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Forthcoming Events

REGION 1

Ashton-under-Lyne.—June 4, 3 p.m., New Jerusalem Schools.
Bolton.—June 6, 8 p.m., Y.M.C.A.
Bury.—June 8, 7.30 p.m., Y.M.C.A., The Rock.
Darwen and Blackburn.—June 2, 16, 7.30 p.m., Y.M.C.A., Limbrick.
Manchester.—June 5, 7.30 p.m., Reynold's Hall, School of Technology, Sackville St.
Oldham.—Alternate Weds., 7.30 p.m., Civic Centre, Clegg St.
Preston.—May 26, June 9, 7.30 p.m., Three Tuns Hotel, North Rd.
Rochdale.—June 4, 3 p.m., Drill Hall, Baron St.
Southport.—June 19, 8 p.m., 38A Forest Rd.
Wirral A.R.S.—May 24, June 7, 8 p.m., Y.M.C.A., Whetstone Lane,
Birkenhead.

Birkenhead.

REGION 2

Barnsley .- May 26, June 9, 7.30 p.m., King George Hotel, Peel Street. Bradford.—May 30, 7.30 p.m., Cambridge House, 66 Little Horton

Catterick.—Tuesdays, 7 p.m., Loos Lines, Catterick Camp.
Darlington.—Thursdays, 7,30 p.m., 25 Coniscliffe Road.
Doncaster.—Wednesdays, 7.30 p.m., 73 Hexthorpe Road.
Hull.—May 31, 7.30 p.m., R.E.M.E. Barracks, Walton Street.
Leeds.—Fridays, 7.30 p.m., Swathmore Settlement, Woodhouse Square.

Middlesbrough -Wednesdays, 7.30 p.m., Liberal Institute, Smithfield Road.

Newcastle-upon-Tyne.-May 22, 8 p.m., British Legion Rooms,

Newcastle-upon-ryne,—way 22, 6 p.m., 1 Jesmond Road.
Sheffield,—May 24, 8 p.m., Dog and Partridge, Trippet Lane. June 14) 8 p.m., Albreda Works, Lydgate Lane.
Spenborough.—May 24, June 7, 7.30 p.m., Temperance Hall,

Cleckheaton.

Wakefield.—May 24, June 7, 7.30 p.m., Swan with Two Necks, 156 Westgate.

York.—May 31, June 14, 7.30 p.m., Rechabite Building, Clifford Street.

REGION 3

Birmingham (M.A.R.S.),—May 16, 6.45 p.m., Imperial Hotel. Birmingham (South),—May 21, June 4, 10.30 a.m., Stirchley Institute.

Coventry.—May 19, 7.30 p.m., Priory High School.
Coventry (C.A.R.S.).—May 22, 8 p.m., B.T.H. Social Club, Holyhead Road.

Stourbridge,—May 26, Corn Exchange Vaults.

REGION 4

Derby (D. & D.A.R.S.).—May 24, 31, June 7, 14, 7.30 p.m., Club Room No. 4, School of Art, 119 Green Lane.

Leicester (L.A.R.S.).—May 15, June 5, 19, 7.30 p.m., Holly Bush Hotel, Belgrave Gate.

Loughborough.—June 14, 7.30 p.m., Science Lab., Limehurst School.

Mansfield (M. & D.A.R.S.).—May 21, 3 p.m., Swan Hotel.

Northampton (N.S.W.C.).—May 19, 26, 6 p.m.; June 2, 7 p.m.;

June 9, 16, 6 p.m., Club Room, 8 Duke Street.

Nottingham (South).—May 16, June 13, 7.30 p.m., Trent Bridge Hotel.

Hotel.

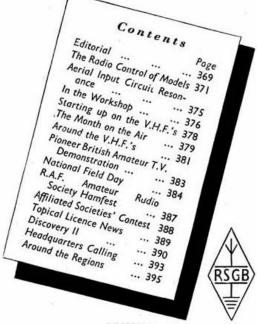
Peterborough.-June 6, 7.30 p.m., St. John's Ambulance H.Q., Cowgate.

Worksop.—June 5, 7.30 p.m., King Edward Hotel.

REGION 5

Cambridge (C. & D.A.R.C.).—May 26, 8 p.m., Jolly Waterman. Lecture, "Television Interference," by Mr. R. L. Varney, Lecture, GSRV.

Chelmsford.—June 6, 7.30 p.m., 184 Moulsham Street. Southend.—May 25, 7.45 p.m., G3CQL, 29 Station Road, Leighon-Sea.



REGION 6

High Wycombe.—May 23, 7.30 p.m., G6JK, 17 New Drive, Totteridge.

REGION 7

Barnes and Richmond.-June 13, 7.30 p.m., 22 Lowther Road, Barnes.

Barnes.
Brentwood.—May 26, June 9, 8 p.m., Drill Hall, Ongar Road.
Croydon (Surrey R.C.C.).—June 13, 7.30 p.m., Blacksmiths Arms,
South End, Croydon.
East London.—May 21, 3 p.m., Town Hall, Ilford. Demonstration
—"Public use of V.H.F.," Mr. C. Bedwell (Marconi Co.).
Edgware (E. & D.R.S.).—Every Wednesday, St. Michael's School,
Flower Lane, Mill Hill.
Enfield.—May 21, 3 p.m., George Spicer School, Southbury Road.
Finsbury Park.—May 23, 7.30 p.m., 164 Albion Road, Stoke,
Newington, N.16.
Hampstead.—May 19, 8 p.m., 1 Broadhurst Gardens, N.W.6
(behind John Barnes).
Hayes and Uxbridge.—June 9, 7.30 p.m., The Vine, Uxbridge Road.

(behind John Barnes).

Hayes and Uxbridge.—June 9, 7.30 p.m., The Vine, Uxbridge Road.
Hoddesdon.—May 18, June 1, The Salisbury Arms.
Holloway (Grafton R.S.).—Mondays, Wednesdays and Fridays,
7.30 p.m., Grafton School, Eburne Road, N.7.
Ilford.—May 18, 10 Aberdare Road, Goodmayes. June 1, QRA
G2JG.

Lewisham. -June 19, 7.30 p.m., Anchor, Lewisham Road, Nr.

Obelisk.

Oceask.
Peckham.—June 5, 7.30 p.m., The Kentish Drover, Rye Lane.
St. Albans.—May 24, June 7, 8 p.m., The Beehive, London Road.
Slough.—May 18, 7.45 p.m., The Golden Eagle Hotel, High Street.
Sutton and Cheam.—May 30, June 13, Sutton Adults' School,
Benhill Avenue.

Welwyn.-June 6, 8 p.m., Council Chambers, Welwyn.

REGION 8

Brightón.—Tuesdays, 7.30 p.m., Eagle Inn, Gloucester Road. Guildford.—May 21, 3 p.m., Royal Arms Hotel, North Street. Reading (R.R.S.).—May 27, June 8, Main Society, Abbey Gateway. June 10, Instructional Section. Southampton.—June 3, 7.30 p.m., 22 Anglesea Road, Shirley.

REGION 9

Bristol.—May 19, 7 p.m., Keen's Cafe, Park Row.
Exeter.—May 21, Hamfest, Royal Clarence Hotel. June 2, 7 p.m.,
Y.M.C.A., 41 St. David's Hill.
North Devon.—June 2, 7.30 p.m., Rose of Torridge Cafe, The
Quay, Bideford.
Torquay.—May 19, 7.30 p.m., Y.M.C.A., Castle Road.

(Continued on page 397)

DIO COMPAN DEMIER RA

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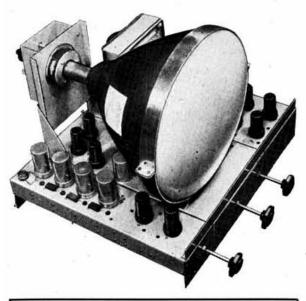
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Adjacent Sound Rejection ... Midland Model, Better than 50 db.

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The Vision Receiver consists of 4 R.F. stages (EF54's) which are followed by a Diode Detector and Noise Limiter (6H6) which is directly coupled to the Video valve (EF54).

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The Sound Receiver comprises 3 R.F. stages (6SH7's) followed by a Double Diode Triode (6Q7), which acts as Detector and L.F. Amplifier. A Noise Limiter (EA50) is also incorporated. The output valve (6V6) drives a 10" P.M. Moving Coil Speaker with closed field magnet, which is included in the Time Base.

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The Time Bases; employ blocking oscillators on both Line (6SH7 and 807), and Frame (VR139 and 6V6). E.H.T. is taken from the Line Output Transformer through a voltage doubler employing two valves (VUIII). The Sync separators are 6H6 and 6V6.

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The Power Supply is from a double wound mains transformer completely isolating the receiver from the mains. The H.T. Rectifier is a 5U4G.

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R.S.G.B

For the advancement of Amateur Radio

VOLUME XXV No. 11

MAY 1950



TELEVISION INTERFERENCE

A Review of the Present Position

Post Office officials. Correspondence also took place with the Radio Industry. During those meetings and in correspondence many matters of mutual interest were discussed, including a suggestion from the Society that a minimum field strength protection figure should be laid down. Viewers living in areas where the field strength was less than the agreed minimum figure would not be entitled to protection from interference caused by amateur transmissions. That particular suggestion was well received by the representatives of the Radio Industry, including the retailers, who regarded it as fair and reasonable. Unfortunately just when it seemed possible that some measure of agreement had been reached on an appropriate figure, the discussions were called-off by the Post Office.

Although disappointed at the turn of events the Council and the Technical Committee exerted fresh efforts to provide sound advice to members troubled with T.V.I. Numerous articles appeared in the BULLETIN and a booklet—Transmitter Interference—was prepared incorporating a number of useful ideas on T.V.I. suppression.

Unfortunately a few months ago the problem of T.V.I. began to assume even greater proportions as the result of an extension of the service area. With this in mind and with the knowledge that the Advisory Committee provided for under the new Act had not been set up, the Society requested the Engineer-in-Chief to convene a further meeting to review the present position.

A meeting duly took place and during the subsequent discussion the Society's representatives explained that there are in particular two aspects of the problem which are causing great concern. First, where it can be shown that interference is only due to energy radiated on frequencies within the licensed bands, and second, where it can be shown that the television field strength is so weak that no known technique can reduce the harmonic level to a degree where interference would be insignificant.

Examples of the first type are:-

(a) a receiver having a second channel within an amateur band,

(b) a receiver with little or no protection on the I.F., which may be in an amateur band.

(c) a receiver having so little selectivity that inter-modulation can be produced by a signal in an amateur band.

The Post Office recognised the force of the Society's argument on this aspect of the case; in fact, it is known that whenever an example of types (a) and (b) is encountered a standard form of letter is sent to the viewer suggesting that he should approach the manufacturer and ask for the receiver to be modified. This is sound advice, because many viewers quite rightly object to having their receivers modified in any way by an amateur, particularly if the set is still under the maker's guarantee.

Until the receiver has been effectively modified the amateur concerned would be well advised to keep off the air during the main Television programme hours, but if nothing has happened within a month from the time of the original complaint he should communicate with the Post Office.

Considering now the second case, an example of which would be a receiver installed in areas of low received field strength, and particularly where a special aerial array and/or pre-amplifier are necessary. The Radio Branch appreciates the technical difficulties attendant upon this case, but the view is taken by the policy-makers at the Post Office—acting probably on instructions from higher authority—that if an amateur transmitter causes interference, where normally a "reasonable" picture is obtained, he must close down during programme hours until he has reduced the interference to a satisfactory level.

The Society's technical advisers consider that the Post Office should recognise that in areas of weak field strength, the reception of what might be called a "reasonable" picture is frequently dependant upon tropospheric propagation; in such areas it is often impossible to receive a picture of "entertainment" standard.

(Continued overleaf)

A field strength of 100 microvolts per metre at a height of 30 feet appears to be a reasonable field strength to protect; in fact that was the figure the Society suggested during earlier discussions with the Post Office and the Radio Industry. Unfortunately those responsible for policy at St. Martin's-le-Grand expect amateurs to avoid interfering with television reception even if this means affording protection to receivers in areas where the normal field strength is as low as 20–30 microvolts per metre. In other words amateurs who live in the fringe areas are expected to reduce the harmonic radiation from their transmitters to a level which is much less than that required by international agreement for commercial circuits. In the view of the Society this is an unfair and unreasonable demand.

In many such areas, however, the position should improve in the next few years. For example, there are many receivers now being installed in the Bristol area where the field strength from the Sutton Coldfield station is marginal. It is clear that this is considered unsatisfactory by the authorities, since plans are already in hand for the erection of a transmitter to serve that area. When the national network is completed fringe area problems should be eased.

But in the meantime why should owners of amateur transmitting stations in such areas be expected to comply with conditions involving extreme technical difficulty—and in many cases considerable expense—before the B.B.C. has taken the proper steps to establish an adequate field strength for a television service?

It seems to us that much public money spent by the Post Office in attempting to reduce interference in these low field strength areas, and much effort and expense on the part of amateurs, could be avoided by the exercise of a little more patience by the general public until the television service is in full operation in their districts. We wonder how many such people realise that their sets will probably have to be changed or modified when the local station comes into operation.

In the meantime the Society will continue its policy of publishing as much technical information on T.V.I. suppression as possible and to that end it welcomes a recent decision of the Engineer-in-Chief to allow members of his staff engaged on T.V.I. problems to exchange views with members of the Society's Technical Committee. A bright ray in a rather murky sky.

J.C.

Fake SOS Message

Pollowing the publication in the national press of reports concerning a "fake" SOS message picked up by the R.A.F. air traffic control station at Nottingham on April 4, the Society enquired into the suggestion—contained in the Daily Mirror and News Chronicle accounts of the incident—that an "amateur radio operator" was officially believed to have been responsible. In a letter dated April 21, the Senior Press Officer of the Information Division, Air Ministry writes:

"Full enquiries have been made in all branches of the Air Ministry from which the statement 'a poor sort of joke by an amateur radio operator' could possibly have originated. The enquiry on this SOS was put in by one of the Press agencies and our reply was as follows:—'this seems rather dubious as there was only 25 miles between the two calls received and both positions were overland. In the first call the aircraft stated that it was flying at 2,000 ft. and on the second at 800 ft. This appears impossible as there was high land between both positions.'

The call was received on 3005 kc/s. . . . I may add that we fully appreciate the existence of harmonious co-operation between radio amateurs and aircraft in distress and we have, in fact, given the subject considerable publicity."

Letters were sent by the Secretary to the Editors of the two papers concerned pointing out that it was extremely unlikely that licensed amateurs could have been responsible, giving details of the licensing regulations, and of the valuable services rendered by amateurs in the past. The News Chronicle published an abridged version of the Secretary's letter on April 28.

I.A.R.U. Representation at Geneva

THE Society has been asked by R.E.F. to clarify a statement which appeared in the Resume of the November Council Meeting (BULLETIN, January, 1950, p. 223) regarding the expenses of I.A.R.U. Representation at Geneva.

M. Georges Barba, President of R.E.F., was authorised by a General Meeting of R.E.F. on May 29, 1949, to obtain the approval of the I.A.R.U. to attend the Geneva Conference as Observer for Region I. The I.A.R.U. officially appointed him to act in this capacity, but explained that he would have to make his own arrangements with the European Societies in advance for their contributions towards his expenses.

Unfortunately, M. Barba did not have time to obtain preliminary agreement from the Societies concerned before the opening of the Conference, and as he considered it imperative that Region I should be represented without delay he left for Geneva on July 14, 1949.

The Council of R.E.F. considers that in view of this several Societies were under no obligation to participate in defraying the expenses and that the question of contributing was left to their discretion. In response to the contribution of £30 paid by the R.S.G.B., the Council of R.E.F. has expressed its appreciation of this benevolent gesture in defence of the rights of the amateurs of Region I, and reaffirms the strong and active friendship between the amateurs of the United Kingdom and of France.

East London "Pirate" traced by D/F gear

AST London amateurs recently co-operated with the Radio Branch of the Post Office in successfully tracing a "top band" pirate. A distressing feature of the case was the fact that the offender (a youth) frequently transmitted obscene language. He was finally located by means of D/F. gear loaned by the Romford and District Amateur Radio Society.

The East London members who were responsible for tracing the unlicensed station are warmly congratulated, for great harm could have been done to the Amateur Radio movement if its activities had been continued.

Fourth Annual

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THE RADIO CONTROL OF MODELS*

PART I

By Lieut. (L) G. C. CHAPMAN, B.A., R.N. (BRS14067)†

OR the purpose of this paper it is convenient to consider the subject of radio control under four headings, of increasing complexity.

(1) Single channel systems in which the signal operates a relay in the receiver, switching it on or off. In these systems the contacts of the relay can operate any one of a multitude of types of stepping switch or escapement. But opinions differ as to how this is best done and used.

(2) Mark-space systems in which a single relay is switched on and off rapidly, for long or short intervals. A period of signal is termed a "mark" to distinguish it from the radar type of signal known as a "pulse." The term also agrees with line telegraphy nomenclature. The duration of the marks is of the order of 1/100 second and greater. Variation of the markspace ratio and repetition rate can each be used to give a variable control.

(3) Multi-channel systems using a number of frequencies (either separate carrier frequencies or different modulation frequencies on one or more carriers), each of which operates a relay in the receiver. The relays can be used as in systems (1) and (2) or combined to operate "stepping" motors.

(4) Complex electronic systems, using variations of frequency, amplitude and phase, usually arranged

to give proportional control.

Part I of this paper makes particular reference to the radio circuits at present in common use and describes one basically electrical control system. In Part II a description will be given of the circuits and mechanical control details of the model DUKW built by the London Group of the Radio Controlled Models Society.

Regulations

Current G.P.O. regulations (November, 1949) permit radio transmissions for model control purposes to be made in the bands 26.96-27.28 Mc/s. and 464-465 Mc/s., with a maximum D.C. input of 5 watts to the anode(s) of the valve(s) energising the aerial. No licence is required provided single or two-way communication is not attempted. These regulations are among the most lenient of their kind in the world, and those using the facilities they provide are urged not to abuse them, otherwise they may be withdrawn.

Transmitters

All the radio gear described in this part of the paper is for operation within the 27 Mc/s. band, which is the more commonly used band of the two. A 465 Mc/s. link will be described in Part II.

Transmitters used for simple control usually employ an input power of from 1 to 2 watts D.C. —giving about ½ to 1 watt of radiated radio-frequency energy. On 27 Mc/s. quarter-wave vertical aerials (approximately 8 ft. 6 in.) are used, although eighth-wave aerials will often suffice. Simple receivers require either keyed C.W., or M.C.W. in which only the amplitude modulation (about 1,000 c/s.) is keyed.

The 3A5 transmitter (illustrated in Fig. 1) may be taken as typical of the self-excited transmitters in current use. Carefully made it combines a reason-

A paper read to the Society at a meeting held on November 18, 1949, at the Institution of Electrical Engineers, London, W.C.2.

able degree of stability with simplicity, lightness, and low battery consumption. The circuit is shown with a 3S4 audio-oscillator cum modulator which may be incorporated if desired. Each valve takes about 15 mA. on load with 100 V. H.T. and gives an R.F. output of approximately 0.75 watt. Alternatively the conventional crystal-controlled Tritet circuit, using a 6V6 or similar beam tetrode, may be employed. In this case the tank circuit is tuned to the 3rd or 4th harmonic of the crystal depending upon whether the fundamental is in the neighbourhood of either 9 or 7 Mc/s. This circuit will give a comparable output, but it requires higher anode voltages. When in use the frequency of the transmitter should frequently be checked against a suitable meter. A simple absorption meter—of the type shown in Fig. 2—calibrated against a crystalcontrolled or some other form of standard oscillator can be used for calibration purposes in the field.

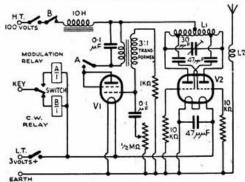


Fig. 1.

A self-excited 27 Mc/s. transmitter.

12 turns 18 S.W.G. on 1 in. diameter former, wound 10 turns

per inch. Aerial coupling, 2 turns wound on the centre of LI for use with 4 ft. aerial. 354.

V2 3A5.

Receivers

One of the simplest receivers developed for remote control purposes is that which employs the RK61 gas-filled triode in a self-quench super-regenerative This arrangement is very popular in America, but is not much used in the U.K. due partly to the difficulty in obtaining these valves.‡ Tuning tends to suffer from hand capacity effects and the valve life is short (about 100 hours). On receipt of a signal, the anode current drops from the standing value of 1.4 to about 0.5 mA. at moderate range. The anode current drop on the receipt of a signal is a characteristic of super-regenerative receivers(1), and for model control this is made as large as possible. In the case of the RK62 the drop is ample to operate the small high-resistance relays used.

Receiver Relays

Relays in normal use are of the Siemens high-speed keying type, with the ironwork cut down to save weight, and wound to a resistance of about 3,000 ohms. These relays operate satisfactorily on about 0.5 mA., and, more important, the drop-out ratio,

[†] Pine Corner, Heathfield, Sussex.

