

August 1949

The original front cover for this edition was not available.



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BULLETIN R . S . G . B .

OFFICIAL JOURNAL OF THE INCORPORATED RADIO SOCIETY OF GREAT BRITAIN

Published on or about the 15th of each month.

Issued free to members

Editor: IOHN CLARRICOATS-G6CL

Editorial Office: NEW RUSKIN HOUSE,

LITTLE RUSSELL STREET, LONDON, W.C.I

Telephone: Holborn 7373

Honorary Editor: ARTHUR O. MILNE-G2MI

Advertisement Manager: HORACE FREEMAN

PARRS ADVERTISING LTD., Advertising Office:

121 KINGSWAY, LONDON, W.C.2

Telephone: Holborn 2494

Forthcoming Events

REGION 1

Ashton-under-Lyne.—September 4, 3 p.m., New Jerusalem Schools, Katherine Street.

Bolton.—September 6, 8 p.m., Y.M.C.A.

Burnley.—September 7, 7.30 p.m., Mechanics Institute, Manchester

Road.

Bury.—September 8, 7.30 p.m., Atheneum, Market Street. Darwen and Blackburn.—August 19, September 2, 16, Weaver's

Institute, Darwen.

Manchester.—September 5, 7.30 p.m., Reynold's Hall; College of Technology, Sackville Street.

Oldham (O. R. S.)—Alternate Wednesdays, 7.30 p.m., Civic Centre, Clegg Street.

Rochdale.—September 4, 3 p.m., Drill Hall, Baron Street.

Barnsley.—September 9, 7.30 p.m., King George Hotel, Peel Street. Bradlord.—August 30, 7.30 p.m., Cambridge House, 66 Little Horton Lane.

Catterick.—Tuesdays, 7 p.m., Loos Lines, Catterick Camp.

Darlington.—Thursdays, 7.30 p.m., Club Room, British School
Yard, Skinnergate.

Yard, Skinnergate.

Doncaster.—Wednesdays, 7.30 p.m., 73 Hexthorpe Road.

Harrogate.—Wednesdays, 7.30 p.m., rear of 31 Park Parade.

Huddersfield.—September 7, 7.30 p.m., Plough Hotel, Westgate.

Hull.—August 31, 7.30 p.m., Ye Olde White Harte, Silver Street.

Newcastle.—August 22, 8 p.m., British Legion Rooms, 1 Jesmond Road.

Road.
Pontefract.—Thursdays, 7.30 p.m., Travellers' Rest, Purston.
Sheffield.—August 24, 8 p.m., Dog and Partridge, Trippit Lane.
September 14, 8 p.m., Albreda Works, Lydgate Lane.
South Shields.—Thursdays, 7.30 p.m., Trinity House, Laygate.
Spenborough.—August 31, September 14, 7.30 p.m., Temperance
Hall, Cleckheaton.
York.—Wednesdays, 8 p.m., 29 Victor Street.

REGION 3

South Birmingham.-September 4, 10.30 a.m., Stirchley Institute.

REGION 5

Cambridge.—August 19, 7.30 p.m., The Jolly Waterman, September 3-10, Trades' Fair, supported by local R.S.G.B. Group.

Chelmsford.—September 6, 7.30 p.m., 184 Moulsham Street.

Barnes and Richmond.—September 6, 7,30 p.m., Waterman's Arms,
 Water Lane, Richmond. September 13, 7,30 p.m., 28 Nassau
 Road, S.W.13.
 Croydon (Surrey R.C.C.).—September 13, 7,30 p.m., Blacksmith's

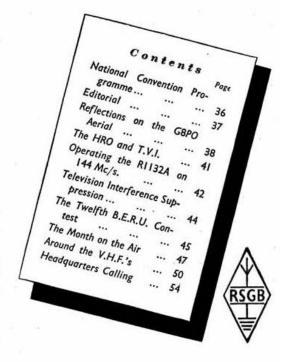
Croydon (Surrey R.C.C.).—September 13, 7.30 p.m., Statember 7, 14, St. Arms.

Edgware (E. and D.R.S.).—August 24, 31, September 7, 14, St. Michael's School, Flower Lane, Mill Hill.

Enfield.—August 21, 3 p.m., George Spicer School, Southbury Road. September 18, 3 p.m., Exhibition of Amateur Gear. Finsbury Park.—August 23, 7.30 p.m., 164 Albion Road, N.16. Hayes.—September 5, 7.30 p.m., The Vine, Uxbridge Road. Hoddesdon.—August 18, September 6, 8 p.m., Salisbury Arms. Holloway (Grafton R.S.).—Mondays, Wednesdays and Fridays 7.30 p.m., Grafton School, Eburne Road, N.7. Peckham.—September 5, 7.30 p.m., The Kentish Drover, Rye Lane. Slough.—August 18, 7.30 p.m., Labour Memorial Hall, Chandos Street.

St. Albans.—September 14, 8 p.m., The Beehive, London Road, Wanstead & Woodford.—September 26, 8 p.m., at G2BCX, 111 Maybank Road, S. Woodford.

Welwyn.—September 6, 8 p.m., Council Offices.



REGION 8

Brighton.—Every Tuesday, 7.30 p.m., Eagle Inn, Gloucester Road. Farnham.—August 28, 3 p.m., G2ZC, 89 West Street. P.C. if attending.
Southampton.—September 3, 7.30 p.m., 22 Anglesea Road, Shirley.

REGION 9

Bristol.—August 18, 7 p.m., Keen's Cafe, Park Row. Exeter.—September 2, 7 p.m., Y.M.C.A., 41 St. David's Hill. Plymouth.—August 20, 7 p.m., Tothill Community Centre, Tothill Park, Knighton Road, St. Judes. Torquay.—August 20, 7.30 p.m., Y.M.C.A., Castle Road.

Rhyl.-August 21, 2.45 p.m. Crown Hotel.

REGION 14

Ayr.—August 31. 7.30 p.m., Royal Hotel, Prestwick Hotel, Glasgow.—August 31, 7 p.m., 39 Elmbank Crescent.

OUR FRONT COVER

"HE picture on the front cover this month shows a Universal AvoMinor being used to check the screen voltage of the PM24M Crystal Oscillator which is being adjusted to run from a 250 volt plate supply. The screen voltage is being obtained by the setting of a high wattage variable resistance.

The photograph, submitted by Mr. R. C. Parnaby (G2DPA), of Beverley, Yorks, was awarded a prize in the " Avo " competition for R.S.G.B. members.

Radio Society of Great Britain NATIONAL CONVENTION

MANCHESTER, 1949

Programme of Events

Friday, October 21st

From 12 noon Registration at the Grand Hotel, Aytoun Street.

