middleton, Leeds, 10, Yorks
11,522 R. C. COPPELL, 4 Mountview Court, Green Lanes, Harringay, N.8.
11,523 W. A. JONES, 41 Willersley Avenue, Sidcup, Kent.
11,524 A. L. HARDING, 12 Henry Road, London, N.4
11,525 J. W. WHYSALL, 47 Edale Rd., Sneinton Dale, Notts.
11,526 C. MAJOR, 34 Danefield Road, Northampton.
11,527 E. HALL, 9 Denbigh Road, Bolton, Lancs.
11,528 B. A. LAWRENCE, 7 Digby Road, Sutton Coldfield, Nr. Birmingham.
11,529 F. E. ALLISON, "Ravensdale," Ballaugh, Isle of Man.
11,530 E. F. THORNE, 202 Lea Road Wolverhampton, Staffs.
11,531 W. E. ELLICOTT, 619 Chesterfield Road, Pleasley, Mansfield, Notts.
11,532 E. W. GREEN, "The Cottage," Sampford Peverell, Nr. Tiverton, Devon.
11,533 S. F. LEECH, 65 Blackwell Ave., Sprowston, Norwich, Norfolk.
11,534 D. G. SEAL, 84 Shirehall Road, Hawley, Nr. Dartford, Kent.
11,535 T. A. KAYES 67 Thistle St., Glasgow, C.5, Scotland.
11,536 T. R. SMITH, 28 Chandos Place, Leeds, 8.
11,537 H. YEO, 3 Hill-Head, Stratton, North Cornwall.
11,538 H. S. TIMMINS, 177 The Green, Eccleston, Nr. Chorley, Lancs.
11,539 A. C. ROBERTS, 19 High Street, Totton, Southampton, Hants.
11,540 B. R. MURPHY, Falhalla, Borough Green, Kent.
11,541 W. J. DOUTHWAITE, 10 Grosvenor Drive, Wallasey, Cheshire.
11,542 W. A. TWEDDLE, 17 Langley Road, East Denton, Newcastle-on-Tyne.
11,543 J. O. YARKER, 14 Bewlay St., Bishopthorpe Rd., York.
11,544 J. P. DAVIS, 83 Norwood Avenue, Rush Green, Romford, Essex.
11,545 S. HARRIS, 67 Ramsden Drive, Collier Row, Romford, Essex.
11,546 R. BUTTERWORTH, 376 Yew Tree Terrace, Shawforth, Rochdale.
11,547 M. BOOTY, 117*a*, South Street, Eastbourne, Sussex.
11,548 J. M. ROWE, "Belgrave," South Molton, Devon.
11,549 G. L. ROGERS, 31 Earleswood Gardens, Ilford, Essex.
11,550 H. C. WHITAKER, "Alfriston," 56 The Walk, Potters Bar, Middlesex.
11,551 P. LANDAUE , Red House, Capel, Nr. Dorking, Surrey.
11,552 J. COLLINGS, Ilsington Vicarage, Newton Abbot.
11,553 S. G. WOOLDRIDGE, 54 Normandy Road, Handsworth, Birmingham, 20.
11,554 W. J. WETENHALL, 21 Woodside Avenue, London, N.6.
11,555 S. E. MORBY 78 Colebrook Rd., Shirley, Birmingham.
11,556 B. W. BOTTLE, Southview, Woodleigh Avenue, Vange, Essex.
11,557 A. B. STONE, The Parsonage, London Road, Stranraer, Wigtownshire.
11,558 J. R. BANKS, 9 Barley Mill Rd., Blackhill, Co. Durham.
11,559 D. MCPATCHETT, The Trce., Gosberton, Spalding, Lincs.
11,560 G. MAIN, 103 Glasgow St., Ardrossan, Ayrshire, Scotland.
11,561 L. A. BRADBURY, 36 Peterborough Rd., Carshalton, Sy.
11,562 W. R. WATSON, "Wyndhurst," Worksop Rd., Mastin Moor, Nr. Chesterfield.
11,563 W. H. ABBOTT, 62B Belleville Road, London, S.W.11.
11,564 W. H. POLLARD, 37 West Princes Street, Glasgow, C.4.
11,565 R. E. TAYLOR, 44 Quinton Street, Earlsfield, London, S.W.18
11,566 J. H. LECKENBY, 89 Kenilworth Ave., Reading, Berks.
11,567 C. TAYLOR, 7 Mayfield Rd., Wimbledon, London, S.W.19.
11,568 W. H. A. COLTON, 42 Oak Tree Avenue, Maidstone, Kent.
11,569 C. D. BENSON, Sunnyside, Croston Road, Farington, Preston, Lancs.
11,570 T. R. I. SOLOMON, 47 Compton Rd., Winchmore Hill, London, N.21
11,571 A. T. WOOD, 15 Woodlands Gate, Putney, London, S.W.15.
11,572 C. F. PHILLIPS, 46 Grosvenor Road, Harborne, Birmingham, 17.
11,573 W. E. G. GARLICK, Delamere, Rockfield Drive, Llandudno, N. Wales.
11,574 A. A. FUNDREY, 51 St. Heliers Rd., S.S. Blackpool, Lancs.
11,575 G. PAFFETT, Kimpton, Titchfield Rd., Stubbington, Fareham, Hants.
11,576 G. A. C. WATTS, 129 Vinery Road, Cambridge.
11,577 A. H. POIL, Faversham Hotel, Ealing, London, W.5.
11,578 D. W. BISHOP, 9 Firtree Rd., Erdington, Birmingham, 24.
11,579 F. M. LITTLE, 4 Ratcliffe Place, Keswick, Cumberland.
11,580 F. L. HARRIS, 80 Queens Walk, Ashford, Middlesex.
11,581 C. H. ARDAN, Mansfield, London Rd., Stony Stratford, Bucks.
11,582 H. D. BUTLER, 73 Kendal Rd., Dollis Hill, London, N.W.10.
11,583 G. R. MASSON, 12 Main St., Inverallochy, Aberdeenshire.
11,584 S. T. DIMMOCK, 74 Manor Rd., Tottenham, London, N.17.
11,585 F. S. HEELEY, 2 Clifton Rd., Chorlton-cum-Hardy, Manchester, 21.
11,586 C. T. HEINLEIN, 37 Botanical Rd., Sheffield 11, Yorks.
11,587 A. CHISHOLM, 4 Highland Cottages, Lodgehill Road, Nairn, Scotland.
11,588 F. BALL, 33 Hillcrest Road, Park Lane, Romford, Essex.
11,589 H. A. BOOTH, 123 North Rd., Audenshaw, Manchester, Lancs.
11,590 R. C. ALLEN, c/o 34 Brent St., Hendon, London, N.W.4.
11,591 M. R. LITTLEJOHN, 83 Jesmond Road, Newcastle-on-Tyne, 2.
11,592 J. W. CLARKE, c/o 7 Gower Street, Pitsmoor, Sheffield, 4.
11,593 C. G. WRIGHT, 9 Edward Henry St., Rhyl, N. Wales.
11,594 J. BURNS, 94 Friars Vennel, Dumfries, Scotland.
11,595 W. CLEGG, Burn-Lea, Burnley Rd., Moreton, Wirral, Ches.
11,596 L. H. EDWARDS, 12 Upper Dunstead Rd., Langley Mill, Notts.
11,597 A. WHITE, 152 Albert Road, Wellingborough, Northants.
11,598 T. A. BARTLETT, 240 Cannon Lane, Pinner, Middlesex.
11,599 L. W. BUGGS, 17 Parkdale Road, Plumstead, London, S.E.18.
11,600 R. V. DAVIES, 202 Burnt Oak Lane, Sidcup, Kent.
11,601 W. L. PRICE, 90 Grange Road, Alvaston, Derby.
11,602 C. G. LEONARD, 195 Audley Rd., Stechford, Birmingham.
11,603 C. EVES, 41 Cambridge Gardens, Bramley Leeds.
11,604 G. A. EDWARDS, 70 Highland Road, Northwich, Norfolk.
11,605 T. J. UNDERWOOD, 21 Bourne Terrace, Paddington, London, W.2.
11,606 S. C. HOBBS, Churston, Slough Rd., Iver Heath, Bucks.
11,607 I. R. RICHARDS, 67 Langdale Gardens, Hove, Sussex.
11,608 F. E. CARTER, 102 Woodside, Wimbledon, London, S.W.19.
11,609 T. MENZIES, 20 Black Street, Dundee, Scotland.
11,610 G. W. BROWN, 81 Purewell, Christchurch, Hants.
11,611 H. C. HARRISON, 38 Baker Street, Stapenhill, Burton-on-Trent, Staffs.
11,612 F. J. PRATT, Wisteria Cottage, Cookham Dean, Maidenhead, Berks.
11,613 C. A. FORDHAM, 2 Brunswick St., Walthamstow, London, E.17.
11,614 G. N. RIDGEWELL, 3 High St., Orsett, Nr. Grays, Essex.
11,615 R. RIVERS-YOUNG, 48 Quaves Road, Slough, Bucks.
11,616 H. K. NORMAN, 5 Station Road, Warboys, Hunts.
11,617 R. J. C. DAVIES, 13 Glanmor Cres., Uplands, Swansea, Glam.
11,618 M. H. REDFERN, 34 Sydney St., Chelsea, London, S.W.3.
11,619 D. M. MACLURE, 36 Panmure St., Brechin, Angus, Scotland.
11,620 J. C. FINN, 31 North Cres., New Moston, Manchester, 10.
11,621 J. C. E. TAYLOR, 135 Lavenham Road, Southfields, London, S.W.18.
11,622 C. H. ALLERY, 137 Hook Road, Surbiton, Surrey.
11,623 G. G. BENTLEY, 69 Appletree Gardens, Walkerville, Newcastle-on-Tyne, 6
11,624 F. W. CHATTAWAY, 105 Clovelly Road, Wyken, Coventry, Warwickshire.
11,625 B. W. HORSLEY, 16 Jubilee Road, Sudbury, Suffolk.
11,626 F. A. RICHARDS, 89 May Road, Gillingham, Kent.
11,627 D. E. LAW, Berry Hse., Wisbech Rd., Littleport, Cambs.
11,628 R. Y. LOCKHART, Braeside, Prudhoe-on-Tyne, Northumberland.
11,629 G. COX, c/o No. 10 Flat, Greenroyde, Manchester Road, Rochdale, Lancs.
11,630 H. R. FOWLER, The Gables, Leigh, Nr. Tonbridge, Kent.
11,631 W. G. BROWN, Lindow View, Lindow Common, Wilmslow, Manchester.
11,632 H. J. D. WOOLLEY, 21 Ashford Avenue, Ashford, Middx.
11,633 A. V. BENTON, 13 Whinny Hill, Catterick Camp, Yorks.
11,634 L. G. K. HAYNS, 153 Burton Road, Burton-on-Trent, Staffs.
11,635 J. GIBSON, 8 Simonside Trce., Newbiggin-by-Sea, Northumberland.
11,636 G. R. LEE, 37 First Avenue, Garstone, Herts.
11,637 L. SHAW, 25 Stanford Road, Shefford, Beds.
11,638 G. A. COLBOURNE, Meadows, Clay Lane, Chichester, Sussex.
11,639 P. H. SIDWELL, The Nook, Allen Rd., Rainham, Essex. (Transferred from Associate Grade.)
11,640 D. R. S. MCCOLL, Satis Hse., Norton Rd., Datchet, Bucks.
11,641 B. H. WARREN, Wynscote Wilburton, Ely, Cambs.
11,642 D. W. HILLS, 51 Teddington Park, Teddington, Middx.
11,643 R. T. MANLEY, Tree Tops, Dunstone Park Rd., Paignton, Devon.
11,644 L. A. HIGGINSON, List House, Hall St., Long Melford, Suffolk.
11,645 R. F. CHALLANS, 7 Kynance Gardens, Stanmore, Middx.

11,646 G. E. STYRIN, c/o 42 Kelsey Road, Salisbury, Wilts.
11,647 J. LEWIS, 65 Upper Pleasley, Nr. Mansfield, Notts.
11,648 G. H. WALKER, 8 Aldred Rd., Crookes, Sheffield, 10.
11,649 J. S. THOMSON, Newton Loan, Gorebridge, Midlothian, Scotland.
11,650 A. MILLWARD, 127 Goddard Avenue, Hull, Yorks.
11,651 J. E. MORRIS, 10 Park Road, Redditch, Worcs.
11,652 J. G. DUNCAN, Balloch Mills, Alyth, Perthshire, Scotland.
11,653 F. A. GRANT, 49 Lower Street, Tettenhall, Nr. Wolverhampton, Staffs.
11,654 R. W. BURROWS, 34 Second Ave., Oak Hill, Dawlish, S. Devon.
11,655 C. P. PINRIE, 62 Marina Drive, West Monkseaton, Northumberland.
11,656 D. C. HILTON, 18 Millford Avenue, Flixton, Manchester, Lancs.
11,657 A. L. STRETTON, 74 Raleigh Street. Nottingham.
11,658 K. LELLIOTT, c/o R. M. S. Lelliott, R.M. Police, R.N. Air Station, Worthy Down, Winchester, Hants.
11,659 C. M. CORLETT, Turnpike Cottage, Ripley Road, East Horsley, Surrey.
11,660 D. J. L. GARBUTT, 1 Chapel Terrace, Hemingborough, Nr. Selby, Yorks.
11,661 C. G. TURNER, 8 Galloway Ave., Castle Bromwich, Birmingham.
11,662 C. F. BARNES, 3 Oxford Road, Newland, Witney, Oxon.
11,663 K. W. PEFERS, 134 Chessington Rd., West Ewell, Surrey.
11,664 D. G. MAYGOTHLING, 35 Briar Road, Kenton, Harrow, Middlesex.
11,665 R. KEMP, 18 Penrith Road, Hainault, Ilford, Essex.
11,666 A. MCROBERT, 15 Park Place, Elie, Fife, Scotland.
11,667 H. WHITE, Belfield, Smalley, Nr. Derby.
11,668 D. HENSHAW, 50 Mossley Rd., Grasscroft, Nr. Oldham, Lancs.
11,669 G. L. JONES, 5 Pump House Rd., Bryneg, Nr. Wrexham, N. Wales.
11,670 D. TROATH, 32 Walsall Road, Charlemont, West Bromwich, Staffs.
11,671 D. J. BLAND, 32 Elm Grove Road, Topsham, S. Devon.
11,672 T. A. MOSSMAN, Homeleigh, Bishopston, Swansea, Glam.
11,673 G. R. SHARPE, 9 Jennett Grove, Gillett St., Hessle Rd., Hull, Yorks.
11,674 G. HOWARTH, 9 Lynwood Avenue, Leyton, Blackpool, Lancs.
11,675 H. W. TAYLOR, Homley, Alfred Street, Taunton, Som.
11,676 B. E. CRANE, Summercroft, Panorama Rd., Sandbanks, Bournemouth.
11,677 M. D. BURGE, Maythorne, Epsom Rd., Guildford, Surrey.
11,678 R. WEBB, 6 Hanover Street, Swansea, Glam.
11,679 F. V. MOURANT, 28 Paget Rise, Plumstead, London, S.E.18.
11,680 K. L. A. WADE, BM/KLAW, London, W.C.1.
11,681 B. CLIFTON-LEMESLE, 69 Woodville Road, New Barnet, Herts.
11,682 E. C. TAYLOR, 5 Ysguthan Rd, Port Talbot, Glam., S. Wales.
11,683 F. SALISBURY, 125, Lawford Rd., Rugby, Warwickshire.
11,684 J. V. CUTHBERT, 55 Bonsall Road, Erdington, Birmingham,23.
11,685 W. J. TOWNSEND, 1 The Leys, Evesham, Worcs.
11,686 A. BAKER, The Batch, Tickenham, Nr. Clevedon, Som.
11,687 H. D. ROBERTS, 1 Summer Street, Redditch, Worcs.
11,688 N. E. SQUIBB, 29 Netherview Rd., Netherlee, Glasgow, S.4.
11,689 C. WILLIAMS, 13 The Green, Histon, Nr. Cambridge, Cambs.
11,690 J. BANYARD, 30 Wistborough Rd., Southsea, Hants.
11,691 R. A. NEWBERRY, Hileys, Hayes Lane, Wimborne, Dorset.
11,692 E. F. SULLY, 15 Llwynfedw, Gardens, Birchgrove, Cardiff, S. Wales.
11,693 J. C. WILKIE, c/o. 39 Gelligaer St., Cathays, Cardiff.
11,694 J. C. PARK, 15 Oswald Road, Oswestry, Shropshire.
11,695 J. WALE, Longlands, Huxmoor Cross, Kingskerswell, Nr. Newton Abbot, Devon.
11,696 E. DENNISON, 224 Bradford Road, Riddlesden, Keighley, Yorks.
11,697 A. G. EXCELL, 54 Saffron Platt, Guildford, Surrey.
11,698 G. W. FLOCKTON, 182 Broadway, Dunscroft, Nr. Doncaster, Yorks.
11,699 P. A. SMITH, 6 Oakdene Road, Redhill, Surrey.
11,700 A. H. COLE, 85 Crosbie Road, Coventry, Warwickshire.
11,701 W. D. HUTHWAITE, 6 North Place, Hitchin, Herts.
11,702 P. H. ASKHAM, Wrangbrook, Manor Upton, Nr. Pontefract, Yorks.
11,703 W. SLADE, 82 Bowring Park Avenue, Liverpool 16.
11,704 G. J. KING, 30 Peat Moors, Slade, Headington, Oxford.
11,705 A. W. R. TAYLOR, 38 Oliver Park, Hawick, Roxburghshire, Scotland.
11,706 W. N. L. SEWARD, 33 Beech Lane, Earley, Reading, Berks.
11,707 W. H. HARSTE, 49 Weald Way, Romford, Essex.
11,708 D. HUME, 67 Elmsleigh Ave., Kenton, Harrow, Middx.
11,709 C. A. GREEN, 59 Clifford St., Brook's Bar, Manchester 16.
11,710 B. E. ROBINSON, 74 Burnley Rd., Ainsdale, Southport, Lancs.
11,711 G. E. STANLEY, 30 Douglas Road, Esher, Surrey.
11,712 K. SEARLE, 149 Cumnor Road, Henwood, Oxford.
11,713 J. W. THORNES, 6 Westgate, Dewsbury, Yorks.
11,714 A. REID, M.A., Sydney House, Cromarty, Ross-shire, Scotland.
11,715 L. E. ROBINSON, 18 Alexandra Rd., Waterloo, Liverpool 22
11,716 F. CROSS, 17 Meredyth Rd., Barnes, London, S.W.13.
11,717 J. MACLEAN, 40 Waverley Drive, Wishaw, Lanarks, Scotland.
11,718 R. BILLING, 107 Longland Drive, London, N.20
11,719 W. H. JOHNSON, 33 Derby Street, Leek, Staffs.
11,720 G. A. WOODHOUSE, 14 Wentworth Way, Sanderstead, Surrey.
11,721 W. T. AMEY, 24 Worsley Avenue, Little Hulton, Bolton, Lancs.
11,722 R. W. VAUGHAN, 37 Boulton Rd., West Bromwich, Staffs.
11,723 D. HEWSON, 73 Mortimer Ave., Healey, Batley, Yorks.
11,724 E. R. BURDETT, 33 Lytton Ave., Penn, Wolverhampton, Staffs.
11,725 J. CHISLETT, 55 Holtye Cres., Maidstone, Kent.
11,726 E. J. DUNN, 81A High Road, Ilford, Essex.
11,727 G. MCGILL, 412 Upper Richmond Road, Putney, London, S.W.15.
11,728 G. B. HETHERINGTON, 38 Mitford Gdns., Wideopen, Seaton Burn, Northumberland.
11,729 F. G. BAKER, 83 Columbia Rd., Ensbury Park, Bournemouth.
11,730 G. K. SKELTON, 5 Sandringham Rd., Doncaster, Yorks.
11,731 R. S. J. BISHOP, 2 Stanley Villas, Hillcommon Taunton Somerset.
11,732 D. O. G. ELLIOTT, 38 Jennings Road, St. Albans, Herts.
11,733 E. CARLING, 7 Heath Mount, Halifax, Yorks.
11,734 S. JACKSON, 6 Marlborough St., Plumpton, Wakefield, Yorks.
11,735 B. ROWLEY, 24 Fryergate, New Scarboro, Wakefield, Yorks.
11,736 S. BENTLEY, 872 Woodborough Rd., Mapperley, Notts.
11,737 D. W. KNIGHTS, 143 Thanet House, Thanet St., London, W.C.1.
11,738 T. W. E. TOWERS, 22 Crombie Road, Sidcup, Kent.
11,739 J. FERGUSON, 52 Meadowfield Rd., Darlington, Co. Durham.
11,740 J. H. SIMPSON, 78 St. Augustines Rd., Camden Square, London, N.W.1.
11,741 P. R. A. DOLPHIN, Wood Farm, Godalming, Surrey.
11,742 J. F. PADWICK, 70 Waltham Ave., Stoughton, Guildford, Surrey.
11,743 D. K. THOMSON, 5 Albion Street, Southwick, Sussex.
11,744 J. H. CANCELLOR, 22 Abbey Water, Romsey, Hants.
11,745 H. V. REED, 2 Cairns Rd., Westbury Park, Bristol, 6.
11,746 P. C. WOODMAN, 43 Victoria St., Burnham-on-Sea, Som.
11,747 D. RILEY, 297 Liverpool Rd., Islington, London, N.1.
11,748 J. R. HIND, 50 Sandon Road, Newton Park, Chester.
11,749 J. H. GREEN, 49 Newdykes Road, Prestwick, Ayrshire, Scotland.
11,750 L. A. GIBBS, 75D Carlton House, Nightingale Lane, London, S.W.12.
11,751 T. LATTER, 23 Howley Rd., Croydon, Surrey.
11,752 A. GOODIER, 2 Shrewsbury Rd., Ellesmere Port, Wirral, Cheshire.
11,753 R. F. READ, 26 Hillside, Little Thurrock, Grays, Essex.
11,754 H. HOBSON, 197 Shirehall Road, Sheffield 5.
11,755 W. SILLITO, 8 Ellesmere Gdns., Stakeford, Choppington, Northumberland.
11,756 G. V. LEACH, 27 Victoria Rd., Northenden, Manchester.
11,757 B. S. PRING, 16 Staunton Rd., Alcombe, Minehead, Som.
11,758 S. J. HONEYBALL, 31 Cote Lea Park, Westbury-on-Trym, Bristol.
11,759 J. G. ROGERS, Flat 2, Beyon Parade, Beyon Road, Carshalton, Surrey.
11,760 R. W. FOX, 34 Talbot Road, West Ealing, London, W.13.
11,761 I. G. HARDY, 24 Broadway, Exeter, Devon.
11,762 W. H. RILEY, The Nook, Llancarfan, Barry, Glam.
11,763 L. STERN, 46A Beaconsfield Rd., Brighton, Sussex.
11,764 G. A. BARRETT, Holly Tree Farm, Stainsby, Nr. Heath Chesterfield, Derbyshire.
11,765 I. E. HANKINSON, 41 Strathmore Avenue, Hull, Yorks.
11,766 P. SPENCER, 125 Harris Street, St. Helens, Lancs.
11,767 K. H. GREENHOUGH, 16 West Hendford, Yeovil, Som.
11,768 J. WILSON, 9 Elmfield Ave, Northenden, Manchester. (Transfer from Associate Grade.)
11,769 E. STUBBS, 5 Broadfield Ave., Heeley, Sheffield 8 (Transfer from Associate Grade.)
11,770 R. J. S. ROYLE, 66 Sunningfields Rd., Hendon, London, N.W.4.
11,771 W. J. V. MEYER, 20 St. Matthews Rd., Cosham, Portsmouth.
11,772 P. HARRISON, 17 Laughton Rd., Dinnington, Nr. Sheffield.
11,773 P. J. SEAL, 428 Bexhill Rd., St. Leonard's-on-Sea, Sussex.
11,774 E. W. HILLIER, Commodore Hotel, Morecambe, Lancs.
11,775 W. DENNELL, c/o Lawson Batey Ltd, Dean Street, S. Shields, Co. Durham.
11,776 *C. A. REID, 122 Woodgrange Ave., N. Finchley, London, N.12
11,777 P. M. THOMPSON, Downing College, Cambridge. (Transfer from Associate Grade.)
11,778 A. RAWLINSON, 165 Walkden Rd., Worsley, Nr. Manchester.