[†] Since this paper was written the Hivac XFG1, a near equivalent to the RK61, has appeared on the home market. This valve performs as well as the RK61 in the conventional receiver circuit.

i.e. the ratio of the current at break (current decreasing) to the current at make (current increasing), can be adjusted to be about 80 per cent. They have a single change-over contact capable of switching up to 24 V. at $\frac{1}{4}$ A.

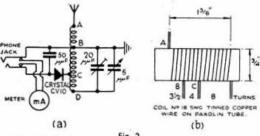


Fig. 2.

(a) A simple absorption wavemeter for the 27 Mc/s, band.

(b) Showing construction of coil.

Super-regenerative Receivers

In practice super-regenerative receivers for 27 Mc/s. operation usually follow the pattern of Fig. 3. In this circuit a quench voltage, at about 30 kc/s., is developed by the quench transformer and the action of the screen grid. This voltage controls the H.F. oscillations in the tuned anode-grid circuit. These oscillations are damped by R1, the value of which is best found by experiment and is usually about 30,000 ohms. Incoming C.W. signals build up and maintain oscillations, causing the anode current to drop: in this case with 45 V. H.T. the current falls from 5 to 2.5 mA. on a strong signal. Even at a range of 1 mile from a transmitter of 1 watt output a change from 5 to 3.5 mA. can be obtained. The receiver, less batteries, weighs 43 oz.

One of these receivers with associated relay is

depicted in the photographs.

A more complicated receiver circuit which requires keyed modulation is given in Fig. 4. V1 acts as a self-quenching super-regenerative detector. The transmitter radiates continuously so that the "mush" noise is normally quenched out. When the set is keyed the 1,000 c/s. note is detected and fed to a resistance capacity coupled amplifier (V2), and from there to the grid of V3. This valve is biased to cut-off, but V2 provides a sufficient voltage swing

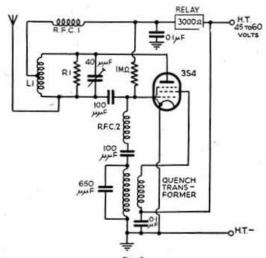


Fig. 3.

Simple 27 Mc/s. super-regenerative receiver.

9 turns 2 in. O.Q., 12 in. long, 18 S.W.G. tinned copper with centre tap.

R.F.C.1, 2 in. length of 38 S.W.G. D.S.C. single layer winding on 2 in. diameter former.

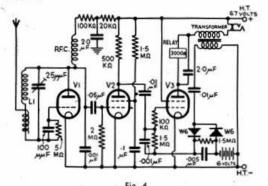
to produce an intermittent current in V3. Part of the audio output is rectified and produces positive feedback in the form of a D.C. potential on the grid, causing the anode current of V3 to rise rapidly to almost its saturation value of about 4 mA. and operate the relay. This circuit is suitable for distances of a mile or more. At any point within normal range it gives the full current swing in the relay. It can be constructed to weigh as little as 6 oz., plus the weight of the batteries, another 6 oz.



The completed Algerine-Class Minesweeper, which has a length of 2 ft. 3 in., ready for operation.

Super-heterodyne Receivers

Superheterodyne receivers using three valves have been constructed for 27 Mc/s, band work, with some economy in H.T. current. Sets of this type have increased sensitivity and selectivity over simpler types; one of them when tuned up for test purposes to the 28 Mc/s, amateur band was "worked" from New York! Conventional communication practices can be considerably amended, in fact the problem is best approached with the sole object of radio control.

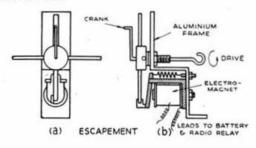


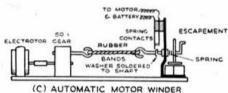
Part II of the paper deals with a satisfactory 465 Mc/s. link, and covers a multi-channel system using tuned audio circuits. The receiver is a superregenerative detector: so far no really satisfactory "straight" super-regenerative receivers for 465 Mc/s. have been made; they all require some audio amplification, as in the three valve 27 Mc/s. receiver.

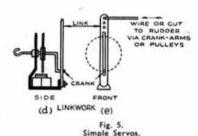
Systems using tuned reeds in the receiver have been developed in the U.S.A. and these appear to be quite satisfactory(2). The particular reed which is to vibrate is actuated by a particular audio note appearing in the receiver, this being power amplified into the "energising coil" of the reed assembly—the device closely resembling a frequency meter. The reed makes an intermittent circuit which "holds" the armature of a slugged relay so long as the audio note is transmitted.

Intermediate Gear

The term intermediate gear covers all gear after the common R.F. and audio stages, up to and including the relays, etc., which control the servos and services.





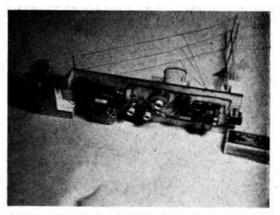


Aircraft Intermediate Gear

Simple receivers work a single relay with, normally, a single change-over contact. Usually the contact controls an electrically actuated escapement type servo. The servo illustrated in Fig. 5 (a) and (b) has a rotating member with four arms so arranged that on "make" it rotates 90°, and on "break" another 90°. Driving torque is provided by a rubber band, which may be automatically wound up by an electrotor, Fig. 5 (c). The rotating member moves the rudder through link mechanism and push rods, Fig. 5 (d) and (e). In this case the "make" moves the rudder alternately left and right and on "break" it returns to midships. Alternatively the rudder can be arranged to move half over on "make" and full over on "break," returning to midships after the next "mark." Opinions differ as to which of these arrangements is the better.

Distributors

Distributors are often inaptly called selectors. Where weight conservation is less vital, models can carry a stepping distributor, a device with a rotating contact which will energise circuits in turn. Two schools of thought exist concerning the type of drive required for the distributor. Some prefer an electromagnetic drive others favour a clockwork or rubber



A super-regenerative receiver similar to that shown in Fig. 3 fitted in the removable portion of the upperworks of a model minesweeper. The aerial is a model of the type fitted to this class of vessel except that the lead-in is aft. Connection to the power supplies and the ship's wiring is made through the 7-pin plug on the right.

band drive, in the latter case control is achieved by some sort of escapement. Both systems have points of merit.

Most sequence systems require some type of delay circuit to prevent operation of servos and services when the distributor contact passes their contact. Delay may be achieved by the use of magnetically or capacitively slugged relays, or by mechanical means. Siemens high speed relays, in series with resistors of about 2,000 ohms and shunted by capacitors of the order of 100 µF. can be arranged to provide suitable delays.

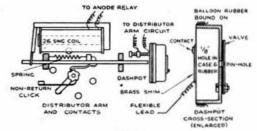


Fig. 6. Simple distributor and dashpot.

A mechanical system is shown in Fig. 6: here the extension of the reciprocating arm (which drives the contact arm on its return stroke) pushes-in the brass shim disc, which is glued to the balloon rubber diaphragm of the "bellows," when the electromagnet is energised. The air in the "bellows" is expelled through the flap valve. On the return stroke the diaphragm can only recover slowly; the actual rate depending on the size of the pinhole leak in the valve. The effect of this is that the circuit is not completed between the fixed contact and the brass shim until a period of time has elapsed. Before this

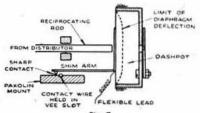


Fig. 7.

Modification to bellows dashpot. This arrangement enables a contact to be made for a short time during recovery of the diaphragm, in order to operate a hold-on relay.

can happen the reciprocating arm has returned to rest—moving the contact arm—and has been pushed forward again by the electro-magnet, pushing the

diaphragm in once more.

A refinement of this system shown in Fig. 7 consists of an arm projecting from the brass shim. This carries a contact which is held clear of the "line contact" wire during operation of the distributor. When the distributor is finally at rest the "bellows" recover, and the contact is "made" only momentarily. The "make" is, however, sufficiently long to operate a relay. This is then held on (if desired) either electrically or mechanically, and not disturbed in its duty during the operation of other circuits from the distributor except by any that specifically cancel its operation.

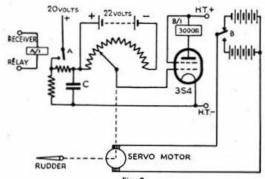
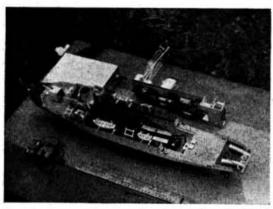


Fig. 8.
Self-balancing Servo using Mark/Space ratio to give positional control on a single channel system.

Control Units

In all systems of remote control—except the most simple—it is convenient to employ a control unit which reproduces as closely as possible the type of driving control used in a full-size car, aircraft or ship. This unit translates orders, given in the normal convention, into the correct sequences of "marks" modulating tones, etc., to be transmitted. The control unit should be simple to operate and should not require the controller to take his eyes off the model. The unit should thus permit a sense of control to be developed as in the case of real driving, flying or sailing. This is particularly true with aircraft which are often difficult enough to keep in sight without having to glance down from time to time at the control box.



The minesweeper with upperworks and radio batteries removed showing the intermediate gear, power batteries (Nife accumulators) and the main engines (two electrotors). The control unit is contained in the flat rectangular box shown behind the bows of the

Mark-Space Systems

The following description of a semi-electronic servo system (Fig. 8) using variable mark-space ratio, is given to show how this single channel function may be used to give proportional control. relay in the anode circuit of the 3S4 is of the Siemens high speed keying type, adjusted so that its armature will "float" between the contacts for currents between about $1\cdot 8$ and $2\cdot 2$ mA. If the receiver relay is open, as shown, and the potentiometer is set to a point in the middle of its range, the negative bias thus applied will cause the anode relay to drop out. The servo will then drive in the appropriate direction to cause an increase of the anode current, by reducing the negative bias. When the current is at 1.8 mA. the relay drops out. The system thus becomes static with the potentiometer at its positive end, and the rudder hard over one way. When the receiver relay is closed the grid of the 3S4 becomes positively biased, and so the process is reversed, the servo driving the rudder hard in the opposite direction and rotating the potentiometer to its negative end. With the receiver relay taking "marks" and "spaces" of about 1/100 second duration, a mean potential is built-up across C depending only on the mark-space ratio. As this can be varied quite easily at the transmitter, proportional control is given at the model. The back contact of the receiver relay may be used with a circuit sensitive to changes of mark-space repetition rate to control, for example, the engine speed.

When designing and using radio control gear the first aim should be to achieve simplicity and extreme reliability. The apparatus should be tested under simulated action conditions on several occasions before the model is entrusted to a final full trial under control. Only when it is found that everything works perfectly all the time can the real object of radio control be attained—to make the model do what you want when you want—and to get it back intact.

Acknowledgement

Acknowledgement is made to the Radio Controlled Models Society, from whose publications certain of the material referred to in this paper is derived.

References

- (1) TERMAN: Radio Engineering, 3rd edition, (McGraw Hill).
- (2) ROCKWOOD, E. L.: Audio Tone Control, Model Airplane News (U.S.A.), August, 1949.

(Part II will appear next month)

Interference Locator

RITING in the April issue of Brighton Link, official journal of the Brighton and District Radio Club, Mr. R. T. Parsons describes a 4-valve portable D/F receiver for the tracing of television and S.W. interference. The receiver, which employs 1T4 valves in all stages, is designed to operate on approximately 15 Mc/s. (a peak interference frequency). There are two R.F. stages, regenerative detector and output: separate tuning is used in all stages with a one turn loop as the inductance of the first stage. It has been found that the equipment provides "sense" as well as direction, with maximum pick-up when the grid end of the loop is pointing in the direction of the noise source. The receiver has already been used to locate a troublesome hair-dryer.

CONSTRUCTIONAL ARTICLES WANTED

AERIAL INPUT CIRCUIT RESONANCE

From time to time amateurs encounter technical difficulties for which the reason or cure cannot easily be found in any textbook. In this article H.E.B. describes how an R.F. coil burn-out on his SX28 led to the discovery of an unexpected source of trouble. The solution proved extremely simple but we wonder how many other members have experienced similar faults without suspecting the real cause.

Some months ago tests were attempted in conjunction with another station a few miles away in order to determine the radiation properties of a new 14 Mc/s. two-element beam. The aerial had been previously adjusted for resonance with the aid of a grid-dip meter. To enable check reports to be passed between the two stations cross-band duplex telephony contact was made using 1.8 Mc/s. for the return channel. Soon after contact had been established, however, the SX28 receiver in use at the home station became unserviceable on this band (Band 2:1.6 to 2.8 Mc/s.). Operation on the remaining bands was unaffected.

It was later found that the primary of the Band 2 input transformer had been burnt out. This coil consists of a single layer winding, \(\frac{1}{8} \) in. in length, with 8 turns of what is believed to be 30 S.W.G. D.S.C. wire on a \(\frac{7}{8} \) in. diameter former, spaced some \(\frac{3}{8} \) in. from the tuned secondary winding. The coil was rewound with wire as similar as possible to the original (this proved a most awkward job mechanically); the trimming of the secondary coil was checked; and the SX28 was then found to be again serviceable for Band 2.

Investigation

The basic arrangement of the receiver input circuit at the time when the fault occurred is shown in Fig. 1. To enable the receiver to be used simultaneously with the transmitter, a 12 ft. length of slideback wire had been hung in the shack and connected to the aerial terminal of the receiver. The aerial relay was kept in the "send" position and the receiver switched on by means of the built-in over-ride switch. In the circuit the first stage band-switching of the receiver is omitted

in the interests of simplicity.

To discover exactly why the 1.8 Mc/s. winding should have been burnt out by a comparatively low-power 14 Mc/s. transmission, the transmitter was again switched on with about 20 watts input to the P.A. After a few seconds the new winding began to discolour, indicating considerable over-heating. It was felt that this large R.F. current could hardly be explained by the amount of energy picked up on the short temporary aerial. The true cause was discovered, however, when investigation with a grid-dip meter showed that the aerial input circuit, as indicated by heavy print in Fig. 1, was resonating on 14 Mc/s. Consideration of the current distribution in a resonant circuit accounts for the heavy current flowing through

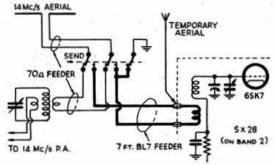
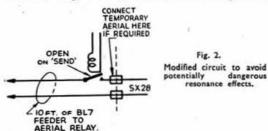


Fig. 1. Aerial input arrangements which led to receiver coil burn-out.

the coil (think of the heavy gauge wire necessary for an unloaded tank coil). In fact, far from being the sole cause of the trouble, the temporary aerial had a definite damping effect on the resonant properties of the circuit—although it is reasonable to assume that most of the energy was injected into the resonant circuit through its action. The possibility of some degree of injection via a capacitive earth loop is feasible, but further investigation was not made. As a point of interest the receiver was switched to the remaining amateur bands in order to see if any other potentially dangerous resonance effects could be detected. On Band 3, which covers $3\cdot5$ Mc/s., a dip was observed in the region of 27 Mc/s.—close enough to the 28 Mc/s. band to constitute a hazard.

The Cure

The replacement of the 7 ft. length of twin feeder between the aerial relay and the receiver by a 10 ft. length has placed the resonant frequencies well clear of both the 14 and 28 Mc/s. bands. As an added safeguard, an extra relay has since been inserted in the feeder immediately adjacent to the receiver aerial terminal. Fig. 2 shows the modified arrangement.



The decision to break only one side of the feeder was made solely because a suitable single-pole make/break relay happened to be on hand. It should be noted that a temporary aerial, if required, must now be connected directly to the aerial terminal on the receiver. The relay contacts, open on "send," ensure that the twin feeder line, which forms the capacitive part of the resonant circuit, is isolated.

Conclusions

This fault has been described at some length because it is very easy to visualise a parallel state of affairs at almost any amateur station. Especially is this true, for example, when a station which has been operating on, say, 3.5 Mc/s. is afterwards tuned up on 28 Mc/s., either before the receiver is switched over or where a separate 28 Mc/s. receiver is employed. Although an SX28 receiver was concerned in this particular case, a similar aerial input circuit is used in many other types of receiver. There are, of course, numerous safeguards which could be incorporated but the essential point is to be aware of the possibility of extraneous resonant circuits which may not only absorb valuable energy, but which can cause serious damage. A little investigation with that valuable piece of test equipment—the grid-dip meter (*)—can save endless trouble. H. E. B.

Anderson, G. P., "A Grid-dip Oscillator," R.S.G.B. BULLETIN, September, 1948, p.63.

In the Workshop

By "DONEX"

SCREW THREADS AND TAPPING

Screw Threads

MOST radio amateurs tend to avoid the process of cutting screw threads in assembly work; and quite rightly, too, where the particular requirements may be met by the use of nuts and bolts, self-tapping screws, etc. Nevertheless, circumstances do arise when the tapping of holes to receive screws and the threading of special studs or other fitments is unavoidable. To quote a particular example, a beam array cannot always be constructed as an engineering job without a knowledge of screwing and tapping (reference is not made to the rather terrible compromise known as a "plumbers delight").

The use of taps and dies is not a difficult process if one goes the right way about it. Indeed there is no reason why the average intelligent amateur should not emulate the work of his more fortunate colleague who has had the advantage of an engineering training. Unfortunately, improper use does create spoilt work which is not easy to disguise, while the expense involved in broken taps and dies, which may not be inconsiderable, often marks the end of a

mechanical adventure.

The equipment recommended has already been indicated in an earlier article(1). Although a set of B.A. (British Association) taps and dies (in case), covering 0 B.A. to 8 B.A. is very desirable, a more humble selection, bought as separate pieces, and covering 2, 4 and 6 B.A. will meet most requirements and can be added to, as necessity demands. In the more elaborate sets three taps and one die are provided for each size—a taper tap to initiate the thread, an intermediate size to prepare the way for the third or finishing tap, termed a "plug" tap. For general work the intermediate tap may be omitted, but the "taper" and "plug" are indispensable. As already stated, one die, usually of the non-adjustable type is necessary for each size of thread, as distinct from dies for Whitworth and B.S.F. (British Standard Fine) threads which run into larger sizes and are adjustable as the cut proceeds, in a special holder.

It will thus be seen that the tapping of holes is done in two (or three) stages by the taps, but the threading of a bolt or stud has to be completed in a single process by the die. Consequently, the blank rod from which the bolt or stud is to be made must be very little in excess of the final correct diameter of the thread since the die will not reduce excess diameter without overstraining and possible fracture. A proper die-holder is absolutely essential for the dies. The same advice also applies to the taps where the holder should be of the screw adjustment type to grip the flats on the shank of the taps.

Drills

In tapping holes, it will be apparent that the initial drilling must be such that the "taper" tap will enter the hole and run through to prepare the way for the "plug" tap. Consequently, correct "tapping" sizes of drills must be available for each size of thread. It is useless to pick out a drill for the purpose just because it looks "about the right size!"

While one can "make-do" with the usual fractional inch sizes in 1/64 in. increments, taps in what are known as Morse sizes are available: these proceed in much finer increments of size. It is a

TABLE I BRITISH ASSOCIATION SCREW THREADS

		CLEARA	NCE DRILL	TAPPIN	G DRILL	Threads
No. Diam.	Morse No.	Nearest Frac- tional	Morse No.	Nearest Frac- tional	per Inch	
0 1 2 3 4 5 6 7 8	:nches -236 -209 -185 -161 -142 -126 -110 -099 -087	"C" 3 11 19 26 29 32 37 42	15/64 7/32 13/64 11/64 5/32 9/64 7/64 7/64 3/32	12 19 26 30 34 40 44 48 51	-inches 3/16 5/32 9/64 1/8 7/64 3/32 5/64 5/64 1/16	25·3 28·2 31·3 34·8 38·4 43·1 47·8 52·4 59·1

wise and safe investment to acquire the appropriate morse drills for "tapping" and "clearing" each B.A. size to be used. Always keep them in association with the taps and dies for those sizes, in order to eliminate the irritation of having to search for the particular drill required.

Table I gives B.A. sizes together with the appropriate "tapping" and "clearing" drills.

Tapping a hole

Firstly, mark accurately the position of the hole. Then, if the thread is to be of larger size than 4 B.A., drill a 3/32 in. hole, and follow it by the "tapping" size drill indicated in Table I. If smaller than 4 B.A. the correct tapping size drill may be put through in one operation. Now, select the correct "taper" tap and insert it in the tap-holder, tightening the screw-handle firmly on the flats on the tap.

Give the tap a smear of oil and insert it in the hole. Rotate the holder clockwise carefully and slowly with two hands (not corkscrew-fashion with one hand) keeping the tap square to the work. The tap will draw itself in quite easily for several threads, getting tighter as the threads it is cutting get deeper. When the "drag" appears to be offering some strain, impart the turning movement in arcs of, say, 60°, reversing the direction for 30°, then forward for 60° and so on, as indicated in Fig. 1, till the top of the threaded portion of the tap is reached. Run out the tap, remove from the holder, and wipe clean before putting away. Then take the "plug" tap, place in the holder smear with oil and proceed exactly as before.