(Members of the Convention Committee will be in attendance.)

Amateur Radio Exhibition, Corn Exchange, Hanging Ditch. The Lord Mayor 3 p.m. of Manchester (Alderman Robert Moss, J.P.) has kindly consented to open the Exhibition.

(Admission by Catalogue obtainable at door, price 1s.)

Theatre Visit. (Tickets 7s. 6d.) 7 p.m.

7.30 p.m. .. Model Aerials Demonstration by Mr. F. Charman, B.E.M., G6CJ. College of

Technology.

(Admission Free by Ticket. Accommodation for 120 persons.)

Visit to Kemsley Press. 7.45 p.m.

(Admission Free by Ticket. Accommodation for 50 persons.)

9 p.m. Exhibition closes.

Saturday, October 22nd

11 a.m. Exhibition opens.

12.30 p.m. Luncheon, Tudor or York Room, Belle Vue Gardens.

(Admission by Ticket only, price 6s.) Visit to Manchester Ship Canal. 2 p.m.

(Fare 2s., payable on day. Accommodation for 80 persons.)

2.30 p.m. Visit to and Demonstration at Central Fire Station, Manchester.

(Admission Free by Ticket. No limit to accommodation.) 2.30 p.m. Visit to B.B.C. North Regional Transmitting Station, Moorside Edge.

(Fare payable on day. Accommodation for 30 persons.) Film Show. College of Technology.

2.30 p.m. (Admission Free. Accommodation for 120 persons.)

.. Buffet Tea. College of Technology. 4.30 p.m.

(Admission by Ticket only, price 2s. 6d.) 5.30 p.m. .. Model Aerials Demonstration by Mr. F. Charman, B.E.M., G6CJ. College of

Technology. (Admission Free by Ticket. Accommodation for 120 persons.)

Free period for those not attending lecture. 5.30 p.m.

9 p.m. Exhibition closes.

Sunday, October 23rd

11 a.m. Exhibition opens.

12.30 p.m. Convention Luncheon. Belle Vue Gardens. (Admission by Ticket only. See application form.)

2.15 p.m. Group Photograph. 2.45 p.m. **Business Meeting**

4.30 p.m. High Tea or Buffet Tea. (Admission by Ticket only. See application form.)

5.30 p.m. Draw for Prizes.

9 p.m. Exhibition finishes.

Buses (Nos. 107 and 108) ply between Belle Vue and Victoria Street, adjacent to

Reservations for all events must be in the hands of the Convention Secretary, Mr. H. Cox, 4 Boardman Road, Higher Crumpsall, Manchester, by not later than October 1st, 1949. After that date no applications will be considered.

(A loose leaf application is inserted in every copy of the August issue of the R.S.G.B. BULLETIN. Additional copies available from R.S.G.B. Headquarters on request.)

R.S.G.B

For the advancement of Amateur Radio

VOLUME XXV No 2.

AUGUST 1949



CONVENTION PRELUDE

THIS year, for the first time since 1938, the Society is to hold a National Convention, and for the first time ever, a Provincial city has been chosen as the venue. Before the war, Convention invariably coincided with Radiolympia, so that visitors to the one became participants in the other. This dual interest attracted to London amateurs from all parts of the country as well as from many places abroad. The 1949 event will conform closely to the pattern of pre-war Conventions except that on this occasion the Society is to stage its own Exhibition as part of the programme. The fact that the Lord Mayor of Manchester has kindly consented to open the Exhibition means that civic support is to be given to this important event. An outstanding feature of the Exhibition will be the Society's own stand from which will be operated an amateur station using the Headquarters' callsign, GB3RS/A. Many members unable to attend Convention will capture something of the prevailing spirit when they make contact with the Exhibition station.

To members of long standing there will always be magic in the word "Convention" for, in the early days of Amateur Radio, the event provided one of the very few real opportunities for members to get together in a cordial atmosphere for formal and informal discussions. Friendships formed at these gatherings have stood the test of time in spite of the war and all that it brought with it.

There was something rather special about quite small incidents connected with the pre-war Convention programmes. The word of welcome from that Grand Old Man of Amateur Radio—whose passing we have so recently mourned—Bevan Swift; the Convention photograph taken each year on the steps of the Institution of Electrical Engineers; the rush for taxis to the venue of the Convention dinner, followed by the excitement which accompanied the draw for prizes. These and a dozen similar little things helped to make Convention the greatest annual event in the life of many a pre-war Radio Amateur. Shall we recapture that spirit at Belle Vue? We think so.

In 1938, when the membership of the Society was little more than 3,000, Convention attracted an attendance of between 400 and 500 members. To-day, with nearly 14,000 members, is it unreasonable to assume that at least 1,500 will participate in the event?

The detailed work of organising the Convention—and this includes the Exhibition—is being undertaken by a group of hard-working volunteers led by Council Member Ian Auchterlonie (G6OM) and the Region 1 Representative, George Webster (G5GK). In order that the Convention Committee shall be given the chance to make adequate arrangements for the comfort of every visitor, the Council has decided that reservations must be in the hands of the Convention Secretary by not later than October 1 next. To assist him, as well as the membership, an application form for tickets is included in each copy of this issue of the BULLETIN. In bold type at the foot of the form members are reminded that they will not be able to participate in Convention unless they have obtained tickets in advance. Notwithstanding this warning a few thoughtless members will no doubt attempt to gate-crash the proceedings, whilst others will invent excuses to explain why they could not book prior to the day. To all such the answer will be the same, "Sorry, old man, nothing doing."

The Committee cherish one hope—it is that the 1949 Convention will go down in Society history as the occasion which brought together the greatest number of radio amateurs ever seen outside the U.S.A. Will you help them to realise that ambition? If so, fill in that application form NOW. J.C.

REFLECTIONS ON THE G8PO AERIAL

A "Reversible" Uni-Directional System

SINCE the publication, in the November, 1947 issue of the Bulletin, of the results achieved by the writer with an unorthodox aerial based on the W8JK beam, many amateurs have erected similar systems. It would appear, however, that while a number of these aerials have functioned as satisfactorily as did the original, others have been attended with considerably less success. Further investigation has shown that the original description of the operation of the aerial was based on a number of assumptions which were, in fact, not entirely justified. Unfortunately, due to the writer's journey to Australia just after the publication of the article, an early correction was not possible. It is now intended, however, to amend some of the original statements and, at the same time, to put forward additional recommendations which should permit any amateur who may be contemplating the erection of an "8PO" to proceed with the confidence that a reversible uni-directional aerial with low-angle radiation will result.