11,779 H. BIGGS,13 Brindley Rd., Paddington, London, W.2. (Transfer from Associate Grade.)
11,780 J. B. MACKIE, 4 Foxhouses Rd., Whitehaven, Cumb.
11,781 R. H. ELWELL, 23 Princes Gdns., West Acton, London, W.3.
11,782 K. J. WHIFFIN, 28A Isis St., Earlsfield, London, S.W.18
11,783 E. R. WALL, 18 Bockhampton Rd., Kingston-on-Thames, Surrey.
11,784 A. E. ENGLISH, 13 Church Rd., E. Molesey, Surrey.
11,785 R. J. STANBURY, 32 Park View, Hastings, Sussex.
11,786 S. ECCLESTON, 26 Inhurst Rd., North End, Portsmouth.
11,787 E. E. EVANS, 36, St. Mary St., Risca, Nr. Newport, Mon.
11,788 A. L. SIMPSON, 20 Princes St., Peterborough, Northants.
11,789 V. WATTS, 24 Harman Rd., Bush Hill Park, Enfield, Middlesex.
11,790 A. ODDY, 331 Manchester Rd., Snelden, Rochdale, Lancs.
11,791 L. TANNER, 89 Torrington Way, Morden, Surrey.
11,792 G. G. H. RETTER, 13 Storridge Rd., Westbury, Wilts.
11,793 A. H. HITCHCOCK, Holme Bank, Dobcross, Nr. Oldham, Lancs.
11,794 J. A. F. BARNES, 28 Burdett St., Aigburth, Liverpool 17.
11,795 H. BAINES, 14 Dumfries St., Darlington, Co. Durham.
11,796 C. H. POWELL, 183 Dudley Hill Rd., Undercliffe, Bradford.
11,797 J. PEARSON, Dalegarth, Ren Rd., West Ardsley, Wakefield, Yorks.
11,798 G. FEARN, 379 Stannington Rd., Sheffield 6.
11,799 D. A. JAMES, 370 Aylestone Rd., Leicester. (Transfer from Associate Grade.)
11,800 J. WILLIAMS, 5 Mauretania Road, Liverpool 4, Lancs.
11,801 J. POWELL, 20 Eltringham Tce., Edinburgh 11, Scotland.
11,802 R. SCOTT, 3 Brighton St., Cleethorpes, Lincs.
11,803 E. MORGAN, Blue Pines, Hyperion Rd., Stourton, Stourbridge, Worcs.
11,804 E. J. T. PHILLIMORE, 86 Portland Rd., Worthing, Sussex.
11,805 F. W. SMITH, 263A Boxley Road, Maidstone, Kent.
11,806 U. J. E. C. ARR, 30 Berkeley Rd., Clacton-on-Sea, Essex.
11,807 W. P. ROBINS, 18 Curzon Street, Albert Avenue, Hull, Yorks.
11,808 L. H. READ, 60 Hillbury Road, Warlingham, Surrey.
11,809 L. F. LAW, 14 Hessel Rd., West Ealing, London, W.13.
11,810 B. DUNFORD, 17 Sycamore Rd., Amersham, Bucks.
11,811 L. A. MARTIN, 62 Hillside Road, Northwood, Middlesex.
11,812 K. C. GILL, School House, Clowne, Nr. Chesterfield, Derbyshire.
11,813 H. J. BINDING, 28 Gladstone, Watchet, Somerset.
11,814 D. G. ABEL, 14 Wykeham Green, Dagenham, Essex.
11,815 J. W. BRUCE, 175 Findhorn, Forres, Morayshire, Scotland.
11,816 R. W. NEWMAN, 231 Moor Green Lane, Moseley, Birmingham 13.
11,817 B. J. GEALER, 6 Ferndale Road, Swindon, Wilts.
11,818 K. L. CALLCUT, 63 Crookston Rd., Eltham Park, London, S.E.9.
11,819 W. E. WILSON, 8 Needham St., Longsight, Manchester.
11,820 H. F. HARTLEY, 91 Station Rd., Hatton, Derby.
11,821 W. E. WILLIAMS, 1 Dornton Rd., Stirchly, Birmingham, 30.
11,822 N. H. GAUL, 10 Brief Street, Myatts Park, London, S.E.5.
11,823 S. E. FRYER, 89 Wakemans Hill Ave., London, N.W.9.
11,824 L. BARRETT, 5 Roxwell Avenue, Chelmsford, Essex.
11,825 A. THOMAS, 13 Bramley Way, West Wickham, Kent.
11,826 E. G. Manning, Welton Manor, Daventry, Northants.
11,827 L. CAWLEY, 185 Balaam St., Plaistow, London, E.13.
11,828 F. C. MAYOH, 76 Rocky Lane, Monton, Manchester.
11,829 J. W. HERDMAN, 8 Railway St., Craghead, Stanley, Co. Durham.
11,830 R. H. MOORE, 11 Balfour Rd., Birkenhead, Cheshire.
11,831 G. K. K. MCKAY, 20 St. Kilda Drive, Glasgow, W.4.
11,832 C. H. JONES, 12 The Drive, Gilfach, Bargoed, Glam.
11,833 K. TERNENT, 10 Magdala Tce., Galashiels, Scotland.
11,834 F. B. BULTITUDE, c/o Mrs. Burtles, 31 Hayeroft Gdns., Harlesden, London, N.W.10.
11,835 R. PICKERING, 24 Nayland Court, Hall Green, Birmingham, 28.
11,836 J. W. FUZZARD, 10 Level Lane, Burbage, Buxton, Derby.
11,837 J. BRADLEY, 3 Tower Avenue, Chelmsford, Essex.
11,838 R. EVANS, 24 Lea Road, Knowsley, Nr. Liverpool.
11,839 A. M. THOMAS, 83 Erlanger Rd., New Cross, London, S.E.14.
11,840 E. R. COLEMAN, 8 Cavendish Rd., Sheffield 11, Yorks.
11,841 S. LOVETT, 18 Chestnuts Close, Haywards Heath, Sussex.
11,842 A. V. SYMES, West Lodge, Embley Park, Romsey, Hants.
11,843 P. E. WHICHLER, c/o B.B.C., Welton Manor, Nr. Daventry, Northants.
11,844 A. L. HASKINS, Dancers End, Fitzroy Park, Highgate, London, N.6.
11,845 G. BUCKLAND, 287 Desborough Road, Eastleigh, Hants.
11,846 L. W. CARLIN, 17 Beauchief Abbey Terrace, Alfreton, Derbyshire.
11,847 F. H. M. VAUGHAN, 2 Seaborn Drive, Morecambe, Lancs.
11,848 L. E. HANCOCK, BM/IL6, London, W.C.1.
11,849 MISS D. STRATTON, 5 Walpole Road, Twickenham, Middlesex.
11,850 J. M. VERSCHOYLE-CAMPBELL, Lynton Lodge, Bishopswood Road, London, N.6.
11,851 D. WILLETT, Main Street, Bagworth, Leicester.
11,852 J. A. CROSSBERG, 29 Gloucester Road, Brighton, Sussex.
11,853 N. H. GOODERHAM, 93 Cylford Road, Dalston, London, N.1.
11,854 G. A. WEBSTER, 78 Olron Crescent, Bexleyheath, Kent.
11,855 G. R. DEVES, 25 Forest Road, Lydney, Glos.
11,856 J. G. V. ALDWINCKLE, Main St., Houghton-on-the-Hill, Leicestershire.
11,857 D. CAMPBELL, 10 Glendale Ave., Wood Green, London, N.22.
11,858 S. E. ASHDOWN, 117 Bridge Lane, Golders Green, London, N.W.11.
11,859 *W. E. F. JENNINGS, O.B.E., c/o Cox & Kings Branch, Lloyds Bank Ltd., 6 Pall Mall, London, S.W.1.
11,860 T. J. MOORE, 11 Balfour Road, Birkenhead, Cheshire.
11,861 F. C. CHEESEMAN, 7 Reginal Rd., Maidstone, Kent.
11,862 E. JACKSON, 17 Hudleston Rd., Wavertree, Liverpool 15.
11,863 J. D. S. OGILVY, 48 Ryehill Ave, Edinburgh 6.
11,864 G. W. NAILOR, 20 Beckhampton St., Swindon, Wilts.
11,865 D. J. ROSE, 58 Paragon Rd., Hackney, London, E.9.
11,866 K. J. D. KING, 28 Oxford Crescent, New Malden, Surrey.
11,867 H. W. LEVER, 16 Kingsmead Ave, Worcester Park, Surrey.
11,868 E. F. A. SAUNDERS, 79 Highfield Rd., Woodford Bridge, Essex.
11,869 C. P. COWELL, Casanegra, Tuddenham, Nr. Ipswich, Suffolk.
11,870 J. R. GORTON, 85 Grasmere Cres., Monton, Eccles, Lancs.
11,871 G. E. SIMMONDS, 78 Mellitus St., London, W.12.
11,872 K. M. JONES, 40 Geary Rd., Dollis Hill, London, N.W.10.
11,873 S. H. DUTTON, 17 Victoria Pathway, Queens Park, Chester.
11,874 J. DOUTHWAITE, 105 Holbrook St., Heanor, Notts.
11,875 G. J. NEWELL, 19 Moulsham Drive, Chelmsford, Essex.
11,876 E. MARPLES, 68 Weston St., Sheffield 3, Yorks.
11,877 N. M. BEST, Antiference Ltd., Plender Place, Plender Street, London, N.W.1.
11,878 C. W. T. GREEN, 41 Haddon St., Pendleton, Salford 6, Lancs.
11,879 G. J. GUY, Homefield Lodge, Knockholt, Sevenoaks, Kent.
11,880 N. C. POWELL, 17 Grove Road, Lydney, Glos.
11,881 H. E. RICKARDS, 112A Church Rd., Upper Norwood, London, S.E.19.
11,882 R. W. BERDINNER, 40 Firfield Ave., Birstall, Nr. Leicester.
11,883 D. J. W. SEAGROVE, 18 Dassett Rd., West Norwood, London, S.E.27.
11,884 D. BROWN, 81 Huntingfield Rd., Putney, London, S.W.15
11,885 J. P. FARRELL, 136 Cardowan Rd., S. Carntyne, Glasgow.
11,886 A. E. WILLIAMS, 127 Sydney St., Chelsea, London, S.W.3.
11,887 H. M. DUNN, c/o Wilson, 2172 Dumbarton Rd., Glasgow, W.4.
11,888 MISS P. I. E. PALMER, Bifrons, Hall Rd., Rochford, Essex.
11,889 D. E. BIXLEY, 7 Browning Close, Eastleigh, Hants.
11,890 A. E. POTTER, Woodside, Pilmoor, Helperby, Nr. York.
11,891 T. A. D. LOBB, 13 Palace View, Shirley, Croydon, Surrey.
11,892 W. ROBERTSON, 153 Greendyke St., Glasgow, C.1.
11,893 K. G. ANDREWS, Pelkendon, Poismall Cres., Colchester, Essex.
11,894 D. R. A. BLOWERS, 26 North End Grove, Portsmouth, Hants.
11,895 W. S. DALLY, 9, Hawthorne Grove, Bruche, Warrington, Lancs.
11,896 K. GREGORY, 9 Durban Avenue, Christleton, Chester.
11,897 A. S. BENDELL, 39 Fownes Rd., Alcombe, Minehead, Som.
11,898 B. C. ODDY, Bonigen, Maudlyn Close, Steyning, Sussex.
11,899 G. H. WRIGHT, 308 London Rd., Kettering, Northants.
11,900 A. DEAN, The Manse, Lakes Lane, Beaconsfield, Bucks.
11,901 W. J. GREEN, Oxford Bank, Sinclair St., Helensburgh, Lanarkshire.
11,902 L. J. HAMLIN, 67 Broadhill Rd., Burnage, Manchester 19.
11,903 P. J. MAYES, The Ramblers, Great Barton, Bury St. Edmunds, Suffolk.
11,904 F. W. BAKER, 18 Grosvenor Drive, New Brighton, Wallasey, Cheshire.
11,905 F. T. GARRETT, Myrtle Cottage, Bramling, Wingham, Nr. Canterbury, Kent.
11,906 G. A. BONSER, 43 Newman Rd., Erdington, Birmingham.
11,907 H. A. TURNER, Esgair, Portsmouth Rd., Esher, Surrey.
11,908 J. B. STODDART, 59 Princes St., Thurso, Caithness, Scotland.
11,909 C. W. F. GRANT, 12 Drum Terrace, Edinburgh 7.
11,910 M. I. CUNNINGHAM, 51 Lynton Mead, Totteridge, London, N.20.

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* *Denotes Re-elected.*

Calls Heard

As an incentive we publish the following list of stations heard in the 58·5 Mc/s.–60 Mc/s. band by G2WS, Beckenham, Kent, during February and March, 1946. Due to paper rationing we are unable to publish regular lists of Calls Heard, but we should be glad to receive an offer from a qualified member, possessing typing facilities, who is willing to prepare a short monthly article dealing with 60 Mc/s. activity.

G2MI, MR, MV, NH. G3CQ, NR. G4CG, CI, IG. G5CD, FK, KH, MA, RA, RD. G6AU, CW, VA. G8SK, TV.

CLOSING DATE FOR MAY ISSUE IS APRIL 29TH. REPORTS SHOULD BE POSTED TO REACH D.R.'s & SCRIBES BY APL. 23RD.

AROUND THE DISTRICTS

DISTRICT 1 (North Western)

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

Ashton-under-Lyne.—At the March meeting of the Ashton and District Radio Society an enjoyable and interesting "Transmitter Quiz" took place; many points of technical interest were raised and discussed. G3BY and 6TL require contacts on 58·5 with local members. The H.Q. of the local Society is A.C.S. Rooms, Stamford Street, nr. Market Avenue, Ashton-under-Lyne. G5PX.

Bolton.—2ABT and 2FPI are now settled down in civilian life. 3AC, 4IA and 4HL have received licences. G2DVQ.

Burnley.—G2AYY has received his full licence. We welcome 2CUO and BRS11,224 as new members. 8TD and 3VO are active on 1·8. 3IY finds a single section 8JK beam best for 28 DX. 2BFB has been demobbed. G5ZN.

Liverpool.—Interesting talks were given last month by G5MQ, 6KS, 2OA, and BRS7855; equipment was also shown and demonstrated. It is hoped to hold an exhibition of Radio Equipment on April 27. Help to make this a success—bring along your latest gadget! G8AZ.

Oldham.—The last meeting was attended by G3PD, 2HDO, BRS8616, 10,789 and 7460. A short talk on Oscillographs was given by G3PD. Mr. H. Butterworth (2HDO) is now awaiting his ticket. G3PD.

West Cumberland.—A very enjoyable evening was spent by all at 2AUM, to whom we express our sincere thanks for his hospitality. Those present included 6WR, 8DP, 8RZ, 3BW, 3SY, 4NS, 4PZ, G2HHB, 2AUM, 2DWG and BRS1711; to the latter we extend a hearty welcome to the area. Congrats. to G2HHB on his full licence. A keen discussion on aerials followed. G3BW.

Manchester.—Members will be pleased to know that Mr. Ian Auchterlonie (G6OM) has returned to the District since his recent demobilisation and has kindly promised to attempt the revival of the pre-war meetings which were so successful. The D.R. has accordingly appointed him acting T.R. and hopes that members will get into touch with him as soon as possible and that the long absence of notes for Manchester is now at an end. His address is: 4 Stand Close, Whitefield, Manchester. Telephone: Whitefield 2058 (business telephone: Prestwich 2241).

General.—It is hoped that the P.D.M. will be held towards the end of September or early in October. As Manchester would on this occasion be a convenient venue the D.R. has discussed the problem with G6OM who has promised to see what can be done to secure accommodation and catering facilities there for what it is hoped will prove to be a record P.D.M.; the date of the meeting will be announced as soon as possible.

The D.R. hopes that by the time these notes are in print he will have been able to reply to the many as yet unanswered letters he has received during recent weeks. G6CX.

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.—A successful meeting was held at Cambridge House on March 18th. There were 26 present. (For future dates see Forthcoming Events.) 4349 is now demobbed and working with 5VD. He was pleased to see that BERS591 had joined the Society. 4389 worked with him in Trinidad.

Barnsley.—4JJ and 5IV attended the Sheffield Club meeting on March 13 and received a very warm welcome.

Keighley.—2VO is active on 1·8 Mc/s. 8UO received a visit from 8676 recently.

Wakefield.—5LH hopes to be on the air shortly with a super job. Will G8WT get into touch with 5LH at Croft House, Horbury, Wakefield.

Harrogate.—2DRA again asks local members to get into touch with him at 27 Harlow Crescent. He also wants to know if Harrogate has a T.R.

Sheffield.—Members had a very interesting time during March, being given a talk on the Sheffield Police Radio system with subsequent visits to the main radio station and being allowed to patrol the city in the radio cars. Our special thanks to P.C. Bradley who gave the talk and was our guide on the visits. Congrats to 2FNS who now has a "G" in front of his call. We wish the T.R. a speedy recovery.

General.—Do not forget the P.D.M. on Sunday, April 28. Please give it your full support. G8UO.

DISTRICT 3 (West Midlands)

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

Birmingham.—A meeting of M.A.R.S. was held on Tuesday, March 19, when a discussion took place on "Oscillators and Receivers." 52 members and visitors were present, 22 of whom were in possession of their licences. G2FDR.

Coventry.—Fifty members and friends attended the first post-war annual dinner of C.A.R.S. The following are now on the air: G6TD, 8WO, 3GA, 3YO, 5GR.

2FZG is now demobbed and living at Cannock. Cpl. R. Foster, 7W./T. Type M. Section, att. Eastern Command Signals, India Command, informs us he has had a fair experience with 3·7 Kw. gear. He would like to get in touch with anybody who has had similar experiences. G2FDR.

DISTRICT 4 (East Midlands)

D.R.: L. Ridgeway, (G2RI) 90, Romway Road, Leicester. Phone 24295.

Leicester.—Meetings held on the third Sunday of each month at 27 Belvoir Street, 2.30 p.m., are rapidly gaining strength. A calibration service for crystals, receivers and transmitters is available at G2RI (no charge). Crystal registers are being compiled and members are asked to send details of frequencies held to the T.R. (G2IX). G2CFC is active on 28.

Derby.—The present T.R. will shortly be leaving the town and at an excellent meeting on March 23, G8BN was elected to take his place. Thanks BRS4071, you did a grand job. The use of a room has been obtained at the Technical College and Mr. A. B. Vaughan has promised demonstrations. Next meeting, April 28, 10.30 a.m., Unity Hall.

Mansfield.—Meetings at The Swan Hotel are now well attended, the next being on May 5, at 3.30 p.m. Junk sales are well to the fore, as are exhibitions of newly made apparatus. Congrats to G2DTQ on getting his full call about 14 days after being demobbed. We hear G8MR has signed on for another 18 months.

Northampton.—Activity is on the upgrade in this county. G2AAA of 65 Colwyn Road, has been invited to take over duty as Acting T.R. for Northampton and G4KS of 11 Kettering Road, Broughton as Acting T.R. for Kettering. Members are asked to contact these people with a view to getting things moving. G2RI.

DISTRICT 5 (Western)

D.R.: R. A. Bartlett (G6RB), 31 King's Drive, Bishopston Bristol. Bristol 46960.

Bristol.—The March meeting was again well attended, among those we were pleased to welcome being G5FC, 8UD, 2BTD, 4403, 5937 and 9840. The T.R. asked BRS members for suggestions as to future talks and lectures. 6GN opened a prolonged discussion on points to be brought before the D.R.'s conference. 2BAR displayed a transmitter he has recently built whilst 5FC brought along a small home constructed receiver. An exhibition of Raymart products arranged by 6TO was much appreciated Three cheers for 2BAR, 2CUI, 2FHG and 2HHN, who have passed their Morse test. 2BSU is now on the air. 6BW hopes to be active again soon.

Moreton-in-Marsh.—2FZO has been granted a licence.

Swindon.—G3JO has found it necessary to resign as Acting T.R. Who is willing to take over?

Cheltenham.—The following are known to be acting: 2BY, 3LP, 3YZ, 4JZ, 5BK, 5BM and 8DT. The Cheltenham Amateur Wireless Society hold meetings every Friday evening at the Technical College. Morse practice and technical talks are given. G6RB.

DISTRICT 6 (South Western)

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

Torquay.—The meeting held on March 16, at the Y.M.C.A., Torquay, saw a record attendance of some 36 members and visitors, including G3TX, 5ZT and others from Plymouth. During the evening the T.R. announced a visit to the twelve channel carrier station at Shiphay, Torquay, on April 27 at 3 p.m., through the courtesy of Mr. Stevens (P.O. Eng. Dept.).

The D.R. gave an outline of various H.Q. business affecting the members. This was followed by a discussion. Four technical sound films were then shown by Mr. Aldous, BRS1006. Arrangements have been completed for the P.D.M., details of which will be found elsewhere in THE BULLETIN.

Exeter.—There was an attendance of 18 at a meeting held at the Y.M.C.A., Exeter, on March 16. It was decided to hold monthly meetings on the third Wednesday evening of each month.

Penzance.—The March meeting was a sales and exchange night followed by another demonstration of electrical recording direct on discs by G3KO. A very good attendance included G2DDR, our first A.A. to get an open ticket. This is the last report from G6ZT and the D.R. would like to take this opportunity of recording his grateful thanks to him for the way in which he has developed the area. We wish him the best of luck in his new QRA, and hope that the Penzance area will build well and worthily on the foundations he has laid.

Taunton.—G5GT, 6LY, 2JM, 3SB and 4OM all have their tickets and hope soon to be on the air. Members will be pleased to hear that 2JM's operation was successful. G5SY.

DISTRICT 7 (Southern)

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

District 7 P.D.M. will be held at Southsea, on July 13th. Watch this column for further announcements.

Maidenhead.—Local boy makes good! G6CU has certainly hit the headlines from the Cocos. G2DBF, 3PW, 4DI, 8MG, and 8MS, are active. We shall be happy to see members from Slough and Windsor. G2DBF.

Portsmouth.—The March meeting saw the best attendance since the war. We were pleased to welcome G2NM and also two new members, Messrs. Blowers and Mayer. G2XC, 5TZ, 5UI, 5XY, 6SS, 8BD, 8JB, and 8WC, are active. G8WC

Reading.—Mr. Owen gave a talk on the R1155 receiver at the February meeting. An interesting talk on his transmitter and rotary beam aerial was given by G5TP at the March meeting. Visits have been arranged to Messrs. Ernest Turner Electrical Co., and also to Woodley Aerodrome. BRS4573.