As the general "feel" of the process becomes apparent, confidence will soon come, although extra care must be taken when tapping certain metals and materials. Brass is the easiest metal to work on, and

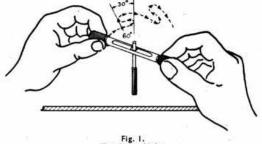


Fig. 1. Tapping a Hole.

a practice try-out can well be made on a piece of scrap brass say, \(\frac{1}{2}\) in. thick. Aluminium, copper, bakelite and the "styrenes" require more care as they tend to "seize" the tap if the cutting is too rapid. The thread will be spoilt and it may be found impossible to turn the tap in either direction without risk of fracture. If this occurs, place a few spots of paraffin or penetrating oil round the tap and leave for a few minutes, when it will be found possible to free the tap safely.

Remember that a broken tap (particularly in a "blind" hole—i.e. a hole which does not go "right through") is most difficult to remove, and more often than not has to be left where it is, and a new

start made in another place.

Threading a bolt or stud

Select the appropriate size of die, and place in the holder with the flush face uppermost (i.e. against the shoulder in the holder). Tighten up the grub screw or screws to grip the die firmly. Place the bolt or stud in the vice and chamfer off the end slightly to allow the die to start the thread more easily. Next place the die on the bolt and press down while turning gently clockwise, keeping it square to the work. When the die "bites" and starts to cut the thread run a few drops of thin oil down the threads of the die.

Using both hands on the holder, as in the process of tapping, rotate the holder, say, 60°, reverse for 30°, rotate again for 60° and so on. This allows the die to clear itself by transferring the particles of cut metal into the recesses in the die. Proceed until the desired length of thread is cut and then run off the die. Test the thread by screwing on a nut of the correct B.A. size. If it is too tight run the die down again as necessary. Remove the die from the holder and clean out with a small brush before putting away.

The particular points which the beginner must

watch are :-

 The avoidance of the thread starting "skewwise," i.e. not true to the axis of the bolt or stud.

(2) The avoidance of cutting a second thread across the first on the second run down.

- (3) A dirty or clogged die (or tap) cannot cut a true thread particularly in softer materials such as bakelite, ebonite, etc.
- (4) Impetuous haste and forcing is absolutely fatal to good thread cutting technique.

(5) Never put a tap into a hand-brace in order to do some "high-speed" tapping.

It is hoped, in a later article, to deal with the applications of screwing in the construction of such items as aerial arrays and steel towers.

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temporary publications.

Recently the attention of the Society was drawn to a further breach of the Society's Copyright by an Australian commercial publication which reproduced, without acknowledgement, a Noise Limiter circuit which appeared originally in the September, 1947 issue of the BULLETIN.

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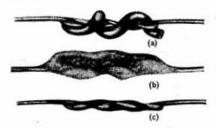
Why Use a Soldering Iron?

VERY radio amateur has at some time or another had occasion to solder together two pieces of wire quickly and with as little effort as possible. Normally one would use an electric soldering iron, plug it into the power supply, wait for it to heat, take the job to within reach of the iron, and perhaps finish-up with a "dry-joint" because of impatience.

Here is a simple and quick method which will avoid these troubles. It is especially suitable for outside jobs such as on aerial wire provided a little common sense is exercised in the protection of the

work from the wind.

The requirements are: a short piece of resin-cored solder, a piece of "silver" paper (as in cigarette packets or on chocolate), and a box of matches or a petrol lighter.



Clean the wire ends and wrap them together (a). Around them place a short piece of solder. Cover the whole with two or three layers of silver paper, taking care to close the ends of the paper as illustrated (b). Place a lighted match under the joint and move it slowly backwards and forwards. Allow a few seconds for the joint to cool, remove the paper and surprise yourself with a perfectly soldered joint (c).

The real secret of success lies in wrapping the silver paper on as tightly as possible with no air holes. The paper conducts heat to the joint and prevents oxidisation. It also prevents soot forming on the joint when the flame is applied and it prevents the

molten solder from running away.

H.E.B.

Ten Minute Quiz

A pot-pourri of questions for the radio amateur.

- In a circuit where a condenser is charged through a resistor how is the "time constant" calculated?
- 2. Approximately how many materials are used in the manufacture of radio valves?
- Define a quarter wave length at 435 Mc/s. in terms of something you have at hand.
- State the size of either copper or lead alloy wire which should be used to replace a fuse rated at:—(a) 5 Amperes (b) 10 Amperes
- rated at:—(a) 5 Amperes (b) 10 Amperes.

 5. What is the approximate R.M.S. voltage output of a sensitive diaphragm-type crystal microphone?
- 6. What is the secret of avoiding "dry" joints in soldering?
- State the clearance drill sizes (or approximate diameter) for (a) 2 B.A. (b) 8 B.A. screws.
- 8. What is the usual value of a sparking plug interference suppressor resistance?
- What are the frequency limits of the 13 cm. amateur band?
- 10. What are the basic qualifications for an Empire DX certificate?

Now turn to page 397 and see whether you have beaten the Question Master.—H.E.B.

STARTING-UP ON THE V.H.F.'s

BY W. H. ALLEN, M.B.E. (G2UJ)

A short series of semi-technical articles intended for the newcomer to the V.H.F. bands. New techniques and new circuits combine with compact beam arrays to make the V.H.F. bands unusually interesting and—dare we say it—a break from the usual type of DX.

V.H.F. Receivers

CONTINUING the series of notes on V.H.F. equipment for newcomers to the bands, * a start will be made this month on receivers. Many of the following remarks apply equally to both the 70 cm. and 2 metre bands, but to avoid confusion reference is to the latter unless otherwise stated.

The superregen. receiver was the standby for most V.H.F. work in the earlier days of the art, but modern developments in valve design and in circuitry have made possible the construction of superhet. receivers with a performance far and away better than is normally obtained with the simpler circuit. The question is often posed as to whether it is possible to build a straight receiver for use on the 2 metre band. The answer is that it is possible, but why do it? The degree of skill required firstly to build and then to operate such a receiver would be far better devoted to the construction of a superhet. converter, and there would be absolutely no comparisons between the results obtained.

Converters

By far the greater number of operators employ a converter fed into a normal communications receiver. This produces a superhet, having two separate I.F. amplifiers. Provided the main receiver gives a satisfactory performance over the range of frequencies it is designed to cover, the arrangement combines efficiency with economy and enables the constructor to devote all his attention to the production of a really good converter without having to trouble himself about the I.F. and A.F. amplifiers, A.V.C., B.F.O. and noise limiter.

There are two ways in which the double superhet. may be operated: the first I.F. (i.e. the variable tuned circuits of the main receiver) may be left set at the I.F. decided upon and searching done by tuning on the converter; or the converter oscillator frequency may be fixed and tuning effected by varying the first I.F. The range to be covered on the latter will be the same in megacycles as that of the required band—2 Mc/s. in the case of the 2 metre band. This principle is also applicable to a 70 cm. receiver, but for reasons which will be apparent it would not be practicable to cover the whole of the range 420 to 460 Mc/s. when employing a normal communications receiver for the I.F. channels.

Choice of I.F.'s.

When tuning is carried out on the converter one has a wide choice of I.F.'s, the main considerations being that there shall be no powerful stations present to cause break-through and that the signal-to-noise ratio of the main receiver is satisfactory at the frequency concerned. The latter is a most important point, for if the noise factor of the receiver is poor it will degrade the performance of the whole equipment no matter how good the converter may be. If it is not possible to improve the efficiency of the main receiver by careful alignment it is advisable to incorporate an additional I.F. amplifier in the converter to act as a pre-amplifier, enabling the signal from the converter to override the inherent noise in the main receiver.

When the main receiver provides the tuning, as is essential when crystal control of the first oscillator is employed, the above considerations are equally important, and added to them is the requirement that signal break-through and oscillator and B.F.O. harmonics shall be absent throughout the 2 Mc/s. tuning range selected. As to the choice of I.F., it may be said that there is no particular advantage to be gained by employing a frequency higher than 5 or 6 Mc/s., while one as low as 2 Mc/s. is perfectly satisfactory. In fact the latter may be preferable in the interests of a good signal-to-noise ratio in the main receiver. With a tuned first I.F., higher frequencies are commonly employed mainly in the interests of adequate band-spread and the avoidance of breakthrough. However the question of main receiver efficiency on these higher frequencies must be watched carefully, and an additional I.F. stage may have to be incorporated if there is any doubt on this This extra stage will, of course, have to possess a bandwidth of at least 2 Mc/s.

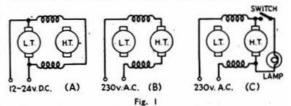
Further notes on converters will be given next

month.

Genemotors as A.C. Motors

ANY amateurs have purchased ex-Government equipment containing genemotors which have subsequently been replaced by conventional A.C. power packs, leaving the genemotors available for other purposes. In the December 1949 issue of Amateur Radio—journal of the Wireless Institute of Australia—Mr. L. W. Wallbridge, VK5UX, explains how such genemotors can usually be re-wired as low-efficiency A.C. motors, and describes a useful method of increasing the torque.

Fig. 1 (A) depicts the customary arrangement of the armature and field windings of the genemotor before modification. Fig. 1 (B) shows how the windings can be re-arranged to provide a series A.C. motor. Incidentally, if there are two sets of H.T. armature winding, the lower voltage winding should be



The modification of a Genemotor to provide an A.C. motor.

employed. This system, by itself, is widely used but suffers from the disadvantage that the current flowing through the field coils is usually considerably less than that for which they were designed. This results in a low torque combined with dangerously high speeds when no load is coupled to the motor. An increase in field current will cause the top speed of the motor to drop slightly and gives an increased torque. Fig. 1 (C) shows a simple method by which this may be achieved. An electric lamp is placed across the H.T. armature windings with a switch to bring the lamp in or out of circuit. VK5UX finds that the idea can be still further extended by using a bank of lamps, each with its own switch, to give a wide variation of speed and torque.

[•] The first article appeared last month in the "Around the V.H.F.'s" feature.

THE MONTH ON THE AIR

By ARTHUR MILNE (G2MI)*

" Milford Viscount"

E do not know how many amateurs burned the midnight oil listening for signals from the missing trawler Milford Viscount, but it must have been a considerable number. It seems a pity that their assistance was not sought earlier than ten days after the ship's disappearance. Two points of interest arise from the case: firstly, it is of vital importance for the authorities to state in any official announcement, whether signals are likely to be telephony or telegraphy: secondly, from personal experience of listening on 140 metres, it is high time that there was some provision for putting a high powered official station on that frequency to clear the air of trawler "chit-chat." Even during the hourly periods set aside for special attention, the din from the usual "'Ullo Bill'ow yer gettin' on" stuff was indescribable. When men's lives are at stake surely no questions of prestige should arise. Let those in authority use the Amateur Service as an addition to the existing distress service, not merely as an afterthought when all may be lost.

Thought for the Month

How would you like it if someone kept butting in during private conversations? You would probably refer to him not as a "ham"—but a "hog"!

Top Band

To G6AB of Holland-on-Sea goes the honour of making the first top-band G-HZ contact at 0305 G.M.T. on Easter Saturday, April 8, 1950, Transmitter 6F6 E.C.O.—807 P.A.—7·5 watts input. HB1CM states that there are no HB2 calls. This confirms G2YS's fears—previously reported—about HB2IW.

What are believed to have been the first post-war G-UA3 top-band contacts took place on April 30, 1950, when G6HD (Beckenham, Kent) worked UA3CR and UA3CU both in the Moscow area. The contacts—established just after 2200 G.M.T.—followed a sked made earlier on 14 Mc/s. The Russian stations were received at RST569 and 449 respectively while both gave the English station RST459. G6HD uses 10 watts to a half-wave centre-fed aerial. Incidentally UA3CR reported previous top-band contacts with UA1, 3, 4 and UB5. G5JL worked UB5BC at 0250 on 1860 kc/s. on April 2.

G2BJY will be active during the entire Whitsun week-end on the top-band from 7 a.m.-10 p.m. with I watt from the Malvern Hills. Please watch for him.

Notes and News

Conditions generally have been back to normal, for the time of year on $3\cdot 5$ and 7 Mc/s, whilst 14 Mc/s, has been patchy, with some good periods. 28 Mc/s, has made a surprising come-back with Africans and South Americans predominating. HC8GRC the Guayaquil Amateur Radio Club's expedition station to the Galapagos Is, has been the high light of the

* 29 Kechill Gardens, Hayes, Bromley, Kent.

Contests Diary

National Field Day

1700 B.S.T. June 3 to 1700 B.S.T. June 4.

Direction Finding Contest

Watch for an announcement shortly. Meanwhile, make certain your 1.8 Mc/s, D/F equipment is working.

month. The operators have certainly done a magnificent job and have contacted many British stations in their hundreds of QSOs.

G6GH has worked FKS8AA in the French Zone of Austria on 14020 kc/s.; SP5ZPZ, Box 30, Posnan 5; and KR6CA, c/o A.P.O. 331, P.M., San Francisco. Several members have written to say they hold a QSL from YV1AI, so apologies for last month's slip. PK5HL also QSLs: send cards either via R.S.G.B., or to D. G. Veltcamp Helbach, Box 21, Bandjarmasin, South Borneo. G3FFO says SV1OO sounds and acts like a "phoney." He closes down promptly when asked for his QTH. By the way ZB2A is active again.

MI3DX has now closed down and will be on soon with a VK3 call. MI3UU says that MI3FG QSLs

only to get a card from a new country.

BRS18017 offers the following on 14 Mc/s. 'phone : AR8PO—Box 1119 Beyrouth, OE13LL—A.P.O. 777A U.S. Forces, Austria. On C.W. VR4AA, 14060 kc/s. FB8XX, Kerguelen Islands, 14010 kc/s. CR5SB will be operating in St. Thomas Islands by the time these notes appear. Cards are in from CR4AE, Flavio A. da Cunha, Box 17, St. Vincent, Cape Verde Islands. G6ZO tells us that ex-G6MK is now ZS8MK operating with 15 watts on 14 Mc/s. C.W. QTH Dr. F. L. Markham, Qachafnek, Basutoland. AP5B wants to contact G3BYH.

G3EMD offers solace to the 25 watters. He has 41 states confirmed out of 47 worked. Talking of W.A.S., we were as surprised as GM3DHD to learn that his certificate is only the fifth to be issued to a Scottish station. The A.R.R.L. also state that up to March 9, 1950, out of a total all-time 3198 W.A.S certificates issued, only 68 have gone to British stations.



W.I.A. held their National Field Day on January 29. Here we see VK2WH, 2NS—old-timers will remember him as a pre-war Senior B.E.R.U. winner—and 2AMV, operating portable from Mount Panorama, Bathurst, N.S.W. Unfortunately the event clashed this year with the B.E.R.U. Contest.

BRS11851 reports hearing OH1GW and a station calling a 4X4 on 21 Mc/s. AJ3F Ankara and AJ4EN, Wiesbaden are also—illegally—using this band. BRS16304 of Manchester mentions LU1XP in Rio Grande, Tierra del Fuego and FD3RG in Lomé, French Togoland. Both are on 28 Mc/s. 'phone.

G3BYV is ex-D2HJ, VU2AT, VS2BZ and VS4BZ. He must rival G3CJG and GM3AFG in his wide variety of calls! G2BJY says the address of VP6RJ is Box 92, Barbados. He also comments on the poor standard of behaviour on 14 Mc/s. The reaction to rare DX, he finds, seems to be just to give a long, long call dead on its frequency, then if the DX station is so misguided as to go back to someone else, one should make a long CQ call on the same frequency, just to show the others that it didn't really matter anyway!



Blurb No. 5.

BRS7594 of Yeovil reports AP2N, 14220 kc/s., CR6AI, 14325 kc/s. HP1EA, 14125 kc/s. PZ1Z, 14240 kc/s. PK4DA, 14325 kc/s., YSIES, 14145 kc/s., AR8BA, Nicola 37, Av. de Francais, Beirut. PK1CR, 28205 kc/s., PK1PH, 28610 kc/s. PK3JF, 28435 kc/s. PK4KS, 28130 kc/s. BRS16857, also of Yeovil, gives the QTH of KL7YT, on 14 Mc/s., as Box 1310, Fairbanks. He reports the following heard on 7 Mc/s. during the Easter week-end: CO3BU, KP4HU, KP4LA, CM2SW, W5LS, YT5VP, CX2AU and numerous VK's and ZL's. He has a card from EA6AF and also one from PJ5TR. G2BHN has been doing well with VK's on 14 Mc/s. in the evenings, having worked 19 in 10 days. Mr. R. G. Goulding of Wrexham, reports FK2IAD, FM7WE, YN1LB, VP3MCB, YS1MS, HK3CQ, VA9CQ, UA9KCC, UD6AS, UF6KAF, UJ8KAA, all heard on 14 Mc/s. at one sitting! W3WU says John Powell, well known as VQ3HJP and later as VQ4HJP is in England for 6 months holiday.

Cards await VS7IS, 7HT, 7MB and 7FF also PK1AM and PZ1NB. Will the operators of these stations or anyone knowing their present whereabouts

please write to G2MI?

R.S.G.B. Slow Morse Transmissions

Sundays 09.30 10.00 22.00 Mondays 13.00	G6NA G5XB				
10.00 22.00 Mondays					
10.00 22.00 Mondays	G5YB		1750		Guildford
22.00 Mondays			1950		Reading
Mondays	G2FXA		1900		Stockton-on-Tees
19.00			1000		Stockton-on-1668
	G3AXN		1870		Southend-on-Sea
19.00	G3NC	**	1825		Swindon
20.00	G2AJU		1900		
20.00	G3DSR		1750		Stutton, Ipswich
20.00	G2CLD	• • •	1775		Derby Wall
21.00	G2BLN		1900		Tunbridge Wells
01 00	G8VR	* *		* *	Bournemouth
20 00	G3BHS		1850		London, S.E.2.
00.00	GSTL		1820		Eastleigh, Hants
00.00	G4GA	100	1896	25.00	llford
	G4GA		1896		Chingford
Tuesdays	CC 1 3737		125EE8		TOTAL TOTAL TOTAL
13.00	G3AXN		1870		Southend-on-Sea
19.00	G5XB		1905		Reading
20.00	GI2HLT		1900		Belfast
21.00	G3EFA		1855	+ +	Southport
22.00	G3ELG		1772		Rotherham
22.00	G2FXA		1900		Stockton-on-Tees
22.30	G6JB		1820		Salcombe, Devon
22.30	G3ERD/P	2020	1820		Derby
Wednesdays					
20.00	G2NY	0.00	1850		Preston
20.00	G3AFD		1783		Southampton
22.00	G6NA		1840		Guildford
22.00	G3DLC		1800		Grays, Essex
Thursdays					
18.00	G3AXN		1870		Southend-on-Sea
19.00	G3NC		1825		Swindon
20.00	G3NT		1805		Northallerton
22.00	G2FXA		1900		Stockton-on-Tees
22.00	G3ARU		1990		Wanstead
22.30	G3OB		1803		Manchester
22.30	G3ERD/P		1800		Derby
Fridays			2000		20103
13.00	G3AXN		1870		Southend-on-Sea
19.00	G3BLN		1900		Bournemouth
20.00	G2AJU		1900		Stutton, Ipswich
20.00	G3AKW		1860	::	Wirral
20.30	GSLZ		1868		Gravesend
21.00	G3BHS		1820	::	Eastleigh, Hants
22.30	G6JB	11	1820		Salcombe, Devon
22.30	G3ERD/P		1808		Derby Devon
Saturdays		1.10	-	V.S.	
10.00	G3FPS		1800		East Molesey
23.00	G3CHY		1800	7.5	Ashton-u-Lyne
23.00	G2FXA		1900	**	Stockton-on-Tees

OTHER AMATEURS ARE ASKED TO AVOID CAUSING INTERFERENCE TO THESE TRANSMISSIONS

Volunteers in districts not covered are invited to write to: Mr. C. H. L. Edwards, GSTL, 10 Chepstow Crescent, Newbury Park, Ilford, Essex.

Wear Your Badge!

GM3CDX found himself in a little hotel in Rothsay, Isle of Bute. At the next table sat a young man wearing the R.S.G.B. badge. He turned out to be GM3CYG. From this chance meeting in a lonely spot has sprung a firm friendship and a regular sked.

Hannover Hamfest

MATEURS from the U.K. and other European countries will be warmly welcomed at a Hamfest to be held at the Control Commission Club. Hannover (British Zone of Germany), during the weekend of June 3-4, 1950.

In connection with this event, Mr. H. Andrews, G5DV, 175 Moorland Rd., Weston-super-Mare, Somerset, has obtained from the rail and shipping companies an inclusive travel rate of £10 10s. 0d. per head (London to Hannover return) for a party of 20. Members who would like to join the party should contact Mr. Andrews without delay.

R.S.G.B. Stamp Club

Any member interested in helping to restart the R.S.G.B. members' stamp club should write to Mr. J. D. Kay, G3AAE, 68, Upton Road, Slough, Bucks.



Two Metre Reports

ONDITIONS during April—according to GW2ADZ (Llanymynech)—were generally poor, except during the evening of the 6th. He has again worked G5MR (Hythe, Kent) over a distance of 220 miles.