By

J. E. IRONMONGER*

VK3WU

Standing Waves

The chief difficulty experienced by amateurs who followed the original suggestions appears to have been failure to obtain a satisfactory back-to-front ratio. Perhaps the reason for this can be summed up in the following statement:

"The phase delay that occurs in a transmission line is dependable only when no standing waves exist on

the line."

Further information on this subject may be found on page 183 of Terman's Radio Engineers Handbook. When standing waves appear on transmission lines, it becomes extremely difficult to calculate exactly what phase delay will occur in a given length of line. Terman also states that the greatest degree of phase change will occur around the "minima" points whenever resonances are present. In other words, under certain conditions, the required delay may be "cramped" along just a small portion of the delay section of such a system as was described in the

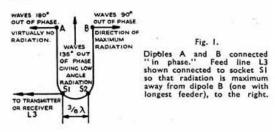
original article.

This fact will reconcile the statement that maximum forward gain and a high back-to-front ratio was obtained using an \$\frac{1}{2}\lambda\$ delay section, \$\frac{1}{6}\lambda\$ spacing and dipoles connected "in phase," with the suggestion, made by G2HDU in his interesting letter published in the December, 1947, issue of the BULLETIN, that this, theoretically, could not be the case. It is now recognised that, due to standing waves on the original system at G8PO, the delay in the \$\frac{1}{6}\lambda\$ section was not dependable. To have given the high back-to-front ratio that it did, the system must have operated with the equivalent of a \$\frac{3}{6}\lambda\$ switchable delay, i.e. due to the "cramping" effect outlined above, the delay section although physically approximately \$\frac{1}{6}\lambda\$ in length, introduced \$\frac{3}{6}\lambda\$ of phase delay. As pointed out by a number of readers, a system operated "in phase" with the equivalent of a switchable \$\frac{3}{6}\lambda\$ delay (Fig. 1) could be expected to give a high back-

to-front ratio: the polar diagrams given in Henney's Radio Engineering Handbook, page 647, and Terman's Radio Engineers' Handbook, page 804, provide further proof of this statement.

Dipoles "Out of Phase"

The same unidirectional switchable condition shown in Fig. 1 can also be achieved by connecting the dipoles "out of phase" as was suggested by G37R (August, 1948). The delay to be introduced in this case, however, does require to be \$\frac{1}{4}\text{N}\$. This alternative method of operation is shown in Fig. 2; the only difference between Fig. 1 and 2 being a complete 180 degrees reversal of directivity for the same feed connection: i.e. with Fig. 1 ("in phase") maximum radiation is away to the right from the dipole with the longer feeder and for Fig. 2 ("out of phase") away to the left from the dipole with the shorter feeder.



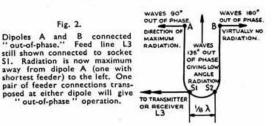
Both methods of connection have been tried and performance appears identical. But, in practice, the "out-of-phase" connection is often the more convenient arrangement since the delay section requires to be only $\frac{1}{8}\lambda$ long. A $\frac{3}{8}\lambda$ delay section, dependent upon the standing-wave ratio on the transmission lines and the velocity of propagation in the feed cable, may often prove to be of an unwieldy length.

Adjustment of Aerial

It is believed that if the following suggestions are noted, little difficulty will be experienced in obtaining good results from the system:

 Standing waves on the transmission lines should be eliminated if possible. This may be achieved by careful matching between the feeders and the dipoles.

(2) Where exact matching is found impossible and standing waves persist, the main feeders should be made even multiples of ½λ long between the feed sockets and the centres of the dipole radiators, since a given phase change can be most easily introduced into a system operated under these conditions. With resonant feeders, standing waves may be positioned along them as required. The value and character of the load impedances, i.e. the centre impedances of the two dipoles, play the major part in determining



[.] J. E. Ironmonger, Lt.-Cdr. (L) R.N., formerly G8PO

how and where the standing waves will be placed along the feed lines. It has been found that to suit the array under discussion, the centre impedance of the dipoles should be either of the same or of a lower value than that of the feed lines, whilst the reactive component of the load should be kept to a minimum. These factors have considerable bearing on the transference of maximum power to the radiators whilst, at the same time, allowing a high front-to-back discrimination to be retained. For a more detailed analysis of these factors, the Radio Engineers' Handbook (page 181) should be consulted.

(3) Initially the delay section should be made ½λ in length (or ½λ if "out-of-phase" operation is to be used), the final adjustment being made by "cut and try" methods to give the best back-to-front ratio. It should be remembered that if standing waves are present, the delay introduced by a given length of feeder may vary considerably from the theoretical

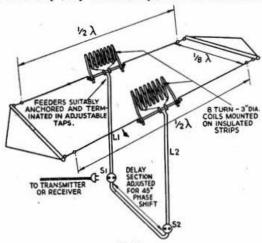
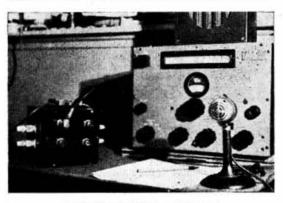


Fig. 3.

Two Element (Single section) 14 Mc/s. array with the modified matching system now employed at VK3WU.

figure. Undoubtedly some form of variable delay would provide the best solution, but so far, no practical method of achieving this has yet been found by the writer.

(4) Where unscreened low impedance twin line is used, the two main feeders should be well separated so that standing waves, if present, will not interact.



OPERATING POSITION AT VK3WU.

The control box, shown on the left, houses the 28 and 14 Mc/s. delay sections, and the reversal connections. The coaxial sockets on the front are for the 28 and 14 Mc/s. reversals, those on the top are for the main feeders. The box sits on the operating table so that its sides "look" in the two directions of "fire," thus the side that the "feed plug" is nearest to, on the front of the box is the direction of maximum pick-up and radiation.

(Such separation does not appear to be necessary where coaxial line is employed.)

(5) Care should be taken to allow for the velocity of propagation in the feed cable when the length of the delay section and main feeders are assessed.

(6) When making adjustments for maximum backto-front ratio with the aid of an incoming signal, ensure that the sender is broadside to the beam. Wrong indications can be obtained on signals emanating from stations not directly in the line of fire.

An effect, originally observed by VK3EG, has proved of considerable assistance when adjusting the radiator lengths of the aerial. It was found that if the aerial is working on its resonant frequency, the loading of the P.A. is the same for both directions of fire; whereas, on off-resonant frequencies, there is a change in the P.A. loading when the direction of fire of the aerial is reversed.