Bournemouth.—Congrats to 2HNO on passing the morse test. Major Lansley, G4KV, has been on leave. G2NS.

Croydon.—There was an attendance of 59 at the last meeting. Owing to such large numbers there will be no further meetings at the Y.M.C.A. New arrangements have been made for future fixtures. Please see "Forthcoming Events." G2YP (VK2OR), is now active at Norbury. 2FWA awaits his ticket. Ken Ellis, SU1KE, has returned to Cairo. G2DP.

Coulsdon.—Hearty congrats to "Bulldog" Drummond, 2CRD, on the arrival of a junior op on March 5th. BRS4458 has been home on short leave. A crystal register is being prepared by the T.R (Phone—UPL3765)—please will local stations check in so that new licencees may select suitable frequencies? BRS3003.

Guildford.—Considerable local activity is taking place. G6LK is fast recapturing his pre-war skill in raising the DX G5CV and 5TA are new signals on the local ether. There was an excellent attendance at the March meeting at Weybridge. See "Forthcoming Events" for the next meeting. Postcards please to G5RS, 20, Hedgeway, Guildford, from those expecting to be present.

General.—BRS11783, of Kingston-on-Thames, but at present with the R.A.F., in India, hopes to be home in August. BRS4268 in the Signals, C.M.F., is trying for two tickets; one for civilian life and one from the P.M.G. G5WP.

DISTRICT 8 (Home Counties)

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

A District meeting was held on March 29 at "The Jolly Waterman," Cambridge, when 33 members were present. A further junk-sale was held with 5DR as a persevering auctioneer dealing with reluctant buyers.

Cambridge.—G2PU, 5OV, 5JO and 5BQ are active on 28. 2XV's new rig must surely be one of the most replete and workmanlike in the country, and it will be ready any day now. 8SY, 5IG, 2DT, 5DR, 6PH, 8PB—in fact all the locals—are busy on their respective stations. 5DQ was recently on leave from Catterick. 9265, now stationed at Waterbeach, is building a super-het. A.C.1 G. Doggett, BRS8883, reports from Sharjah, Persian Gulf, where he finds 7 and 14 very lively.

March.—G3BK and 3WW are working DX on 28. The latter is using an adaptor on his BCL receiver.

Bedford.—G5FO having had a strenuous time with war-work and police duties, is now finding a little more leisure for radio. 6HB, 3OL, 4OC, 2HK and 2BFN are all active.

Leighton Buzzard.—GW4CK is now stationed in this locality. 8667, of Dunstable, would like to contact local transmitting members.

St. Ives.—G4AZ is now trying to find a substitute for A.C. mains since he moved QRA. XZ2DY will be homeward bound by the time these notes appear. (Bon voyage O.M.) 5RL hopes to be on the air shortly, after a complete rebuild.

Peterborough.—G3QS, now demobbed, is on the air again, as are 2UQ and 3DY. Sgt. J. Garner (BRS11,044) is stationed in Burma, where he is brushing up his radio theory ready for when he is demobbed.

At the next Cambridge meeting to be held on Friday, April 26, Mr. Sid Smith, an Australian now attached to Pye Ltd., will give a talk on, and demonstrate "Some New Transmitting Valves."

And to all the other D.R.'s who were at Birmingham, best 73. G5BQ.

DISTRICT 9 (East Anglia)

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

No notes from the District—only reservations for the P.D.M. Have you sent yours yet? See "Forthcoming Events."

King's Lynn.—G3IP has worked several W's using only 6 watts. 5UD, 4LM, 3SZ and 2XS are all active on 28. G2XS.

DISTRICT 10 (South Wales & Monmouthshire)

D.R.: H. H. Phillips (GW4KQ), 80 Cottrell Road, Roath Park, Cardiff. (Cardiff 4700 during business hours.)

Since the last appearance of the notes, the D.R. has regrettably had to confirm to many inquirers that the building housing his business address had been destroyed by a disastrous fire. Will members please, therefore, note change of telephone number. Consequent upon this it has been almost impossible to reply to the many letters recently on hand and the writer would seek the indulgence of members thereon; a reply will come so soon as possible.

Cardiff.—A record attendance was present at the February meeting to hear a most interesting lecturette upon "Ships' Radio Installations" by Mr. J. C. Wilkie, who is to be congratulated upon his concise method of dealing with such a vast subject in the time available. A cordial invitation is extended to all members to be present at the next meeting which will be held on Monday, May 13 at Park Hotel, Park Place, Cardiff, commencing at 7 p.m., when the commentator for the evening will be Mr. R. T. Mathews, GW8AM and the subject "Radio Servicing."

EAST ANGLIA,
PROVINCIAL DISTRICT MEETING
to be held on
SUNDAY, MAY 5th, 1946
at
FULLERS, ST. STEPHEN'S ST., NORWICH

PROGRAMME:

Assemble ...	2.0 p.m.	Tea	4.45 p.m.
Business Meeting	2.30p.m.	Informal Discussions	5.45 p.m.

INCLUSIVE CHARGE 3/-

Lunch (extra charge) will be arranged for those who desire same, at 1.0 p.m. Reservations for both the above to Mr. H. W. Sadler, (G2XS) The Warren Farm, South Wootton, King's Lynn, not later than May 1st, 1946.

The month has seen much activity and amongst the most outstanding contacts has been that between GW2UH and W2JAO. The latter, using 50 watts from the car dynamotor into an 829B, was operating Portable/Mobile on the roadside in New Jersey with a ¼ wave vertical aerial affixed to the bumpers of his car. Time 1955, March 8, and signals were Q5 R7! BRS10,374.

Swansea.—No news to hand but it is reported that the next meetings will be held on Wednesdays April 17, May 1 and 15 at the Hotel Metropole, Wind Street, Swansea, commencing at 7 p.m.

The D.R. intends being present at a meeting in the near future to give members a brief outline of Society affairs and looks forward to meeting many new members and old acquaintances on this occasion.

General.—Little response is yet forthcoming for meetings in Carmarthen and Neath/Port Talbot, but it is hoped that local activities will be possible at some future date. The writer would appreciate a line from any member interested in this project. Following recent inquiries, it is hoped that Newport will again be holding local meetings in the very near future. GW4KQ.

DISTRICT 11 (North Wales)

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

Members will be sorry to hear that David Mitchell, GW6AA, recently broke his right leg clean through above the knee. He is in the W. D. Hospital, Colwyn Bay, and expects to remain there until July. Dave has applied for permission to operate a low power transmitter from his bedside and would welcome contacts and reports as soon as authority has been granted.

GW8WJ is active on 1·8 and 5FU and 3KY on 28. The latter has already worked 18 countries.

Colwyn Bay.—GW6OK in a very detailed letter, reports contacts with G5MQ and G6YQ, Liverpool, on 59. GW3YR, 5UO, 8MH and 3JI are now demobbed, 5OD is home, and now married. (Congrats. O.M.) 3QN and 3WY are still away. 2NF is in GM.

Prestatyn.—GW6KY and 3CF are rebuilding. It is proposed to hold a meeting at "The Savoy Cafe." Prestatyn, on Sunday, April 28, at 3 p.m., Local members are invited to attend.

General.—GW6KY and BRS1060 attended the D.R.'s conference at Birmingham and also the West Midlands P.D.M. GW4CK and 4CX were present at the P.D.M. The D.R. would be glad to hear from members in the Colwyn Bay-Llandudno and the Bangor-Caernarvon areas who are willing to act as T.Rs. until the new year, when a new scheme of representation will operate. Arrangements are going ahead for the P.D.M. on September 7–8. Members willing to act as hosts to our visitors should inform the D.R. as soon as possible. BRS1060.

DISTRICT 12 (London North and Herts)

D.R.: Seymour Buckingham (G5QF), 41 Brunswick Park Road, New Southgate, N.11. (Enterprise 3112). Scribe: C. R. Stevens (2DHF), 22 Bramford Court, High St., Southgate, N.14. Palmers Green 0548.

North London.—Meetings will in future be held on the first Friday of each month at "Merryhills" Hotel, Enfield West, at 7.30 p.m. The April meeting had not been held at the time of writing.

We are sorry to record that "Bill" Solder, G5FA, was very seriously injured in a road accident on the night of March 30 whilst returning from his A.T.C. duties. At the time of writing he was on the danger list and lying in Whipps Cross Hospital. Our sympathies are extended to Mrs. Solder at this anxious time. Speedy recovery Bill—and also to Sid Howard, G8TY, who dislocated his shoulder on the same evening. He is now out of hospital. 8TY represented District 12 at the D.R.'s Conference.

Enfield.—G2NR, 6HM, 6JI, 8SK, 5VY, 2HDM, 2DGW, 4248, and 3825 attended a successful meeting last month primarily for frequency meter calibrations and checks. The area have lost a most enthusiastic member by the death of G4NV. Some of his apparatus was disposed of at the meeting and realised a total of £7. Thanks are due to Mrs. MacFarlane for generously providing refreshments.

The next meeting will be held on April 28 at the A. & B. Cafe, near the Savoy Cinema, Enfield. There will be a talk on Aerial Systems. G5VY.

St. Albans.—G2CY, 4GT, 8TK (St. Albans), 2CN (W.G.C.), 2MD (Dunstable), 3JX and 3QG (Harpenden), have been relicensed. 2CY is active on 58. 5UM made some of the first contacts on 1·8. Congrats. to 2MD on an increase in the family. Twenty-one members attended the last meeting at 3412 (a record), when it was arranged that future gatherings should be held at Jock's Cafe, Verulam Road, on Thursday evenings. A meal will be taken at a cost of approximately 2s. a head. (See "Forthcoming Events.") BRS3412.

General.—Due to catering and other difficulties it has been decided to postpone the P.D.M. (originally fixed for May 12) until later in the year. 2DHF.

DISTRICT 13 (London South)

D.R.: S. E. Langley (G3ST), 52 Dumbarton Road, S.W.2 Scribe: W. D. Gilmour (G2VB), 35 Grangecliffe Gardens, South Norwood, S.E.25.

The March meeting at the Y.M.C.A., Croydon produced a record attendance of 59 members including some visitors from M.A.T.S., who gave a very interesting film display of pre-war Field Day activities. The display had the effect of creating fresh impetus for our projected Field Days to come at Warlingham.

G4KY is building a new P.A. whilst 3ST, 5PY, 3DF are busy on beam aerials. G2HHD has received his ticket.

G3ST and 2DP attended the D.R.'s Conference and P.D.M. at Birmingham, where very much useful ground regarding the future welfare of the Society was covered. All who attended were made very welcome by the officers of District 3 who are thanked for their splendid hospitality.

South Eastern Area.—Some 25 members attended the March meeting held at New Cross, when a lively discussion took place concerning the best manner in which to run district meetings. Following recent developments G2VB was asked to contact the Norwood Brotherhood Hall with a view to making it once again the venue for meetings. Code practice transmissions were also discussed, but no definite decision was made as the meeting felt that the number who would make use of them was such an unknown quantity. It would be useful to know how many prospective applicants for radiating licences would avail themselves of such transmissions. There are still a few members local to New Cross who have not as yet made themselves known. We should be pleased to see them at the next meeting. G4DC.

South Western Area.—The first meeting was held on March 24 and was attended by 13 members. Further meetings will be held as above at 57 Kingwood Road, South Wimbledon, on the fourth Sunday of each month. G4CG.

General.—Suggestions are required for a Field Day in the near future. G3ST.

DISTRICT 14 (Eastern)

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

Chelmsford.—Members are slowly getting back on the air, G2GN being the first on "top band." At the March meeting which was fairly well attended, BRS5242 gave an interesting demonstration of his amplifier. The D.R. is anxious to obtain a copy of *Practical Wireless* dated November, 1945, for a member.

Southend.—The March meeting at G2SO drew its usual enthusiastic attendance, and as the D.R. was present, matters relating to the July P.D.M., and to the future welfare of R.S.G.B. were fully discussed.

Romford.—G3WS is getting phone to W on 28, and 3CQ is doing well on 56, with a QSO as far as Ascot. Local BRS's are anxious for slow Morse to be resumed.

Attention, everyone, to the current list of Forthcoming Events.

Grays.—Activity is accelerating, with new members and new calls on the air. G6VC hooked two W6's on very low power, 2YH is busy on Television service work. It is hoped to obtain the use of a hall for future meetings. Will all interested persons in this area please contact Mr. R. F. Read, 26 Hillside, Little Thurrock, near Grays, Essex.

Chingford.—The meeting at G4GA was attended by 18, including some new members who were welcomed into the ranks. Deep sympathy is extended to BRS5684 on the loss of his father.

General.—G2SA, Burnham on Crouch, has worked several W's but is sorely troubled by local Services QRM. The D.R. is glad to hear that G6UT is well, and was also delighted to see our old friend G5QV again. All Old Timers in District 14 send 'QV their 73. 6AB is back home and active on the top band, while his neighbour Den. Heightman, G6DH, has worked a stack of 28 DX.

Note to All Members.—H.Q. say that Notes must be kept to the minimum. If I do not cut them, *they will*. Sorry blokes. G6LB.

DISTRICT 15 (London West, Middlesex and Buckinghamshire)

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

A District meeting was held at The Scouts' Hall, Hounslow West, on March 26, when the D.R. gave a digest of the topics discussed at the P.D.M. held at Birmingham on March 24. The news he had to give was well received and lead to a discussion upon the cause of the apparent apathy of the BRS members and the manner in which their interest and attendance at meetings could be stimulated.

West London.—At a meeting held on March 10 there was a discussion and investigation around a 1 v. 1 T.R.F. 28 Mc/s. receiver made by the A.T.R. Several members described their gear under construction and conditions on the 28 Mc/s. band.

Twickenham.—A meeting was held on March 23 when only five members turned up and of which three had to leave early so no future plans could be made. The A.T.R. stresses that he cannot properly cater for the area unless he has more support. Now then local members give him a chance.

Harrow.—The meeting arranged for April 20 has been postponed.

Slough.—The meeting on March 21 was attended by 14 members, when Morse, ham language, the R.S.T. Code and receivers were discussed.

Ashford.—At a meeting held on March 9 arrangements were made for the 56 Mc/s. Field Day to be held on May 28. Full details later.

High Wycombe.—Mr. Fred Harmer (8BW) asks that those interested in attending meetings should contact 3M1 or himself at 8 First Avenue, Amersham, Bucks.

Ruislip.—We are pleased to welcome home from India Mr. Frank Fletcher, who has been granted the call G2FUX.

General.—Interesting letters have been received from G2FCJ, 3HS, 8FA, 8KI, BRS4487 and Cpl. R. S. Toby (2CDN) who has been appointed technician to the M.E. Forces Broadcasting Service at Jerusalem. Still no reports from the A.T.R.'s for Aylesbury, Edgware, Hayes and High Wycombe. Why? 2FZQ.

DISTRICT 16 (South Eastern)

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

A sincere welcome is extended to the new members and it is hoped that they will report regularly.

Bromley.—At a meeting held on March 9 at the home of G2WS, 20 members were present. Due to the steady increase in attendances it has been decided to hold future meetings at the Eden Park Hotel opposite Eden Park Railway Station. See "Forthcoming Events" for future meetings. 2FQQ is now G5CK and 5LB is welcomed home.

Sidcup.—2DHV, who has recently returned for his demobilisation from Italy, met 140 amateurs whilst overseas. He organised the Tripoli Amateur Radio Society and formed a "ham letter link" in Italy. Catford S.E.6 is his present address and he hopes to make contacts there.

Gillingham.—Over 20 members of the M.A.T.S. visited the Districts 7 and 13 meeting at Croydon on March 3 and enjoyed a film display given by 2AFT. Thanks are extended to 2DP and 2VB for the tea arrangements, etc. The M.A.T.S. private 'bus managed to get lost, snowed up and fog bound on the way home, but got there in the end!

Sheppey.—2VA may be on the air with a VS7 call soon. 3GW and 4OU are back on "top band." Both 2DCG and HKU now have their full licences. The latter is on 28 Mc/s. with a QRP battery rig and is building for 1·8 Mc/s. He will appreciate and answer listener reports.

Tunbridge Wells.—G2UJ attended the D.R.'s conference and the West Midland P.D.M. at Birmingham and met many old friends. 5OQ made W.B.E. in a few hours on March 17 and continues to work DX.

Tonbridge.—G4FB is active, as is 4IB at Five Oak Green who has just returned from India where he was serving with the R.A.F.

Sussex.—2CMH, 6206, 10,413 and 10,733 report, and wish to get in touch with members in Brighton. 11,337, ex-R.A.F., reports from Cuckfield and would like to meet other members. 11,680 of Hastings has for some time been in Scotland with Short Bros. and is now in the R.A.F. G2UJ.

DISTRICT 17 (Mid East)

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

G2UK, 2BQC, 2BUV, 6GH, 6LH and 8BQ are active on 28 'BUV, with 4 watts from dry batteries, has worked ZB1, W and LI and succeeded in hooking 'GH to the latter for a new country. 4JI is expected home shortly. 2HBN has applied for his full call. G2BUV is leaving us for Belgium where he hopes to be on the air as an ON4. G2DRT also has his full call, but will not be active until his demob. 3OS is still putting phone in to the States, he spent a day recently tuning up the D.R.'s receiver.

G8SH works DX from his station (Empire AAS) and has almost completed his receiver. 10,098 also has a nice receiver and hears lots of rare DX. 2FT is almost ready for action and is trying to add a 28 Mc. range to an 1155. G4GX, 5LL and 5BD have worked Tinian (W6PUZ) and lots of W's but little else. 2VY has not yet succeeded in getting his PP 210's going. 8KH is working nice DX. 8FN is not quite ready, 4GZ is awaiting demob. 5BD and 5LL are active most evenings on 58 but so far have heard no other signals. Still no news from Lincoln, any activity please? G5BD.

DISTRICT 18 (East Yorkshire)

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

The D.R. on taking office wishes to thank all those who have kept Amateur Radio alive in this District, and particularly G6SO for his good work as District Scribe.

Hull.—Owing to G3PL's appointment as D.R., an election was held at the March meeting when Mr. Bell, G2XA, of 22 Orchard Road, Analby Park Road, Hull, was chosen as his successor as Acting Town Representative. The meeting was well attended, 21 members being present. A committee of six was also elected (with G5PQ as Hon. Treasurer) in readiness for the summer activities. It is proposed to circulate to each member a detailed list of local stations with QRA and crystal frequencies. Particulars to 2XA, please.

A number of three letter calls are now being heard on 28, including G2CCB, 2CGL, 2CJO and 2FZX. An old-timer now demobbed and active on 28 is G6OY. G5GX is active in Hornsea. No local activity is reported on 1·8 yet but several stations are making plans. 2QO is using a centre fed dipole. The D.R. was very impressed with the lecture given by G6CJ at the District 3 P.D.M. and is now trying to convert local members to three element beam aerials on the strength of Mr. Charman's interesting demonstrations. G3PL.

DISTRICT 19 (Northern)

D.R.: R. J. Bradley (G2FO), 36 Raby Road, Stockton-on-Tees.

South Shields.—A meeting was held at the home of G8VV on March 7 when the following were present: 5SB, 6VG, 8AO, 8IF and 2FIG. It was decided to hold meetings fortnightly on Thursday evenings as from April 18 at St. Paul's Hall, Westoe Lane, South Shields. All members in the District are asked to give their support. G5SB.

West Hartlepool.—Fourteen members including 3LS, 3UW, 4OD, BRS5159, 5295 and 6469, attended a meeting held in West Hartlepool, on February 28. It was decided to hold fortnightly meetings at 7.30 p.m. at 6 Musgrave Street, West Hartlepool. The first meeting took place on March 14 when Mr. Elliot gave a lecture on Radar. The T.R. is now BRS6469 and members in the District are asked to get in touch with him.

Newcastle-upon-Tyne.—2APC reports that he is now G5DU and hopes to be on the air soon on 1·8 and 28.

Bishop Auckland.—G2GC has been busy building a transmitter for each band! He sends 73 to all old friends and would be pleased to see any member visiting the District. G2FO.

Northern Ireland

D.R.: J. N. Smith, B.E.M. (GI5QX), 19 Hawthornden Drive, Belmont, Belfast, N.1. Phone 63323.

Belfast.—Owing to pressure of business, Mr. R. S. Holden (GI5HU) has relinquished the position of T.R. Our thanks are recorded to him for his support during the war years. Mr. R. Barr, Jnr. (GI5UR), 4 Dunkeld Gardens, Oldpark Road, Belfast, has kindly agreed to act as T.R. 5UR will be remembered for his great feat during the 1939 N.F.D. Event when he operated the Northern Ireland 7 Mc/s. station, quite alone, during the entire period of the event.

Will members please note the date of the P.D.M. (see display notice) and make reservations as soon as possible. As Council will be well represented at the meeting it is up to us to give a good account of R.S.G.B. in N.I. The D.R. hopes for the full support of the District, even if a member cannot actually be present at the meeting.

Offers of cars for an outing on Sunday, May 19, would be greatly appreciated. The County Down Coast is suggested for the run, starting about 2.30 p.m., with tea at Bangor, or Donaghadee. How about it chaps? GI5QX.

Scotland

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

Members attention is drawn to the request last month for advice to GM6ZV and GM6XI of their intention to attend the Conventionettes in Glasgow and Edinburgh on June 16 and 15 respectively. If you have not already written, please do so right away.

"A" Area (Glasgow and surrounding counties).
A.R.: D.R. Macadie (GM6MD), 154 Kingsacre Road, Glasgow, S.4.
Scribe: J. D. Gillies (GM2FZT), 3 Berridale Avenue, Glasgow, S.4. Merrylee 4060.

Thirty-four members attended the February meeting of the Glasgow Amateur Radio Club and heard a talk by Mr. J. D. Brown on fidelity in modulation. Mr. A. J. Janes introduced and produced the speaker. Members are slow to volunteer for talks, so if you are keen on a particular subject let us all hear about it. Eighteen local members are now active. Will pirates please note that 3 letter calls are in general *not* licensed for telephony. Glasgow listeners who hear GM2FZT on 'phone, kindly note above remark. GM6MD has had QSOs with ZS, W, VE, X, I, TA, and LU on CW. His QRA is on a hill-top and we expect to hear more from him. GM2FZT.

"B" Area (Aberdeen and North of Scotland).
A.R.: A. G. Anderson, B.Sc. (BRS5857), 87 Braemar Place, Aberdeen.

A meeting will be held on Monday, April 29, at 7.30 p.m. in the Green Room of the Music Hall, Aberdeen (enter by Golden Square.) GM3SF has joined the ranks of the B.B.C. 2YA has returned to Aberdeen from Wick and hopes to be active soon. 6107 sends 73 to 5JK and 6LG. 8UU (Elgin) has been active on 28. 6LG would like to work 3TR (Kirkwall) on 1·8. 3RL is active on 28 and 1·8 5JK is keen to resume as soon as work permits. BRS members are showing great enthusiasm at the prospect of licences being granted. The A.R. would like to hear from members old and new in this rather far flung area. BRS5857.

"C" Area (Dundee, Forfar, Perthshire, etc.)
A.R.: Jas. Gouck (GM3NH), 4 School Drive, Downfield, Dundee.

Ten members were present at the March meeting. Local activity is not yet high, although 5SC, 3IX and 3NH are on the air in Dundee at time of writing. 2FXN is now GM2FXN and is preparing to go on the air. Dr. W. M. Watt of Broughty Ferry and Mr. A. McRobert of Elie (employed locally) are welcome new members.