Raising his beam to 60 ft. above ground, G2CPL (Lowestoft) reports a worth-while, but not spectacular, improvement in results. His new converter consisting of 6J6 push-pull first R.F., push-pull EF91s in both second R.F. and mixer stages, and an EC53 oscillator with an I.F. at 10 Mc/s. shows good promise, but still requires some adjustments to reduce noise. Conditions during April were found to be better than in March, with an increase in GW2ADZ-over 200 miles activity generally. distant-was worked on March 26 at RST 579, and again on the 28th at 559, but on both occasions severe fading was experienced. April 6 was good, but there was an unfortunate lack of activity. G3EHY (Banwell, Som.) was heard at 2237 on that evening, and G2XC (Portsmouth) worked just after midnight with reports of RST 579 and 599 in and out respectively. At 2000 on the same day, G3DIV/A (Eastbourne) gave him his first Sussex station, and just before midnight G3CGQ obliged with a "first" into Bedfordshire. April 20 from 2200 G.M.T. onwards yielded contacts with PA0HA, NL and RK at RST 569, 579 and 599 respectively.

G3EHY (Banwell) confirms from experience the advantages to be gained by the use of stacked arrays. The design of his present and most successful beam is based on the suggested layout referred to on page 21 of V.H.F. Technique. It consists of two 3-element Yagi aerials set one above the other with quarter wave spacing, and with the two dipoles interconnected by a quarter wave matching section. This arrangement seems to combine the good features of both the stack and the Yagi, and out-performs any other array so far tried. But as 'EHY points out, matching between the two sections and—most important—to the feeder, must be very carefully carried out in order to realise the full capabilities of the system.

The last week in March and the first in April proved exceptionally good, the band being open to the north and south-east on Banwell every night without exception, and many contacts both on 'phone and C.W. were made with stations in the Liverpool, Manchester and London areas. This period coincided with temperatures during the early evening of just over 50°, following much warmer days, the barometer standing between 29.5 and 30 in. all the time. When on the 8th pressure fell to around 29 in., and a westerly wind brought rain and cooler weather, the workable distance fell to about 100 miles, while signals which had been S9 fell to around S4. G2OI (Manchester) whose signals were readable nearly every evening, was the one exception. Among other stations contacted during the month were G2XS (Kings Lynn), G3AUH (Derbyshire), and G5UD.

G3BW (Whitehaven, Cumberland), who has been heard at RST 449 by G3ABH (Poole, Dorset), is active every evening from 2100 B.S.T. onwards, on 144·168 Mc/s. His nearest 2-metre "neighbours" are GM3OL, 38 miles to the north, and G2OI, 100 miles to the south, with whom he has a regular sked. at 2200 B.S.T.

Referring to the remark in the March issue to the effect that PA0EO had apparently only been received along the south-west coast of England, BRS.11290 (Norwich), writes that he heard the Dutch station between 1200 and 1240 G.M.T., on January 1, calling G2BMZ, at a strength varying between S5 and S9. The receiver in use at the time was a modified BC624. So far no G-DX has come his way.

G2AHP (Perivale, Middlesex), suggests that many QSOs at present made on the lower communication frequencies could well be transferred to 2 metres, and that radio clubs working regularly on this band should make known their times of operation. He would welcome an article describing any modification of the SCR522 to avoid T.V.I.; he thinks there must be many users of this popular transmitter who suffer from this trouble. 'AHP, who employs an SCR522 with plate and screen modulation, a "3 over 3" beam and a 6J6 converter, has already worked 70 stations including G3DEP and 3FAW.

Spotlight on...

PORTABLE LICENCES

A UTHORITY to establish an "Amateur wireless sending and receiving station as a portable station on land in the open air within a distance of ten miles from a named point but not within one mile of any Government wireless station" can be obtained from the G.P.O. by holders of amateur transmitting licences providing that the reason for requiring this facility is satisfactory.

- When the station is operated portable /P (stroke P) should be added to the call sign.
- The permits are issued subject to the normal terms of the amateur licence and to the additional condition that the station must not at any time be established or worked at more than one of the authorised places.
- Input power must not exceed 25 watts (10 watts within the 1⋅8 Mc/s. band).
- An additional fee of 10/- per annum is charged. This does not apply to official N.F.D. permits which are issued free of charge.

The importance of aerial height has been demonstrated in no uncertain manner to G2UJ (Tunbridge Wells), whose 6-element stacked array is now over 40 ft. above ground instead of just over half that height. Not only are most stations received at far greater strength, but the improvement in incoming reports is so great as to be almost unbelievable: for example, G6UH (Hayes, Middlesex), reports that signals have increased by no less than five S points on his signal strength meter. Admittedly, this improvement includes an increase in power input from 20 to approximately 70 watts, but before the aerial was raised in height, little advantage was apparent from this additional 50 watts. GW2ADZ and 3AHT (Oswestry), were raised on April 22, after many abortive attempts in the past, reports being RST 57/99 and 549 respectively.

A station of interest to those wishing to add Sussex to their list, is G3DIV/A (Eastbourne), who, on present showing, should be well in the running for possible DX this summer. So far, he has worked one Dutch and several French stations, but hears many more signals from France than he can raise. French, Belgian and Dutch stations, who would like a contact with this country, should look out for him on approximately 145 Mc/s. G3DIV is one of the few 2-metre stations using a V.F.O. which, although possessing a slightly modulated note, is remarkably stable and compares more than favourably with quite a number of the C.C. transmissions

heard recently.

Another operator who is doing well on the band, is old-timer G6LL (Cuffley), whose 'phone and C.W. transmissions on approximately 144.1 Mc/s. are already well known. His signals recently penetrated to F8NW among others. G8LY (Lee-on-Solent), is active when other duties permit, with either 'phone or C.W., on a frequency of 145-31 Mc/s.

Two Metres in Scotland

Recent contacts for GM5VG (Glasgow), include GM2DI, 3BDA, BFT, EGW, EHI, ENJ, FOW, FVX, LO, 4HX, NK, QV, 6KH and 6WL. Apart from this evidence of activity north of the Border, it is understood that 144 Mc/s. stations are also operating in Aberdeen and Dundee, but no details are available. We look forward to reporting a number of G/GM contacts in the coming months.

"Short Wave News" Contest

The first contest arranged by our contemporary was the occasion for a positive spate of activity during the week-end April 22-23, and appeared to be much enjoyed by all concerned. Conditions were quite good on the Saturday until the evening, when the onset of colder weather made the longer distance paths more difficult to work. Although conditions were distinctly poor on the following day, activity continued at a high level, however, and many The fact that interesting contacts were made. success was not wholly dependent upon the number of stations worked resulted in longer exchanges between stations than is common in such events, a pleasant change from the necessarily "rubber stamp" QSOs of the points-only type of test. We look forward to a repeat at some future date.

OH/SM—G Two Metre Tests

SM5VL sends details of the schedule which will be kept by the stations participating in the R.S.G.B.-Scandinavian 2-metre tests commencing on May 15 and continuing daily until further notice. All times are G.M.T. OH2OK, Helsinki, 144-005 Mc/s.,

transmits: 1950–1952, 1955–1957, off 2000. SM7BE, Lund, 144.72 Me/s., transmits: 2000–

2005, off 2010.

SM5VL, Stockholm, 144:24 Mc/s., transmits:

2015-2020, 2025-2030, off 2035 (except Saturdays). SM5ABC (144 26 Me/s.), and SM5AFM (144 11 Mc/s.), will participate as opportunity offers and will operate according to the times given for SM5VL.

Technical Tip

It is sometimes noticed when using an E.C.O. in a V.H.F. superhet receiver, that all incoming carriers have 50 cycle modulation superimposed upon them despite the fact that the valve is supplied from a source of stabilised H.T. This is usually due to the heater-cathode insulation being in parallel with that portion of the coil between the cathode tap and the earth line. G3GX (Southgate), offers the following solution: connect one side of the heater to the cathode and feed the other heater lead through an R.F.C., consisting of about 20 in. of 18 or 20 S.W.G. wire wound on a 1 in. former. This, plus an H.T. neon stabiliser, completely removes the trouble.



70 cm. Activity

G2CNT and 2XV (Cambridge), are both regularly active on this band, their times of operation being given under "70 cm. skeds.". The aerial in use at 2CNT is a 10-element Yagi plus a corner reflector, and at 2XV a dipole in a similar reflector. Power is 5 to 7 watts, and M.C.W. is employed during the sked. transmissions. Both stations are co-operating with G3FUL (Luton), but would like to hear from someone willing to carry out tests from a site about half-way between themselves and London. Skeds. with any other stations are welcomed.

GM5VG and 6WL (Glasgow), are active in Scotland, while GW2ADZ and 4LU (Oswestry), will commence operation shortly. BRS.11290, Hern Rise, Rockland St. Mary, Norwich, has recently erected a 16-element beam and is willing to co-

operate in tests.

70 cm. Skeds.

G2CNT and 2XV (Cambridge), 426 and 424 Mc/s. approx. Beamed towards London. All times B.S.T. Daily, 2200; Wednesdays, 2100 onwards; Sundays, 1000, 1100, 1200, 2200.

We hope to publish an account of the R.S.G.B. Two-Metre Contest in our next issue. Please send all monthly reports by May 22, the earlier closing date being due to the Whitsun holidays. Good hunting!

> Mention the Bulletin when writing to Advertisers-it helps them and us

Pioneer British Amateur T. V. Demonstration

The following abridged account is reproduced from CQ-TV, the publication of the British Amateur Television Club. The demonstration referred to was witnessed by representatives of the National Press.

HE first public demonstration of Amateur Television took place on April 21st, 1950, at an open meeting of the Shefford and District Short Wave Society with 250 people present.

The proceedings were televised for a period of 2½ hours by Mr. Ivan Howard, G2DUS (A.R. for North Bedfordshire), using his 250 line Iconoscope

camera equipment over a closed circuit.

The studio was placed at one end of the hall behind a large tarpaulin screen and the audience viewed the results on a 15 inch tube placed in front of the

The proceedings were opened by Mr. M. W. S. Barlow, G3CVO (Hon. Secretary of the British Amateur Television Club), who announced that the meeting would be conducted in the normal manner but that it would be televised. Brief speeches were then made by the Chairman and Treasurer. G3CVO described the aims and objects of the B.A.T.C., and this was followed by a short sketch by a local comedian. Then came audience interviews (during which the tarpaulin was removed to show what was happening) and a question and answer period.

After a break for refreshment a "junk sale with a difference" was conducted, each item, held in close, up, being clearly visible at the back of the crowded hall. The proceedings finally terminated at

11 p.m.
The scene in the studio, which measured about four feet square and allowed two persons to sit side by side, was lit by four photofloods and two Aldis lamps. Owing to the confined space, accurate lighting

was difficult, but very good head and shoulder reproduction was possible. Two microphones and a pick-up channel were used with a "sound engineer" in attendance complete with headphones. camera was mounted on an old floodlight stand for tracking purposes, the pulsing gear being on the same stand. Only three cables—power, video (coax.) and sync. (twin-shielded)-connected the camera to the rest of the apparatus.

A 9 in. monitor tube was visible to both camera operator (who also had a 3 in. view-finder tube) and "victim," provided the latter could look beyond the photofloods! A little trouble was caused by the heat from the photofloods and by microphonic camera valves when people moved across the stage. White sheets were hung up to increase the general illuminations and test cards and stills were mounted on the

The fact that the equipment ran perfectly the whole time—a matter of some five hours—is a tribute to the care taken in its construction.

The press reports following the initial demonstration were most enthusiastic—one at least suggesting that the results were "better than B.B.C. quality!

In staging the demonstration the B.A.T.C. hoped to draw attention to the fact that the P.M.G. has so far refused to authorise amateurs to transmit television, even in an amateur band.

G2DUS who received the well deserved congratulations of the audience, hopes to arrange a further demonstration shortly in London for the benefit of the R.S.G.B.

R.E.C.M.F. Exhibition

 HERE were 102 exhibitors at the seventh Radio and Electronic Components Exhibition held in London during April. The latest components, accessories, valves and test gear, as well as the materials used in their manufacture, were shown to British and overseas trade representatives and engineers. The importance of this section of the radio industry can be gauged from the 1949 export figures, now available: components valued at £3,900,000 and valves worth £1,900,000 were exported out of a total of £12,352,000 for the entire industry.

The 1950 exhibition confirmed last year's impression that the emphasis is still on miniaturisation: not only for deaf aids and airborne equipment, but for wide application in the design of compact broadcast, television and communications equipment. It must be admitted that the average amateur station is only just beginning to make use of these interesting developments, despite the popularity of the war-time miniature communications receiver

MCR1.

The rise in general standards of robustness and reliability has been encouraged by the Radio Industry Council which has just issued the first of a series of specifications giving advice on the quality and design of components. But though a trend towards standardisation is noticeable, many British firms continue to specialise in unusual components for particular applications. The influence of the Wireless Telegraphy Act, 1949 could be seen in the comprehensive range of interference suppressors. Altogether almost 200 different categories of products were on show.

There were several innovations of general interest;

apart from many extensions to existing ranges. brief selection included: midget potentiometers (Morganite) and midget rotary switches (AB- Metal Products), claimed to be the smallest in the world; a flashing signal device designed to attract attention more rapidly than a continuous light (Bulgin); flat sub-miniature valves of minute dimensions (Mullard); 1000 V. working mica compression trimmers and ganged air-spaced trimmers (Cyldon); low current fuses and fluorescent lighting interference suppressors (Belling and Lee); miniature selenium H.T. rectifiers (S.T.C.); an optical unit for use with $2\frac{1}{2}$ in. projection C.R. tubes (Mullard).

The Ministry of Supply stand showed how the official research establishments are helping to develop new materials, constructional techniques and lightweight power supplies: a striking example in weight reduction and compactness being provided by a series of electrically similar multi-vibrator circuits built in the latest; as well as orthodox, styles. If present trends continue magnifying glasses may prove essential at the next R.E.C.M.F. Exhibition which is to be held at Grosvenor House, London, from April 10 to 12, 1951.

T.V.I.

R. BRYAN GROOM, GM6RG, asks "has anyone tried the effect of inserting a small, suitably tuned, circuit in the cathode lead of the final—or for that matter any other stage—tuned to the undesired harmonic? Such an arrangement will give heavy negative feedback at the resonant frequency and should help a lot." Has any reader experimented along the lines suggested?

		REGION I	
Town or Area	Stn.	Call Sign	Location
Ashton-u-Lyne	A	G3BY/P	Fletcher's Farm, Hud dersfield Road, Mill
Blackpool	A	G5PX/P G5WM/P	brook, Stalybridge. As A station. Fylde Water Boare Water Works, War breck Hill, Leys Road
	В	G8GG/P	off Devonshire Road North Shore. As A station.
Bolton	A	G2BTO/P	Top O'th Heights Farm Morris Green.
Burnley	A B	G2HGR/P G8TD/P G3SJ/P	As A station, Crown Point, As A station,
Bury	Ä	G2GA/P	Stand Unitarian Cricke Club, Ringley Road Whitefield.
Chester	B	G3BRS/P G3CIZ/P	As A station. Dutton's Nurseries Queen's Park.
Darwen	A	G2HW/P	Land adjoining Roya
Liverpool	A	G8DI/P	Hotel, Tockholes. Liverpool Electricit; Supply Dept., Sport Field, Thingwall Road
	В	G3DPZ/P	Liverpool, 15. Automatic Telephone & Electric Co., Ltd. Sports Field, Child wall.
Preston	AB	$_{\rm G3PJ/P}^{\rm G2NY/P}$	Wyngarth, Bilsborough Fishwick Hall Golf Club Mornington Road.
Southport	AB	G3EFA/P G3FJG/P	Meols Hall.
Workington	A	G3SY/P	Tarnflatts Farm, St Bees.
Wirral	B A B	G3GAT/P G2AMV/P G3CK/P	As A station. Thingwall Road, Irby. Manor Farm, Noctorum Birkenhead.
		REGION 2	
Barnsley	A	G5IV/P	Keresforth Hill Farm.
Bradford	A.	G6LZ/P G3ADQ/P	As A station. Grounds of St. Barnaba
	В	G2DJS/P	Hall, Heaton. Poplar Grove, Grea Horton.
Darlington	A	G2CKN/P	Maidendale Farm, Yarn Road.
	1.0		As A station.
Hull	A	G3BQJ/P G2KO/P	Field adjoining But cher's House, Garton
Hull			Field adjoining But cher's House, Garton on-the-Wolds. Field adjoining recrea tion Ground, De L. Pole Hospital, Wil
	Ā	G2KO/P	Field adjoining But cher's House, Garton on-the-Wolds. Field adjoining recrea tion Ground, De La Pole Hospital, Wil lerby. Ormesby Bank Top
Middlesbrough	A B A B	G2KO/P G3PL/P G5YP/P G3CFC/P	Field adjoining But cher's House, Garton on-the-Wolds. Field adjoining recrea tion Ground, De La Pole Hospital, Wil lerby, Ormesby Bank Top Ormesby Bank. As A station.
Middlesbrough Northumberland	A B A B	G2KO/P G3PL/P G5YP/P G3CFC/P G4LX/P G4QA/P	Field adjoining But cher's House, Garton on-the-Wolds. Field adjoining recrea tion Ground, De La Pole Hospital, Wil lerby. Ormesby Bank Top Ormesby Bank Top Ormesby Bank. As A station. Stannington Airfield. As A station.
Middlesbrough Northumberland Richmond and Catterick	A B A B A	G2KO/P G3PL/P G5YP/P G3CFC/P	Field adjoining But cher's House, Garton on-the-Wolds. Field adjoining recrea- tion Ground, De La Pole Hospital, Wil- lerby. Ormesby Bank. Top Ormesby Bank. As A station. Stannington Airfield. As A station. Oliver Duckett, 1 mil- N.N.E. Richmond. Boys High School Field,
Middlesbrough Northumberland Richmond and Catterick Scarborough	A B A B B A	G2KO/P G3PL/P G5YP/P G3CFC/P G4LX/P G4QA/P G2HNL/P G8KU/P G5MV/P	Field adjoining But cher's House, Garton on-the-Wolds. Field adjoining recrea tion Ground, De La Pole Hospital, Wil lerby. Ormesby Bank Top Ormesby Bank. As A station. Stannington Airfield. As A station. Oliver Duckett, 1 mile N.N.E. Richmond. Boys High School Field, Oliver's Mount.
Middlesbrough Northumberland Richmond and Catterick Scarborough	A B A B B A B B A B	G2KO/P G3PL/P G5YP/P G3SFC/P G4LX/P G4QA/P G2HNL/P G8KU/P G5MV/P G5MV/P G5TO/P	Field adjoining But cher's House, Garton on-the-Wolds. Field adjoining recreation Ground, De La Pole Hospital, Wil lerby, Ormesby Bank. Top Ormesby Bank. As A station. Stannington Airfield. As A station. Oliver Duckett, 1 mile N.N.E. Richmond. Boys High School Field,
Middlesbrough Northumberland Richmond and Catterick Scarborough Sheffield	A B A B B A B A	G2KO/P G3PL/P G5YP/P G3CFC/P G4LX/P G4QA/P G2HNL/P G8KU/P G8NN/P G5TO/P G8NF/P G3ATM/P	Field adjoining But cher's House, Garton on-the-Wolds. Field adjoining recreation Ground, De La Pole Hospital, Willerby, Ormesby Bank Top Ormesby Bank. As A station. Stannington Airfield. As A station. Oliver Duckett, 1 mile N.N.E. Richmond. Boys High School Field, Oliver's Mount. As A station. Dore Moor. Ringinglow. Cop Hill.
Middlesbrough Northumberland Richmond and Catterick Scarborough Sheffield Slaithwaite	A B A B B A B A	G2KO/P G3PL/P G5YP/P G3CFC/P G4LX/P G4UX/P G2HNL/P G8KU/P G5MV/P G5TO/P G8NF/P	Field adjoining But cher's House, Garton on-the-Wolds. Field adjoining recreation Ground, De La Pole Hospital, Willerby, Ormesby Bank Top Ormesby Bank. As A station. Stannington Airfield. As A station. Oliver Duckett, 1 mile N.N.E. Richmond. Boys High School Field, Oliver's Mount. As A station. Dore Moor. Ringinglow. Cop Hill. As A station. West Park. Whitburn, 3 miles north
Middlesbrough Northumberland Richmond and Catterick Scarborough Sheffield Slaithwaite South Shields* Sunderland*	A B A B B A B A B A B A B A B A B A B B A B B A B A B B B B B A B	G2KO/P G3PL/P G3PL/P G3PL/P G3CFC/P G4LX/P G4QA/P G2HNL/P G8KU/P G5MV/P G8NN/P G5TO/P G3ATM/P G3DDI/P	Field adjoining But cher's House, Garton on-the-Wolds. Field adjoining recreation Ground, De La Pole Hospital, Willerby, Ormesby Bank Top Ormesby Bank Top Ormesby Bank. As A station. Stannington Airfield. As A station. Oliver Duckett, 1 mile N.N.E. Richmond. Boys High School Field, Oliver's Mount. As A station. Dore Moor. Ringinglow. Cop Hill. As A station. West Park. Whitburn, 3 miles north of Sunderland. Garrow Hill, Heslingtor
Middlesbrough Northumberland Richmond and Catterick Scarborough Sheffield Slaithvaite South Shields* Sunderland*	A B B B B A B A B B A B B	G2KO/P G3PL/P G3PL/P G3PL/P G3CFC/P G4UX/P G4QA/P G2HNL/P G8KU/P G5MV/P G8NN/P G5TO/P G3DTI/P G3CSR/P	Field adjoining But cher's House, Garton on-the-Wolds. Field adjoining recreation Ground, De La Pole Hospital, Willerby, Ormesby Bank Top Ormesby Bank Top Ormesby Bank As A station. Stannington Airfield. As A station. Oliver Duckett, 1 mil N.N.E. Richmond. Boys High School Field, Oliver's Mount. As A station. Dore Moor. Ringinglow. Cop Hill. As A station. West Park. Whitburn, 3 miles north of Sunderland.
Middlesbrough Northumberland Richmond and Catterick Scarborough Sheffield Slaithwaite South Shields* Sunderland*	A B A B B A B A B A B A B A B A B A B A	G2KO/P G3PL/P G3PL/P G3YP/P G3GFC/P G4UX/P G4QA/P G2HNL/P G8KU/P G5TO/P G8NY/P G3TM/P G3CSR/P G3FYP/P	Field adjoining But cher's House, Garton on-the-Wolds. Field adjoining recreation Ground, De La Pole Hospital, Willerby, Ormesby Bank Top Ormesby Bank Top Ormesby Bank As A station. Stannington Airfield. As A station. Oliver Duckett, 1 mil N.N.E. Richmond. Boys High School Field, Oliver's Mount. As A station. Dore Moor. Ringinglow. Cop Hill. As A station. West Park. Whitburn, 3 miles north of Sunderland. Garrow Hill, Heslingtor Road.
Middlesbrough Northumberland Richmond and Catterick Scarborough Sheffield Slaithwaite South Shields* Sunderland*	A B A B B A B A B A B A B A B A B A B A	G2KO/P G3PL/P G3PL/P G3PL/P G3CFC/P G4LX/P G4LX/P G4QA/P G2HNL/P G8KU/P G5MV/P G5TO/P G3NF/P G3ATM/P G3CSR/P G3CSR/P G3FYP/P G5KC/P	Field adjoining But cher's House, Garton on-the-Wolds. Field adjoining recreation Ground, De La Pole Hospital, Willerby, Ormesby Bank Top Ormesby Bank Top Ormesby Bank As A station. Stannington Airfield. As A station. Oliver Duckett, 1 mil N.N.E. Richmond. Boys High School Field, Oliver's Mount. As A station. Dore Moor. Ringinglow. Cop Hill. As A station. West Park. Whitburn, 3 miles north of Sunderland. Garrow Hill, Heslingtor Road.