This effect is clearly shown by the following readings taken at VK3WU:—

Frequency.	P.A. Loading Aerial Firing S.E. mA.	P.A. Loading Aerial Firing N.W. mA.	
14,050	 100	 110	
14,100	 105	 110	
14,150	 110	 110	
14,200	 110	 105	
14,250	 110	 100	

From these figures it can be seen that the P.A. loadings are equal when the aerial is working on 14,150 kc/s. and this frequency does in fact correspond with that on which optimum back to front ratio and maximum radiation has been obtained. It should be noted, however, that this effect would probably not hold good in "unbalanced" locations which suffer from heavy screening or absorption in one direction of fire.

Control Arrangements

At VK3WU the reversal system has been made up into the form of a small control box, which is a 6" cube of wooden construction, and which rests in a convenient position on the operating desk close to the receiver. The delay section has been cramped to accommodate it in the small space available while the sockets are so arranged on the outside of the box as to allow manual switching of directivity as well as easy detachment of the main feeders. It should be mentioned that in this case, both the feed lines and the delay section employ light-weight coaxial cable. Similar cramping might not be feasible in the case of other types of feeder.

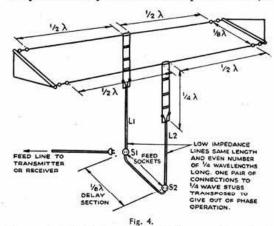
Results

Two arrays operating in the "out-of-phase" condition with \$\frac{1}{2}\text{ switchable delay section have been erected at VK3WU; one for 14 Mc/s., and the other for 28 Mc/s. The radiators are approximately 33 ft. above ground, and the location is, in general, considered to be only average. Both arrays have high front-to-back discrimination, approximately 30 db. directly in the "line-of-fire," while the forward gains are similar to normal W8JK beams. Regular telephony contact has been maintained with Great Britain on both bands with an input of 50 watts to a pair of 807 valves in the final stage. The advantages bestowed by the high front-to-back ratio, have proved just as marked in Australia as they did at G8PO in Putney.

The 14 Mc/s. array, shown in Fig. 3, is basically similar to that described in the original article. It will be noticed, however, that the method of matching the feeders to the dipoles has been modified. Two coils consisting of 8 turns of 3 in. diameter mounted on insulated strips, are connected at the centres of

the radiators. The feed lines are then tapped across a section of the coils, the tapping being adjusted to give minimum S.W.R. on the main feeders. It has been found that the inclusion of the coils adds much less to the effective length of the dipoles than might be expected, and, in practice, amounts to little more than the overall length of the coil. Perhaps this is explained by the fact that the function of these inductances is similar to that of a matching stub.

The 28 Mc/s. array (shown in Fig. 4) consists of two pairs of colinear half waves positioned back-to-back and spaced \(\frac{1}{6} \) \(\lambda \). This permits a better match between feed lines and the radiators and facilitates adjustment of the delay section. The $\frac{1}{4}\lambda$ phase-reversal stubs connected to the centre of the radiators are short-circuited at the far end. The low impedance feeders are then adjusted in the normal manner for minimum standing waves on the lines L1 and L2. If coaxial feeders are used, some form of linebalancing arrangement should be incorporated at the point of connection to the \$\frac{1}{2}\text{stubs}\$; the "Bazooka" method described in the A.R.R.L. Radio Amateurs' Handbook has been found most effective. This "two" section" array results in a narrower radiation pattern and an increase in forward gain of about 2 db. when compared with a "single-section" array. A similar system could be adopted on 14 Mc/s.



Constructional details of two-section 28 Mc/s. array. Forward gain approx. 6 db., back-to-front ratio 30 db.

Louis Varney, G5RV, wins Norman Keith Adams Prize

HE Norman Keith Adams Prize for 1949 has been awarded by the Council, on the recommendation of the Technical Committee, to Mr. R. Louis Varney, A.M.I.E.E., G5RV, of Chelmsford, Essex, whose article "Further Advances in T.V.I. Suppression" was voted the outstanding contribution to Volume 24 of the R.S.G.B. BULLETIN.

The Prize will be presented at the next Annual General Meeting.

Convention News

RACTICALLY all of the accommodation which was reserved at the Grand Hotel has now been There is, however, a limited amount still available at the Queen's and other Manchester hotels, but it is essential that it be taken up quickly. Members who wish to be accommodated are urged to make immediate application on the special form distributed with this issue.

EMBERS who intend to travel by car to the Convention can obtain a suitable windscreen sticker on application to Headquarters. The R.S.G.B. diamond emblem, set out in white against black background, in enclosed by the words "Manchester National Convention, October 21-23, 1949.

Radio Instruction Courses

HE undermentioned classes are to be held at the Ilford Literary Institute, County High School for Girls, Cranbrook Road, Ilford :

Radio Amateurs' Examination Course.—Wednesdays, 7.15-9.15 p.m.

Amateur Radio Transmitters' Refresher Course.— Tuesdays, 7.15-9.15 p.m.

Amateur Television Course.—Mondays, 7.15-9.15 p.m.
The nearest station to the Institute is Gants Hill, Central London Line (2 minutes walk). Buses from many parts of London pass the door. The fee for the complete course for Essex County students is 5/-; for out-county students 7/6. Terms, commence in September, January and April.

Enrolment period is from September 12 to 15. Those on the list held by Mr. C. H. L. Edwards, G8TL, should enrol on either the 12th or 13th. The session commences on Monday, September 19.

Take Heed

•HE U. S. War Assets Administration recently issued a warning that the following types of airborne Service equipment, disposed of through the surplus market, may contain dangerous explosive devices:

ABK-1 ABE SCR-595 ABD SCR-535 SCR-695 AN/APX 1-2-3-8 and 13.

Amateurs were warned under no circumstances to attempt themselves to remove any suspected explosive devices.—QST.

Technical Contributions

HE Editor invites contributions on a wide variety of technical subjects including in particular the following:

A 420 Mc/s: receiver or convertor.

A band-switched 150 watt power amplifier for operation on all bands from 3.5 Mc/s. to 28 Mc/s.

A compact 50/100 watt transportable rig.

A 10-15 watt modulator.

A simple 3-4 valve receiver for the newcomer.

A home-built midget transmitter-receiver on the lines of the B2 Minor.

Preparing for 21 Mc/s. operation.

A review of British and American valves for the Radio Amateur with tabulation of character-

A review of aerial systems for use on the low

frequency bands.

A review of portable and emergency supplies available to the Radio Amateur, with special reference to ex-Government multi-vibrators, notary convertors and alternators.

Aerial coupling units.

Operating practices—good and bad.

Members who are willing to contribute articles are asked to forward to the Editor a brief synopsis of the subject matter to be covered.

The Editor would be glad to hear from any member who is technically competent to undertake the preparation of a regular monthly article on one of the following subjects:

"The Month in the Workshop."

(Notes on technical and topical items of interest to members, illustrated by sketches, circuits and photographs.)
"Bright Ideas."