"D" Area (Edinburgh and Midlothian, etc.)
A.R.: J. Wilson (GM6XI), 52 Macdowall Road, Newington, Edinburgh 9. Edinburgh 42153.

As a result of attending the March meeting, members should, thanks to Inspector Bruce, now have a good knowledge of the working of the Edinburgh Police Radio System. Activity keeps up and some new signals will soon be heard. Will members *please* notify GM6XI if they are attending the Conventionette in June, otherwise it will be impossible to organise accommodation. GM6XI.

"E" Area: (Ayrshire and South-West Scotland.)

We are delighted to be able to announce that at last a volunteer has come forward to set the ball rolling in this area, in the person of Mr. D. A. McQueen, GM4PW, 3 Ayr Road, Prestwick, telephone 78375. He is going to act as A.R. for the present. All Ayrshire members are asked to contact him with a view to arranging meetings. GM3NH.

L./R.M. W. Williams, BRS8613, B8 Mess, R.N.A.S., Arbroath, has volunteered to assist fellow members in Arbroath one or two nights per week in constructing or installing their gear. Anyone interested please contact him at the address given. GM6ZV.

HAVE YOU RETURNED YOUR MEMORIAL FUND QUESTIONNAIRE?

AMATEUR WIRELESS LICENCES

APPLICATION FOR A LICENCE TO ESTABLISH AN AMATEUR WIRELESS STATION

Note.—Under the Wireless Telegraphy Acts, 1904–1926, the Postmaster General's authority is necessary before any apparatus for wireless telegraphy may be installed or worked.

1. (*a*) Name of Applicant with christian names in full (in block capitals)
   .....
   Address.....
   .....
   (*b*) Are you over 21 years of age? .....
   (*c*) Evidence of British nationality and two recent written references as to character must be enclosed—see note (2) below.
   (*d*) If you are under 21 years of age (see notes (1) and (2) below) the following information is required.
   (i) Name of parent or guardian (with christian names in full)
   .....
   (ii) Relationship (if any) to applicant :
   (iii) Address .....
   .....
   (iv) Evidence and references as under 1 (*c*) to be furnished.
2. Technical Qualifications :
   (*a*) Have you obtained a pass in the City and Guilds of London Institute's Radio Amateurs' Examination ?..... If so state month and year of examination.. .....
   (*b*) If you have not obtained a pass in the above-mentioned examination but you consider that you hold exempting qualifications (see form E in C. 428, appendix A) give particulars and enclose evidence.....
   .....
   ....
3. (*a*) Have you passed the Post Office Morse test for Radio Amateurs ?..... If so enclose evidence.
   (*b*) If you have not passed the above test but consider that you have exempting qualifications (see form E in C. 428 appendix A) give particulars and enclose evidence.
   (*c*) If you cannot claim exemption, where do you wish to be tested in Morse ? .....
   .....
4. If the applicant proposes to employ an operator to work the sending apparatus, give name and address of operator and particulars of his qualifications.
   ....
   ....
5. Full address of the station at which wireless apparatus would be installed with telephone number, if any.
   ....
   ....
6. (*a*) Is the sender to be crystal controlled ?.....
   (*b*) Particulars of frequency measuring apparatus and range of frequencies covered.
   ....
   ....
   ....
   (*Note.*—Even if the sender is crystal controlled a reliable frequency meter is required)
7. Maximum Power (in Watts) for which authority is desired.....Watts.
   " Power " is defined as the total D.C. power (watts) input to the anode circuit of the valve or valves energising the aerial.
8. Frequencies and types of emission for which licence is required.....
   ....
9. Have you read the summary of conditions of issue of a licence to establish an amateur wireless station (Form E in C 428) ?..... .....
   Signature of Applicant.....
   .....19..

Counter signature of parent or guardian, if the applicant is a minor :—
.....
.....19..

Notes : (1) *If the applicant is under 21 years of age, any licence granted will be issued in the name of his parent or guardian who will be personally responsible for the observance of its terms. Evidence of British nationality and references should be furnished both in respect of the applicant and of his parent or guardian.*

(2) *The references should be persons of British birth and standing, not related to the applicant.*

(3) *If apparatus is used for receiving broadcast programmes for entertainment, etc., a Wireless Receiving Licence (obtainable at most Post Offices), must be held.*

SUMMARY OF CONDITIONS AND OTHER INFORMATION IN CONNECTION WITH THE ISSUE OF LICENCES

I.—Qualifications of Licensees and Operators

The holder of an Amateur Wireless Sending and Receiving Licence must have the following qualifications :

(*a*) *British Nationality.*—The applicant for any Amateur Licence must produce evidence of British nationality and two recent written references as to character. A certificate of birth should be furnished if possible ; but this will not be insisted on if the referees testify of their own knowledge that the applicant is of British nationality. The referees should be persons of British birth and of standing, not related to the applicant. If the applicant is under 21 years of age, evidence of British nationality and references should be furnished both in respect of the applicant and of his parent or guardian.

(*b*) *Technical knowledge.*—The licensee must have a knowledge of the theory and practice of wireless communication, and in particular of low power sending apparatus of a standard to enable him to comply with the conditions of the licence. A pass certificate of the City and Guilds of London Institute in the Radio Amateurs' Examination will normally be required as evidence of this qualification, but the P.M.G. is prepared to agree to certain exemptions (see Appendix A).

(*c*) *Morse Telegraphy knowledge.*—An amateur sending station may only be operated by or under the supervision of a person who is able to send and receive in the Morse code at not less than 12 words per minute. This qualification is necessary under International regulations, even when wireless telephony

only is used. The person in charge of the station must be in a position to act upon instructions in the Morse code issued by Government and commercial stations. Details of the Morse tests conducted by the Post Office for this purpose and of exempting Morse qualifications are given in Appendix A.

(*d*) *Service exemptions.*—Evidence of proficiency in certain approved Service categories will be accepted in lieu of requirements (*b*) and (*c*). (See Appendix A.)

2.—Applications for Licences

The applicant for authority to use wireless sending and receiving apparatus for amateur communication should complete the form of application (E-in-C 447) and return it to the Engineer-in-Chief, Radio Branch, W5/5, General Post Office, London, E.C.1, together with the required evidence of British nationality, etc. (see para. 1 (*a*)).

3.—Charges

A charge is made for a licence in order to cover the Post Office expenses in connection with its issue and subsequent inspection, etc., of the station. The charges are graded according to the power authorised for sending and are shown in Appendix B to this summary of conditions. The charges cover also the use of receiving apparatus for amateur communication purposes only. If apparatus is also used for receiving broadcast programmes for entertainment, etc., a wireless Receiving Licence (obtainable at most Post Offices) must be held.

A charge of 5/– will be made when a Morse examination is necessary.

No payment should be forwarded until application is made for it.

4.—Licence Conditions

The general conditions attaching to licences are indicated below :—

1. *Radiotelegraph Conventions.*—The Licensee shall observe the provisions of the International Telecommunication Convention, 1932, and the Radiocommunication Regulations annexed thereto or those of any subsequent International Convention and Regulations which may replace them so far as they are applicable to amateur stations.

2. *Frequencies, Power and Types of Emission.*—Messages shall be sent only on frequencies within the bands and by the types of emission specified in the conditions attached to the licence and the total D.C. power input to the anode circuit of the valve or valves energising the aerial shall not exceed that shown against the respective frequencies tabulated in those conditions.

The frequency bands, available to amateurs in this country, the maximum power in each band and the types of emission in each band may vary from time to time. Appendix C gives this information in Schedule form at the date of issue.

The use of " spark " sending apparatus is specifically forbidden. Unrectified alternating voltage shall not in any circumstances be employed for the H.T. supply to the sending apparatus, and the H.T. supply shall be so smoothed that the value of the residual ripple voltage does not exceed 5 per cent. of the D.C. voltage.

3. *Frequency Control and Measurement.*—When in use, the sending apparatus shall be tuned to a frequency within an authorized band, which frequency shall be so selected and maintained that no appreciable energy is radiated on any frequency outside the limits of the band with and without the modulation applied, due allowance having been made for the inaccuracy of the calibrating device. A satisfactory method of frequency stabilization shall be employed in the sending apparatus.

Where the sending apparatus is not crystal controlled there shall be kept at the station, and used whenever necessary (and on all occasions when the frequency used for sending is changed), a reliable frequency meter of the piezo-electric crystal type or other type approved by the Postmaster General, for measuring the sending frequency to an accuracy of not less than ± 0.1 per cent. Where the sending apparatus is crystal controlled the use of a separate crystal frequency meter as a calibrating device will not be compulsory, but a reasonably reliable frequency meter must be provided for checking that the sender is operating normally.

4. *Operator.*—The apparatus must in all cases be operated by or under the direct supervision of the approved operator named in the Licence.

5. *Sending Periods.*—The station may be operated at any time, provided that no period of sending shall exceed 10 consecutive minutes. Sending shall not commence without listening on the frequency which is to be used in order to ascertain, as far as possible, whether interference is likely to be caused thereby with any other station which may be working.

6. *Log.*—A running record shall be kept in a book of approved type (not loose-leaf) of all sending periods showing the date and time of each period and the frequency and type of emission employed (see Condition 2). No gaps shall be left between entries in the log. The record of sending periods shall in all cases be initialled at the time of recording by the authorized operator named in Condition 4.

7. *Receivers.*—The station shall always be equipped for the reception of signals sent on frequencies in current use at the station at any time by means of continuous wave telegraphy, telephony and any other type of emission authorized in Condition 2.

8. (1) *Messages.*—Messages may be exchanged only with amateur stations (as defined by the International Radiocommunication Regulations) in this country or abroad. Except as is in this condition expressly provided messages exchanged by means of the station shall relate solely to the Licensee's private (but not business) affairs or those of the person with whom he is communicating and shall be in plain language. Special grampohone records for reproducing modulations of definite tones may be used for test purposes. Gramophone records of the type intended for entertainment purposes may be used on the condition that only one such record is used during the course of any day, the same record being repeated as desired ; any record so used shall not have a playing time exceeding 10 minutes when played at the correct speed.

(2) The use of the station for (*a*) advertising or business purposes, (*b*) the sending or reception of news or the messages of persons other than the Licensee or the person with whom he is communicating, (*c*) the sending or reception of broadcast programmes, or (*d*) the sending or reception of social or political propaganda or the messages of any social or political organisation is expressly prohibited.

(3) The Licensee shall not receive any payment (either direct or indirect) for the use of the station or allow the station to be controlled by or used for the purpose of any social or political organization.

9. *Secrecy of Correspondence.*—If any message which the Licensee is not entitled to receive is, nevertheless received the Licensee shall not make known or allow to be made known its contents, its origin or destination, its existence or the fact of its receipt to any person (other than a duly authorized officer of His Majesty's Government or a competent legal tribunal) and shall not reproduce in writing, copy or make any use of such message or allow the same to be reproduced in writing, copied or made use of.

10. *Call Signal.*—A call sign consisting of one figure and either two or three letters will be allotted to the station. The prefix of nationality, *i.e.* " G " must invariably be included in the call signal which may be sent either by Morse telegraphy at a speed not greater than 20 words per minute or telephonically if the station is authorized to use telephony.

The call signal must be sent for identification purposes at the beginning and at the end of each period of sending.

In calling another station the call signal of that station must be sent and may be repeated throughout a period of not more than one minute, after which the signal " de " must be sent once and the call signal of the calling station three times. This procedure may be repeated but the time taken in calling must not exceed three minutes without an interval during which the operator must listen in the band of frequencies in which the call has been made.

In answering a call the call signal of the calling station must be sent three times, the signal " de " once and the call signal of the answering station three times.

When telephony is used the letters of the call signals may be confirmed by the pronunciation of well-known words of which the initial letters are the same as those in the call signals, but words used in this manner must not be of a facetious character nor be capable of undesirable misinterpretation.

11. *Inspection.*—The station shall be subject to the approval of the Postmaster-General and together with the record of transmissions and this licence shall be open to inspection at all reasonable times by duly authorised officers of the Post Office who will produce their cards of identity on request.

12. *Non-interference.*—The station shall be used in such a manner as not to cause interference with other stations outside the authorised bands. Sending shall at once be discontinued or postponed at the request of any Government or commercial station.

When telegraphy is being used the arrangement employed for " keying " the sender must be such as to reduce to a minimum the risk of interference due to key clicks being produced in neighbouring apparatus. Whenever, for any reason, the carrier wave of the sender is being modulated by any system of modulation, care must be taken to avoid over-modulation. Particular care must be taken to avoid unwanted frequency modulation of the carrier frequency. At all times every precaution shall be taken to prevent the radiation of energy at frequencies other than those which are necessary for the type of emission in use.

13. *Aerial.*—If the station is situated within half a mile of the boundary of any aerodrome, the height of the aerial above the ground level shall not exceed 50 feet. An aerial which crosses above or is liable to fall upon or to be blown on to any overhead power wire (including electric lighting and tramway wires) or power apparatus must be guarded to the reasonable satisfaction of the owner of the power wire or power apparatus concerned.

14. *Control in Emergency.*—(*a*) if and whenever in the opinion of the Postmaster-General an emergency shall have arisen in which it is expedient for the public service that His Majesty's Government shall have control over the sending and receipt of messages by means of the station it shall be lawful for the Postmaster-General to direct and cause the station to be taken possession of in the name and on behalf of His Majesty and to prevent the Licensee from using it and for these purposes or either of them to cause any part of or all the apparatus forming the station to be removed to such place as he may think fit and any person authorized by the Postmaster-General may from time to time enter the premises at which the station is maintained for any such purposes as aforesaid.

(*b*) The Licensee shall not be entitled to any compensation in respect of the exercise by the Postmaster-General of the power conferred by this condition which shall remain in force notwithstanding the withdrawal or modification of the Licence.

Notes.—(i) Use of Supply Mains.—If power for the working of the wireless station is taken from a public electricity supply no direct connection shall be made between the supply mains and the aerial.

(ii) Broadcast Reception.—The amateur licence does not authorize the reception of broadcast programmes for entertainment purposes. For the reception of broadcast programmes for entertainment a separate broadcast receiving licence is necessary.

(iii) Copyright.—A licence does not authorize the Licensee to do any act which is an infringement of any copyright which may exist in the matter transmitted.

(iv) Return of Licence.—When a licence is cancelled or superseded by a new licence it must be returned to The Engineer-in-Chief, Radio Branch, W5/5, General Post Office, London, E.C.1, together with any letters authorizing additions or alterations to the terms of the licence.

(v) Payment of Renewal Charge.—The renewal charge should be forwarded on the due date to the Comptroller and Accountant General, General Post Office, London, E.C.1, quoting the reference given on the licence. It is unnecessary to forward the licence when the renewal fee is remitted.

APPENDIX A

Qualifications Exempting Applicants from Technical and Morse Examinations

Applicants for amateur wireless transmitting licences are required to satisfy the Postmaster-General regarding (*a*) their technical knowledge of the theory and practice of wireless communication, and (*b*) their ability to send and receive the Morse code at a speed of at least 12 words per minute.

Technical Qualifications

As regards technical qualifications, arrangements have been made with the City and Guilds of London Institute to hold regular examinations. A pass in the City and Guilds of London Institute, Radio Amateurs' Examination will be accepted as sufficient technical qualification. The P.M.G. is prepared however to agree to exemption from this examination in the case of applicants possessing equivalent or better technical qualifications and provision has been made in the application forms for applicants to claim such exemption. The onus is placed on the applicant to produce satisfactory evidence of such qualifications and the P.M.G.'s decision in the matter is final.

In order to explain the basis on which such exemptions are agreed, the technical qualifications required of an amateur may be set out as follows :—

(i) Theoretical knowledge of radio up to approximately the standard of the City and Guilds of London Institute Radio Communication Grade 1 examination, including some knowledge of the propagation of high frequency waves.

(ii) Some knowledge of the technique of lining-up and operating radio transmitters with special reference to the maintenance of correct frequency and avoidance of interference.

(iii) Some knowledge of operating procedure.

Questions on all of the above subjects are set in the City and Guilds of London Institute Radio Amateurs'

Exam., but in general any academic qualifications which might be offered in lieu would cover only (i). Hence, it is regarded as necessary for an applicant who holds suitable academic qualifications, no matter how good, to have had some practical experience or to have had the opportunity to obtain sufficient knowledge of (ii) and (iii) above.

Some examples of exempting acadamic or theoretical qualifications equivalent to (i) above or better are given below :—

The P.M.G.'s 1st and 2nd class certificates in Radiotelegraphy.

Aircraft operator's certificate of proficiency in Radiotelegraphy.

Any City and Guilds of London Institute certificates in Radio Communication.

Passing-out examinations from certain Service courses.

B.Sc. or B.Sc. (Eng.) degree including electrical communications subjects or physics.

Diploma in Radio Engineering for a 3 year Day Course, of any of the Universities of Great Britain or their constituent Colleges.

Graduateship or higher grade of membership of certain technical Institutions.

Examples of exempting qualifications as regards (ii) and (iii) are :—

Practical experience of the operation of radio transmitters in one of the Services or in the course of the applicant's employment.

Control of, or in some cases, close association with, the operation of radio transmitters in one of the Services or in the course of the applicant's employment. Experience and knowledge gained by assisting a licensed amateur.

The P.M.G.'s 1st and 2nd class certificates in Radiotelegraphy include a practical test and will be accepted as complete exemption.

Applicants claiming exemption on these or similar grounds must provide supporting evidence. Thus, for example, a reference from a radio amateur who has held a transmitting licence for 3 years or more would be accepted in the case of the third category above.

B.—Morse Qualifications

Applicants will normally be expected to pass the Post Office Morse test at 12 words per minute. Arrangements can be made for the Morse test to be taken by applicants for Amateur transmitting licenses at a Head Post Office in any large town. The test will be in accordance with the table below.

Morse Test—12 words per minute

Type	Length of Test	Duration of Test	SENDING: Max. No. of Erasures	SENDING: Max. No. of uncorrected errors	RECEIVING: Max. No. of errors
Plain language	36 words	3 mins.	4	0	4
Figures	10 groups of 5 figures	1½ mins.	2	0	2

In the receiving test each letter incorrectly received counts as one error.

The applicant should state, in his application form, the Head Post Office at which he prefers that the test should be arranged. Here again, however, exemption will be granted to applicants possessing equivalent or better Morse qualifications.

Examples of such qualifications are :—

P.M.G.'s 1st and 2nd class certificate in Radiotelegraphy.

P.M.G.'s special certificate in Radiotelegraphy.

Aircraft Operator's certificate of proficiency in Radiotelegraphy.

Passing-out certificates from certain Service courses.

Certificates furnished by employers or Services by whom the applicant has been employed provided that these are certified by a holder of the P.M.G.'s 1st class certificate in Radiotelegraphy.

C—Service Exemptions

As a result of discussions with the Radio Society of Great Britain and the three fighting Services, a list has been prepared of officers other ranks whose qualifications, (*a*) technical, and (*b*) Morse, will be accepted as giving exemption. This list is subject to review from time to time as trade classifications in the services are changed. The applicant must submit evidence to prove his claim to have served in one of these categories either by forwarding his Service History Sheet, Service Book, Statement of Service and Certificate of Discharge or similar document (if other ranks) or a statement from the Service concerned (if an officer). Service documents should be sent by Registered Post.

[*Here follows the list of radio service trades as published in the March*, 1946, *issue of the* R.S.G.B. BULLETIN.]

APPENDIX B

TABLE OF CHARGES

Power	Initial Charge exclusive of Annual Charge	Transfer Charge from 10 watts to higher power	Annual Charge
10 watts	10s.	—	£1 0 0
25 watts	£1 0 0	10s.	£1 10 0
Over 25 watts	£1 0 0	10s.	£2 0 0

Notes.— (1) *The initial charges and transfer charges are shown separately from the annual charges, which are payable in addition at the time of granting of a licence or of transfer to higher power. No charge is made for transfer from 25 watts to higher power.*

(2) *When a licensee is authorised to transfer to a higher power, a rebate on the annual charge for the current licence proportionate to the number of months still to run will be allowed.*

APPENDIX C

THE FREQUENCY BANDS, POWER AND TYPES OF EMISSION AVAILABLE TO AMATEURS AT THE PRESENT TIME

Frequencies in Mc/s	Maximum Power in Watts (Provisional)	Types of Emission
1.8–2.0	10	Continuous Wave, Modulated Continuous Wave and Radio telephony
28–30	100	
58.5–60	25	

Note.—(1) *The use of the* 1.8–2.0 *Mc/s band is subject to withdrawal at short notice should there be serious interference with other services.*

(2) *Power in excess of* 25 *watts and the use of M.C.W. or telephony are not normally granted on the first issue of a licence. The licensee can apply for the full power and types of emission shown above, at the end of the first year of his licence.*

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HISS AND ALL THAT

WE purposely refrained from commenting in our last two issues about the "hiss" phenomenon because we felt sure that certain members qualified to speak would rise to the bait thrown out by Professor Sir Edward Appleton when he referred in a recent B.B.C. news flash to the hiss as being a "new" discovery.

It is gratifying to notice that *Practical Wireless* in its April issue pays tribute to the pioneer work of those British Isles radio amateurs who first recorded and described the hiss.

For the information of newer members we quote below from an article by Denis Heightman, G6DH, entitled "Observations on the Ultra-high Frequencies, 1936," published in the May, 1937, issue of this journal.

A Strange Phenomenon

"*A strange phenomenon, first observed by the writer in late* 1935, *was the appearance, at irregular times, of a radiation which took the form of a smooth hissing sound, when listened to on a receiver. It was pointed out by G2YL that on the days when hiss was heard that there had frequently been fade-outs or poor conditions on the high frequencies. G2GD had also noted that when the hiss has been received magnetic storms are also reported. On one day the hiss may only last for a few seconds and not be heard again that day. On other occasions it will last as long as five minutes, then disappear and reappear again within a few minutes, repeating the process several times. It invariably starts at a weak strength and gradually builds up to a maximum, then gradually fades away again. The phenomenon apparently originates on the sun, since it has only been heard during daylight, and it has been suggested that it is caused by a stream of particles shot off from the sun during abnormal activity.*"

The important point to notice is that as long ago as 1936 members of this Society had formed the opinion that the hiss was caused by a stream of particles shot off from the sun.

Those who have recently operated on frequencies within the 28–30 Mc/s. band will have had ample opportunities of observing the hiss which has on occasions been very marked. A very recent occurrence was on Sunday, March 10, 1946, when the 28–30 Mc/s. band shut down for North America yet remained open for South African and, to a lesser degree, South American contacts.

This brings us to our second point. We cannot help thinking that a good deal more useful work could be done by our receiving stations than is the case at present. The BRS has an excellent opportunity of enhancing the reputation of the Society if he will but devote himself to methodical observations rather than to the promiscuous despatch of QSL cards reporting the reception of overseas stations who are regularly in contact with Great Britain.

Practically every British amateur who is transmitting on 28 Mc/s. or 58·5 Mc/s., to-day would appreciate receiving carefully prepared reports on his signals. Most of us are testing new equipment and new aerials. In addition, "Sporadic-E" reflection and "flutter fade" frequently produce extraordinary results. The reception in London recently of a Belfast station (GI6TK)—working on 28 Mc/s.—was an example of "Sporadic-E" reflection. Long term observations on local signals are of very great value especially when they are methodically prepared.