NATIONAL

Iune 3

The following is a list of stations for which apple operate portable at the sites indicated. Entry form N.F.D. Rules appeared in the Fe

REGION 3—continued

Town or Ar	Town or Area		Call Sign	Location			
Birmingham (South)	*	A	G8JI/P	Shenley Farm, North-field.			
		В	G8PN/P	As A station.			
Malvern		Ā	G2AO/P	Messrs. Guiness' Hop Farm, Braces Leigh.			
		В	G2XX/P	As A station.			
Rugby		A	G3GG/P	Water Town Farm.			
atagog		R	G4KK/P	As A station.			
Stourbridge	**	A A	G2NV/P	King Edward's VI School Playing Fields			
		В	G6OJ/P	As A station.			
Worcester	**	Ä	G3GJL/P	Field next to Mr. J. H. Somer, 'Newtown Grange Farm, Ronks- wood.			
		В	G8JC/P	As A station,			

REGION 4

Boston	**	A B	G8BQ/P G2AAS/P	Glebe Field, Stickney. Mill Field, Old Boling-
Cranwell	• •	A	G6PZ/P	broke. Field adjoining North Aerodrome, R.A.F.,
			COT TO CO	Cranwell.
Donley	-21	B	G2LR/P G3ERD/P	As A station. Glebe Farm, Blagreaves
Derby	* *	A	GSERD/P	Lane, Littleover.
		В	G5YY/P	As A station.
Grimsby	20	Ä	G4GZ/P	At crossroads of Station
ar since g				Road (B1203) and
				Grimsby Road (B1219), Waltham.
		B	G4XC/P	As A station.
Leicester		A	G4BB/P	Oadby Waterworks,
				Glen Road.
		В	G2RI/P	White House, Scrap-
			2.5000000000000000000000000000000000000	toft.
Lincoln	**	A	G4BU/P	Hill Top Field, White Hall Farm, Brace- bridge Heath.
		В	G5XL/P	As A station.
Loughborough		A	G4MM/P	Seagrave Road, Walton-
			TO THE STREET, ST.	le-Wolds.
		В	G2KK/P	Broombriggs Hill,
200				Woodhouse Eaves.
Mansfield	**	A	G8HX/P	Rushley Farm, Derby Road, Sutton-in-Ash- field.
		В	G3FR/P	Kirkby Cowpastures,
			00111/1	Kirkby-in-Ashfield.
Northampton		A	G2AAA/P	Lamport Airfield (ex
				R.A.F.).
		В	G4MU/P	As A station.
Nottingham		A	G6CW/P	East Bridgford.
and of the same		В	G8QZ/P	As A station.
Peterborough	4.4	A	G3EEL/P	Manor Farm, Upton
		В	G3BHD/P	As A station.
Retford	**	В	G3BTU/P	Plaster Pit Hill, Little Gringley, Nr. Retford (2 miles due east of Market Place).
Worksop	**	A	G3AUZ/P	Mr. Slaney's Field, Blyth Grove.
		В	G8ON/P	As A station.

REGION 5

Cambridge	 A	G4MW/P	Bishop's Charity Farm, Gog Magog Hills.
	В	G8PB/P	Bendall's Farm, Bottis- bam.
Chelmsford	 A	G5RV/P	Running Mare, Galley- wood.
	В	G3BLA/P	As A station.

4 1950

ication has been made to the G.P.O. for permission to will be issued from Headquarters prior to the event. oruary 1950, issue of the Bulletin.

REGION 5—continued

Town or Area	Stn.	Call Sign	Location
Gt. Yarmouth	A	G3EQS/P	Gorleston Cliffs (100 yards south of Royal Observers' Post).
	В	G3AJP/P	The Poor Land, Main Road, Fritton.
Ipswich	AB	G4RW/P	Peewit Hill, Felixstowe.
	В	G8MU/P	Post Office Farm, Stut- ton.
Norwich	A	G2YU/P	Buxton's Field, Mile Cross Lane.
	В	G3VM/P	As A station.
Southend-on-Sea	A	G5QK/P	Thundersley Glen.
	B	G5VQ/P	Covertside, Hockley.

REGION 6

High Wycombe	A	G3FSZ/P	Oakdene, Amersham Road, Hazlemere.
	В	G3DQC/P	As A station.
Luton	A	G3ASD/P	Old Brickworks' Field, Stopsley,
	В	G3AST/P	As A station.
North Bucks	A	G2DTD/P	Rectory Farm, Lough- ton Bletchley.
	В	G3AZ/P	London Brick Co.'s Works, Newton Long- ville.
Oxford	A	G8PX/P	Watts Farm, Elsfield (4 miles N.E. Oxford).
	В	G2DU/P	As A station.
Shefford	A	G4OL/P	Roman Camp, Meppers- hall.

REGION 7

Barnes and Richmond		A ·	G6RC/P	Bank of England Sports Club, Priory Lane, S.W.15.
		В	G4GD/P	As A station.
Barnet	• •	Ä	G3FFA/P	Former P.O.W. Camp Site, St. Albans Road (‡ mile north of Green
		В	G6CY/P	Dragon). A.A. Battery Site, Friern Barnet Lane,
Beaconsfield		A	G3BI/P	N.20. Long Bottom, Seer Green.
Bexley		A	G3ENT/P	Physical Training Col- lege, Dartford Heath, Dartford.
Brentwood		A	G3LA/P	Woodlands Farm, Swal- low's Cross, Nr. Mountnessing (400 yards from Swallows Cross Green).
		В	G8RC/P	As A station.
Bromley and Beckenham		Ä	G6HD/P	Field opposite Buxton Browne's Research Farm, Downe.
		В	G4AU/P	As A station.
Chingford	•	Ā	G8JM/P	Bury Farm, Seward- stonebury.
		В	G8AL/P	As A station.
Coulsdon		A	G2DN/P	Field above Hall & Co. Lime Works.
		В	G2KU	As A station,
Cray Valley*(1)		В	G3MZ/P	K.E.C. Grounds, Sideup.
Croydon	• •	A	G2RD/P	Addington Hills, Shir- ley (near cafe.)
S S S		В	G5BZ/P	As A station.)
Dagenham	• •	В	G2AKY/P	Dagenham County High School Playing Fields.
Dulwich/New Cross		A	G3CU/P	Rear of Goldsmiths College, Lewisham High Road, S.E.14.
		В	G3ACC/P	Crystal Palace, Crystal Palace Parade, S.E.19.
	- 1	100		The profession was a series of the profession of the

REGION 7—continued

Town or Area	Stn.	Call Sign	Location
Ealing	A	G81H/P	Hanger Hill Estate be tween Hanger Lan
East Ham	B A	$_{\rm G2ZZ/P}^{\rm G3CBN/P}$	and Heathcroft, W.5 As A station. Lady Trowers Sports
East Molesey	B	G3CJQ/P G6GB/P	Ground, Burgess Road As A station, Broadmoor, Nr. Dork
	В	G81P/P	ing. Chobham Common
Finsbury Park	A	G3DCC/P	Surrey. A.A. Gun Site. As A station.
ALICE OF COMPANY	В	G2BAB/P	As A station.
Gravesend*(1)	A	G3FST/P	Shorne Hill, Shorne.
Grays Hayes	A	G3DLC/P G8FA/P	Cranes, West Tilbury. Rush Green Farm, Den ham.
	В	G3XD/P	As A station.
Hendon–Edgware	Ā	G5FG/P	Weedon's Farm, Nar Clark's Lane, Mill Hill N.W.7.
Hoddesdon*(2)	B	G2IM/P G4HJ/P	As A station. Monks Green Farm Brickenden.
Ilford	A	G8TL/P	East London Mission Field, Lambourne End
Appropriate State of	В	G6HU/P	As A station.
Lewisham	A	G2DHV/P	Point Hill Park Greenwich (top of Blackheath Hill),
Plumstead— Abbey Wood	A	G3E1W/P	Rear of Woolwich War Memorial Hospital Shooters Hill.
	B	G3FRB/P	As A station.
Redhill and Reigate	A	G5LK/P	Madeira Walk, near Wray Common.
Romford	A	G2AJS/P G4KF/P	Caterham School Estate Bedford's Park, Haver- ing-atte-Bower (NGR 927515).
Slough	A B	$_{\rm G6CJ/P}^{\rm G3XH/P}$	Taplow Court, Taplow Berry Farm, Wexham Street, Slough.
Sutton and Cheam	A	G8DF/P	Wandgas Sports Ground, Grafton Road Worcester Park.
	В	G4DH/P	As A station.
Uxbridge	A	G2FMF/P	Near entrance to Uxbridge Municipa Golf Course entered from the Drive, Hare- field Place.
	В	G6JJ/P	As A station.
Wanstead and Woodford	В	G8PC/P	The Sports Grounds attached to Forest School, Snaresbrook
Watford	A	G2QB/P	E.17. Royal Junior Masonic School Playing Fields adjoining London Road, Bushey.
Welwyn Garden	A	G5UM/P	Digswell Road.

REGION 8

Ashford	A	G2JF/P	Paddock Hill, Smeeth.
Bognor Regis	A	G2QT/P G6AJ/P	Coppice Farm, Birdham,
	В	G3CAB/P	Nr. Chichester. As A station.
Bournemouth	A	G3FVU/P	St. Catherine's Hill, Nr. Christchurch.
	В	G2DBF/P	Turberry Common, Wallisdown.
Brighton and Hove	A	G5AO/P	Brown Loaf Farm, Race Hill, Woodingdean,
	В	G3YY/P	As A station.
Christchurch	Ā	G3CSX/P	Bure Homage, A Site, Mudeford.
	В	GSDL/P	As A station.
Eastbourne	A	G3DIV/P	Sanatorium Hill.
	B	G4FV/P	As A station.
Isle of Thanet	Ā	GSQB/P	Foreness Recreation Ground, Palm Bay, Margate,
Isle of Wight	A	G3FAN/P	Brading Down (NGR 180/594871).
Medway Towns	A	G6KT/P	Land adjacent to 520 Maidstone Road, Wig- more.
	В	G5FN/P	Batchelors Field, Rochester-Maidstone Road, Rochester (about 2 miles S.W.).

	REC	GION 8—cont	inued	REGION II			
Town or Area	Stn.	Call Sign	Location	Town or Area	Stn.	Call Sign	Location
Petersfield	A	G2XC/P	Field at western end of Drill Hall Road, Horn-	Llandudno	A	GW4MZ/P	Ex Radar Station Com- pound, Great Ormes
Portsmouth	A	G6NZ/P	dean. Field of V. G. Gauntlett, Dairy Farmer, Crook- horn.	Flintshire	B A	GW3ELM/P GW4CX/P	Head. As A station. The Recreation Ground,
Reading	A	G8WC/P G6WO/P	As A station. Turner's Farm, City Road, Tilehurst.	-			Caerwys.
Southampton	B	GSTH/P G6II/P	As A station. Netley Hill Common.			REGION 12	
Tunbridge Wells	A	G8FG/P G2UJ/P	As A station. Adjoining Cricket Ground, Lamberhurst Quarter, Lamberhurst.	Aberdeen Banff	A B A	GM3ALB/P GM2FTN/P GM3DPK/P	Banchory Devenick. As A station. Old Manse Farm, Boyn-
Worthing	A	G8KG/P G3BF/P	As A station. Paddock west of former Radar Station, Pala-	Dundee	B	GM3EXS/P GM4HR/P	As A station. Blairfield, Birkhill,
	В	G4NY/P	tine Road, Durrington (NGR51/117041). The Football Field, Tit-	Late September	В	GM4NR/P	Angus. Gagie Den, Wellbank, Angus.
	ь	WANT/F	nore Lane, Goring (NGR51/103049).	Forfar	A	GM2HIK/P	South-west side of Lour Hill, Angus.
	<u></u>			Montrose	A	GM3EAK/P GM3KC/P	As A station. Strathella Farm, Rossie
	_	REGION 9		Stonehaven	B A	GM4MQ/P GM3EHH/P	Moor. As A station. Beside wood on Uras Farm, 300 yards S.E.
Bath	A	G8DX/P	Chapel Farm, Lans- downe (opposite Blath-	//	В	GM3AXR/P	of Crawton Crossroad. As A station.
Bristol	A	G6RB/P	wayt Arms Hotel). Dundry Common, Dun-	-		REGION 13	
	В	G3RQ/P	dry Hill. Sweet's Farm, Dundry	-			Towns and the second
Cheltenham [A	G5BK/P	Hill. Hartley Farm, Leck- hampton Hill.	Dunfermline	AB	GM3ACD/P GM3EGW/P	Bellyeoman Farm.
	В	G5BM/P	St. Mark's Community Centre, Playing Fields, Brooklyn Road, St.	Berwick-on-Tweed	A	G2YY/P	Berwick Hill (1 mile south of Berwick-on- Tweed).
Dorchester-	A	G2TZ/P	Marks. Askerswell Down, Nr.	Edinburgh	A	G6UC/P GM5YW/P	As A station. Eastfield Farm, Peni- cuik, Midlothian.
Weymouth Exeter	A	G3JW/P	Dorchester, Conways Meadow,		В	GM5HL/P	Oakbank, Straiton
	В	G5QA/P	Exminster, Huntsland Farm,				Farm, Straiton, Loan- head.
Falmouth	A	G8AW/P	Cheyne Gate, Pinhoe. Woodhill Farm, Ros-		-	PECION 14	
Gloucester	B	G6LV/P G3MA/P	crow, Nr. Penryn. As A station. Spoonbed Farm, Pains-	-		REGION 14	
North Devon	B	G2RT/P G2DOW/P	wick Beacon. As A station. Catsborough Cross,	Falkirk	A B	GM4JQ/P GM4MF/P	Near Carronbridge Hotel, by Denny. As A station.
North Deton	В	G6GM/P	Monkleigh, Nr. Bide- ford.	Glasgow	A B	GM8MJ/P	Lickprivick Farm, East Kilbride.
Plymouth	A	G3TX/P	Featherlands Farm, Chilsworthy, Hols- worthy. Atwill's Farm, Collaton	Ayrshire	A B	GM8RJ/P GM6RV/P GM3DJS/P	As A station. Heathfield, Prestwick. As A station.
3/10/31/10		Name of the	Cross, Nr. Newton Ferrers.	-		REGION IS	
Stroud	A	G5ZT/P G5HC/P	As A station. Lypiatt.	1	-	N20.011 13	
Swindon	A	G5WA/P G2MM/P	As A station. Paddock adjoining Gable Cottage, Broad Hinton.	Belfast	A B	GI5SJ/P GI2FHN/P	Hilkiah Farm, Bally- sillan Road. Bryansburn Lane, Ban- gor West
Torbay	A	G4AP/P G3AVF/P	As A station. Near Kingskerswell				gor West.
West Comment	В	G2GK/P	(NGR 20/872.658). As A station.	V-	СН	ANNEL ISLA	NDS
West Cornwall	В	G2WW/P	Chyenhall Farm, Chyen- hall, Paul, Penzance.		١.	ccorac a	Touch Ob Monting
West Wilts	A	G2PS/P	Stuart White's Farm, near White Horse Landmark, Westbury.	Guernsey Jersey	A B A	GC2FZC/P GC3ZU/P GC8NO/P	Icart, St. Martins. As A station. Victoria College Playing Fields, Mont Millais.
N.		REGION 10		(0)	В	GC2FMV/P	5th Jersey Boy Scouts H.Q., La Qualite, St. Lawrence.
Cardiff	A	GW5BI/P	The Old Fort, Penarth Road, Penarth.	The following	port	able stations	will be operated from
Neath-	B	GW8UH/P GW4NZ/P	As A station Drymma Mountain,	Germany :— A station		DL2CU/P	
Port Talbot	В	GW2AVV/P	Nr. Neath. Mynydd Dinas, Aber-	. В "	••	DL2PQ/P	
Newport	A	GW8CT/P	avon. Pentwyn Farm, Black- wood.	The Swiss Soci Day during the s stations will be a	ame I	period and a nu	olding its National Field umber of HB1 (portable)
	В	G4GR/P	Seybor Farm, Christ- church.	-		Combining Sec	ores.
	J					Committing 300	

R.A.F. Amateur Radio Society Hamfest Cranwell Meeting an Outstanding Success

NE of the finest Hamfests ever held in Great Britain took place at No. 1 Radio School, R.A.F. Cranwell on April 23, 1950, when the Royal Air Force Amateur Radio Society acted as hosts. In addition to R.A.F.A.R.S. personnel, many members of the R.S.G.B. accepted the general invitation to attend; in all more than two hundred amateurs and their ladies came from far and wide. Germany, the Channel Islands, Scotland, Ireland and the Isle of Man were represented. Groups came from the Spen Valley, Grimsby and Lincoln by motor coach whilst two aircraft parties flew in bearing G3JN, G8PF, G3CAF and G6CL—a most honoured passenger.

aerial laboratories had been a very happy choice. Norman Davis, G6TV and Ron Weston, G6PZ—instructors at the School—were hard at it all the afternoon demonstrating what surely must be the finest collection of aerial and feeder experiments possessed by any Service or Educational establishment. Flying classrooms, fighter fuselages, technical cinema (with continuous performance of latest instructional films), and the Radio Block laboratories were all visited. And finally to Headquarters of R.A.F. A.R.S. where the new 14 and 28 Mc/s. 4-element rotary beams constructed by G5UG were greatly admired and many envious eyes were cast upwards. Two Grafton Radio Society members, G2AAN and



The great gathering that assembled at No. I Radio School, Cranwell, on St. George's Day—April 23, 1950, Seated centre: Group Captain Johnson, G3JN, G6CL, Group Captain Evans-Evans (C.O. of the School), Wing Commander W. E. Dunn, G2LR (Chairman, R.A.F.A.R.S.), Norman Davis, G6TV (Hon. Secretary, R.A.F.A.R.S.).

Tour of the School

The visitors assembled in the main lecture hall of the Radio Block at 1.30 p.m. Whilst being issued with tea-tickets and special lapel badges they were able to examine examples of some of the very earliest R.F.C. and R.A.F. radio equipment, including a Sterling aircraft spark transmitter used in France during World War I. Examples of the latest R.A.F. radio equipment were also shown—and what a contrast.

For the tour of the school the male visitors were arranged into small parties, each in the charge of a smart N.C.O. aircraft apprentice, while the fair sex were escorted to the Camp Cinema by the ladies of the Committee to enjoy a cinema show.

Great care had been taken in the choice of places to be visited and it was soon obvious that the two



G2LR greets the air parties. Left to right: G3JN (ex-SUIAF), Sq./Ldr. Clayton, G6CL, G8PF, G2LR (ex-ST2LR), —, G3FKE (ex-SUIAS).

G2AHB, kindly undertook the duties of guest operators at G8FC during most of the day and a running 'phone commentary was radiated on $3.5~{\rm Me/s}$.