(Ingenious hints and tips for both transmitting and receiving members.)

THE HRO AND T.V.I.

A cure for Interference to Television

ANY readers are no doubt aware that objectionable interference to nearby television receivers can be caused by an HRO receiver when the latter is operating on the 14 Mc/s. band. The interference is due to a very strong third harmonic produced by the first heterodyne oscillator, and the radiation can be clearly seen as "cross-hatching' a television receiver picture(1) situated as far distant as 100 ft. from the HRO. When the HRO is operated in the same room as a standard T.R.F. television receiver, the value of the picture is completely destroyed by the radiated harmonic.

-BvLOUIS VARNEY* **G5RV**

The information which follows explains how the interference was cured at the writer's station in Chelmsford—some 25 miles from Alexandra Palace, London.

Tracing the Source of Harmonic Radiation

By means of an Harmonic Monitor(2) the offending HRO with its base plate removed and lying on its back, was explored for the presence of any strong R.F. field between 42 and 47 Mc/s. It was soon found that such a field was being radiated from the underside of the first heterodyne oscillator valve holder and associated wiring. Holding the harmonic monitor 1 in. below the valve holder and with the major axis of the coil parallel to its under surface, a reading of over 100 µA was produced! Quite an effective QRP V.H.F. transmitter!

The Cure

A close examination of Fig. 1 (which represents the basic elements of the first heterodyne oscillator circuit of the HRO) will disclose that the original circuit has been modified by the addition of a simple series resonant harmonic trap circuit connected between the 6C6 cathode and the chassis (earth). In addition a couple of heater by-pass condensers have been incorporated as a precaution against R.F. being coupled into the heater wiring. This modification is all that is required to "kill" quite effectively the offending third harmonic normally produced by the first heterodyne oscillator on the 7-14 4 Mc/s. range. Several alternative harmonic suppression arrangements have been tested but none was found to be so effective or simple as the one described.

Although a suppressor is really only necessary when operating the receiver on the 7-14.4 Mc/s. range, it has no deleterious effect upon the functioning of the lower frequency ranges and it may safely be left in However, as the operation of the first heterodyne oscillator may be adversely affected at the H.F. end of the 14-30 Mc/s. range it is preferable to disconnect the device from circuit when operating on this range of frequencies.

R. L. Varney, A.M.I.E.E., 184 Galleywood Road, Chelmsford, Essex.

Modifications to HRO coils

An examination of the oscillator coil contact finger strip, which is mounted beneath the oscillator section of the four-gang tuning condenser, will reveal that, on most models, the No. 1 contact is unused. On certain models a 10 µµF, condenser is connected between contact finger No. 1 and chassis. This condenser may be removed with no ill effect, in fact its purpose is not at all clear.

The harmonic series-resonant suppressor circuit (L1, C1 of Fig. 1) should be mounted in a convenient position under the chassis between the oscillator valve base and the rear wall of the coil unit screening receptacle. In the writer's case this was done by mounting an Ekco coil former (L1) on a small L bracket whose foot is secured to the chassis by means of a self-tapping screw inserted through the fixing hole provided for the small stand-off insulating pillar which formerly supported the 10 µµF. condenser. The coil L1 thus lies horizontally and parallel to the rear wall of the coil receptacle. One end of this coil is then connected to contact finger No. 1 and the other end to the stator of Cl. The rotor of Cl is connected to chassis by means of the stem, which is soldered to a convenient earth point on the oscillator valve base and thus also forms a rigid support for the condenser.

The oscillator section of each HRO coil unit should now be removed from its aluminium screening can and examined to ascertain if there is an internal connection to No. 1 contact. In certain coil sets the No. 1 contact is blank. If a connection is found it will go to the stator of the band-spread trimmer condenser. The connection should be removed-it is redundant in any case.

This completes the modification except for the 7-14.4 Mc/s. range coil. On this coil a connection should be made between contact No. 1 and No. 5 on the coil assembly after removing the connection between contact No. 1 and the band-spread trimmer stator as described. As a result of this modification, the harmonic suppression circuit will automatically be connected between the oscillator coil cathode tap and earth upon insertion of the 7-14.4 Mc/s. range coil unit only.

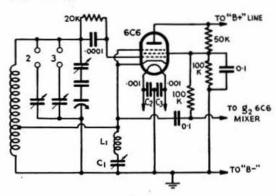


Fig. 1.

First heterodyne oscillator circuit of HRO receiver modified for 45 Mc/s, harmonic suppression.

L1 20 Turns 22 S.W.G. enamelled copper closewound on an Ekco coil former (no dust iron plug). Winding length 13/16 in., diameter 7/16 in.

Mullard concentric air trimmer condenser, 3-30 µµF. C2, C3 0.001 µF. mica.

[&]quot;Curing Amateur Interference to Television," R.S.G.B. Bulletin, March, 1948.

^{(1) &}quot; Further Advances in T.V.I. Suppression," R.S.G.B. Bulletin, May, 1949.

The HRO may now be checked for calibration, when it should be found that a very slight re-adjustment of the oscillator general-coverage and bandspread trimmers is all that is required, to allow for the addition of the harmonic suppression circuit, on the 7-14-4 Mc/s. range only. The sensitivity of the HRO is completely unaffected by this modification. The harmonic suppressor circuit condenser Cl may be set approximately at half capacity for this preliminary calibration check.

Adjustment of Harmonic Suppressor

The correct adjustment of the series-resonant suppressor circuit is very simple. The HRO dial is set to 14.3 Mc/s. The oscillator frequency is then 14.756 Mc/s. and the third harmonic 44.27 The harmonic indicator is then tuned to the latter frequency and supported firmly in the position described above, so that a reading of about 100 µA is obtained. The trimmer condenser C1 is now adjusted by means of a suitable insulated trimmer tool for minimum reading of the microammeter. Trimming should be carried out in easy stages, the HRO tuning dial being re-adjusted for a maximum μA reading each time in order to maintain the first heterodyne oscillator frequency at a constant value. This is necessary as the series-resonant circuit tends to "pull" the oscillator frequency to some

extent. When the adjustment is satisfactorily completed, it should be possible to observe a reading of only a few micro-amperes on the harmonic monitor meter, even when the coil is nearly touching the oscillator valve base.

The 7-14.4 Mc/s. coil should now be checked for accurate calibration on general coverage and then on band spread and should only require very slight

The remaining coil ranges, especially if of the type which originally had no internal connection to No. 1 contact on the oscillator assembly, should require little or no adjustment.