THE DX BANDS

It is anticipated that a part of both the 7 Mc/s and 14 Mc/s. bands will be released to amateurs on or about June 1, 1946. We hope to publish a definite date for release in our next issue.

BRS can render a further useful service by reporting upon the presence of harmonics in higher frequency bands Already instances have occurred of signals radiated by amateurs on frequencies between 28 and 29 Mc/s. being heard in the 56–58 Mc/s. band.

Realising the value of methodical logging the Council proposes to publish a special form of log pad which it is hoped will eventually supersede the BRS QSL card. The advice of members interested in this project will be warmly appreciated.

A final word about QSL's—due to staff and accommodation difficulties the Society cannot at present institute a full QSL Service, but provided there is a good response to the appeal published elsewhere in this issue, we hope to accounce the opening of a stop gap service next month. Meanwhile please do ***not*** send cards to R.S.G.B. Headquarters. J.C.

PULSE MODULATION

By S/Lt. A. T. Hickman, R.N.V.R. (BRS4577).*

Introduction

THE following account of investigations into methods of pulse modulation is not meant to provide ready-made circuits for instant use, but rather to suggest some lines on which to work for those amateurs likely to be using the V.H.F. bands in the near future. It is hoped that the principles outlined here will fire the imaginations of those who have a soft spot for pulse and V.H.F. technique.

One of the main difficulties in V.H.F. transmitters is transmitting-valve efficiency, but by using pulse transmissions it is possible to cut the average power expended, including wasteful anode dissipation, to a fraction; though the peak radiated power remains unaltered. In fact, the percentage saving is shown to be: pulse frequency × pulse length × 100 per cent.

A pulsed transmission of this kind is normally good for nothing save I.C.W., the frequency of the note heard at the receiving end being the pulse frequency used at the transmitter.

If, however, a supersonic pulse frequency is used, no note will be heard at the receiver, and we are then able to consider varying the pulses in different ways for conveying speech. The available methods of varying such a transmission can be listed as follows:

(i) Pulse amplitude modulation—varying the amplitude of the pulses at speech frequency.

(ii) Pulse width modulation—varying the width of the pulses at speech frequency.

(iii) Pulse frequency modulation—varying the rate of repetition of the pulses at speech frequency.

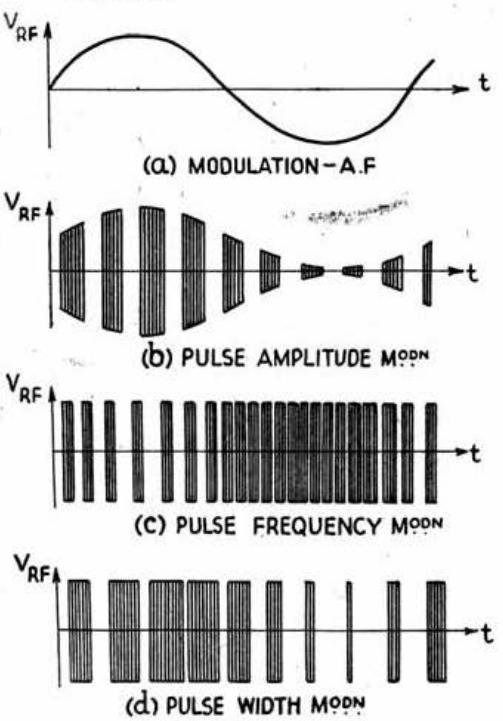

Fig. 1.
Graphical representations of various types of pulse modulation.

A graphical representation of the three types of modulation is given in Fig. 1.

Of the three types, amplitude modulation has the advantage that the width of the pulses used can be reduced to a minimum without affecting the modulation at all, giving theoretically limitless power saving. Also it is easiest to produce and to handle. Frequency modulation of pulses offers difficulties in securing full modulation and adequate reception.

Pulse width modulation was selected for the purposes of this article, not because of any advantages it might or might not possess, but solely because, being the most difficult of the three kinds to produce in its pure state it shows most clearly some of the principles involved in this field.

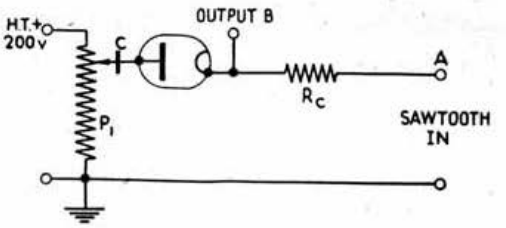

Fig. 2.
A fundamental diode clamp circuit. The value of Rc should be high.

A Practical Pulse Width Modulator

The requirement for pure pulse width modulation is a generator of square-wave pulses at a supersonic repetition frequency, whose width varies with the amplitude of the speech voltage. There must be no change in amplitude of the pulses, if pure width modulation is the *desideratum*. The following circuits described below satisfy all these requirements.

The pulses originate from a sawtooth generator such as is found in any oscilloscope time-base. In practice, the Cossor Double Beam Oscilloscope time-base was used with great success. It is of course imperative that the time-base chosen should be capable of producing almost linear sawtooths at frequencies above 15 kc/s. with amplitudes of, say, 200 volts. This is fed into a diode "clamping" circuit.

The Diode "Clamp"

Referring to Fig. 2, suppose we move the potentiometer slider up to the top; then a voltage of 200 is maintained between the diode anode and earth. If we now apply a 200 volt sawtooth voltage between A and earth, then assuming the diode efficiency to be

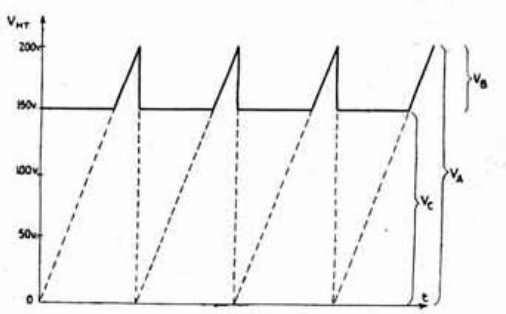

Fig. 3.
Output from the diode clamp.

* 82 Broomfield Road, Chelmsford, Essex.

perfect, the diode will conduct at all points as the sawtooth voltage increases, since the cathode is always negative with respect to the anode. At the extreme positive sawtooth peaks, however, the voltages at A and C are equal, so no diode current flows and no voltage drop appears across R_c. In short, whatever the voltage at any instant at A, provided it is not larger than that at C, then a perfect diode will always draw sufficient current for the voltage difference to appear across R_c, thus maintaining the output voltage between B and earth at 200 volts.

If now the potentiometer slider is moved down to 150 volts, then again, all that part of each sawtooth applied to A that is lower than 150 volts will make no difference to voltage output at B. But for the positive tips of the 200 volt sawtooths applied at A, no diode current is passed, since the cathode is now positive to the anode and no voltage drop appears across R_c. Thus the voltages in excess of 150 volts at A will appear unchanged at B, and for our 200 volt sawtooth input voltage we now get a 50 volt sawtooth output, the lower parts of the original sawtooth being eliminated, as shown in Fig. 3.

Note now that the width of the bases of these output pulses depends directly on the value of diode anode potential: the lower we set the slider of P, the wider the bases of the pulses. If we supply our potentiometer, not from a fixed H.T. source, but from the anode of an audio valve, then we can vary directly the base width of the output pulse by varying the anode voltage of the valve, giving the resultant pulse output as in Fig. 4.

Squaring Off the Sawtooth

This waveshape is then applied to the grid of a distorting amplifier. This amplifier has no bias, so that all but the bases of the sawtooth is truncated by grid current flow, a result which is further accentuated by the inclusion of a grid limiting resistor. This is then amplified many times by the valve, which passes the "squared-off" pulses to the next valve. The result of considerable amplification is to steepen what remains of the front edges of the original sawtooth to such an extent that the pulses at the anode of the second distorting amplifier are of the same width all the way up for all intents and purposes. These pulses, given sufficient power, can be used to "lift" the grids of an oscillator or PA which is biased off sufficiently to stop it oscillating in the absence of pulsing. The result in the aerial circuit is pulses of R.F. of constant amplitude whose widths vary at the frequency of, and to an extent proportional to the amplitude of, the speech voltage.

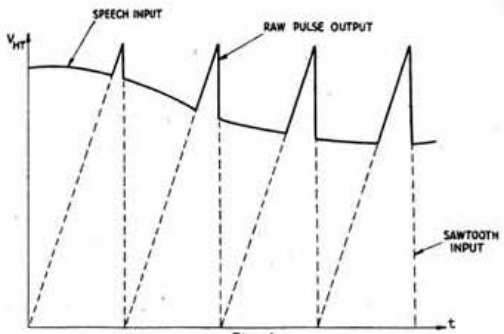

Fig. 4.
Output from modulated diode clamp.

Difficulties Encountered

In the original circuit, several difficulties were encountered which had to be overcome before a really satisfactory result could be achieved. Firstly it was found that the varying load imposed on the sawtooth

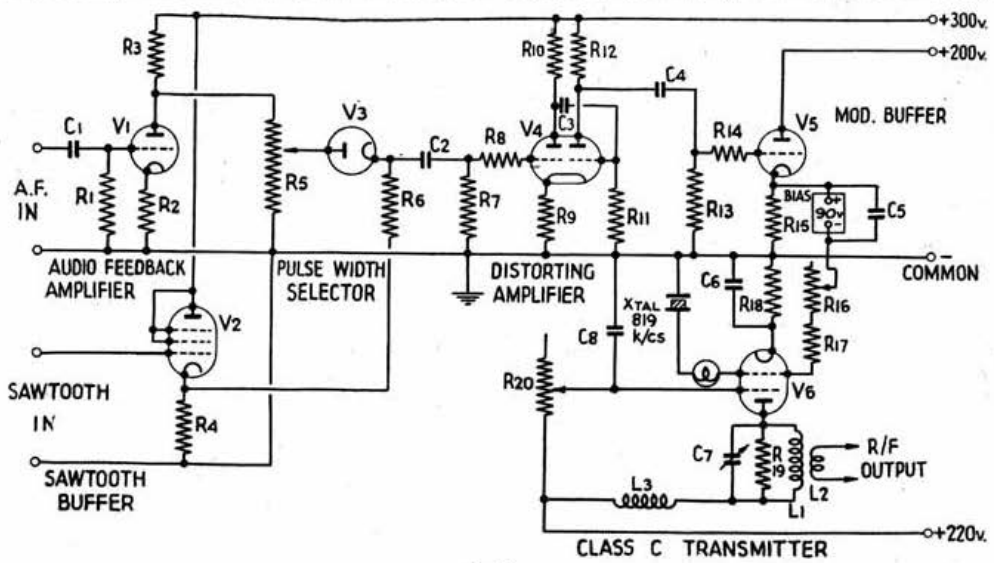

Fig. 5.
Pulse modulation circuit.

C1, 3	.1 μF	R7	.5 MΩ	R18	500Ω
C2	.05 μF	R8, 15	4700Ω	R19	27 KΩ
C4, 6, 8	.01 μF	R9	1000Ω	R20	20 KΩ
C5	.5 μF	R11	.5 MΩ	V1	P 41 Mazda
C7	.0005 μF variable	R12	.8 KΩ	V2	EF 50 Mullard
L1, 2	M.W. coil	R13	.5 MΩ	V3	D 1 Mazda
R1, 4, 6, 10	100 KΩ	R14	5600 Ω	V4	RK34 or DET19
R2	220 Ω	R16	.25 MΩ	V5	ML4 Osram
R3	15 KΩ	R17	33 KΩ	V6	6L6G
R5	75 KΩ				

generator used, varied its frequency slightly, since its output impedance was so high. It was, therefore, found necessary to insert a high performance cathode follower between the sawtooth generator and diode clamp circuit to act as buffer. The valve used was the EF 50 and with a very high cathode resistor and 300 volts on its anode, a 200 volt sawtooth could be handled, with no distortion worth speaking of.

Referring again to Fig. 4 the reader may argue that if the voltage of the base of the waveshape varies as shown, a certain amount of amplitude distortion may creep in. This was not found to be the case in practice since the presence of some grid current in the grid circuit of the first distorting amplifier stage resulted in a small standing negative voltage on the blocking condenser and across the gridleak. Provided the time constant of these is larger than the lowest speech frequency used, the effect will, therefore, be that the base-line of the pulses shown in Fig. 4 will be " ironed-out," so to speak. Incidentally, care must be taken to keep grid current small, since it is undesirable that so much leak-bias should accumulate that the bases of the pulses are driven below cut-off for the valve.

To ensure final " squareness " of the output pulses, the anode resistors should be kept as small as possible yet still ensure that the whole grid swing is applied to the second stage (*i.e.* it must cut-off completely on the negative swings and run into positive grid current on the upward swings). Small R.F. chokes in the anode circuits may also help to square the output though care must be taken that these are not large enough to oscillate.

The pulses so obtained were found not to possess sufficient power to " lift " the oscillator grid positive and keep it positive for the duration of each pulse. This was overcome to some extent by inserting a cathode follower between the last distorting stage and the transmitter grids, using a power triode. However, considerable " rounding-off " of the positive tips of the pulses was still found to occur, and it is felt that a beam power tetrode would have been able to cope a little better. Of course, even so, the considerable resistance of the transmitter auto-bias network does not help keep the pulse tips square, and other methods of modulation, such as cathode modulation, might be more satisfactory.

Lastly, the R.F. pulses passed to the aerial will be found to possess considerable " tail," causing the pulses to run into one another at about 15 kc/s., due to low decrement of the tank circuit. This can be overcome by using a parallel damping resistor.

The Final Circuit

A circuit incorporating all these features is shown in Fig. 5.

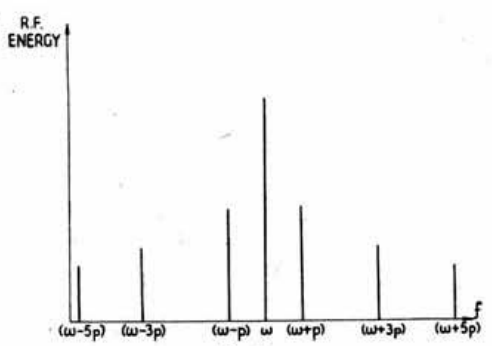

Fig. 6.
The distribution of sidebands on either side of the fundamental carrier frequency w. Note how the amplitudes fall off.

It can give good results up to 15 kc/s. pulse repetition frequency, and is capable of almost ideal oscillograms using the medium wave transmitter shown. Full modulation of a 500 c/s sine wave can give a most satisfactory oscilloscope picture, as well as give the experimenter a chance of monitoring the various sidebands in surprisingly great detail with a selective broadcast receiver.

VHF Applications

The sub-modulator has also been used with marked success on a transmitter of the push-pull tuned-plate tuned-grid tuned-cathode linear type at frequencies well over 150 Mc/s., though, of course, only the receiver output could be monitored on the oscilloscope. In this case ordinary series modulation was used, the main modulator being a heavy duty pentode.

The Case of the Magnetron

There is no reason why this circuit could not modulate a split anode magnetron, using series modulation through a heavy duty pentode in the same way. Of course, precautions would have to be taken to ensure that the magnetron pulse voltage is always constant during the pulses.

The system would meet with no success with the new naval-type magnetron since these dissipate so much heat that they can only be used for the shortest pulses. For optimum modulation, the pulses must be slightly longer than the breaks in between pulses. In the naval magnetron the maximum pulse length is so short that the maximum possible variation in length would still be negligible.

The Frequency Spectrum of Pulse Modulation

In the case of an ordinary continuous carrier of value

$$V = u \sin wt,$$

modulated by a speech wave of value

$$u = Ao + m \sin pt$$

the resultant waveshape is

$$Vm = \underset{(a)}{Ao \sin wt} + \underset{(b)}{\frac{m}{2} \sin (w - p) t} + \underset{(c)}{\frac{m}{2} \sin (w + p) t}$$

(*a*) represents the carrier; (*b*) and (*c*) are the sidebands at frequencies p above and below the carrier frequency w respectively.

In the case of pulse modulation, the waveshape of the modulating pulse, assuming it to be perfectly square and continually repetitive, is

$$Ao + \frac{2Ao}{\pi} (\sin pt + \tfrac{1}{3} \sin 3pt + \tfrac{1}{5} \sin 5\,pt \ldots etc.)$$

The resultant modulated R.F. carrier waveshape analysis is complex, but the following terms arise:

(i) $Ao \sin wt$ being the carrier frequency

(ii) $Ao \sin (w - p) t$ being a sideband frequency

(iii) $\frac{Ao}{3\pi} \sin (w - 3p) t$ being a second band frequency

(iv) $\frac{Ao}{5\pi} \sin (w - 5p) t$ being a third band frequency

and so on.

The values $(w - p)$, $(w - 3p)$, $(w - 5p)$ show that transmission takes place on frequencies on either side of the carrier frequency; the distance from it being an odd number of times the repetition frequency away, as shown by the graph in Fig. 6.

Moreover, the values $\frac{A_o}{\pi}$, $\frac{A_o}{3\pi}$ etc. show that these transmissions fall off in strength the further they are from the carrier frequency.

If now the pulses producing this series of sideband radiations are modulated in turn by a pure audio sine

wave of frequency q, it can be shown that

(*a*) a carrier of value $Ao \sin wt$ is transmitted, unmodulated ;

(*b*) the sideband frequencies, shown above, are also transmitted, each having its own set of sidebands for the audio frequency.

This means that each of the pulse harmonic sideband frequencies shown in Fig. 6 contains all the intelligence contained in the speech frequencies. Thus, if the speech sidebands of one pulse sideband are not to overlap those of the neighbouring pulse sidebands, the pulse repetition rate must be higher than the highest audio frequency used.

However, there is another consideration that makes the lowest possible pulse frequency even higher than this. Let the highest A.F. used be q and the pulse repetition frequency be p. Then these two beat together to form a spurious beat frequency $p - q$. In order for this not to be audible, then $p - q$ must never be smaller than q or serious scrambling will occur. In other words, p must always be greater than $2q$. For example, if we take our upper speech limit as 8 kc/s., then the lowest frequency we can use for pulsing is 16 kc/s.

Receivers

Wide-band R.F. mixer and I.F. circuits following normal television practice, are needed. In the detector stage the load time-constant must be larger than the recurrence time of transmission so that the condenser never charges fully. In this way the A.F. voltage obtained when smoothed of ripple, is proportional to the length of each rectified pulse applied to it, as seen in Fig. 7.

Obviously, if CR is too large, then on the longest pulses C will charge fully and considerable distortion will occur. If it is too small, diode efficiency will be too low, pulse frequency ripple will be high, and distortion will occur similarly on the shortest pulses. For full modulation the length of the longest pulses to be detected is $\frac{1}{P.R.F.}$ so that the optimum value of $C \times R$ is where CR is just smaller than $\frac{1}{P.R.F.}$

The Detection Problem

Even so it is clear that the voltage output will be an exponential function of the pulse width since the voltage is built up on the diode condenser exponentially with time. Thus, much investigation will be necessary to devise a detector that is at once efficient and distortionless.

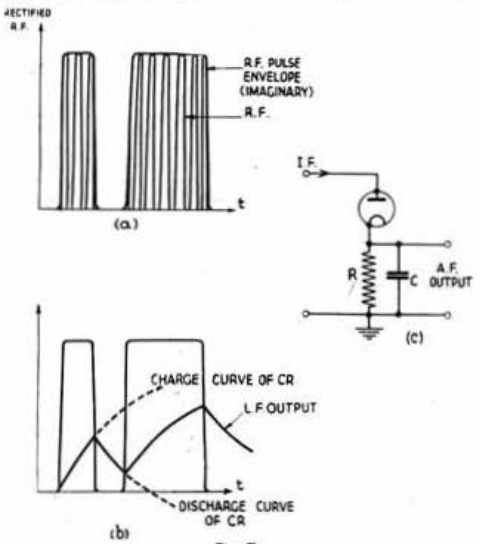

Fig. 7.
A typical diode circuit showing the action under pulse conditions.

Conclusions

On the face of it, not much is to be gained by pulse width modulation of ordinary valves at V.H.F. For a given valve the radiated power possible (pulse width modulated) is only twice that with amplitude modulation, whereas effective 100 per cent. pulse width modulation would be equal to 50 per cent. amplitude modulation, so that the overall result is the same. For pulse amplitude modulation, however, striking gains in overall modulated energy transmitted are possible. On the other hand, width or frequency modulation is the only possibility for telephony operation with magnetrons at extremely high frequency, where the gain over ordinary valves is obvious.

STORM OVER BRITAIN

By W. A. Scarr, M.A. (G2WS).

The week commencing March 25th, 1946, has perhaps produced the most interesting conditions experienced by amateurs since the re-issue of licences.

Reports of auroral displays both in Britain and America, suggested that "freak" conditions could be expected on the short wave bands, and certainly some astonishing phenomena could be observed.

Little change was noticeable during the early part of Monday. Eastern DX was particularly good on 28 Mc/s. in the morning, and one VK who was contacted at 1400 G.M.T., reported the "band full of Gs." Later, however, everything changed. By 1700 all signals had lost their T9 quality, and developed a pronounced flutter, resembling in fact a T6 note, from a badly smoothed A.C. supply. This effect is probably caused by high-speed "fading."

Between 1700 and 1800 G.M.T., only British stations were audible, and the following were logged from the writer's home, in Beckenham, Kent. The S. strength is given in brackets :—

G2SY (6), Northampton.
G2UK (6), Boston, Lincs.
G6TD (6), Coventry.
G8DD (5), Beeston, Notts.

Contact was established with G2IT, of Reading, 40 miles distant, but from the flutter of his signal, it would seem that reception of this station, like the others, was due to acute angle reflection from a very dense E layer.

On the next two days conditions became fairly normal though Western DX was missing. Thursday, March 28th, again produced "freak" conditions in the afternoon. At 1700 G.M.T., G8QY, of Birmingham, was coming in at S6, with the same pronounced flutter ; and G5VH, of Leicester, was logged, though very weakly. After 1800 G.M.T., conditions appeared to become more normal.

It is rather disheartening on such interesting occasions as this, to hear no reference by stations on the air, to the unusual state of affairs. The only reference heard by the writer was "conditions very poor," suggesting that, as usual, DX was the only interest.

To the experimenter, these occasions are of outstanding value, owing to the opportunities they provide for observation. The writer would be particularly glad to hear from members who recorded data of interest during this period. Discussion of the phenomena must wait until more space is available.

[Was this reflection taking place from north to south or from south to north ?—Ed.]

STATION DESIGN AND PLANNING

By W. H. Allen M.B.E. (G2UJ).*

PART V—THE AMATEUR BANDS RECEIVER

Layout

Short leads are most desirable in the R.F. circuits of any high-frequency receiver, and a lay-out should be adopted which fulfills this condition. It is now possible to obtain R.F. pentode valves of single-ended construction which do away with the "flying-lead" to the top grid-cap of the earlier models. With single-ended valves, great care must be taken to keep grid and plate leads well separated, and a small metal shield should be fitted across the valve holder and passing between the contacts, so that the grid and anode tags lie on either side of the shield. A good plan is to mount these valves upside down, so that their bases appear above the chassis, thus ensuring short leads to the tuning condenser and coils.

Earth return leads are best taken to one point in each of the stages so as to avoid, as far as possible, circulating R.F. currents in the chassis. In superhets. a separate earthing lead should be provided from each section of the gang condenser to its respective circuit earthing point, as failure to do so often results in uncontrollable oscillation.

Plug-in or Switched Coils?