A Real Ham-Fest

A pre-war high tea was then partaken in the new spacious N.A.A.F.I. club and as it was a Ham-fest the N.A.A.F.I. laid on ham. Afterwards the President of R.A.F.A.R.S. (Group Captain H. A. Evans-Evans, Commanding Officer, No. I Radio School) welcomed the visitors and called upon G6CL to address the great gathering. "Clarry" in a most inspiring address stressed the need for retaining the interest of National Service Airmen by means of a reformed Civilian Wireless Reserve. He also emphasised the necessity for Amateur Radio integrity and cohesion in the face of forces endeavouring to cut-down our activities. "Clarry" has been heard on many previous occasions but we feel that, spurred by his R.F.C. tie and his R.A.F. memories, which were vividly rekindled for him by his return to Cranwell by air, this was his most outstanding-ever speech.

F/Lt. H. E. Bennett, G8PF, from Air Ministry, brought a message of greetings from the Director General of Signals (Air Vice Marshal E. B. Addison, C.B.E.) the one and only Honorary Member of the R.A.F.A.R.S. who was abroad on duty.

Finally the Chairman (W./Cdr. "Wally" Dunn, G2LR) invited all present to witness the Massed Bands of the Radio School "Beat the Retreat." This fifteen-minute ceremony proved an impressive and fitting end to the proceedings and as the party broke up many expressions of appreciation were heard.

Copies of the group photograph and all other photographs taken during the Hamfest can be obtained upon application to the Hon. Secretary, R.A.F.A.R.S. (Mr. Norman Davis), c/o No. 1 Radio School, Cranwell, Lincs. G2LR

AFFILIATED SOCIETIES' CONTEST

A BOUT 30 clubs took part in the first contest organised for Societies in affiliation with the R.S.G.B. and entries were received from 22. In addition five check logs were received. Whereas the number of entrants might well have been larger, the

competition could hardly have been closer.

The winning score of 287 points, resulting from 124 contacts over the two eight hour periods, was returned by the West Kent Radio Society, under the call-sign G8KG. The Surrey Radio Contact Club, (G2DN and G8TB) finished second, only five points behind. A single point separated them from the Coventry Amateur Radio Society, G3FAB, who lead the R.A.F. Amateur Radio Society, Cranwell, G8FC, again by only one point.

Congratulations are due to the West Kent Society, who will be recommended to Council for the award

of the Edgware Trophy.

The majority of the receivers in use were commercially-produced communications types and most of the transmitters (of which two or three were crystal controlled) used 807s in the P.A. stages.

Very few comments or criticisms were received. Each entry, however, indicated that the participants had enjoyed the event. The following suggestions for future contests were submitted with the logs: prior publication of a list of competitors; additional points for contacts with different prefix areas; prior arrangements of club code numbers to avoid repetition of the same number by different entrants. These and other suggestions will be borne in mind by the Contests Committee when formulating rules for the next contest.

Check Logs

Mr. D. Clift, G3BAK, who made 21 contacts with Society stations will be recommended for the award of the Certificate of Merit for the best check log received. He takes second place to Mr. T. L. Herdman, G6HD, who made 35 contacts, but who, as a member of the Contests Committee, is ineligible for an award. Two other check logs were of particular interest. Mr. B. W. F. Mainprise, G5MP (15 contacts), used only 0.5 watt for the C.W. section, whilst Mr. E. C. Lark, G3CWC (13 contacts), used single-sideband suppressed-carrier in the telephony section. G3YK made 19 contacts. A check log was also received from the Britannia Radio Club.

	2.72	TELEGRAPHY		TELEPHONY		mate)
Position	Society	Call Sign	Points	Call Sign	Points	Total Points
1 2 3 4 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 20	West Kent Radio Society	G8KG G2DN G3FAB G8FC G2AAN G2FJA/A G3EEI G2ACA G3AKW G3ERD G2FAD G3CGD/A G5QK/A G3EFX/P G3FRG G3ASR/A G3GIZ G3DMZ G5YC G3CSR G3EDH/A	135 137 159 144 125 137 146 130 105 145 123 122 107 96 87 112 78 123 122 107	GSKG GSTB G3FAB GSFC G2AAN G2FJA/A G3EEI G3BNZ G3BOC G3END G3DJD G3DCE/A G5QK/A G3EFX/P G3FRG G3ASR/A G2YS G3DMZ G5YC —	152 145 122 136 143 129 115 128 146 102 108 107 105 111 106 114 80 99	287 282 281 280 268 261 251 247 230 227 213 212 201 192 177 132 109

International Television Standardisation

A STUDY Group (No. 11 of the International Radio Consultative Committee (C.C.I.R.), which is a body of technical experts of the International Telecommunication Union (I.T.U.), is meeting in London this month to continue its examination of the technical factors controlling the co-ordination of television standards. This Group, which was appointed at a meeting of the C.C.I.R. in Stockholm in 1948, held its last meeting at Zurich in July 1949.

The following countries have announced their intention of being represented at the London

meeting :-

Austria, Sweden,
Denmark, Switzerland,
France, United Kingdom,
Netherlands, U.S.A.

Last month the delegates visited the United States of America, France and Holland where they inspected the television systems and the work in progress in research establishments.

In this country delegates will visit the studios and transmitting equipment of the B.B.C. and the research establishments of the G.P.O. and B.B.C.



The new rotary beam arrays at G8FC—Headquarters Station, R.A.F.A.R.S.

TOPICAL LICENCE NEWS

A Band Around 72 Mc/s.?

COME months ago the G.P.O. agreed to look into the question of allocating to U.K. amateurs a small band of frequencies around 72 Mc/s. The Society has now been advised that the Radio Branch is still awaiting the results of tests which are being conducted—presumably by a Government Department other than the G.P.O.—in regard to possible interference with other services which use that part of the spectrum.

The amateurs of France, U.S.S.R. and certain other countries have permission to use frequencies around 72 Mc/s. Thus they are able to carry out observations at a most interesting portion of the

spectrum.

Amateur Television Transmissions

As far back as last July the Society enquired from the G.P.O. whether the P.M.G. would be willing to allow U.K. amateurs to transmit television signals on certain frequencies in the 420-460 Mc/s. amateur band. In August the Society was informed that the P.M.G. is not prepared to authorise the holders of amateur licences to transmit television signals in the 420-460 Mc/s. band but the issue of Experimenters' licences would be dealt with on the merits

of each case put forward.

The Society was far from satisfied with this reply and at a recent meeting with the Engineer-in-Chief and other representatives of the Post Office, an attempt was made to obtain an explanation for the refusal. The Society's representatives were informed however that no reasons can be given. They were told however that any person who genuinely desires to conduct scientific reserach, which is likely to add something to present-day knowledge of television technique, would be granted an Experimenter's licence. The Society's representatives pointed out that Experimenter's licences are expensive and are valid for only a limited period. They also emphasised that interesting work has already been achieved by amateurs in those countries (notably the Netherlands) where television transmissions are permitted.

The Council is considering what steps should now be taken to press for the facilities requested. The possibility of raising the matter in the House of Commons has not been overlooked.

Maritime Mobile

For the past three years the Society has been endeavouring to obtain permission for qualified seagoing amateurs to operate amateur stations aboard

ship.

Unfortunately the G.P.O. is still not yet in a position to let the Society have a final decision although it is believed that the matter is receiving active consideration. The G.P.O. is, of course, aware that the U.S. and certain other governments permit qualified sea-going operators to operate under Maritime Mobile conditions.

Revision of Amateur Licence

The G.P.O. has decided to abandon the original suggestion to modify the present amateur licence. Instead a new licence is to be produced which will meet the requirements of the new Wireless Telegraphy Act.

The Society has asked to be given the opportunity of examining, and if necessary commenting upon, the

new licence before it is finally adopted.

Employment of Second Operators

The Society has enquired from the G.P.O. whether

it is necessary, or even desirable, to tighten-up the existing arrangement which permits a person who has passed the Morse Test to operate an amateur station, provided the licensee is present and assuming that the licensee is himself technically qualified. Under present arrangements, for example, the son of a licensee who has passed the Morse test is permitted to operate his father's station so long as his father is present.

The G.P.O. recognises that whilst licensees may, on occasion, have a reasonable requirement for their station to be operated by other persons it was not the intention, and the Post Office cannot agree, that the frequencies available should be used by persons who The Post Office is providing are not amateurs. (provisionally), in the draft of the new licence, for each amateur station to be operated by the licensee, or exceptionally and infrequently, in the presence of the licensee, by the licensee of any other amateur

station licensed by the P.M.G.

The G.P.O. has agreed to look into the case of father and son operators as they recognise that it would not always be practicable or economical for two persons in the same family to hold separate licences.

Investigation of Interference

It is understood that the G.P.O. is considering the practicability of undertaking all interference investigations without charge regardless of the service which is experiencing interference.

Up to the present time the Post Office have not. except as an act of grace, investigated interference to

short-wave reception.

Commercial Interference

On many occasions during recent years the G.P.O. has been asked to take steps to have commercial stations removed from exclusive amateur bands.

The Post Office now states that it does not think it will be possible to do anything to rectify matters until the Atlantic City Frequency Allocation Table is fully implemented. The Radio Branch, however, asks to be provided with full details of commercial stations which are heard operating regularly in exclusive amateur bands. In order to provide the necessary data the Council has set up a special group of qualified band checking observers under the leadership of Mr. W. N. Craig, B.Sc. (G6JJ).

Interference in the 28 Mc/s. Band

The G.P.O. is again looking into the question of interference to amateur transmission caused by meteorological balloons operating in the 28 Mc/s. exclusive amateur band. At the same time the R.A.F. has been asked to reduce the band-width of certain of its navigational aid stations which operate just outside the high frequency end of the

Region I Conference

The Society understands that it has not yet been decided what frequencies below 3900 kc/s. shall be made available to U.K. amateurs when the Atlantic City Frequency Allocation Table comes into force. The final decisions must wait until the Special Administrative Conference takes place (probably in The The Post Office hopes Hague) next September. however to be able to let the Society have its own views on the matter prior to the Conference.

Members will recollect that the U.K. is one of eight Administrations in Region I that has reserved to itself the right to allow amateurs to use up to

200 kc/s. between 1715 and 2000 kc/s.

ISCOVERY II

N Sunday April 16th last a party of R.S.G.B. members had the unique privilege of inspecting the research ship Discovery II at the London Docks.

The visit was arranged by courtesy of Mr. S. A. Howell, G5FN, the Admiralty Shipwright responsible for fitting out the ship for her coming 20 months cruise in the Southern Oceans.

The party was conducted round the ship by Mr. Howell who explained her many interesting features and described the equipment she carries.

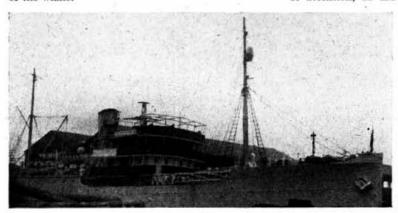
The Discovery II expedition, which follows the departure last January of the "William Scoresby" expedition on a ten months' voyage, is intended to study many problems of oceanographical survey, marine life, sea currents and temperatures, the composition of the sea bed at great depths and in particular, the distribution of the basic food supplies of the whale.

The receiver is a Marconi "Electra," developed from the well-known CR100, a beautifully made instrument with generous band-spread on all the commercial short-wave bands. Quick band set to a crystal check point is provided with an ingenious mechanical locking device, once the calibration point is located. A stand-by receiver, the Marconi "Mercury ' covering 15 kc/s. to 500 kc/s. is also installed.

Great interest was shown by the party in the rugged construction of the equipment and in the various interlocking and fault alarm circuits which have been incorporated.

Scientific Equipment

Of the scientific apparatus carried, the automatic thermograph for recording sea temperatures at various levels and the deep and shallow water echo sounding equipment came in for a good deal of attention, as did the extremely neat and tidy



Discovery II at London Docks. radar aerial, mounted on a tower devised by Mr. S. A. Howell, G5FN, can be seen above the bridge.

The ship is a floating laboratory, equipped with every modern scientific device for the accurate, and in some cases automatic, recording of the data required.

Great attention has been paid to the comfort of the ship's company and all cabin accommodation is air conditioned and insulated against extremes of temperature.

Radio Equipment

The radio equipment carried includes a Kelvin-Hughes radar set, a "Lodestone" direction-finding receiver and the latest Marconi "Oceanspan" and "Worldspan" medium and short wave transmitters with a maximum power of 3 kW.

engine room, with its triple expansion power unit.

A special steel hawser, several miles long for deepsea trawling was also the object of interest, unusual inasmuch as it is thicker and heavier at the sea end. The hawser cost several thousand pounds to make.

The visitors were introduced to the Chief Scientist who extended a cordial welcome.

A debt of thanks is due to the representative of the Marconi Marine Co. who spared no effort to explain and demonstrate every item of the radio equipment and to Mr. Howell for making the visit possible.

Bon voyage Discovery II—those who were privileged to tread her decks will retain pleasant memories of their visit. A.O.M.

Marconi Training Facilities

TWO excellently produced brochures "Marconi Training" (pp. 40) and "Marconi College" (pp. 32) have been published recently by Marconi's Wireless Telegraph Co., Ltd., Marconi House, Chelmsford, Essex. They emphasise the importance attached, today, to the recruitment and training of apprentices and the instruction of technical personnel.

"Marconi Training" gives an interesting background to the company's activities as well as full information on the three grades of apprenticeship: craft, student and graduate; covering training as engineers, technicians, draughtsmen, and skilled craftsmen of many types. The second brochure describes courses in radio engineering at Marconi College which are of an advanced nature and open only to students with adequate educational background.



AFFILIATED SOCIETIES CONTEST, 1950. The Grafton Radio Society station, G2AAN, in operation. Left to right:—BRS8072 G3CLV and G2AHB.

North London Clubs Meet to Discuss Amateur Problems

ANY prominent "old timers" were present on April 14th when representatives and Grafton, and Hampstead clubs, met to discuss

current Amateur Radio problems.

The safeguarding of the amateur bands aroused much concern, several speakers emphasising that great efforts would be needed in order to hold the Atlantic City allocations. The lack of knowledge displayed by the average amateur in International radio matters was commented upon. Only by the presence of the two R.S.G.B. delegates at the Atlantic City Conference in 1947 was the 1.7 Mc/s. band retained in Europe. Representation at Atlantic City had cost British amateurs about one shilling per head which all agreed was excellent value for

It was stressed that frequency bands must be fought for constantly at future International Telecommunication Conferences. This would mean expense. Did the average amateur want, for example, the 7 Mc/s. band retained and, if so, did he think it was worth a few shillings a head to send delegates to fight for it? It was the responsibility of every amateur to face up to these matters and to advise whether he wanted the fight to continue, bearing in mind the forthcoming Buenos Aires I.T.U. Conference.

The continued presence of broadcasting stations in the exclusive portion of the 7 Mc/s. amateur band provoked intense discussion. It was appreciated by those present that the strongest representations had already been made by the R.S.G.B. to the G.P.O. but without success. The situation was particularly difficult as the G.P.O. was only the licensing authority, whereas certain of the offending stations were either operating under Government direction or were operated by organisations under Government instructions: the G.P.O. was therefore in the embarrassing position of being asked to remove stations from the band which were controlled by other and more important Government departments.

The subject of the DX communication bands brought up the question of the I.A.R.U. This worldwide amateur organisation was formed 25 years ago when frequencies were dealt with on a world-wide basis. Under Atlantic City, frequencies were now allocated on a Regional basis: would I.A.R.U.—as has been suggested by some R.S.G.B. officialshave to be reorganised accordingly and, if so, could it be made more streamlined and effective in

operation?

The tremendous growth of television and its effect on Amateur Radio were examined. Apart from the immediate and pressing problem of T.V.I., there was the future one of increased television services, including that of colour. This would mean more television frequencies: already the 56 Mc/s. amateur band had been lost to television in the Europe. It was the duty of amateurs to guard against other

encroachments.

The representatives of the clubs present at the meeting agreed that these matters as well as others discussed should be considered more closely by their respective organisations. Security for our hobby can only come from collective effort, and the sound foundation of this is joint thought and discussion at the local society or group. In North London these include :-

The Edgware and District Radio Society which meets every Wednesday at 8 p.m. at St. Michael's School, Flower Lane, Mill Hill Broadway, N.W.7.

The Grafton Radio Society which meets every Monday, Wednesday and Friday at 7.30 p.m. at Grafton L.C.C. School, Eburne Road, Holloway, N.7 (one minute from the Nag's Head). Secretary, W. H. C. Jennings (G2AHB), 'phone STA. 3891.

The Hampstead R.S.G.B. Group, which meets on one Friday evening each month. Next meeting Friday, May 19th, at 1 Broadhurst Gardens, N.W.6 (behind John Barnes). Hon Secretary: Basil Wardman (G5GQ), 59 Eton Place, Eton College Road, N.W.3, 'phone PRI. 2175.

QUA*

IRST amateur to be issued with one of the newly designed B.E.R.T.A. continued designed B.E.R.T.A. certificates was Everett Erickson, WINLM, a blind amateur in Bethel, Conn. Another successful claimant last month was Mrs. L. M. White, ZS2EC, while Mrs. D. W. Evans, W1FTJ, qualified for W.B.E. The four hundredth B.E.R.T.A. recently went to G3BNE.

The 50 kW. Leopoldville (Belgian Congo) station OTC, operating on 9,767 kc/s. (30.71 metres), regularly broadcasts special twenty minute pro-grammes for radio amateurs. Each programme consists of news about amateur transmitting and reception, interviews with Belgian and foreign radio-amateurs, DX news, a "letter-box," and reviews of Amateur Radio periodicals. These programmes are transmitted in three languages: English, Dutch and French. The English edition comes on the air at 2040 G.M.T. every Wednesday. Reports and suggestions are welcome. They should be sent to the Belgian Overseas Service, OTC, Programme DX, 18 Place E. Flagey, Brussels, Belgium. Traffic Manager of OTC is Roger Allard, ON4RA.

With the approach of summer, an increasing number of overseas amateurs are finding their way to the British Isles, on business or pleasure. Recent callers at Headquarters have included old-timer ZS5JX (formerly XZ2JB), VQ4IMS, VK2AWP, W2HAQ, PA0NS, SM5AUR and ON4LI. Coming back to England, due to ill-health, is Mr. K. A. Cook, VS6AJ. His place as Secretary of the Hong Kong Amateur Radio Transmitting Society has been taken by Mr. John A. Hunt, VS6JH—perhaps better known as VS4JH and G2FSR.

How many of those who call "CQ B.E.R.U." during the annual contest realise that one day they may actually raise Beru? It's the name of one of the small islands which make up the Gilbert and Ellis Group in the Pacific, so that the prefix should be VR1. Incidentally at one time ZL3IT was in charge of a radio station there, but later lost his life when the islands were invaded by the Japanese.

In 1947 the B.B.C.'s overseas journal "London Calling" said: "the B.B.C. . . . does not wish to interfere with the activities of amateurs and will always seek to avoid interference by choosing frequencies in other broadcasting bands when these are suitable and available." Forty metre enthusiasts can only suppose that the B.B.C. must be extremely short of frequencies.

Going back even further—to the August, 1913, issue of the first volume of Wireless World—it is possible to read: "Some dissatisfaction has been caused in amateur wireless circles by the announcement that in future a charge of one guinea is to be made on all licences issued. Much of the dissatisfaction rests, however, upon . . . the mistaken fear that it will have to be paid annually." Not so "mistaken" after all!

QUA "Here is the news of ..."

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AR88. Six Bands, 540 kc/s. to 32 Mc/s. Loud Speaker to match. Condition equal to New. One only, £45.
EDDYSTONE 640. Brand New condition.

EDDYSTONE 640. Brand New condition. First 622 l0s.

HALLICRAFTERS SKY CHAMPION. Excellent condition. 8 valves, 540 kc/s. to 43 Mc/s. Grey metal cabinet. Built-in loud speaker. A snip. £22 l0s.

We guarantee you will be delighted with any of the above. Offered Subject to Being Unsold. Prompt Delivery.

RECEIVER TYPE 25. 4:3-6-7 Mc/s. and makes an ideal basis for an all wave receiver.

makes an ideal basis for an all wave receiver as per Practical Wireless, August issue. Complete with valves EF36 (2), EF39 (2), EK32 and EBC33. Brand New condition. Supplied complete with necessary conversion data for home use. Only 21/-,

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VCR97 Cathode Ray Tubes. Brand New in boxes, 29/6 each. Bases 2/-, carriage 1/4. EF50 Ceramic Valve Holders, 5/- dozen, post 6d. 813 VALVES. G.E.C. of U.S.A. Brand New, 27/6.

P.M. SPEAKERS. Best Makes. Transformer. 5" 10,-, 8" 16/6, post 9d.

TYPE 87 POWER UNIT. Input 12 V.

Output 265 V. 65 mA. 6-5 V. 2-5 A.