The writer has operated the CR100, the CR300 and the SX16 communication type receivers on the 14 Mc/s. band and in no case was harmonic interference experienced on a T.V. set placed in close proximity. As a consequence of these tests the treatment described above was not required, but it may be applied to other types of communication or S.W. broadcast superheterodyne receiver which employ the popular E.C.O. type of first oscillator circuit.

Owners of HRO receivers who live within the television service area would be well advised to embody a suppression circuit of the type indicated as they may be causing interference unwittingly. Furthermore harmonic radiation by the HRO may complicate the interpretation of results when testing your own transmitter for T.V.I. suppression!

Operating the RII32A on 144 Mc/s.

By S. T. SMITH (G3BSI) *

DURING recent months there has been considerable speculation as to the efficiency of the ex-R.A.F. receiver type R.1132A when converted for operation on frequencies around 144 Mc/s. In the May, 1949, issue of the BULLETIN, G2FKP points out a number of the snags which are liable to arise when the upper frequency limit of this receiver is increased. While these disadvantages are certainly important, experiments carried out by the writer since 1948 indicate that, with care, reasonably good results can be obtained without extensive rebuilding. As these sets are now available from many sources, members may be interested in a brief account of the modifications which were found necessary for 144–146 Mc/s. reception.

The receiver was first tested on its original frequency range of 100-124 Mc/s. Aircraft more than 50 miles away could be received without difficulty and the signal-noise ratio was most satisfactory. The original coils were then removed and rewound (using the same wire) as follows:

Aerial coil—2 turns, $\frac{1}{4}$ in. inside diameter, $\frac{1}{4}$ in. long. Frequency changer grid coil—ditto.

R.F. anode coil—1\(\frac{1}{4}\) turns, \(\frac{1}{4}\) in inside diameter.

Oscillator—2 turns \(\frac{1}{4}\) in. inside diameter, \(\frac{1}{4}\) in. long.

Oscillator—2 turns \(\frac{1}{2}\) in. inside diameter, \(\frac{1}{2}\) in. long.

The new coils should be soldered directly to the original pillars which are spaced \(\frac{1}{2}\) in. apart. In the case of the R.F. anode and oscillator coils, which do not fully occupy the space between the pillars, the coil ends should be made as straight and as short as possible. This will allow the turns of these coils to be opened or closed slightly during the adjustment of the tracking. If the grid coil of the frequency changer valve will not trim to the top frequency, the 5 \(\mu\)F ceramicon condenser (C.16) connected across this coil should be removed.

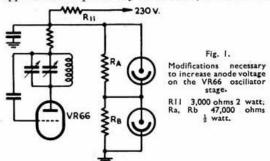
 S. T. Smith, Grad. Brit. I.R.E., G3BSI, 35 Claremont Road, Westcliff-on-Sea, Essex. For maximum gain the coupling between the R.F. anode and F.C. grid coils should be made as tight as possible. A spacing of only $\frac{1}{12}$ in. was found to give optimum results. The tight coupling decreases second channel rejection but this is unlikely to prove a serious handicap for amateur work unless there is a station operating on approximately 122 Mc/s. in the immediate locality.

On the 144–146 Mc/s. band some form of bandspreading is essential. The simplest method is to remove an outside rotor vane from each of the four sections of the tuning condenser. In the case of the oscillator tuning condenser (the section nearest to the front panel) it is essential to remove the rotor vane nearest to the front panel. No attempt should be made to unsolder the vanes as this will almost certainly result in the entire rotor vanes of each section coming adrift. Instead, nip the vane to be removed close to the spindle, gently rock it to and fro in order to crack the solder, and then pull it away from the other vanes.

Since the I.F. of this receiver is 12 Mc/s. and the oscillator operates at a lower frequency than the incoming signal, the oscillator frequency must be adjusted to approximately 133 Mc/s. for a dial reading of 50°. This can most easily be done with the aid of a signal generator but it will probably be found that if the coil dimensions as given are adhered to, the frequency will not be far out. The other tuned circuits can be aligned satisfactorily by tuning for maximum noise.

With most models, the oscillator will refuse to function much above 125 Mc/s. This difficulty can be overcome by increasing the anode voltage on the VR66 local oscillator. To do this, the 10,000 ohms resistor (R11) is replaced by a 3,000 ohms (2 watt) resistor and a second 7475 neon stabiliser is connected in series with the existing one, as shown in Fig. 1.

After conversion, the 144-146 Mc/s. band occupied approximately 40° of the dial (30°-70°). band-spreading may prove advisable in more active Sensitivity and signal to noise ratio appeared to be practically unaltered by the increase



in frequency. With a simple 50 ft. end-on aerial, a number of amateur signals have been logged at good strength, including G3GW, 3BTL, 3BWS and 3DAH. These results could undoubtedly be improved upon by the use of a more elaborate aerial array.

Tropospheric Propagation or Lower Radio Frequencies

RITING in a recent issue of Nature (Vol. 163, p. 527) Mr. D. W. Heightman, G6DH, suggests that tropospheric effects should not be ignored even on frequencies below 1,000 kc/s. Generally the effect is referred to as occurring "over

Mr. Heightman mentions pre-war tests on 59 Mc/s. between his station in Clacton and the station of Mr. E. Early, F8ZF, at Boulogne-sur-Mer, a distance of 90 miles. In these tests a frequency of 3.6 Mc/s. was used for communication. It was observed that on days when the 59 Mc/s. signal was of good strength under the conditions which are now easily recognised as being suitable for this form of propagation, the general level of the 3.6 Mc/s. signal was also higher than on a day when trospheric conditions were poor. Results obtained were sufficient to show an undoubted correlation between the 3.6 and 59 Mc/s. signals and meteorological conditions.

In view of these results on 3.6 Mc/s. it was decided to check the effects observed on medium-wave broadcast stations. Here again correlation with meteorological conditions was observed.

Under anti-cyclonic weather conditions, increases above the average signal-strength of the order of 25 per cent. in the case of the nearer London station, 33 per cent. Welsh and 40 per cent. North were observed. Similarly, with turbulent unsettled weather, corresponding drops in signal-strength were noted. A given weather system would not affect all frequencies, distances and directions in the same manner, the field-strength of any particular station being the result of waves arriving over more than one path.

Sporadic E Reflection on 2 Metres?

HE upper limit to sporadic E reflection is generally accepted as occurring somewhere in the region of 70 Mc/s. In the July issue of QST, however, the V.H.F. Editor, E. P. Tilton, W1HDQ, draws attention to the reception of W7FGG's 2-metre signals by W4HHK during a known 50 Mc/s. sporadic E opening and at a time when tropospheric propagation was likely to be at a minimum. Should it be proved that sporadic E reflection can take place on 144 Mc/s., this would greatly increase the chances of contacts considerably in excess of the present amateur record of 660 miles.