A problem which will have to be settled is whether to employ plug-in coils or to mount them all in the receiver and select those required by switches. There is little doubt but that the former is the more efficient method, abolishing as it does all R.F. switching, and enabling short connections to be made. Admittedly it is less convenient, but this can be overcome to a great extent by arranging that all coils for each frequency range plug in together by mounting them, suitably screened, together with their trimming condensers, on some sort of baseboard with a handle for inserting and withdrawing them. If, however, it is desired to use coil switching, the R.F. section of the receiver will have to be allotted much more space to accommodate all the coils and their associated trimmers, and care must be taken to see that the coils in circuit are not affected by those out of use. The switch should be of the rotary-wafer type with good, self-cleaning contacts, and have ceramic or other low-loss insulation.

Ganging

In a straight receiver with one R.F. stage it is well worth the trouble involved to gang the R.F. and detector band-spread condensers.

If plug-in coils are employed, the trimmers may be mounted in the individual coil forms, if sufficiently small trimmers can be obtained, or a separate band-setting condenser provided for each stage and mounted on the operating panel. The resetting accuracy of the latter arrangement is, however, inferior to the first.

With either a straight or a superhet. receiver with ganged tuning, an aerial-circuit trimmer, connected in parallel with the first tuned circuit, should be incorporated. With this control on the panel the inevitable variations in aerial load on the first tuned circuit with change of frequency can be compensated for, and a very real contribution made to the signal-to-noise ratio of the receiver.

Ganging the tuned circuits of a superhet. is not a thing to be undertaken lightly. To show why this is so, the problems involved will be reviewed briefly.

As most readers already know, the principle of the superhet. involves changing the incoming radio-frequency to a fixed intermediate frequency (I.F.) to which the I.F. amplifier is permanently adjusted. Generally speaking, I.F.'s fall into two bands; 450 to 470 kc/s. for signal frequencies up to about 15 Mc/s. and 1·5 to 1·6 Mc/s. for those receivers without an R.F. stage or which are intended for signal frequencies up to about 30 Mc/s. For the reception of higher signal frequencies the I.F. should be correspondingly increased, and in receivers designed purely for V.H.F. reception the I.F. may be as high as 12 or 13 Mc/s.

The method by which the I.F. is produced is as follows. The signal frequency is applied to a mixer valve together with a locally-generated oscillation of such a value that the difference between the two is that to which the I.F. amplifier is resonant.

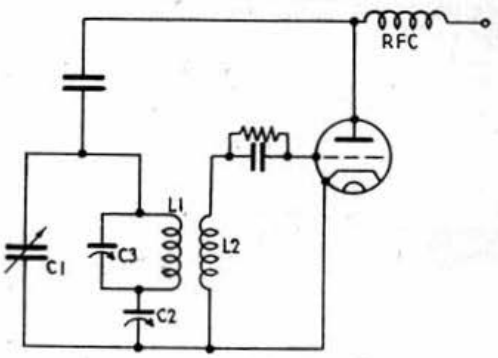

Fig. 11.
A method of maintaining the oscillator tuning 450 kc/s. higher than the signal-frequency circuits. See text for suggested component values.

Suppose that the band 7,000 to 7,300 kc/s. is to be covered, and that the I.F. is 450 kc/s.

While the signal-frequency circuits are covering this range, the local oscillator in the receiver will have to tune between 7,000 ± 450 kc/s. to 7,300 ± 450 kc/s., *i.e.* 6,550 to 6,850 kc/s. or 7,450 to 7,750 kc/s.

For reasons connected with the design of the oscillator circuit, the latter range is generally utilised, and it will be seen that if ganging of signal and oscillator circuits is to be successful, means must be provided for maintaining the oscillator tuning 450 kc/s. higher than the signal-frequency circuits. This is accomplished by using a coil of lower inductance for the oscillator, and restricting the capacity range of that section of the gang condenser tuning the oscillator coil. Such a circuit is shown in Fig. 11.

C_1 is part of the gang condenser, and of the same value as those sections tuning the signal-frequency circuits. C_2 is a semi-variable condenser employed to restrict the capacity variation of C_1 as previously explained. C_3 is a low-capacity trimmer for compensating for the effect of stray capacities across the circuit. L_1 is the oscillator tuning coil, and L_2 the grid-circuit feed-back coil.

It will be seen that the problem resolves itself into obtaining the correct inductance for L_1 and in choosing a suitable value for C_2.

Should it be decided not to attempt ganging the oscillator and signal-frequency circuits, a compromise may be made by ganging the latter, by no means a difficult matter as they are all on the same frequency,

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and providing a separate control for the oscillator tuning condenser.

Returning to the example given in a previous paragraph, it will be seen that the correct I.F. will be obtained whether the oscillator covers frequencies between 6,550 and 6,850 kc/s. *or* 7,450 and 7,750 kc/s. In other words, any given frequency will be received at two settings of the oscillator tuning condenser, differing by twice the I.F., or in this case, 900 kc/s.

Provided the operator realises this, and in addition has no objection to manipulating two dials at a time, a receiver on these lines will be quite successful.

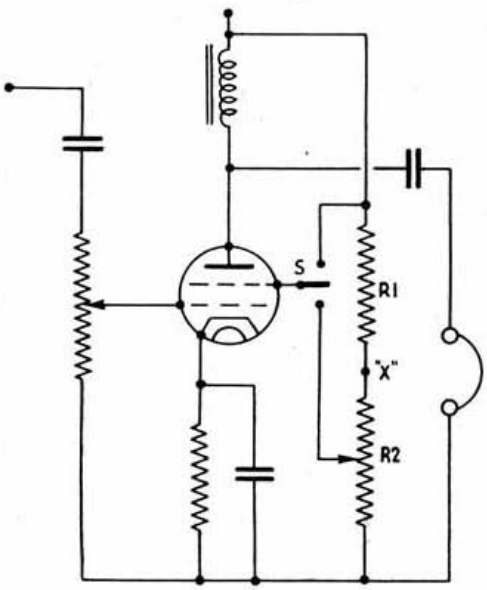

Fig. 12.
Practical circuit of a limiter for telegraphy work.

The Audio-Frequency Stages

In a broadcast receiver it is necessary to provide audio amplification over a very wide range of frequencies so that music may be reproduced with the highest possible fidelity. Such an audio amplifier is, however, quite out of place in a communications receiver designed for C.W. reception or for voice reproduction only. For the former a very restricted band can be employed with a consequently great increase in the signal-to-noise ratio, while for telephony, a band extending from 450 to 2,500 c/s. will cover all the necessary frequencies. In the latter case the improvement in signal-to-noise ratio over full-range reproduction will not, of course, be so great, but is well worth having. The audio section of a communications receiver should, therefore, be designed with this end in view.

A "limiter" is employed very frequently in commercial C.W. receivers, and consists essentially of an output valve running under conditions of saturation signal input. In this state, any variation in input over a wide range, whether it be due to fading, static, or other interference, will have very little effect on the output, which remains constant at the value set.

A convenient form of C.W. limiter may be made by furnishing means of varying the voltage applied to the screened grid of the output tetrode or pentode so that values very much smaller than normal may be obtained. This limits the power-handling capabilities of the stage to any desired extent, and makes possible the reception of C.W. signals through what would otherwise be intolerable interference.

Fig. 12 shows a practical circuit for such a limiter, with a switch (S) to change from limiter to normal operation at will. R_1 and R_2 should be so proportioned that a P.D. of about 50 volts exists between point "X" and the earth-line.

For C.W. reception there are at least three systems which can be used to increase considerably the selectivity of a receiver. They are:

1. The crystal filter.
2. A tuned audio amplifier.
3. A narrow-pass filter in the audio amplifier.

The first is applicable only to the superhet. as the crystal is a fixed-frequency device, and it is therefore connected in the I.F. amplifier. Two crystals may be used to form a band-pass filter, their resonant frequencies differing by a few hundred cycles for C.W., or two or three kilocycles for telephony reception.

The second system is found in some commercial C.W. receivers, and makes use of suitable values of inductance and capacity to tune the amplifier so that output is only obtained at some predetermined frequency in the audio range. Unlike the crystal filter it cannot readily be switched out of circuit, and an alternative stage of normal design must be provided when it is desired to receive telephony.

The third system may take the form of a properly designed filter to pass any desired band of frequencies.

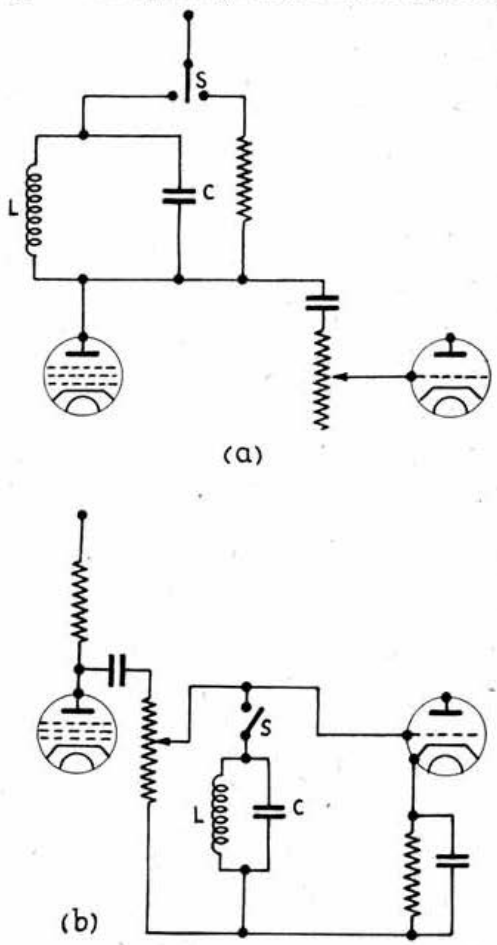

Fig. 13.
Circuit of narrow-pass filter fitted to the audio amplifier stage. In (a) the tuned circuit forms the anode load of the previous stage in (b) it is in parallel with the input to the audio amplifier.

or merely a single tuned circuit so arranged that only at its resonant frequency will the amplifier give appreciable gain.

The constructor who desires to incorporate a simple but effective aid to selectivity in his receiver, and one moreover which may be switched out of circuit when not required, is recommended to try the third method. The circuit is shown in Fig. 13, L and C being so proportioned that their resonant frequency lies between 500 and 1,000 c.p.s. Two arrangements are shown; at (*a*) with the tuned circuit forming the anode load of the previous stage, and at (*b*) in parallel with the input to the audio amplifier. The switch S in each case serves to cut the filter out of use. In the lefthand diagram a suitable anode load resistance is substituted when normal non-selective audio amplification is required.

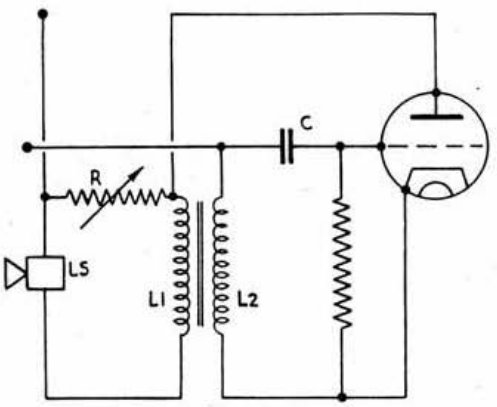

Fig. 14.
Circuit of an easy-to-construct tuned audio stage.

A tuned audio stage, which is very easy to construct and requires very little H.T. voltage for its operation, is shown in Fig. 14. It is essentially an audio oscillator, such as is used for Morse practice, with the addition of a variable resistance, R, to adjust the circuit just below the point of oscillation. Under that condition it is sharply resonant to the audio frequency at which it is trying to oscillate, and a signal of that frequency supplied from the previous stage *via* condenser C will receive considerable amplification, while frequencies only slightly removed in pitch will produce practically no response at all.

Any small triode is suitable in this circuit, but the H.T. voltage should be kept low (9 to 15 volts) unless considerable output is required.

An old pattern moving-iron speaker is very suitable, as these instruments usually possess powerful resonances in the region 800 to 1,000 c/s., thus imparting still more selectivity to the circuit if the main and speaker resonances are made to coincide.

Conclusion

It is hoped that sufficient has been said to show that designing and building a receiver offers plenty of scope to the amateur constructor; it is intended to amplify certain of the points discussed herein in future articles in THE BULLETIN.

THE QSL BUREAU

Although members have assumed the existence of a QSL Bureau by glibly saying over the air "Please QSL *via* R.S.G.B." in fact at present no facilities exist at Headquarters for the clearance of cards. This matter has been one of our major headaches for some time, and at every turn we have come up against two big problems—staff and accommodation.

It is our earnest desire to give members an efficient service at the earliest possible date and it is probable that the two chief problems will solve themselves within the next few months. Our immediate concern is to find ways and means of operating an interim service to bridge the gap.

As already stated in the November, 1945, issue of THE BULLETIN it is the intention of the Council ultimately to operate a service for which a fee will be charged, which will include the cost of envelopes and postage. The interim service will, however, be run on the lines of the pre-war bureau. No charge will be made but members must provide their own stamped addressed envelopes.

CALL BOOK

All members holding Transmitting licences are once again asked to forward details of their call sign and address to the "Radio Amateur Call Book Inc." 608 S. Dearborn Street, Chicago, Ill., U.S.A.

Please do this even if your address has not been changed since pre-war days. A post card will do.

Here then is our proposition :—

The Society will appoint a Central Manager to whom all cards should be sent. He in turn will appoint seven sub-managers each one of whom will be responsible for holding envelopes for one G numeral prefix plus one for the three letter calls.

The Central Manager will dispatch G cards abroad, will sort incoming cards into numerals, G2, G3, G4, etc., and will send them to the appropriate sub-manager for despatch to the addressees.

If seven members in the London area who are willing to volunteer as sub-managers will write to Mr. A. O. Milne, G2MI, 29 Kechill Gardens, Hayes, Bromley, Kent, a service can be put into operation at fairly short notice. All the expenses of these sub-managers will be paid for by the Society. This is something which should appeal to some of our BRS members. If there is a favourable response, full working details can be published in the May BULLETIN.

In the meantime, please *do not* send cards or envelopes to Headquarters or to G2MI. Rest assured that no incoming cards will be destroyed.

Silent Keys

We record with deep regret the passing of:

Mr. C. A. Grover, **2FGK**, of Newbury, Berks.
Mr. Grover was Honorary Treasurer of the Newbury and District Short Wave Club from 1936 up to the time of his death.

Dr. Simpson, **W8CPC**, of Buffalo, New York.
Dr. Simpson was the foremost cancer specialist in America and greatly admired by all who knew him.

BIRMINGHAM WEEK-END

By THE LOOKER-ON

SATURDAY and Sunday, March 23rd and 24th, 1946, were days unique in the history of the R.S.G.B. For the first time, all the District Representatives—save one who was unfortunately prevented by illness from attending—the President, and almost the entire Council met to discuss future policy, particularly in regard to the problem of provincial representation on the governing body of the Society.

There is, of course, nothing in the Articles of Association to prevent any duly nominated member being elected to serve on Council, but for provincial members there has always been the difficulties of transport and free time. It is to be hoped that the new scheme to be announced shortly—the foundations of which were laid at this meeting—will enable all parts of the country adequately to be represented on Council.

It was pointed out by the President that in the recent Council elections, a very small percentage of the Society's membership of some 11,000, took the trouble to record their votes. This apparent apathy was commented upon by several speakers, who expressed the hope that in the future, when elections for Town and County Representatives take place, the membership at large will seize the opportunity to express *their* wishes and place *their* chosen nominees in a position to provide the Society with a Council truly and democratically representing the views of all.

Visit to Stratton's

Saturday morning was devoted to a visit to the factory of *Messrs. Stratton and Co., Ltd.*, at West Heath. Here, with members of the technical staff, the visitors followed the process of manufacture of the new "Eddystone" communications receiver and other similar apparatus. This was followed by a display of a representative selection of components and finished products worthy of Radiolympia, and to the accompaniment of excellent and much appreciated refreshments, these were examined, praised and criticised. For here those for whom such apparatus had been designed were able to meet the designers, and we are sure that the latter, as well as the former, derived much benefit from these informal discussions. Let this be but the first of many similar demonstrations up and down the country arranged by manufacturers and supported by their technical design staffs. We assure them that they will reap nothing but benefit, for amateurs are not given to fullsome praise where apparatus does not warrant it, but on the other hand are willing to support those firms which are out to give them a square deal.

Superintendent George Brown (G5BJ), whose lecture at the London meeting at the I.E.E., in January this year, on the "Birmingham Police Radio System," will be remembered by many, gave a demonstration of the apparatus used, and members were able to hear, via the 80·9 Mc/s. link, the controller on duty at police headquarters back in the City explaining the uses to which this almost unique duplex V.H.F. network is put in the prevention and detection of crime.

The two latest "Eddystone" receivers, the Model 504 communications type and a broadcast receiver, designed for export only, were available for test.

The business meeting, commented upon earlier, took up the remainder of the day, but it was noticed that the D.R.'s and members of Council were still "rag chewing," as hams will, until well past midnight.

West Midlands P.D.M.

Sunday dawned bright and cheerful, and by eleven o'clock members were assembling at the Imperial Hotel for the West Midlands Provincial District meeting. The room was crowded for the lecture, by Mr. F. (Dud) Charman, B.E.M. (G6CJ), who, in his inimitable fashion, interspersed with dry humour, spoke upon "Aerial Systems for the Radio Amateur." "Dud" can *always* be relied upon to treat his subject so as not to talk over the heads of the less technical of his audience, while giving copious information to the experienced radio man, but with the aid of his scale-model demonstration of the radiation from various aerials the lecture took on an altogether fascinating turn. A transmitter working on approximately ten centimetres and modulated with an audio tone, was employed to energise a number of different aerials which could be plugged in and their radiation patterns traced by a "probe" carried in his hand. This, the receiver, was connected to an amplifier and loud speaker, so that the strength of the modulation was indicative of the magnitude of the signals received at any given point around the aerial, while an output meter enabled relative signal strengths to be assessed more accurately. The terrific applause which greeted G5BJ's vote of thanks to Mr. Charman at the conclusion of the demonstration proved beyond doubt how much it was appreciated.

A first-rate lunch was then disposed of, at which a number of toasts were drunk, and the party then repaired to a nearby square for a group photograph.

Back again at the Imperial, Mr. Vic Desmond (G5VM), D.R. of District 3, welcomed the members, after which the President presented Mr. E. Shackleton (G6SN), with the Wortley Talbot trophy, which he won in 1940. "Shack" was a P.O.W. for several years, and it was good seeing him back among us again. While on the subject of personalities, it was interesting to note that at least four of the "Early Birds," the original W.I.S. detachment of the R.A.F., sent to France immediately following the outbreak

Prior to the D.R.'s Conference, the President, Council and D.R.'s were invited to visit the works of Stratton & Co., Ltd., Alvechurch Road, Birmingham. On the platform (left to right): Mr. G. Brown, G5BJ (President, Midland Amateur Radio Society), Mr. S. K. Lewer, G6LJ (Executive Vice-President), Mr. E. L. Gardiner, G6GR (President), Mr. W. H. Allen, M.B.E., G2UJ (D.R. No. 16), Mr. John Clarricoats, G6CL (General Secretary), Mr. H. W. Stacey, G6CX (D.R. No. 1), Mr. R. H. Hammans, G2IG (Council), Mr. V. M. Desmond, G5VM (D.R. No. 3), Mr. L. Fuller, G6LB (D.R. No. 14), Mr. H. Phillips, GW4KQ (D.R. No. 10). Seated: Mr. Ian Auchterlonie, G6OM.

of war were present. They were Messrs. G. F. Mason (G5BR), F. J. E. Starkey (GW6KY), M. A. Brookes (G5OI), and W. H. Allen, M.B.E. (G2UJ).

Clarry's Hour

There then followed what has become an inseparable part of nearly every P.D.M.—"Clarry's Discourse." Speaking from experience of many, we can say that this was definitely a vintage production, but let that not be taken as meaning there was nothing new! For exactly sixty minutes the General Secretary held the attention of all present, and points dealt with included a resumé of the previous day's deliberations at the D.R.'s meeting, and the announcement that elections for Town and County Representatives (the latter with similar standing to the present District Representatives), would take place from January 1st next year. Appreciation was expressed at the good work performed to date by the acting T.R.'s. The difficulties of production of the "Bulletin" were stressed, together with the promise of considerable improvement in that journal as soon as paper rationing was eased. Attention was called to the debt owed by all radio amateurs to Mr. Arthur Watts (G6UN)—the Society's G.P.O. Liaison Officer—for his untiring work in negotiating with the authorities for early issue of, and substantial improvements in, the transmitting licence. Close contact was maintained with the G.P.O., and there is a distinct possibility that at least part of the 3·5, 7 and 14 Mc/s. bands might be returned this year. 3·5 and 7 Mc/s. are by far the more difficult, but progress is being made. The importance of opening more bands becomes obvious, when it is realised that in a year's time between 7,000 and 10,000 licenses may be in force. Other points in brief were: The present 100-watt licence will be increased at a later date to 150 watts. Portable licences are not available at present, but it is hoped to run N.F.D. next year. The Society has asked for "sample" frequencies in various V.H.F. bands. With the large number of new transmitters coming on the air, frankness and helpfulness in reporting is more than ever desirable. Technical description of good, modern apparatus, are required. It is hoped to revive the Contact Bureau, to keep members with similar interests in touch. Contests may be revived this Autumn or early next year.

The Hon. Editor, Mr. A. O. Milne (G2MI), spoke on the arragements made for the new QSL Bureau, of which an announcement appears in this issue. He is carrying on single handed at present, handling incoming cards only, and pointed out that no other amateur society has yet got a QSL bureau functioning. Mr. Milne also called for frankness in reporting other stations signals, the increased use of break-in working for the avoidance of interference, and for severe measures to be taken against those not observing the "Code of the Air."

G5BJ stressed the importance of using educative rather than harsh measures with detected pirates, and suggested that as they are obviously misguided enthusiasts, they might be made to see the error of their ways, and so become good hams.

Thanks Vic

Vic Desmond deserves the sincere thanks of all those who were present, for the hard work which led up to the outstanding success of the whole week-end. We should also like again to express our appreciation of *Messrs. Stratton's* enterprise for their arranging, at extremely short notice, a display of their products at the Imperial Hotel for the benefit of those who were not able to be present at the visit to their factory on the previous day.

Group Photographs

Copies of the group photograph taken at the Birmingham P.D.M. can be obtained from Mr. V. M. Desmond, G5VM, 92 Worcester Street, Birmingham 5, at the following prices: Whole plate size, 3/-, post card size, 2/-. Postage extra.