Incorporates beautiful Rotary Generator in neat case, 8½" L. 6½" H. 4½" W. 5/- each,

in neat case, $8\frac{1}{2}$ " L. $6\frac{1}{2}$ " H. $4\frac{1}{4}$ " W. 5/- each, post 1/4. PUIG ON POWER UNIT for Command Receiver BC453/4/5 or ARCS series. No alterations to set wiring. Simply Plug on. Fitted 6X5 rectifier (Not Surplus). Beautifully made, 50/-, carriage paid. MODULATOR UNITS. Type 64. 7 valves: VR91 (2), CV93, CV85, VU133 (2), VT604A. 3 Relays. Four 2,000 V. \cdot 5 μ F., one 3,500 V. \cdot 05 μ F., etc. 18/6 each. Carriage 5/-. Brand New.

CONDENSERS. Brand New Waxed Tubular, 50 for 10/-. (25 · 1 μ F. 1,000 V., 25 · 25 μ F. 500 V.). A really outstanding offer.

PAMPHONIC P.A. SPEAKERS. Unit in handsome maroon metal cabinet (low impedance). In original Maker's packing (Not Surplus). 55/- each. Less than cost.

TELEVISION PRE-AMPLIFIER. the thing you have been looking for. the thing you have been looking for. This Ex-Govt, one valve pre-amplifier is of very high sensitivity and makes an amazing improvement in vision and sound reception in all fringe areas. Available for Birmingham Transmission only. Ready for instant use. Very small dimensions. Length 4", Width 3½", Chassis Depth 1½". Overall depth to top of valve 4½". Fitted with EF50 valve. Ideal for the "Inexpensive Television Receiver" or the "Electronic Engineering

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SCR522. TRANSMITTERS. Brand New, Modulation transformer, choke no valves. no valves. Modulation transformer, choke and crystal switch have been removed but we have been able to secure these which are supplied but not fitted. Get going on 2 metres with these. Our price, 15/- each, carriage paid.

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RATHEON Output Transformers. Brand New. Primary 3,600 ohms 70 mA., Second-ary 720 ohms. Test volts 1,780. Snip at 5/each, post 9d.

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... Extra 6/-Two carrying handles ... A recessed lid 14" x 8" in top ... Extra 10/-

FINISHES: Black, Grey or Brown Wrinkle Enamel.

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We have great pleasure in announcing a receiver ideal for the beginner - the Radiocraft "DX 2."

It is an 0-v-1, mains operated, uses the new Eddystone plug-in coils and two EF50 valves. Supplied with one coil, less valves, wired and tested, or, if preferred, in Kit Form. Coils available to cover 150 kc/s. to 32 Mc/s. The valves can be supplied at maker's list price if not already to hand in the shack. Full details are given in List R/2. Complete circuit and wiring diagram, etc., available at 2/6, and this is refunded if Kit or Complete Receiver is purchased within 14 days.

"DX 2" RECEIVER PRICES

£3 18s. 6d. Valves extra. In Kit Form Wired and tested £4 19s. 6d. Valves extra.

Our Transmitters and Transmitter Kits are still available, send stamp for List M/9 and TR4, which gives full details.

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G6CL. General Secretary: John Clarricoats,

March Council Meeting

Resume of the Minutes of the Proceedings at the Meeting of the Council held at Headquarters on March 21, 1950, and adjourned until March 27, 1950.

Present.—March 21. The President (Mr. W. A. Scarr, in the Chair), Messrs, W. H. Allen, F. Charman, L. Cooper, D. N. Corfield, W. N. Craig, C. H. L. Edwards, J. W. Mathews, A. O. Milne, P. A. Thorogood, A. J. H. Watson and John Clarricoats (General Secretary).

An apology was submitted for the absence of Mr. V. M. Desmond.

Desmond.

Present.—March 27. The President (Mr. W. A. Scarr, in the Chair), Messrs, W. H. Allen, A. P. G. Amos, L. Cooper, D. N. Corfield, W. N. Craig, C. H. L. Edwards, J. W. Mathews, A. O. Milne, P. A. Thorogood and John Clarricoats (General Secretary). By invitation: Mr. S. K. Lewer.
Apologies for absence were submitted on behalf of Messrs. F. Charman and V. M. Desmond.

Finance.
The Treasurer reported that the Society's holding of £2,000 1½ per cent. Exchequer Bonds, 1950, had been redeemed at par and the proceeds transferred to Current Account. Mr. Watson expressed his intention of making inquiries with a view to recommending a new investment of approved form.

Resolved to accept and adopt the Cash Account for the month ended February 28, 1950, as submitted by the Treasurer.

Membership Subscriptions.

Mr. Watson confirmed that during the past eight months membership subscriptions had fallen by about £80 per month compared with the corresponding period last year. Mr. Watson also pointed out that the Finance and Staff Committee budgetted in 1018 and 1010 for a 10 per cent, loss in subscription recover. in 1948 and 1949 for a 10 per cent. loss in subscription revenue, but the reduction had only recently began to show itself.

National Radio Exhibition.

Resolved not to reserve space at the forthcoming Radio Exhibition in Birmingham.

Membership. Resolved

(a) To elect 111 Corporate Members, 36 Associates and 3 Junior Associates (total elected 150).
(b) To grant Life Membership to Messrs. G. J. Jones, GW2HMO, and F. A. Herridge, BRS12474.
(c) To grant Corporate Membership to 11 Associates who had

applied for transfer.

Resolved to grant affiliation to the Wanstead and Woodford Radio Society and to grant re-affiliation to the Medway Amateur Receiving and Transmitting Society.

Soliciting of Votes.

Soliciting of Votes.

Consideration was given to a letter from the East London District Representative (Mr. J. Hunter, G6HU), and to a resolution passed at a recent East London meeting concerning the protest which was made after the 1949 Amateur Radio Exhibition, that certain East London members solicited votes for their candidate for the office of London Regional Representative whilst assisting on the Society's stand. Mr. Hunter had emphasised that the members responsible for the soliciting did not do so whilst officiating at the stand but only when off duty. He also mentioned that supporters of the other candidate for the office of London Regional Representative were soliciting votes at the door of the Exhibition. Mr. Hunter had requested that his letter be published in full.

Resolved to advise Mr. Hunter that the Council has given further consideration to his request that his letter be published, but have decided to adhere to their previous decision not to do so, in view of the fact that only a very small percentage of the membership is affected.

membership is affected.

QSL Cards and Tourist Trade.

Consideration was given to a suggestion put forward by Mr. R. J. Donald, G3DJD, that the Travel Association be approached for a free issue of QSL cards to amateurs publicising

Britain as a tourist centre.

[The suggestion has now been considered by the Travel Association, who regret they have no financial resources available to provide the free publicity envisaged by Mr. Donald.—Ed.]

Geneva (Region I) Conference.

It was reported that the Treasury had authorised payment of the sum of £30 10s. 1d. to R.E.F., being the R.S.G.B. share of the cost of LA.R.U. Representation at the recent Geneva

Committees of the Council.

The Council considered the following resolution submitted

The Council considered the following resolution submitted by members resident in the Petersfield Area:—

"That Council be informed that this District, having considered the constitution of the Finance and Staff and Licence Committees of the Council, as announced in the February issue of the Society's BULLETIN, is strongly of the opinion that the membership of each of these important Committees should include at least two duly elected members of Council."

Resolved to advise the Petersfield Area Representative that:

(a) Every member of the Council is, in fact, duly elected.

(b) Every Committee of the Council has power to co-opt members.

members.

(c) As recently as last month the Council set up an Organisation or General Purposes Committee with the widest possible terms of reference.

(d) The G.P.O. Liaison Committee was last month augmented by three additional members when it met the Engineer-in-Chief and other representatives of the Post Office.

(e) Every major decision of a Committee has to be presented to the Council in the form of a recommendation. (f) Every Committee reports fully to the Council.

Festival of Britain,
Correspondence was considered from the Festival authorities

Correspondence was considered from the Festival authorities in regard to the question of manning the projected station. Resolved to advise the Festival authorities that:

(a) The Society cannot guarantee to man the station for more than four hours a day from Monday to Friday, each week.

(b) It should be possible to man the station for eight to twelve hours daily on Saturdays and Sundays.

Mr. Charman outlined the steps which had already been taken by the appropriate Committee to provide the Festival Authorities with technical and topical information. He also explained that if the project is undertaken the Society may be required to make some financial contribution towards the cost of constructing and manning the station.

[This matter was fully reported upon in the April issue.—Ed.]

[This matter was fully reported upon in the April issue.—Ed.]

S.S.A. 25th Anniversary Celebrations.

The Secretary and Mr. W. H. Allen reported upon their recent to Stockholm to represent the Society at the 25th Anniversary Celebrations of S.S.A. A letter of appreciation to the Council was read from the President of S.S.A.

Resolved—

(a) To place on record the thanks of the Council to the Secretary and Mr. Allen for the highly effective manner in which they had represented the Society in Stockholm.

(b) To place on record the thanks of the Council to Miss Hazel Lightfoot (a member of H.Q. staff) for producing the pennant, which the Society's delegates presented to the S.S.A. Society Pennant.

Arising from a consideration of the Stockholm report it was agreed to order from Ernest Perrett Ltd., a small quantity of felt pennants embodying the National colours and the R.S.G.B. emblem.

It was reported that R.E.F. had recently sent a pennant to the R.S.G.B., and had asked that an R.S.G.B. pennant be sent in exchange.

Resolved-

(a) To authorise the President to present R.S.G.B. pennants
 to Heads of Delegations at the Paris I.A.R.U. Congress.
 (b) That R.S.G.B. pennants be used for presentation purposes

G.P.O. Meeting.

The Secretary submitted a lengthy report setting out in detail matters discussed at a recent meeting between representatives of the Society and the Post Office.

The meeting had been convened primarily to discuss television interference problems, but a variety of other matters had also been considered.

Adjournment.

The meeting was adjourned at 9.50 p.m.

The meeting was resumed at 5.30 p.m., on Monday, March 27, 1950.

I.A.R.U. Congress-Paris, 1950.

J.A.R.U. Congress—Paris, 1950.

Full consideration was given to a paper entitled "The Future of International Telecommunication Conferences," prepared by Mr. S. K. Lewer (Past President), for presentation to the forthcoming I.A.R.U. Congress in Paris.

After amendments had been agreed it was Resolved—

(a) To issue six copies of the English text to all I.A.R.U. Societies known to be supporting the Congress.
(Continued overleaf)

(b) To issue a copy of the English text to all other I.A.R.U. Societies.

(c) To issue six copies of the French text to certain European Societies known to be supporting the Congress.

The Secretary submitted correspondence from Mr. Barrance (Southend-on-Sea), and Mr. Donald (Brighton), in regard to an inquiry which had been addressed to them concerning the holding of a Convention during 1950. Both members had expressed the view that it would be possible to organise a satisfactory Convention in their town if so requested by the Council.

After a full discussion, Mr. Edwards moved, Mr. Craig seconded, and it was

Resolved not to organise a Convention during 1950 in view of the Council's decision to arrange a Festival of Britain Convention in London during 1951.

Messrs. Amos and Thorogood voted against the resolution.

During the discussion, the view was expressed by several members that if a full-scale Convention were organised during

1950, it might react against the success of the 1951 London Convention.

This matter was reported upon in the April issue.-Ep.1

Scientific Observations.

The Council received the Minutes of a Meeting of the Scientific

Observations Committee which met on a february 16, 1950.

It was reported that steps were being taken to submit progress reports covering the work of the Scientific Observations Groups to the forthcoming meeting of the International Union for Scientific Public III PS 1. Scientific Radio (U.R.S.I.).

Festival of Britain.

The Council gave consideration to a further letter from the Festival Authorities in which it was stated that the Society's offer in regard to manning the station was unacceptable.

[This decision was announced in the April issue of the BULLETIN.-ED.

The meeting terminated at 9 p.m.

London (I.E.E.) Meeting

About 100 members—including many V.H.F. enthusiasts—were present at the Institution of Electrical Engineers on Friday, April 28th, 1950, when Mr. J. R. Brinkley, A.M.Brit.I.R.E. of Pye Ltd. lectured on Mobile V.H.F. Equipment. The lecture was illustrated by a number of slides and several examples of fixed station and public equipment were displayed.

station and mobile equipment were displayed.

Following an interesting discussion a vote of thanks to the speaker was proposed by Mr. Lyell Herdman, B.Sc., G6HD. The Chair was taken by the President, Mr. W. A. Scarr, M.A., G2WS:

OUR FRONT COVER

OUR front cover this month shows the receiver and transmitter control position at a post-war licensee's station. The operator is placing a Mazda 6P25 into a 6V6 tritet oscillator socket in the transmitter driver unit. This unit also contains another 6P25 which is functioning as a doubler/buffer stage. The output of this stage feeds the power amplifier which is housed beneath and to the left of the operating position. To the right of this is the main power unit and modulator.

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These Etched Foil types provide very large capacities in an extremely compact form. They are hermetically sealed into aluminium tubes or cans and employ "ALL-ALUMINIUM" construction.

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As a general guide, the ripple ratings of Etched Foil Condensers are roughly half those of equivalent Plain Foil Condensers.

Further information will be found in List 140.

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AROUND THE REGIONS

Babcock and Wilcox Staff Association Radio Society

The London R.R. (Mr. W. H. Matthews, G2CD), Council Member Leslie Cooper, G5LC, the East London D.R. (Mr. J. Hunter, G6HU), Mr. Barratt, G8IP, and Mr. Bale, G2GDO, were welcomed on March 17 when a lecture on V.H.F. Radio Communications was given by Mr. C. Bedwell, A.M.I.M.E., of the Marconi Wireless Telegraph Co. Ltd. The lecture was followed by a demonstration of a mobile unit and walkie-talkie equipment. Thanks to the efforts of Mr. A. J. Janes, GM3AEC, a branch of the Society has been formed at the B. & W. Works in Dumbarton (Hon. Secretary, Babcock House, Farringdon Street, London, E.C.4).

of the Society has been formed at the B. & W. Works in Dumbarton (Hon. Secretary, Babcock House, Farringdon Street, London, E.C.4).

An old member of the B. and W. organisation (Mr. R. Kirlew, G6KW, of Birmingham) has been contacted as the result of a paragraph published in a recent issue of the BULLETIN.

Barnet Amateur Radio Society

The East Barnet Chamber of Commerce is holding an exhibition at the Lyonsdown Hall, Lyonsdown Road, New Barnet, from May 29th to June 3rd and has asked the Barnet Amateur Radio Society to co-operate with them in furnishing a stand to

Radio Society to co-operate with them in furnishing a stand to demonstrate the Society's activities and scope.

The Barnet Society, comprising many R.S.G.B. members is taking advantage of the publicity afforded, whilst the T.R. (Mr. R. Walker, 66(1) hopes to set up and operate an amateur station on the "Top Band" under the call of G6QI/A from 5 p.m. to 7.30 p.m. daily except on June 3rd when, on account of N.F.D., the times will probably be from 3 p.m. to 5 p.m. Cooperation from "top-band" stations will be greatly appreciated.

Coventry Amateur Radio Society

At the recent Annual Dinner and Social, Mrs. F. Miles (wife of G5ML, Vice-President) presented the Society's trophies to the following members: Mr. J. H. Whitby (Assistant Secretary), "G2LU Cup." Mr. W. Montgomery, "G2FDC Cup"—best piece of home constructed equipment. Mr. A. Bowman, G3FAB, "G2YS Cup"—QRP Contest. Mr. L. W. Chapman, BRS16900—DN Beschiele Coxtellar. DX Receiving Contest.

Grafton Radio Society

Valuable advice in tackling T.V.I. problems was given by Mr. J. S. Hizzey, of the Post Office Engineering Dept., when he lectured to the Grafton Radio Society on April 19. The first part of the lecture was devoted to a survey of the main causes of T.V.I. and this was followed by the showing of a number of slides depicting practical filter circuits. Several filter units were

slides depicting process. And also displayed.

During the lecture Mr. Hizzey stressed the importance of correct neutralisation and the desirability of using link rather than capacity coupling. He also expressed the opinion that a well-screened-transmitter is only useful in areas of high television will level Mr. Hizzey advocated the use of low-power driver in the process of the well-screened-transmitter is only useful in areas of naga television signal level. Mr. Hizzey advocated the use of low-power driver stages and suggested that the correct method of minimising harmonics is to suppress them in the early stages of a transmitter. The meeting was attended by 77 members and visitors, including five members of the R.S.G.B. Council.

Hayes and Uxbridge

The R.S.G.B. Groups in Hayes and Uxbridge will in future hold combined meetings at "The Vine Inn," Uxbridge Road, opposite Hillingdon Church. All Society members will be heartily welcomed at the next meeting on June 9.

Isle of Man Amateur Radio Society

A successful year's activities were reviewed at the A.G.M. and Dinner which took place at Broadway House on March 20, when it was disclosed that the financial position of the Society was very satisfactory. All officers of the Society were re-elected. These include: President, Mr. T. H. Colebourn, GD61A; Chairman, Mr. L. A. Higgins, GD3FOC; Treasurer, Mr. T. R. Moore, GD3ENK; and Secretary, Mr. H. Grist, GD3FBS, Broadway House, Broadway, Douglas, Isle of Man.



The Mayor and Mayoress of Sutton and Cheam, Surrey, were guests of honour at the Second Annual Dinner and Ladies Festival of the Sutton and Cheam Radio Society held at Wilson's Restaurant, Sutton, on March 11. Here they are with Mr. Stanley Vanstone, GZAYC (President), and Mrs. Vanstone. Guests also included Council Member Leslie Cooper, GSLC (President of the Thames Varley Society), and Mr. F. G. Lambeth, GZAIW, (South-West London D.R.).

Photo Courtesy Croydon Times



INTERVAL FOR EATS!

Photograph taken during the interval for refreshments at the recent Grafton Radio Society lecture on T.V.I. by Mr. J. S. Hizzey of the Post Office Engineering Dept. Council Members G6IJ, 4KD, 8TL, 6LL and SCD are seated at the top table with the North London D.R., G5DJ, at extreme right.

Kingston and District Amateur Radio Society

The Club has now settled down in its new Headquarters and a constructional programme is on hand. Mr. Brookes of Brookes

Crystal Company recently lectured on crystals.

Meetings are held fortnightly at Penrhyn House, Penrhyn Road, Kingston. Next meeting May 24 (Hon. Secretary, R. S. Babbs, Phone: KIN. 2801).

Midland Amateur Radio Society

Meetings are held at 6.45 p.m. on the third Tuesday in each month (except August) in the Imperial Hotel, Birmingham. At the April meeting Messrs. George Brown, G5BJ, and Arnold Rhodes were warmly congratulated for the fine work they had put into the design and construction of a new receiver which was on display. was on display.

Reading Radio Society

A postal ballot is being taken to determine the type and number of meetings each month most suitable to members. At the A.G.M. the following officers were elected: President, Mr. Benbough; Chairman, Mr. Owen, G3AKQ; Vice-Chairman, Mr. Watts, G6WO; Treasurer, Mr. Weaver; Scribe, Mr. A. Mercer, G3EGU; and Secretary, Mr. L. Hensford, G2BHS, 30 Boston Avenue, Reading.

South Manchester Radio Club

Recent meetings have been attended by an average of 40 members. Morse instruction is given regularly by G5SI. Four teams have been entered for the Club Top Band D/F event due to take place on May 27, from 2.30 p.m. to 5 p.m. Plans are being made to hold a Hamfest at Parker's Cafe, Gatley, Cheshire, on October 7. Full details later (Hon. Secretary, 57 Longley Lane, Northenden).

Stourbridge and District Amateur Radio Society

In the course of a talk on the past, present and future of Amateur Radio, Mr. H. Porter, G2YM, of Wolverhampton, related some of his many experiences as an amateur and as a radio operator during the 1914–1918 war. Meetings are normally held on the first Tuesday and third Friday in each month.

A special meeting is to be held on June 9 when the General

Secretary of the R.S.G.B. will address the Society. A cordial welcome is extended to all R.S.G.B. members living within easy reach of Stourbridge to attend on that occasion.

Sutton and Cheam Radio Society

Reviewing the Society's activities at the A.G.M. on April 18 the retiring Secretary (Mr. L. Seaton) reported that at the 22 meetings held during the year, trade lectures, talks by members and film strip lectures had been well supported. The Society had taken part in the Sutton Rotary Club Hobbies Exhibition and many of its members had co-operated with the R.S.G.B. T.R. during N.F.D. The Society completed the year with a membership of 62. Officers elected were as follows:—

President, Mr. S. E. Vanstone; Vice-President, Mr. L. Seaton; Chairman, Mr. G. R. Pearson; Vice-Chairman, Mr. R. Scott; Treasurer, Mr. B. Finch; Joint Secretaries, Messrs. J. Harris and R. I. Clews.

The President paid a warm tribute to Mr. Seaton for his untiring energy and devotion during his term of office.

G2AK

This Month's Bargains

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SPECIAL OFFER. PARMEKO POWER TRANS-FORMERS. 620/550/375/0375/550/620 V. at 200 mA., also plus 250 mA. at the 375 V. taps. Two separate windings of 5 V. at 3 A. each for rectifiers. Rated at 278 watts (this is a very conservative rating and could be exceeded by at least 50 per cent. for amateur use). Weight 24 lbs. This is the transformer buy of the year. Price only 50/-. Carriage paid.