Scientific Observations

HE Committee responsible for the organisation of the Scientific Observation groups operated by the Society have been pleased to appoint Mr. A. G. Hill, G2KG, to the office of Tropospheric Propagation Group Leader. Mr. Hill, whose address is 61 Third Avenue, Chelmsford, Essex, will be glad to hear from any member willing to assist in the work of his Group.

The other Group Leaders are:— Mr. D. W. Heightman, G6DH, 234 Burrs Road, Clacton, Essex.

Mr. L. Blagborough, BRS15012, The Risley Club,

Risley, Nr. Warrington, Lanes. Mr. H. R. Hatch, G2CBB, 274 Limpsfield Road, Sanderstead, Surrey.

The first two named are responsible for the organisation of the Ionospheric Propagation Group while Mr. Hatch is in charge of the Aurora, Meteor and Solar Effects Group.

The Chairman of the Scientific Observations Committee is Mr. W. A. Scarr, M.A., G2WS, Execu-

tive Vice-President.

Television Reception in South Africa

N the May issue of Radio ZS, Mr. H. J. R. Rieder, ZSIP, summarises the results of his experiments in the reception of the Alexandra Palace television transmissions. He has found that during years of high sunspot activity these transmissions can be heard for about 4 out of the 12 months, peaking around March and October. Reception of the sound channel (42.5 Mc/s.) extends to almost 6 months in the year although the chances of receiving both sound and vision together are given as about 50-50. ZS1P has been using a standard Pye B16T receiver with a single-element aerial—a three-element beam gave little improvement, while changing the polarity of the aerial from vertical to horizontal also makes little difference.

Considerable interference has been experienced from other European signals including the Eiffel Tower television station and navigational aid transmissions on 42-43 Mc/s. Another form of interference is due to reflection from nearby mountains causing signals to arrive out of phase in the same way as with "aircraft flutter" in the United Kingdom. On certain days the M.U.F. has been too high for satisfactory reception, there being a "no signal gap " between about 38 to 45 Mc/s.

Amateur Radio in Berlin

R. R. G. SHEARS, DL2KW-G8KW, writing from Bipartite Control Office, Communications Group, Frankfort-on-Main, states that authority has been granted to the Deutsche Post to issue amateur transmitting licences in the Western sectors of Berlin, including the French sector. Licensing conditions are the same as those in force for licensing Germans in the U.S. and British Zones of Germany. The prefix DL7 is being used.

German nationals living in the French Zone of Berlin are not yet allowed to operate amateur stations but discussions are taking place with a view to affording them similar facilities as those now available to German nationals in other Western Sectors.

Belgian Amateurs to Visit Radiolympia

E learn from Mr. M. Dupuis, ON4EY, Rue du Velodrome 46, Ostend, that he is arranging for a party of 50 Belgian amateurs to visit Radiolympia. The party will arrive on Saturday October 1, and leave on Monday, October 3. Members in the London Region who would like to entertain one or more of the party on the Sunday should write to Mr. Dupuis.

Mr. Dupuis attempted to arrange for the party to visit Broadcasting House but his efforts met with no success as such visits have now been discontinued.

TELEVISION INTEREFERENCE SUPPRESSION

By "SPENNY"

When an amateur transmitter causes interference to a television receiver, the normal procedure is to look for harmonics of the frequencies of all the various stages in the transmitter which fall within about 2 Mc/s. of the vision frequency, the image frequency and the I.F. of the television receiver. But these are not the only frequencies which must be examined. This article describes the curing of a case of T.V.I. caused by the radiation of a 90 Mc/s. harmonic.

THE following account of an investigation into the cause of interference to a straight television receiver by a transmitter operating on 28 Mc/s. may be of interest to amateurs within, and just outside of, the Alexandra Palace service area.

The television receiver was home-built to a design by Messrs. Bentley and Flach (Television Society Constructors' Group) published as a booklet by Electronic Engineering. The circuit is fairly conventional, consisting of a straight radio-frequency amplifier followed by a diode and the necessary video apparatus and is a good design mechanically as well as electrically.

The constructor—a builder by profession—had certainly produced a first-class job, which would have done credit to any electronic engineer. The instructions had been followed to the letter and, when no interference was present, the results were

excellent

The transmitter was a carefully engineered piece of equipment, heavily constructed and built for experimental purposes rather than for amateur communication. It used two pairs of valves in pushpull, operating as a "Hartley" self-excited oscillator on 28 Mc/s. The symmetrical and balanced nature of the circuit caused the even harmonic to be of a low level, in the same way as those of a driven P.A. stage are low when a carefully balanced pushpull circuit is used. The transmitter screening, also, was very good, and no parasitic oscillations could be found at any settings of the controls or feeds. The only output frequencies which could be detected were whole-number multiples of the output frequency. For an input of 150 watts, an output of 75 watts was obtained, so that the results may be taken as typical of normal amateur working.

The aerial was 10 to 15 yards from the transmitter, the television feeder passing the transmitter at a

distance of 5 feet.

The Symptoms

The transmitter produced the usual patterns of C.W. interference. When the aerial of the receiver was disconnected, the interference stopped and the picture vanished. Disconnecting the transmitting aerial also stopped the interference. Reducing the gain of the receiver appeared to have some effect whilst changing the transmitter frequency showed that only certain bands of frequencies within the 28 Mc/s. band caused any interference.

Since the transmitter was self-excited, it was not apparent that any 45 Mc/s. output could be present, so a search was made for other frequencies likely to

affect the receiver.

The Cause

After much deliberation the conclusion was reached that the trouble was due to harmonics of the R.F. amplifier in the vision receiver beating with harmonics of the transmitter. The lowest order mixture was looked for first, as it was thought that these would produce the worst interference. The second harmonic of the amplifier beating with the third harmonic of the transmitter, at 90 Mc/s. was accordingly investigated.

The Cure

The 90 Mc/s. component of the transmitter output was attenuated by means of a half-wave line (44 in. of Uniradio 1) shunted across the output, and this was found to effect a complete cure over a fair range of frequencies. Adjustment of the length of the line, however, was necessary to cure the interference at the remaining frequencies.

Further probing showed that the 90 Mc/s. radiation from the transmitter was reaching the diode in the receiver, where it was being very efficiently

mixed with the harmonic from the signal

From the investigation, it is apparent that many cases of T.V.I. are caused through this mechanism. That this particular case was cured was due mainly to the fundamental simplicity of both vision receiver and transmitter. Searching for the real reason was thus much easier than would otherwise have been the case. The third harmonic can be, and often is, fairly prominent in the output of a P.A. and steps should be taken to minimise it. The most suitable method is that described by G5RV in a previous BULLETIN article. For this application the coil in both the trap and the monitor will have to be adjusted to 90 Mc/s. Preference is given to the coil and condenser method because of the greater ease with which frequency changing is accomplished but there is no reason why a stub line should not be used, as described above, with some means provided for adjusting its length.