FORTHCOMING EVENTS

April 15	District 18 (Hull), 7.30 p.m. at the Imperial Hotel, Paragon Street.
April 15	District 2 (Bradford), 8 p.m. at 66, Horton Lane.
April 16	District 14 (Chingford), 8 p.m. at G2XG, 7, Cranworth Crescent, E.4.
April 17	District 6 (Exeter), 7 p.m. at Y.M.C.A.
April 18	District 15 (Slough), 7 p.m. at 38, Alpha Street.
April 23	District 14 (Southend), 8 p.m. at G5VQ, 168 Westbourne Grove, Westcliffe.
April 24	District 2 (Sheffield), 8 p.m. at The "Dog and Partridge," Trippett Lane.
April 24	Scotland "A" Area, 7 p.m. in the Institute of Engineers and Shipbuilders, 39 Elmbank Crescent, Glasgow.
April 25	District 12 (St. Albans), 7 p.m. at Jock's Cafe, Verulam Road.
April 26	District 5 (Bristol), 7 p.m. at Keen's Cafe, Park Row.
April 26	District 14 (Chelmsford), 7 p.m. at 184 Moulsham Street.
April 27	District 1 (Liverpool). 2.30 p.m. at the Stork Hotel. Exhibition of Radio Equipment. "What is a Decibel?" by R. Spears, A.M.Br.I.R.E (G8AZ).
April 27	District 6 (Torquay), 3 p.m. Visit to G.P.O. Station, Shiphay.
April 27	District 15, **WEST LONDON, P.D.M.** (See separate announcement).
April 27	District 7 (Reading), 6.30 p.m. Palmer Hall, West Street.
April 28	District 12 (Enfield), 3 p.m. at A. & B. Cafe, junction of Southbury and Ladysmith Roads, close to Savoy Cinema. Buses 107, 144, 135, 310 pass the door.
April 28	District 13 (S.W. Area), 3 p.m. at 57, Kingswood Road, South Wimbledon.
April 28	District 14 (S.W. Essex Area), 2.30 p.m. at The Greyhound Hotel, High Road, Chadwell Heath.
April 28	District 2, **NORTH EASTERN P.D.M.** (See separate announcement).
April 29	District 2 (Bradford), 8 p.m. at 66, Horton Lane.
April 29	Scotland "B" Area, 7.30 p.m. in the Green Room, Music Hall, Aberdeen. Enter by Golden Square.
May 3	Districts 13 and 7. Combined meeting, 7.30 p.m. at Brotherhood Hall, West Norwood, S.E.
May 3	District 12 (North London), 7.30 p.m. at Merryhills Hotel, Bramley Road, Enfield West (near Enfield West Tube Station, 107 bus passes the door).
May 3	District 16 (Bromley), 7.30 p.m. at the Eden Park Hotel.
May 3	District 15 (Hounslow), 7 p.m. at The Scouts Hall, Sutton Estate, Great West Road (30 yds. East of Vicarage Farm Road).
May 5	District 9, **EAST ANGLIA P.D.M.** (See separate announcement).
May 5	District 15 (Twickenham), 6 p.m. at 23, Warfield Road, Hampton, Middlesex.
May 8	District 1 (Liverpool), 7 p.m. at the Stork Hotel, "Mains Transformer Design," by W. R. Eadie (G4JO).
May 10	District 15 (Harrow), 7 p.m. at 153, Belmont Road.
May 11	District 15 (Ashford), 6.30 p.m. at 118, The Avenue, Sunbury on Thames.
May 11	District 7 (Reading) 6.30 p.m. Palmer Hall, West Street.
May 14	District 7 (Maidenhead), 6.30 p.m. Toc H Hut, Marlow Road.
May 18	**NORTHERN IRELAND P.D.M.** (See separate announcement).
May 20	District 18 (Hull), 7.30 p.m. at the Imperial Hotel, Paragon Street.
May 19	District 13 (S.E. Area), 3 p.m. at 63, Erlanger Road, New Cross.
May 21	M.A.R.S. (Birmingham), 6.30 p.m. at Chamber of Commerce, New Street.

A cordial invitation is extended to Society members to attend any of the above meetings

SOLILOQUIES FROM THE SHACK

By UNCLE TOM.

(With rude interruptions by an anonymous poet.)

DON'T get me wrong, boys and girls; I'm not here just to be rude to the evil-doers. I have many pleasant soliloquies here, but when they are broken-up by some display of nitwittery on the air I just have to burst out. At present I am thinking that March, 1946, will probably be remembered for many years as one of the most exciting periods in the history of amateur radio. Not only are all the old-timers and lots of new-timers steadily increasing in numbers, but our friends the Yanks are making things exciting by spreading themselves all over the Pacific and Asia, and giving all the DX-merchants countries they would never otherwise have made.

The Ham with a Chirp is usually a Twerp

The way some of those boys in Guam, Tinian and Saipan roar in during the mornings is something I shall never forget. And at least one knows that they are genuine. I could mention one or two calls that aren't—because they are all served up with the same note, same fist and same kind of remarks. The "scarcity value" of some of these new countries has put a premium on good operating, and I have noticed with a certain amount of glee that several people have lost them through making their calls too *long*. Work it out for yourself. The only bloke on some remote island calls CQ; he's bound to have about 20 people replying. It's ten to one he won't just freeze on to the first one he hears, but whizz round the band to see how many there are. Now who will he stick to? Probably the one with the nicest note to copy, the cleanest sending—the best general appearance. But if even *he* goes on calling too long without signing, our friend will get fed up and move his dial a fraction of a degree. And if, there, he hears one of the others just signing, he'll probably get the reply. I know—I've done it myself so often with Yanks. It's usually the first one to finish that gets the QSO.

The Ham with a note that's Rough must think he's frightfully Tough

I've heard some operating that has been quite exemplary lately; but also some of the other kind. I think the signal that's most flagrantly misused is "$\overline{\text{VA}}$" If you send "$\overline{\text{VA}}$" it shouldn't even mean that you're going back to listen for the other bloke's "final"—it ought to mean that you've finished the QSO and are probably listening round the band.

Every time someone sends "$\overline{\text{VA}}$" someone else calls him hopefully—I've heard it! Goodness knows how many good contacts have been lost by this. And, on 'phone, some people are "over for your final" two or three times, which doesn't seem very clever.

The Ham who uses Over-Mod is just a nasty little Bod

Quite a thrill to hear those watery W6's again at tea-time. For the last 20 years it has been possible to pick out a W6 (or W7) by just listening. Has anyone ever explained it? Some of the Pacific stations in the mornings sound a bit similar, but there is a difference. And I've heard a few G's with a lovely Round-the-World echo—also W6PUZ in Tinian doing the same thing. That's DX!

The Ham who doesn't do these things Will one day sprout a pair of Wings

So "160" is back! That will be interesting, but we have some queer bedfellows in the way of shipping, coastal stations, Loran, beacons and goodness knows what else. And I have heard a D4 announce his input as 450 watts! So it won't be our little 10-watters that will cause trouble on that band. Let's see some activity there, boys and girls, even if only to take some of the local 'phone off 10 metres.

It's surprising what a genuine 10 watts will do on that band—read your back BULLETINS and see for yourselves. One little 6L6—or even something like a 6J5—and you'll be as happy as the day is long. But your hawk-eyed old Uncle will be watching the band, so just you try any "Dah-de-dahs" or "Take-it-away-pal" and see what happens to you. Let 160 be the band on which we talk plain English.

Three Letter Calls

As from early in March a large number of British Isles amateurs, who in pre-war years held a non-radiating (Artificial aerial) licence, were granted full licences. The holders of these licences are using their pre-war call sign to which has been added the international prefix (G, GW, GI or GM).

Confusion is likely to arise in future if the holders of pre-war Artificial Aerial licences who do not wish to apply for a full licence, continue to use their old A.A. call sign. In order to overcome this difficulty Headquarters will be glad to issue a BRS number to all such member. It should be fully appreciated that with the demise of the artificial aerial licence all A.A. calls are automatically cancelled.

British Colonial Licences

We understand that the Colonial Office have sent to the appropriate licencing authority in each of the British Colonies, a copy of the conditions under which amateur wireless licences are issued to British Isles amateurs. By this means it is hoped that, in future, colonial amateur licences will be issued on the same basis as United Kingdom licences thereby avoiding many anomalies.

It is anticipated that amateurs located in certain British Colonies near to North America will be granted permission to use the same bands of frequency as are in current use in the United States.

The 3.5 Mc/s Band

We have been informed by the A.R.R.L. that as from April 1, 1946, U.S. amateurs were permitted to operate on frequencies within the band 3·7–4 Mc/s. C.W. may be used throughout the band, but telephony operation must be confined to the portion between 3·9 and 4 Mc/s.

In making this arrangement the U.S. Government is breaking the agreement that International Frequency Bands will be released simultaneously in all countries.

As stated in our last issue the G.P.O. cannot yet sanction the release of the 3·5–4 Mc/s. band to British Isles amateurs due to pressing military requirements.

Amateur Wireless Licences

For the information and guidance of members we are publishing in a special supplement to this issue, copies of:

(*a*) The form which is sent by the G.P.O. to all applicants for a licence to establish an amateur wireless station.

(*b*) A summary of the conditions governing the issue of such licences, together with other relative information.

(*c*) Appendices dealing with exempting qualifications, charges and frequency bands.

THE MONTH ON THE AIR

By A. O. Milne, (G2MI.)*

New Bands

WE have no particular gripes this month except to re-affirm those recorded last month! On the other hand it is pleasing to see the number of people who are taking advantage of the extended facilities on 29–30 Mc/s. and 1·8–2 Mc/s. We must use these frequencies if we are to retain them, and we think the best way of tempting people up into the 29–30 Mc/s. band is for one or two choice bits of DX to park themselves up there! As you know, we have been limited to 10 watts on the top band and it cannot be too strongly emphasised that we retain this band only if we cause no interference to other services therein. It should, therefore, be a point of honour not to exceed the licenced power on this band. Navigation aids operated by the U.S. Government are working in the 1·9–2·0 Mc/s. portion of the band and we understand that considerable objection was raised to us using the band at all. The foregoing is in no way modified by the fact that American GI's in Germany are using up to ½ kW telephony in this section with D4 calls. The writer is covering Great Britain successfully at an average of 569 with 3 watts input. Others can do the same.

New U.S. Allocation

United States amateurs have been permitted to use 27145–27455 kc/s. for unlimited operation. Quite a number are already active. There is a snag, however. This band has been reserved for the operation of Diathermy, electro-medical and industrial heating equipment, so in time it may only be an outgoing band from U.S.!

Notes and News

No further details will be published regarding stations operating on bands not licenced to British amateurs. No pressure has been applied to us in this connection, but we feel that such stations should move to 28 Mc/s.

BRS11315 reports that South Africans often hear W's calling British stations when it is obvious that G's cannot hear W's. G6PJ and others have heard ZB1E. XARM is looking for contacts on 28056. QRA is 2 G.H.Q., C.M.F. PJ3X is a new one on 28010. Cards may be sent to him *via* G2MI.

G2MI and G8RN made the first post-war contact on the 1·8 band and G8TL, with 9 watts made the first foreign contact with D4AIK, an American in Bavaria, who was using 400 watts! Will anyone who has worked TF1LC please contact G3LR, 269 Drill Hall Lane, Church, Accrington, Lancs.? G6CJ has worked VQ3TOM at midday on 28100. VQ2's are also up about this time. VQ2PL and 2JC have been worked. G3DO has worked EP1C who is W9SAJ.

VS5JH is now active on 28200 approx. He has heard G2TA, 2MI, 3DO and 5QO and has been heard by G2MI. He uses 40 watts to an 807. Sends 73 to G8NA and G6ZY. QRA Sgt. J. A. Hunt, C/o HQ, B.M.A., Labuan Is. North Borneo.

Old friend Trebilcock, now in Tasmania, says W5BBP is in the Marshall Is., W8UOF/J in the Tokio area, W9QMD/KE6 on Johnson Is. He remarks how quickly GI's seem to get ½ kW Army rigs perking on the ham bands.

BRS3607 reports W4IBB and 4IPP active on Leyte. Says he has heard some WΘ's.

BRS7765 is on Rodrigues Is. and comments on superb receiving conditions there. How about coming on the air O.M.? Dennis Barnes, W2CNT, is working as XZ4AR with 50 watts on 28160 between 1200 and 1630 G.M.T. in Rangoon. Rather late for G's contacts. Try the mornings G.M.T.

FM

G6CL worked the first narrow band F.M. W on 28 at 1420 G.M.T., March 3. W1DBM told him to cut out AVC and tune to the h.f. side of the carrier. The circuit used at W1DBM is as follows. 6SK7, ECO on 2·3 Mc/s. F multiplied by 12. Buffer 815 driving a pair of HK354's, frequency modulation is carried out *via* a 6L7 reactance modulator tube across the ECO grid. Crystal microphone feeds into the ECO grid.

Look for These

Jim Kirk, G6ZO/I sends along some good ones to look for. VU2BG (28040), KA1AC (28060), YV5AP (28015 T8), K4HEB/K (28065), HK1AN (28050), C4AZO (28090. A U.S. Navy station. Any details please?) HS2F (28005. Chiefly T7. Signals Division Siamese Navy, Bangkok). K6ROJ (YL op. 28200 looking for Europe). PPI6W (28450 and 27980 is a queer one. Details?). Jim is on 1995 kc/s and has worked G4FB and 6BQ.

G5BM has worked W6MQH (a ship in the Atlantic) and HK4AX Medellin Colombia. G2MI worked W3FFI, a ship off Bahamas.

VQ6MI 28310 is G5MI near Berbera, British Somaliland. YI2XG has been heard but off band.

G6MB made the first contact with LI3JU in Libya. He is G3JU, 28140 approx. G2VV wants the QRA of LF3AA. G6CJ tells us that W6PUZ says QSL *via* his home address. W9DPZ/KB6 *via* Box 45, Paradise, Kansas. W9HJW *via* 311 9th Street, Mishawaka, Ind. XU1YV is W3QV. SU2GV is GW2GV. XU1YQ is W8SJA and XU1YY is W6PUI. VQ4ERR, QSL *via* Box 13, Nairobi

A New Record?

G8IG made WAC and WBE in 4¼ hours on March 11 using 70 watts. Contacts were W5KDA Okinawa, VK4LP, XABY, SU1USA, W3BDL, HK4AX and VE4EK.

Rhine Army

Major Reed, G2RX, at A.H.Q. is trying to organise some local meetings. Anyone stationed at Bad Oeynhausen please ring "Rhine Army 3059, or Capt. Terry, 2904, Extn. 13, and say where they are."

Here is a list of D2's with their normal calls.

D2CK	Lt.-Col. Kidd
D2DA	Major D. A. MacDonnell, G6ID
D2DI	Capt. J. E. Terry, G4DI
D2DP	Sq./Ldr. D. E. Postle, G2FAO
D2HB	A.Q.M.S. Biltcliffe, G5HB
D2HU	Capt. T. B. Fox, G3HU
D2KI	W./Com. P. C. Mortimore, G8KI
D2KW	Capt. R. G. Shears, G8KW
D2LD	Sgt. L. M. Davis
D2OJ	Sq./Ldr. F. C. Pool, VE3OJ
D2PF	Sq./Ldr. B. H. D. Beck, VE3PF
D2SC	Major Collins, G8SC
D2TG	Capt. J. T. Blackwood, G3TG
D2VO	Ft./Lt. E. J. Fowler, VE5VO
D2VY	Ft/Lt. E. K. Williams, G8VY
D2WO	Sq./Ldr. W. K. Walker, GW2WO
D2XZ	Major McNeil Creig

Thanks are due to the three members who between them have donated six pairs of telephones to the Hospital appeal. Surely we can do better than that from 10,000 members.

* 29, Kechill Gardens, Hayes, Bromley, Kent.

LOW DISTORTION DIODE DETECTOR

To the Editor.

DEAR SIR,—Congratulations to Mr. Knowles on his article in the January issue of THE BULLETIN. His circuit for the low-distortion detector was attractive, first because of the facilities provided, and second because of the way in which they were provided.

In my present receiver an HLDD1320 (similar to the HL41/DD used by Mr. Knowles) was used as a conventional combined detector and A.G.C. stage, with the triode portion connected as a valve voltmeter and used in conjunction with a 0–500 microammeter as a signal strength indicator working from the signal diode.

It was soon apparent that the system was not satisfactory; the signal diode loaded the last I.F. transformer to such an extent that the selectivity deteriorated considerably. Loading was reduced by tapping the diode down on the secondary coil of the last I.F. transformer, but so much gain was lost by doing so that the audio gain control had to be turned to maximum to obtain sufficient volume from any but the strongest signals. (This with two stages of audio amplification.)

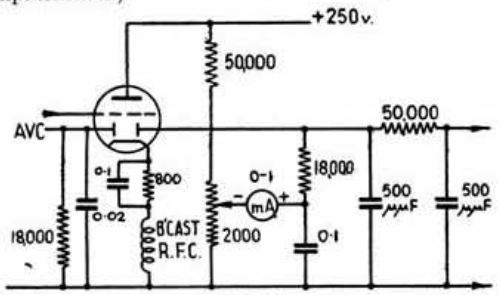

Fig. 1.

Mr. Knowles' article thus appeared to provide the solution to most of these problems, but upon examination of his circuit, slight alterations seemed desirable. First, if the recommended values of resistance for the potential divider are adhered to, the "compensating" voltage applied to the signal diode will be about 4.34, which is not necessarily equal to the P.D. across the cathode resistor and load (as it should be).

Second, if normally available 20 per cent. tolerance resistors are used in the potential divider, limiting values will give a minimum of 2.91 volts and a maximum of 6.45 volts drop across the lower of the two resistors. As any variation in this compensating voltage is liable to bias the signal diode negatively with respect to the cathode, with consequent non-operation of the diode on weak signals, it was considered that steps ought to be taken to prevent such a situation.

As the writer also required a signal strength meter to be included in the stage, he incorporated it into Mr. Knowles' circuit, as shown in Fig. 1 in such a way that it would also give an indication of the correctness of the compensating bias adjustment.

In operation, it will be seen that the signal diode bias may be varied by means of the 2,000 ohms potentiometer. When the diode is positive with respect to the cathode (compensating bias too great), a reverse current will be noted on the meter. If the potentiometer is adjusted (with no signal input) to the point where this reverse current is zero, it may be left set, for under these conditions, the compensating bias is equal to the P.D. across the cathode resistor and load, and the signal diode has the same potential as the cathode. The potentiometer, therefore, does not need to be a panel control; in the writer's receiver it has been mounted under the chassis, and is adjusted by means of a screwdriver engaging in a slot in its shaft.

When a signal is applied to the diode from the amplifier, a rectified D.C. proportional to the applied R.F. voltage flows in the diode load and the meter. Because of the low value of load resistance, quite large currents are produced, and a 0–1 milliammeter should prove suitable. The 0–500 microammeter had to be shunted to give half-scale readings because of "overthrow" on strong signals.

From my point of view, the usefulness of a "linear" signal strength meter such as this circuit provides, is considerably greater than that offered by the usual type of S-meter working in the anode circuit of a valve controlled by the A.G.C. line.

Yours faithfully,

R. G. KITCHENN (G3SK).

13 Norton Road, Letchworth, Herts.

DEAR SIR,—I found the article on "A Low Distortion Diode Detector," published in the January, 1946, issue, interesting as I have been giving the problem of detection a little consideration. My conclusion is similar but has the important difference

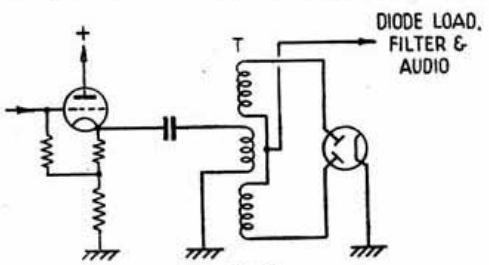

Fig. 2.

that I went for full-wave rectification. This form of detection makes possible a more distortion free performance. The transformer is 1 to 1 ratio untuned, and covers 150–2,000 metres effectively. The coupling between the windings must be very close; an enclosed iron dust core is suitable. There is a small amount of R.F. remaining and a simple filter will suffice. The circuit is shown in Fig. 2.

Yours faithfully,

F. A. RUDDLE (2DIO).

"Porth," Northumberland Ave., Reading, Berks.

Can you help?

Mr. G. Koenig, VQ8AC, 28 Malaitie Street, Rose Hill, Mauritius, seeks information regarding mine locators. It is well known that during the French and Dutch occupation (in the 18th century), Mauritius became the Headquarters of privateers and pirates, and there are good reasons to believe that these gentry left many treasures buried in the ground. Mr. Koenig proposes to employ 20th century methods to assist him in his search for hidden treasure—hence his inquiry. Can *you* help?

Letters to the Editor

DX on Micro-Waves

SIR,—I am astonished to perceive that so little attention has been paid in the amateur world to what is undoubtedly the most important event ever in the history of the radio art—an event which in my opinion will open the door to world-wide communication on a hitherto unheard of scale, and which will provide just that opportunity for breaking fresh ground which the amateur is traditionally always ready and eager to take. I refer, of course, to the recent experiments performed at the American Army School of the Signal Corps, at Fort Monmouth, U.S.A., when 112 Mc/s signals were projected from the earth to the moon, and the returning echoes picked up and caused to produce a deflection on a Cathode Ray oscilloscope.

Surely, the possibilities suggested by the successful performance of such an experiment are sufficiently obvious to have warranted far more attention than the scant attention so far paid to it by the amateur fraternity in the British Isles. Can you not foresee the day when the amateur transmitter of the very near future, will sit below his automatically guided parabolic antennae, sending and receiving signals *via* moon reflections?

To this end, of course, it is essential that the council of the R.S.G.B., use all their influence to persuade the Post Office to grant us the two most important facilities which will be necessary for such a scheme to become possible; namely, permission to operate in suitably chosen amateur bands in the frequency spectrum, up to at least 30,000 Mc/s, and permission to use any form of modulation within those bands. Pulse duration modulation, or pulse phase modulation are an obvious *must* for such a system and I believe that if an average power input, of not less than 100 watts is used, we should be able to communicate with all parts of the earth at suitably chosen times, so long as the moon is in the visible portion of the sky. The time has come to forget about the unreliable ionosphere as an agent for getting your signals around the world—we must become moon worshippers.

Yours faithfully,
RONALD C. RAY,
Capt. R. Signals (G2TA).

Editorial Note.—The Council has already staked a claim for very high frequency allocations up to 84,000 Mc/s. It is hoped to make an announcement shortly regarding the bands which have been allocated to British Isles amateurs.

Crystal Control on Five

DEAR SIR,—The present time seems opportune to press for a concerted effort to get all amateurs to use C.C. on five, having regard to the limited number of bands. Before the outbreak of hostilities I used C.C. on 56 Mc/s. with a measure of success, covering over 100 miles my signals were also heard in Austria.

Would it be too much to ask that self-excited rigs and quench receivers be consigned to the junk-box for ever, or at the most used solely for local QSO's? I am convinced that C.C. and straight or superhet receivers will be the answer to DX contacts on five metres.

Yours sincerely,
L. E. CRABBE, G6VF.

Reports wanted

DEAR SIR,—Having received several reception reports from members of the R.S.G.B. recently, I am wondering whether there are any members in the Middle East who would care to act as our reception reporters.

Until recently, we transmitted an English test programme every Saturday night, but this has been temporarily discontinued. This programme was specially directed to DX clubs and enthusiasts and we hope to recommence shortly.

Meanwhile, our Arabic programme continues daily from 0430 G.M.T. until 1930 G.M.T. and we are most anxious to obtain reports on this particularly from Near and Middle East countries. Transmissions are made on 6135, 6710 and 6790 kc/s.

Yours faithfully,
A. W. DEAN, Chief Engineer.
Near East Arab Broadcasting Station, Jaffa, Palestine.

Proposed Testimonial to Mr. and Mrs. C. H. L. Edwards

DEAR SIR,—As a returned P.O.W. may I add my thanks and warmest appreciation to all those who so generously subscribed to the P.O.W. funds.

In addition, however, we owe a tremendous debt of gratitude to Mr. C. H. L. Edwards, G8TL, and his wife, for their untiring and strenuous efforts on our behalf.