PARMEKO MODULATION TRANSFORMERS. watts. Prim. 5500, 5000, 4500, ct. Sec. 1 3550 at 450 mA. Sec. 2 6,700 ohms 12 watts. Ideal for Plate and Screen modulation. Price only 27/6. Carriage paid. Both of the above transformers are fully shrouded and are new and unused but some may be a very little store soiled.

HEAVY DUTY L.F. CHOKES. FULLY POTTED.
30 Hy. 100 mA. 150 ohms (Weight 14 lbs.). Price 13/6.
20 Hy. 126 mA. 100 ohms (Weight 14 lbs.). Price 15/6.
30 Hy. 150 mA. 150 ohms (Weight 18 lbs.). Price 17/6.
(For Amateur use, above ratings could be doubled.)

All transformers and chokes are carriage paid except to Eire for which we must ask for 5/- extra.

SPECIAL METER OFFER. $100 \cdot \mu A$. Scaled 0-100 $2\frac{1}{4}$ ". Only 22/6 each. 500 μA . Scaled 0-500 2" dia., 7/6 each. 500 μA . Scaled 0-15-600, 6/3 each.

Ditto, but ex equipment, 5/- each.
-5 A. Thermo, 2" dia., 2/6 each, or 5 for 10/-.
0-5 mA., 2" dia., 5/- each.

0-100 mA. and 0-500 mA., 21". flush mounting, 7/6 each. 0-20 V., 2" dia., 5/- each.

20-0-20 A., 2" dia., 5/- each.
0-3,500 V., moving coil, 3½" dia., 25/- each.
0-9 A., hot wire ammeters (by removing external shunt full scale deflection is 4 A.), 1/6 each.
Radiator Thermometers, 2" dia., movements 2-5 mA., backwards reading, ideal for "5" meters, 1/6 each.
Postage on single meters 6d, 3 or more post free.

U.H.F. RECEIVERS, TYPE R1481 (66-86 Mc/s.). Same as R1132 except for frequency range. R.F. mixer osc. (voltage stabilised), 31 F. stages, 2nd det., B.F.O., etc. Tuning meter. Brand new in transit case, £3 . 19 . 6, plus 7/6 carriage.

HIGH VOLTAGE OIL-FILLED CONDENSERS. 4 µF., 1,500 V., 4/-; 4 μF., 1,000 V., 3/-; 4 μF., 600 V., 2/-; 8 μF., 500 V., 2/6. Postage 6d. each. R.F. Chokes. Pie wound, 2-5 mH., 100 mA., receiver type,

9d. each or 7/6 per doz. 250 mA., transmitter type, 1/- each, 10/- per doz.

SPECIAL FOR AR88 USERS. Matching Speakers, 2.5 ohms, black crackle case, £3.15.0.
AR88 Spare Crystals for D model only, 455 kc/s., 15/- each. Complete set of spare valves (14), £5.

VIBRATOR PACKS. 6 V. input, output 150 V. 40 mA., complete with all smoothing, 17/6.

VIBRATOR PACKS. 12 V. input, output 300 V. 100 mA., fully smoothed, in black crackle case, 19/6. Postage on either pack 1/6. All packs are sent out tested and in working order.

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WILCOX GAY V.F.O. MI-19467-A. Brand new, £3.10.0. Klystron Unit 207A, contains CV67 Klystron, 5Z4 and 3 Neon stabilisers, £1.

6-VALVE BATTERY RECEIVER, 20-80 meters. Uses 6 popular battery valves; just connect batteries and it's ready to work, 16/-.
Indicator type 198, uses VCR138A tube and 6 valves. Brand new, 35/-. LM10 frequency meters, similar to BC221, 125 kc/s. to 20 Mc/s. Brand new, £18.

1196 TRANSMITTERS, only need coils wound and valves fitted. Bargain, 3/6.

TRANSMITTING TUNING UNITS, TU6-TU10, 10/- each. AUTO TRANSFORMER 1-5 kW. 230, 190, 150, 110 V., 50 cy., £2.10.0.

£2.10.0.

R.C.A. Mod. Transformer. Primary 10,000 ohms, sec. 4,000 ohms, £2.

THERMADOR MOD. TRANSFORMER, 400 watts, 6,700 ohms primary, 4,500/5,000/5,500 ohms sec. Brand new, £1.10.0.

MAINS TRANSFORMER, 325-325 V., 120 mA., 6·3 V. 4 A., 5 V. 2 A., 200-250 input. Drop through. £1.

R.C.A. Plate Transformer, 2,000-2,000 V. tapped 1,500 V. 800 mA.; input 190-250 V., 10 V. steps, £3.10.0.

VALVES. EF50, 6V6GT, 807, 6AC7, EF39, S130(VR). EBC33, 6/6. KT2, 6K7, 617, 6J5GT, EF36, 6/-. 6F6, 6SN7, 6AJ5, 7/6. KT61, 9/-. 6AK5, 9/6. SP61, LP2, 215SG, 210LF, 3/6. 832, 12/6. 829, 25/-. All valves guaranteed, and the majority in original packing.

PARMERO MIDGET CHOKES. 5 H. 45 mA., 2/9. Also 5 H.

PARMEKO MIDGET CHOKES. 5 H. 45 mA., 2/9. Also 5 H. 200 mA., 5/-. 15 H., 100 mA., 9/-. American potted, 10 H. 225 mA.,

SWINGING CHOKES. Varley 300 mA., 11/-; Parmeko 4-20 H. 250 mA., 10/-. Also large range of Elect. Paper and Oil-filled Condensers. 10,000 ohm W.W. pots. 2/6; and large range of Carbon and W.W. pots. Also all values of \(\frac{1}{2} \) and I watt Carbon and W.W. resistors.

12 Mc/s. I.F. STRIPS. Contain 6 SP61's, EA50, EF39; ideal for TV. Works right away, £2.

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A low loss wideband transmitting or receiving aerial. Power capacity 1.9 "ARNINE"

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FDA40 for the Mc/s. band 90 ft. downlead. £3.12.6

FDA20 for the 14 Mc/s. band 75 ft. downlead. £3.2.6

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Sussex Bucket and Spade Party

For the past few years Sussex amateurs have held a "bucket and spade" party on the shores of their coast line. This year the party will take place at Worthing on Sunday, August 27, under the auspices of the local Radio Club.

The idea behind the event is to enable as many amateurs as possible, together with their ladies and families, to have an enjoyable day by the sea. No expense is incurred because each party makes its own arrangements regarding mode of travel and meals. and meals.

Further details can be obtained from the Hon. Secretary, Worthing and District Amateur Radio Club, c/o 42 Southfarm

Road, Worthing.

EASTERN REGIONAL MEETING SUNDAY, 9th JULY, 1950 AT CAMBRIDGE

Assemble at Haigh Road for Demonstra-tions of Coloured Television by Pye Ltd., and Radio Model Control 11.20 a.m and noon Lunch, Cambridge Borough Restaurant, Petty Cury Business Meeting or Conducted Tour of 2.30 p.m. *** Tea and Raffle 4.45 p.m. Station Visits ... 6 p.m.

Inclusive charge 8/-. Tickets from T.R.'s, C.R.'s or the R.R. (Mr. R. F. G. Thurlow, North House, Wimblington, Cambs.) not later than July 1st—please.

Thames Valley Society

Due to the forthcoming departure of Major A. Eden, G3HAE, for Singapore, Mr. K. A. H. Rogers, G3AIU, 21 Links Road, Epsom, has taken over the office of Secretary. A large number of members were present at the April meeting, when Mr. Pratt of the Automatic Coil Winder Company, described modern measuring instruments.

Torbay Amateur Radio Society

It was announced at the recent A.G.M. that the Society is to award annually two Cups: one for the best piece of home constructed equipment; the other for the most outstanding U.H.F. achievement. (Hon. Secretary, 3 Clarendon Park, U.H.F. achievemen Tor Vale, Torquay).

Ten Minute Quiz

Answers to the questions set on page 377.

- Time (secs.) = R (Ohms) X C (Farads) or R (Megohms) × C (µF.)
- 2. Just over 120 (according to the R.C.A. Valve Manual).
- Approximately the width of a page of the BULLETIN
- (a) 38 S.W.G. copper or 23 S.W.G. alloy. (b) 33 S.W.G. copper or 20 S.W.G. alloy.
- 5. 0.01 V.
- 6. Cleanliness and allowing the joint to get hot enough to melt the solder.
- (a) No. 10 or 11 (just over 3/16 inch).(b) No. 42 or 43 (3/32 inch).
- 10,000 to 15,000 ohms.
- 2,300 to 2,450 Mc/s.
- 10. Evidence of contacts with (a) 50 Empire Radio Districts on 14 Mc/s. Plus (b) 50 Empire Radio Districts on bands other than 14 Mc/s.

If you were doubtful about No. 10 why not send a stamped addressed envelope to H.Q. for full details of R.S.G.B. Proficiency Certificates?

Penteradiant Hobbies Club

This Club which has its headquarters at 59 Crooked Bridge

This Club which has its headquarters at 59 Crooked Bridge Road, Stafford, includes a Radio Section. Although as yet in its embryo stages, the section has a nucleus of keen members, and workshop facilities are available.

Anyone living in the district interested in Amateur Radio, whether licensed or not, is cordially invited to come along any Wednesday evening after 7.30 p.m., or to write to the Hon. Radio Secretary, J. G. Peace, G3GFY at 190 Stone Road, Stafford. Stafford.

Representation

The following are additions to the list published last month:-

County Representative

Region	County	Name, Call-Sign and Address		
9	Wiltshire	R. A. HISCOCKS (G6LM), 22 Wood- stock Gardens, Melksham.		

Town and Area Representatives

Region	Town	Name, Call-Sign (or B.R.S.) and Address
1	Blackpool Chester	H. M W. FENTON (G8GG), 25 Abbey Road. H. MORRIS (G3ATZ), 24 Kingsley Road, Boughton Heath.
3	Nuneaton Rugby	C. A. ROBINSON (G2DAD), Glen View, Watling Street. M. JOHNSTON (G3BLB), 16 Walford Place.
4	Retford	D. SMITH (BRS16757), 13 Mill Lane, Rockley.
9	Swindon	J. G. ROOKE (G4AP), 72 Goddard Avenue.
.10	Newport	J. McK. Archer (G4GR), 6 Friars Road.
12	Dundee	A. MILLAR (BRS6731), 71 Byron Crescent.
13	Hawick, Selkirk, Galastriels and Kelso	J. FORRESTER (BRS18321), 20 Spylaw Park, Kelso.

Amend ments

To April issue :-- Name of T.R. for Kingston Area is V. Mayhead, not V. Call-Sign of T.R. for Dagenham is G2AKY, not G3AKY.

Hayes and Uxbridge are in London (West) not in London (South-west). To March issue

New Data Book

OP-AID. Amalgamated Short Wave Press, Ltd., 57 Maida Vale, Paddington, London, W.9. 32 pages. Price 1s. 6d.

This new data book provides, in a handy form, a most useful selection of the codes, abbreviations and prefixes used in Amateur Radio. It will save the radio amateur or short wave enthusiast many hours of searching through various publications. The contents include: international prefixes (block allocations); amateur prefixes arranged in alphabetical order of prefix and country; call areas of 27 countries, with call maps of the U.S.A. and U.S.S.R.; the zone boundaries devised by Radio Magazines Inc.; time and mileage tables; a list of QSL Bureaux; Q and Z codes; amateur abbreviations and signal reporting codes; brief details of the amateur licence; and standard frequency transmissions. The booklet represents a praiseworthy attempt to bring together the most commonly needed Amateur Radio reference material at a reasonable price. reference material at a reasonable price.

Forthcoming Events—Cont. from Page 367.

REGION 9-continued

Plymouth.—May 19, 7 p.m., Tothill Community Centre, Tothill Park, Knighton Road, St. Judes. Weston-super-Mare.—June 6, 7.30 p.m., Y.M.C.A. Yeovil.—Wednesdays, 7.30 p.m., Grove House, Preston Road.

Edinburgh.—May 25, 7.30 p.m., Chamber of Commerce. June 8, 25 Charlotte Square.

REGION 14

Falkirk.—May 26, 7.30 p.m., Temperance Cafe, High Street. Ayr.—May 24, 7.30 p.m., Royal Hotel, Prestwick.

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Television Interference Suppression

DEAR SIR,—There are a few points in the printed version of r. Varney's paper, published in the March issue, on which I

Mr. Varney's paper, published in the March issue, on which I would like to comment.

Firstly as regards the use of push-pull to reduce even harmonic trouble I do not think he has sufficiently emphasised the need for a coupling system from the P.A. coil which will avoid any transfer of energy from the "push-push" component in leads common to the two valves, cathode leads in particular. Several recent U.S.A. publications suggest that unless this point receives very careful attention the push-pull output stage can be even worse than a single valve.

Secondly, with regard to the circuit of Fig. 6, it is an improvement in several ways if the coil marked "1" is double wound (both windings in the same direction) with the two lower ends connected together and to C and the two upper ends going separately to the valve anode and the P.A.coil. The circuit is then seen to be that of Campbell's "sifter." The advantages of this over a single coil are:—(a) there is no transfer of energy from valve to main P.A. coil caused by the resistance of the coil "1"; (b) since rejection will not coincide with series resonance of "1" and "C" (unless the mutual inductance is equal to the inductance of the coil in the valve mesh), the harmonic current through C, and hence transfer due to its resistance are reduced; (c) if the coils are not tightly coupled the circuit can be adjusted to rejection by varying their mutual inductance.

Thirdly, while this circuit is useful and at first sight attractive because of the apparent automatic "tuning" of main and harmonic components with the same C, in practice this is impossible because of the anode-earth capacity of the valve. This can be seen most easily by considering what happens when C becomes zero. The harmonic path resonant frequency becomes infinite, but the main circuit frequency becomes infinite, b

but the main circuit frequency is that of L and the valve capacity. I spent some little time a year or so ago, and since Mr. Varney's paper appeared, I have made several more attempts, to find a simple (single tuned) circuit which would do what is required. I tried first another inductance across C so chosen as to give, with C, the same resonant frequency as L on valve capacity when "1" and C (Mr. Varney's Fig. 6) are adjusted to series resonance at the harmonic frequency. Although I believe this to be an improvement, after trying for some time to determine the "correct" value of shunting inductance, I was able to prove fairly simply that the circuit did not do exactly what was required. required.

Thave tried also a condenser between the two top ends of a double wound coil. This, again, does not give simultaneous tuning, and rejection of the harmonic over the complete range of condenser settings. This case, however, did show that capacity between the two windings was not detrimental to the operation of the circuit.

of the circuit.

I am beginning to doubt whether a single tuned (i.e. single variable condenser) circuit can be devised to meet the desired condition, but I have not yet proved this. Probably the best practical solution at this stage is a small condenser, ganged with the main one, and connected in parallel with the valve capacity.

Hampton Hill, Middlesex.

Yours faithfully, F. AUGHTIE (G6AT).

A Plea for Esperanto

DEAR SIR,—I was very interested in the reminiscences concerning the First International Radio Amateur Congress in 1925, particularly as regards the publication of the programme in Esperanto, and the practical use made of this language to facilitate international discussion. Over the past year or so I have been seeking out radio-amateur Esperantists and have a list of 23 in Europe holding licences as well as numerous SWL's. How much simpler international 'phone working would be if this efficient language were adopted by the amateur movement, instead of the extremely restricted by the amateur movement, instead of the extremely restricted Americanised jargon at present employed! It pains me to hear the foreigner with his "Sorry, I no speak English very gut," and annoys me to hear a G (or W or DL2 etc.) go back in fluent English as if in local QSO.

If amateurs were to accept Esperanto, which has proved its value time and again in international usage, it would do much to foster really deep understanding between amateurs in various

I would be pleased to hear from anyone interested in the above

remarks. "Holmcroft," Durkar, Wakefield, Yorks.

Yours faithfully, W. FARRAR (G3ESP).

One Man's Meat

DEAR SIR,—I think that G5GQ is being grossly unfair to the members that do not attend local meetings. Surely we are all at liberty to do as pleases us best ?

G5GQ is obviously interested in the organising and perhaps social side, as well as the radio side, but why should he insist

that we should be?

For several years I was president and chairman of a Rhythm club in my district as well as the editor of their magazine. I gave up a considerable amount of my valuable time to it—time that I could have spent quietly playing records, or attending Jam Sessions, or playing in bands—but I did not begrudge it. I enjoyed the work, it was part of my scheme of things, but I did not run around insisting that other people did the same, and moaning when they did not

moaning when they did not.

No, there is room for all in this world, the enthusiastic, the apathetic and the indifferent. If G5GQ and others (to whom we all are greatly indebted) prefer the collective way, let them get on with it but please let them not condemn the "lone wolf" who wants to belong to the R.S.G.B. because of the benefits it confers on him (and the money it saves him) but has not the inclination and/or the time for attending meetings.

As an afterthought, would G5GQ be in a fix if 100 per cent. turned up to his meetings?

Yours sincerely,

DOUGLAS P. J. MEAD, BRS18249,

Ilford, Essex.

AROUND THE TRADE

The Amateur Division of E.M.I. Sales and Service Ltd. announce that a limited number of amplifiers, microphones, microphone stands, transformers and smoothing chokes are to be made available to amateurs and experimenters at approximately half normal retail prices. The amplifiers, which include 15, 20 and 30 watt output types, should prove suitable—after slight modification—for use as modulators for low and medium power transmitters. Types available include: 181c—a 20 watt three-stage amplifier with push-pull KT66 valves in Class ABI, built-in power supplies and protective covering selling at £19: 161 and 161c—a 15 watt amplifier basically similar to the 181 but with KT61s in the output stage priced at £15 (161c including cabinet £19); the 102 series—30 watts output priced at £34. Other equipment includes industrial loud-speakers, moving coil and crystal microphones, and table microphone stands. Full details can be obtained from E.M.I. Sales and Service Ltd. (Amateur Division), Hayes, Middlesex. (Amateur Division), Hayes, Middlesex.

A new 24 pp, booklet "Modern Solders" published by Multicore Solders Ltd., Mellier House, Albemarle Street, London, W.1, is available free of charge to members professionally engaged in the radio, television and electrical manufacturing and allied trades. It contains some useful information on the melting points of the various alloys available; tables of standard gauges; tensile and shear strengths; and electrical conductivity.

The fourth of a series of interesting technical publications, "TP4: Radio Receiver for use with High Fidelity Amplifiers," is now available free of charge from the Osram Valve Technical Dept., Magnet House, Kingsway, London, W.C.2. It describes the construction of a four valve superhet circuit operating at four pre-selected frequencies, with two degrees of selectivity, a tone control stage, and whistle filter. Previous titles in this series include: "TP1—Amplifiers for High Fidelity Sound Reproduction (A.C. Supply)"; "TP2—Amplifiers for High Fidelity Sound Reproduction (D.C./A.C. and Battery Supply)"; and "TP3—Type KT66 in Audio and Radio Frequency Circuits." They form useful additions to the quality enthusiast's bookshelf.

Silent Keps

We record with deep regret the death of Mr. Norman Edwards, ZLIAA. a well-known pioneer in the early days of international DX working. Licensed in 1923, Mr. Edwards was a founder member of N.Z.A.R.T.. a past Chairman of the Aückland branch and a section leader of the N.Z. radio emergency corps. In recent years his work for the N.Z. commercial broadcasting system left him with little time for amateur operation. He will be sadly missed in New Zealand and by old-timers all over the world. world.

It is also with deep regret that we record the passing of Robert Smith, B.E.M., GM3DBS, of Cardonald, Glasgow, on Sunday April 2nd, 1950.

"Bert" Smith served in the Royal Navy during the war and was for two years in Malta during the height of the air onslaught, he also spent a long time in a Portsmouth hospital.

Apart from operating QRP C.W. on 7 Mc/s, he was a keen mountaineer. To his widow and daughter we extend GM6MD. our heartfelt sympathy.

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complete with necessary conversion data for home use. Only 22/6. Chassis only, 8/6. RECEIVER TYPE 21. The receiver portion of the W/S 21 operating from 4:2-7.5 Mc/s. Double superhet from 18-30 Mc/s. Incorporating B.F.O. and noise limiter. Valve line-up 7-ARP12 (VP23), and 2-AR8 (HL23DD), plus spare valve of each type, making eleven valves in all. Only 35/- complete. A.M. RECEIVER UNIT, TYPE 161. Comprising 2 EF50, EF64 and EF52 Coils, relay and many condensers and resistors. EF34 and EC52. Coils, relay and many condensers and resistors. The whole in metal box, size 8½ x 6½ x 3½." New, a bargain, at only 22.6, carriage paid.

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special 11-pin valve-holder, also. Included free is a data sheet, plus details of the resistor network.

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Corrections to list published last month

Should read GM3FHB—J. BARNES, 27 Craigs Road, Corstorphine, Edinburgh 12. Should read GM3GJJ—P. B. WATSON, c/o Mrs. Forbes, 15 Marjory Drive, Paisley, Renfrewshire. GM3FGB G3GJJ

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Mr. D. S. Rustema, PAODR, of Middelstum, Holland, wishes to thank those amateurs who extended ham hospitality to him during his recent visit to England. He is particularly grateful to G3GZ of Slough who made arrangements for him to attend the Reading hamfest. He also wishes to be remembered to G2FXR, 4NT and 5TP.

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