May I suggest that all ex-P.O.W. be invited to subscribe, whatever they can afford, to make a substantial and enduring token to Mr. and Mrs. Edwards as a slight expression of our appreciation of their labours, the gift to be presented at the next General Meeting or other suitable occasion.

Yours faithfully,
T. C. WHIMSTER.

[*Editorial Note.—Mr. Whimster has kindly agreed to organise the testimonial. Donations should be addressed to him at "Thornleigh," Cuckfield Road, Hurstpierpoint, Sussex.*]

Watford and District Radio and Television Society

The Watford and District Radio and Television Society has recommenced its activities, and invites all who are interested in Amateur Radio to attend the meetings held at The Carlton Tea Rooms, 77a Queens Road, Watford, at 7.30 p.m., on the first Tuesday of each month.

Can You Help?

Mr. G. Whitehouse, **G8WA**, 52 Loughborough Road, West Bridgford, Nottingham, requires a circuit diagram of the Marconi Transportable Model 279 Receiver. Can you help?

Congrats

●To Mr. E. Napier, **G8FA**, and his wife on the birth of a son—Peter John—on December 29 last.

●To Major J. M. Kirk, R. Signals, **G6ZO**, and Major G. I. McHale, R. Signals, **BRS3261**, both of whom were awarded the M.B.E. some months ago for services in Italy.

NORTHERN IRELAND CONVENTIONETTE

— to be held at the —

C.P.A. BUILDING, HOWARD STREET, BELFAST

SATURDAY, MAY 18th, 1946

PROGRAMME

Assemble ...	2.30 p.m.	Photographs ...	5.0 p.m.
Business Meeting	3.30 p.m.	Tea	5.30 p.m.

Inclusive charge 5/–

Reservations to Mr. J. N. Smith, B.E.M., G15QX, 19 Hawthornden Drive, Belmont, Belfast, not later than May 11, 1946.

EAST MIDLANDS PROVINCIAL DISTRICT MEETING

to be held at

THE LITTLE THEATRE, LEICESTER

SUNDAY, JUNE 2nd, 1946

PROGRAMME

11 a.m.	Lecture: "Aerial Systems for the Radio Amateur," with scale models, by Mr. F. Charman, B.E.M. (G6CJ).
12.45 p.m.	Lunch.
2.30	Business meeting. Messrs. A. O. Milne, F. G. Hoare and P. C. Bradley will be in attendance.
4.30	Tea.
5.30	General discussion.

Inclusive Charge, 8/6

Reservations to Mr. L. Ridgway (G2RI), 90 Romway Road, Leicester, by not later than 24th May, 1946.

SOUTH WESTERN PROVINCIAL DISTRICT MEETING

to be held at the

STRATHMORE HOTEL, BELGRAVE CRESCENT, TORQUAY

SUNDAY, MAY 26th, 1946

PROGRAMME

Assemble	12 noon
Luncheon	1.30 p.m.
Business Meeting	3 p.m.
Tea	4.30 p.m.
Station Visits	6 p.m.

Inclusive Charge, 10/6

Accommodation Limited to 50.

Reservations to Mr. W. B. Sydenham, G5SY, "Sherrington," Cleveland Road, Torquay, as early as possible.

HEADQUARTERS CALLING

February Council Meeting

Resume 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, February 11, 1946.

Present.—The President (Mr. E. L. Gardiner, in the Chair), Messrs. S. K. Lewer, H. A. M. Clark, A. J. H. Watson, A. O. Milne, A. E. Watts, P. C. G. Bradley, C. H. L. Edwards, K. Morton Evans, F. G. Hoare, S. E. Langley, R. H. Hammans, J. W. Mathews and John Clarricoats (General Secretary).

Apology.—The Secretary presented an apology for the absence of Mr. A. D. Gay.

1. It was unanimously resolved to elect 4 Life Members—(Messrs. J. H. Bateman, G6BX, I. M. Gaye, BRS3580, C. Hubbard, G5OX, J. Smith, BRS9475), 328 Corporate members, 29 Associates, 14 Junior Associates, 5 Junior Associates were granted Corporate membership. Total elected 380.

2. The cash account and balance sheet for the month ended December 31, 1945, together with the cash account for the month ended January 31, 1946, were submitted and approved.

3. The Honorary Treasurer read a statement dealing with Society investments. After discussion it was unanimously resolved to acquire the following securities :

£1,000, 3 per cent. Defence Bonds, to bring the present holding up to the maximum of £2,000 allowed.
£5,000, 3 per cent. Savings Bonds, 1965–75.
£4,000, London Electric Transport, 2½ per cent., 1950–55.

It was agreed to call in the sum of £4,500 at present on loan free of interest to the Treasury ; to transfer £3,000 from the Society's deposit account and to sell the £2,500 2½ per cent. National War Bonds due to be redeemed on July 1, 1946.

4. It was agreed to appoint Mr. L. Fuller, G6LB, Representative for District 14 (Eastern) and Mr. F. J. E. Starkey, GW6KY, Representative for District 11 (North Wales).

It was also agreed to write to Messrs. L. Varney, G5RV, and C. Spillane, BRS1060, thanking them for their past services as District Representative and Deputy Representative respectively.

5. The Secretary submitted a letter from the Admiralty inviting the Society to apply for certain types of surplus government radio equipment. It was agreed to accept the offer and to communicate with the Admiralty with a view to obtaining further information regarding the types and quantities of equipment available.

6. A letter was read from the Secretary, Radio Industry Council regretting that he was unable to give the Society a reply to the letter sent to him in December. He stated that the delay was due to the fact that the Surplus Committee of R.I.C. had not met since the Society's letter was received.

A letter was also submitted from the M.A.P. in answer to a communication which the Secretary had addressed to the Ministry concerning the allegation that brand new radio equipment had been dumped in a coal shaft in Staffordshire. The M.A.P. stated that the matter would be investigated.

The Secretary expressed the view that the Society should forthwith prepare for publication a detailed statement informing members why delays have occurred in bringing to fruition the scheme as outlined by him at the December meeting. He also drew attention to a letter received from a firm of radio dealers trading in Greek Street, London, who claimed to have purchased the complete stock of surplus R.A.F. transmitters type 1154. The Secretary emphasised the dangers that may arise if these sets are sold haphazardly to the general public.

After discussion Council requested the Secretary to prepare a detailed statement for publication setting out the steps which have been taken by the Society to provide facilities for groups of members to purchase surplus Army and Air Force equipments direct from the M.A.P.

7. It was reported that a revised list of Radio Service trades had been approved for publication by the G.P.O. and W./T. Board.

8. It was reported that the G.P.O. and W./T. Board had been asked to give urgent consideration to the opening up of other amateur frequency bands.

9. It was reported that the G.P.O. had tentatively agreed to the use of 460·5 Mc/s. for the radiation of control pulses for radio models. Power output would be limited to 5 watts.

10. It was reported that radio amateurs serving in B.A.O.R. were being issued with licences on the same terms and conditions as those in force in Great Britain. Calls issued were in the series D2 followed by two letters.

11. The President read a letter from the R.E.F. in which it was stated that French amateurs had been granted permission to use the 14–14·4 Mc/s. band, in addition to frequencies in the 28 and 56 Mc/s. bands. It was agreed to discuss the matter with the G.P.O. and W./T. Board. It was also agreed to make further inquiries regarding the continued presence of signals from Meterological balloons in the 28 Mc/s. band.

12. After a lengthy discussion a revised form of notice dealing with the proposed Memorial Fund was approved for publication.

13. The Secretary submitted for consideration a memo. dealing with the appointment and duties of Committees of the Council. The recommendations were approved subject to minor amendment, after which the following members were appointed to serve on Committees for the year 1946.

G.P.O. Liaison : Messrs. E. L. Gardiner, A. D. Gay, S. K. Lewer and A. E. Watts.
Codes of Practice : Messrs. G. P. Anderson, K. Morton Evans, J. W. Mathews and W. E. Russell.
QSL Management : Messrs. C. G. Allen, C. H. L. Edwards, A. O. Milne and Mrs. M. Mills.
Social : Messrs. P. C. G. Bradley, S. A. Howard, S. E. Langley, A. O. Milne and P. A. Thorogood (one vacancy).
Technical Publications : Messrs. E. L. Gardiner, H. A. M. Clark, F. Charman, D. N. Corfield, R. H. Hammans, S. K. Lewer, J. W. Mathews and A. O. Milne.

14. The Secretary submitted a list of District Meetings for the current year. The list, together with the names of Council representatives authorised to attend the meetings, was approved.

The meeting closed at 9.20.

New District 18 Representative

The Council has pleasure in announcing that Mr. A. G. Dunn, G3PL, 79 Hayton Grove, Hull, has accepted their invitation to assume the duties of Representative for District 18 (East Yorkshire).

Members resident in East Yorkshire are requested to communicate with Mr. Dunn on all matters of local interest.

Slow Morse Practices

It is proposed to recommence Slow Morse Practice transmissions on the 1·8 Mc/s. band, for the benefit of BRS members.

Will any fully licenced amateur, who is willing to assist in this respect by transmitting three times per week, please communicate with Mr. A. D. Rock, G8PR, " Sandhurst," Vicarage Road, Amblecote, Stourbridge, Worcestershire, stating times and frequencies ?

Service Valve Equivalents

Never before in the history of THE BULLETIN has there been so generous a response as that which resulted from the publication in our last issue of a request for lists of Service Valve Equivalents.

Headquarters' has been inundated with most extensive lists, all of which have been handed to Capt. A. A. Jones, G3RU, who has been invited to compile a composite list for future publication.

Thanks are recorded to all members who answered our appeal. Their spontaneous response has been warmly appreciated by the Editorial staff.

List of Town Representatives

It is proposed to publish in an early issue of this Journal, a full list of names, addresses, call signs and phone numbers of al Acting Town Representatives. Members concerned are requested to furnish the required information to their D.R. by not later than April 30th, 1946.

The information should be sent out precisely on the lines of the example given below :—

Bristol.—A. Brown, G9LC, 32 Smith Street. Bristol 123456

Lids' Corner

(or Tales from the Terrible Thirties)

2.—The Edge-Band Ham

There was a lid in Zululand,
Who wandered in and out the band,
In this way he worked all day,
But now has found " Crime does not Pay."
And so his call is heard no more,
Silenced by the Zulu law,
While if with him to work you seek,
Then you must try a tom-tom freq.

J. P. HAWKER (G3VA).

HAVE YOU RETURNED YOUR MEMORIAL FUND QUESTIONNAIRE?

EXCHANGE AND MART SECTION

MEMBERS PRIVATE ADVERTISEMENTS can again be accepted, but due to pressure on our limited space no guarantee can be given that publication will be made in the issue following receipt of order. For the time being announcements must be restricted to the advertising of radio apparatus WANTED or FOR SALE. RATES. 18 words or less 3 –. Maximum number of words accepted 50, at 2d. per word. TERMS. Cash with order to Parrs Advertising Ltd., 121 Kingsway, W.C.2.

ALUMINIUM Sheets, etc. Please see our advertisement in March issue. S.A.E. Lists.—AMATEUR RADIO SERVICE, G6HP, 27/29 Canning Street, Stoneyholme, Burnley.

AMATEUR Radio Products.—Transmitter Tank Coil with central swinging link and plug-in coils for 5 and 10 metre bands, 30s., with one coil. Individual coils 6s. 6d. each.—AMATEUR RADIO PRODUCTS, 50 Glasslyn Road, Crouch End, London, N.8.

A.W.S. 16 Crystal Palace Parade, London, S.E.19, can supply high voltage transformers, chokes, condensers, rectifiers, and will willingly quote for special gear. Examples: 1000v. 250mA. 81s.; 2000v 300mA, 167s. 6d. Any intermediate taps to your specification. Condensers: 4uF 2000v wkg, 30s. Rectifiers, half-way mercury vapour, 15s. 250ma chokes, 27s. 6d.

BULLETINS.—Jan., 1934 to June, 1942 (April 1939 missing). Call Book, 1938. Reyner's Radio Communication, both vols. Ladner & Stoner, 1935. Benningtons Radio Waves and Ionosphere; Handbooks, Admiralty, 1931. A.R.R.L., 1934. Radio Antenna, 1938. Condition good to perfect. Any reasonable offer.—G8ON, 25 Raines Avenue, Worksop.

COMMUNICATION Receiver: Evrizone single signal super, 6 wave-bands, 10 to 160 metres, £18.—DRURY & BEARDOW, 45 Wangey Road, Chadwell Heath.

CRYSTALS.—Your specific needs can be supplied by Quartz Crystal Co., Ltd.—Send stamp for List. 63 Kingston Road, New Malden, Surrey.

DeWITT 30watt amplifier with all valves, two outputs 15 and 2·5 ohms for Gram or Mike; superb reproduction with high fidelity bass and treble uplift circuit. Standard A.C. mains input. 10 guineas complete. For this and other competitive lines, write—BRITISH RADIO CO, 106 Lozells Road, Handsworth, Birmingham.

EDDYSTONE E.C.R., S.S. Superhet, 10 valves, 10 to 180 metres. Xtal gate, noise limiter, perfect order, unmarked; also R.M.E.. D.B. 20 preselector in 100 per cent. order, £55 the lot, no offers.—Write G6LB, Meadow Brook, Vicarage Lane, Great Baddow, Chelmsford.

ENTERPRISE Radio Laboratories for Short Wave transmitting and receiving products including Eddystone (Regd. Dealers) and Hamrad (Agents for Middx. and Bucks.). Prompt mail order service. Transmitters and auxiliary equipment, built to specification. Service, overhauls and re-alignment on communications receivers.—G5JM, 215 Broadway, Southall, Middlesex.

FOR disposal.—Amer. I.R.E. Journals, 1923–38, 147 copies. *QST*, 1923–39, 180 copies. What offers?—EVANS, 360 St. Annes Road, Blackpool, Lancs.

FOR Sale.—" Avo " Oscillator (batt. model) D.C. Avo-Minor and Avodaptor, £9 or nearest offer accepted.—MACDONALD, Brae Gardens, Dingwall, Ross-shire.

FOR Sale.—Eddystone 358X, £65. 358, £45, both receivers complete with all coils, power pack and speaker. Cossor 3332 Oscilloscope with camera and 48 ft. of film; new condition, £60, or offers. " Avo " All-wave Oscillator, new, £14.—Box E/B, PARRS, 121 Kingsway, London, W.C.2.

FOR Sale.—Tobe communication receiver, covering 20, 40, 80 160 with speaker, both in cabinets.—Offers: Box E/A, PARRS 121 Kingsway, London, W.C.2.

G6HP new 50watt rack and panel transmitter, complete, £47 10s. S.A.E. full specification. 500 volt jelly oil-filled smoothing condensers guaranteed for 12 months, 7s. 6d., postage 6d.—AMATEUR RADIO SERVICE, G6HP, Canning Street, Burnley.

G6XN, closing down, wishes dispose 100 watt phone/c.w. transmitter, all bands, four alternative crystals, five M/C meters; available from P.O. store. Also sundry components, £60 the lot. Alternative proposals considered.—MOXON, Green Farm, Churt, Surrey.

HALLICRAFTER Super-skyrider SX9, £38. National 80X,, fitted " R " Meter, matched speaker, £35. Complete 65 watt, rack and panel phone TX. P.P. 6L6 modulator, P.P. 6L6 final. Three power packs, crystal and mike, £35.—G4GB, 114 Balmoral Road, Morecambe.

HAMRAD Wholesale Ltd, 348 Portobello Road, London, W.10. (Ladbrook 3143) regret that owing to display space not being available, their advertisement giving a list of Agents must still be held over. Further price lists are being prepared.

HARMONY House (Prop: G2IN), offers the radio frequency cable you have been waiting for. Solid Polethylene Dielectric. Impedance 67 to 77 ohms. 1s. per yard, plus postage. Send 6d. in stamps for sample. Eddystone and Raymart components in stock.—116 Cambridge Road, Southport, Lancs.

METERS.—2½ in. 5, 7·5 or 15v. A.C. 20s. each. 2 in. moving coil, 0/1 mA, 30s. 0/10mA, 25s. 0/5mA, 27s. 6d. 2½ in. moving coil, 0/500 micro-amps, 37s. 6d. 0/10, 0/20, 0/40mA, 30s. each.—S.A.E. for full list. MASSEY, 58 Wakefield Avenue, Hull.

METERS.—0/3,000 volt electrostatic, 0/500 volt 0/50mA., 0/100mA., 0/200mA, 0/500mA., 0/2amps., 0/1·5amps. hot wire. Slightly used valves: RK28, Mullard TZ2-250, Det. 1. SW, Taylor TZ20, 6A3, 76, 6N7, 6L6, LS5, LS5 (a), LS5 (b), 866, 866jr. Cyldon transmitting var condensers ·0003uF. 3·5 and 7m/cs band crystals, 15s.; holders 10s. 1,500 volt 200ma. power supply complete with rectifiers, condensers and chokes, £5. Mains transformers, 850–0–850, 150ma., 3·75–0–3·75, 3·5a., 3–0–3, 3·5a, 2·5v. 5a., 1·5v., 4·2a., 5v.8a. High and low power smoothing chokes. Intervalve transformers. Ferranti AF5C, Thordarson 58A70 and 57A41. Push-pull 76's to push-pull 6A3's. Push-pull 6A3's to push-pull TZ20's.—Box E/90, PARRS, 121 Kingsway, London, W.C.2.

MORSE Code training at home. Send for Candler " Book of Facts " Courses for Beginners and Operators (Room 55) CANDLER SYSTEM CO, 121 Kingsway, London, W.C.2.

QSL's and Log Books. Samples free. State whether BRS, or G patterns required.—ATKINSON BROS, Printers, Elland.

RK25, two unused, £1 each. M.I. 0–150 m/ampmeter, 3s. 6d. Admiralty Handbook of W/T, vol. 1, 3s., vol. 2, 4s. 6d.—G8NM, 6 Swift Street, Barnsley.

SALE.—Collaro electric motor, 12 in. turntable, unit plate, good working order; offers. Also Garrard double spring motor, 12 in. turntable, unit plate, auto stop. Perfect condition; offers. D.104 mike, £4. Westinghouse L.T.7 rectifier, 5s.—Box 79 PARRS, 121 Kingsway, London, W.C.2.

SALE.—Fox 25T Transmitter, complete in black crackle steel cabinet, self-contained power pack. Weston plate milliammeter H.T. Voltmeter. Phone and CW 40, 20, 10 meters, 25 watts final input. Speech amplifier 6N7 modulator 6N7 (Class B) C.O. 6L6, P.A. 6L6G (Ceramic base). 7.mc. Crystal; coils for 7, 14, 28mc., C.O. fitted variable regen control. Complete with heavy G.P.O. key; a lovely job, in excellent condition. R.F. section hotted up. Just released by G.P.O. £30. No offers.—PRYOR, 13 London Street, Chertsey, Surrey.

SALE.—New and unused Dulci-Morse Keys, Mk2, 17s. 6d. Table mikes, 7s. 9d. Hand mikes, 19s. 6d.—ALFRED ROSE, 134 Lewisham Way, London, S.E.14. TID3696.

SALE or Exchange.—New, unused CWR transmitter (Webbs) 59CO, 59PA, including valves, power unit, coils for 7,14 m/cs. (less xtal) ideal exciter unit, £6. Required transmitting gear.—DONALD (G3TO), 186 Stockton Road, West Hartlepool.

SALE.—*QST*, 1942–44 bound. 1943 Radio Amateur Handbook. Wireless Direction Finding by Keen. The Amateur Radio Handbook. Radio Handbook Supplement. Offers: GARDNER, BRS4097, " Coniston," Parkside Avenue, Millbrook, Southampton.

SALE.—RK39, £1. KT44, 15s. KT66, 10s. U16, 10s. 6F6, 7s. 6d. 7½ in. C.R. tube with coils, £5. 5-valve modulator, £8. RK34, £1. 7mcs crystal in holder, £1. 0/1 mA. Meter, £2. Handmike, £1.—Box A/7.—PARRS, 121 Kingsway, London, W.C.2.

SALE.—RME69/LS1 Communication receiver and DB20/70 Preselector, 230v, recently overhauled and in good condition. What offers? New valves, 117P7GT, 70L7GT, 12s. 6d. each. 12SK7, 12SQ7, 25L6GT, 25Z6, KTZ41, 35Z4GT, 1A7GT, 1N5GT, 10s. each. G4QG,—" Roselea," Carlton Road, Ryde, I. of W.

SALE.—Rola 6 in. mains energised speaker, 800 ohm field; new, 25s.—BRS11186, 78 Dumbreck Road, Eltham, London, S.E.9.

SALE.—Stromberg-Carlson 50 watt amplifier, 4–8–30–60–125–250–500 ohm output. Perfect, ideal modulator, £25. Wanted: R.M.E. 5–10X converter; *Q.S.T.* May, 1939, July, 1940; any " All-Wave Radio's " 1937–8.—KENNION, 7 Brayfield Road, Littleover, Derby.

SALE.—Two 59, two 210, one 80, 4s. each. Battery types, 2s. each. Jones type P/Selector.—2HKU, 27 Unity Street, Sheerness.

SALE.—Valve Voltmeter as " Radio Handbook," 1944. 1, 10, 100,500v AC or DC. 4½ in. square meter, black crackle cabinet, £15. Sylvania 5½ in. C.R. tube, electrostatic with mumetal screen and front mask, £5. Transformers, chokes, meters, condensers, valves, etc.—S.A.E. for list. Box E/91, PARRS, 121 Kingsway, London, W.C.2.

SALE.—Vortexion 20 watt Amp/Modulator. Secondary impedances 15, 6,600 and 10,000 ohms; modified for EF36 second L.F. stage, also new 12 in. Wharfedale permanent magnet speaker, high flux density. Handles 25 watts.—Offers to G3HI, Hebble House, Calder & Hebble, Halifax.

SALE.—2-valve CW TX for 1·7 Mcs. Rig includes wavemeter. 2 crystals, 2 keys. Operates A.C. mains. All ready to go on air. Price £15.—Box A/24, PARRS, 121 Kingsway, London, W.C.2.

SALE.—12 watt A.C. portable sound system; comprising amplifier, electric gram (Simpsons motor), speaker, crystal mike and stand, in blue leather carrying case. A super quality job throughout. New, £45.—WILDSMITH, 120 Queen's Road, Beighton, Nr. Sheffield.

SET 8 H.R.O. coils (no " G ") would sell separately or exchange for gear, mains receiver.—BM/HARMONIC, London, W.C.1.

SPRAGUE, Aetovox and Solar condensers! 1uF, 750v. block 2s. 6d.; 1000v., 5s.; 4uF 1000v., 9s.; 8uF 600v., 5s. 6d. 1000v. 14s.; 10uF 400v. 5s.; 600v. 6s.; 8uF 500v. tubular can electrolytics, 3s. 6d.; 16uF 4s.; 8x8uF 500v. 5s. 6d. S.A.E. for lists of valves and components.—M.O.S. Co., 24 New Road, London, E.1.

TYPEWRITER, Royal portable, good condition; exchange for communications type receiver or what have you?—GILBERT, Churchtown, Ludgvan, Penzance, Cornwall.

VALVES.—35T, TZ40 (DA41), £2 15s. each. RK34, (DET19), £1 2s. 6d. GU50, £1 5s. 807, (KT8) £1 4s. 4d. 6L6 glass or metal, 18s. 3d. Various other goods for Amateur needs, including H.V. mains trans., chokes, class " B " drivers, mod. trans., etc., to order.—G8TF, 39a and 119 Rastrick Common, Brighouse, Yorks.