The transmitter output was carefully checked with and without harmonic suppression and no measur-

able difference could be found.

Although this is an account of how a 28 Mc/s. transmitter affected a straight receiver, the same problem may arise with a transmitter operating on other frequencies and with a superheterodyne receiver. For instance, a 7 Mc/s. transmitter might interfere with a receiver having an I.F. of 10.5 Mc/s.

The point to remember is that the last amplifying valve in the receiver, whether working on the signal frequency or not, is often responsible for distortion, and it is with the harmonics thus produced that beats will occur. Therefore in all cases of T.V.I. it is necessary to look for all harmonics which may be produced by the transmitter, even if they do not appear to be dangerous at the first consideration.

T.V.I.

TRANSMITTER INTERFERENCE

Price 1/6 post free

THE TWELFTH B.E.R.U. CONTEST

ITHIN one hour of the start at 0001 G.M.T. on March 5 it became clear that the contest would call for some shrewd judgment on the part of the "experts." For instance, in the Northern Hemisphere the Ionosphere was settling down in such a way as to suggest an all night session on 14 Mc/s. with occasional departures to 7 Mc/s.; whilst "down under" it appeared that the choice had to be made between 14 and 28 Mc/s. At 0600 G.M.T. it was obvious that the competition would be keener than ever, for by that hour those G's who had decided to sleep through the night and start fresh early in the morning found their compatriots giving serial numbers in the 30's, and receiving numbers in the 50's.

Entries

The number of entries received was about the same as in 1947 and 1948, although the distribution within the Empire was a little different. There were as usual plenty of logs from Britain, Australasia and Canada, but Africa was rather poorly represented. There was also a severe shortage of entries from B.W.I. stations which we can only hope is not due to the change-over to dollar currency. The first entry ever received at Headquarters from VES was welcome, as also was the one from VR2BJ, who in earlier years used to pound through on 7 Mc/s. as VK5SU.

Check Logs

Nearly fifty check logs were gratefully received. In the main these came from competitors who were finally unable to meet the posting date, but who graciously offered the result of their labours. The difficulty of preparing entries within 7 days is appreciated, but it is noted that most of the leading stations have solved the "office work" problem and had their logs away in two to three days. In spite of this, the majority of the logs were extremely accurate although, one entrant, at least, appeared to be working from memory.

The grand total of nearly 200 accepted logs represents about half the number of stations known to be taking part in the event. Many of those who did not enter, no doubt joined in for fun, but the judging would have been simplified if logs had been

submitted by all who participated.

Disqualifications

Unfortunately it became necessary to disqualify no less than 18 entries, many of which were posted too late. A common defect was the absence of an analysis sheet. Originally introduced to assist a competitor to arrive at the correct total of points scored, the sheets help the Committee greatly when judging the contest. It has been found that where no analysis is made the total is invariably wrong. Inadequate availability of the complete rules appears partly to be responsible, and this point will be borne in mind.

Conditions

Conditions were on the whole moderately good. Running the contest early, in March improved the chance of world-wide working on 28 Mc/s., in fact this year good use was made of all four DX bands. DX operation on 7 and 14 Mc/s. was difficult at times owing to short skip. The 3.5 Mc/s. band was used in both Northern and Southern Hemispheres, though it was not particularly good. The famous VK5KO parade did not materialise, although Jack tried hard to get through. He heard GB1RS well on the 4th.

There were, of course, "doldrum periods" everywhere—particularly in the East—but throughout the whole 48 hours all parts of the Empire experienced frequent periods when quick band-changing was required. During the last few hours, with "Australasia going off to business" on the Monday morning, the contest withered away into about 20 kc/s. of the 14 Mc/s. band with a score of stations who had already contacted one another fruitlessly calling "Test B.E.R.U."

Operating

The standard of signals and operating was reported to have improved, though the problem of single frequency calling still remains. No off-frequency transmissions were noted. There was some difficulty with non-Empire stations joining in, and one or two entrants (such as VR2BJ) were seriously handicapped by these occurrances.

Both tempo and operating skill have improved tremendously since VK2NS won the first contest in 1931 with 64 QSO's in a week, three of them with Great Britain! In 1948 the target figure was 250 contacts in 96 hours; this year it was 200 in 48 hours, a rate of scoring achieved by several entrants. The leading scores were made by those who were able to spread their contacts over the various zones, with the exception of ZB1Q who won the Junior section with a good selection of zones plus 266 G contacts.

Letters

Many helpful comments were received, some of which have been incorporated in the foregoing remarks. The scoring system was criticised, but it is felt that after many years of experiment an equitable arrangement has been reached which it would be dangerous to upset. Undoubtedly, a contest over two week ends with shorter operating periods would be more popular than a single weekend event lasting 48 hours. The difficulty, of course, is to find suitable dates in a crowded calendar and still be sure of good world-wide propagation.

Senior Section

Mr. Gordon Cole (VK2DI) of Miranda, N.S.W., has tried hard for many years and is at last rewarded with first place. Using an 813 output stage into a long-wire aerial, and a home-built receiver, he



AROUND THE EMPIRE
In common with many other Australian amateurs, Keith Rudkin, VK2DG, of East Maitland, New South Wales, spends almost as much time in the workshop as he does on the air. Nevertheless his signals are well known to many G-stations and this view of his carefully constructed equipment helps to explain why. His activities range from 3-5 to 50 Mc/s.

accumulated 2,365 points from 228 contacts in 24 zones, including 10 zones on 7 Mc/s. and three

on 3.5 Mc/s.

Second place was taken by Mr. W. E. Russell (G5WP) of Woking, Surrey, who deserts the V.H.F.'s once a year to join in B.E.R.U. "Rusty" is of the opinion that the contest cannot be won from this country, yet a single VK2 contact on 7 Mc/s. would have made him disprove his own theory. His 2,352 points from 198 contacts in 23 zones included over 100 points scored on 3 · 5 Mc/s. and 234 on 7 Mc/s.

Mr. F. Charman (G6CJ) of Stoke Poges, Bucks, with the aid of a pair of large vee aerials, covered the Empire to the tune of 2,266 points, which would have gained him third place if he had not sub-

sequently joined the Contests Committee.

Mr. Cyril Herbert (ZL1MB) thus occupies the third position with 2,215 points gained by using four bands, three of them very effectively.

Details of Leading Entrants

Station	Transmitter	Power (watts)	Aerial	Receiver
VK2DI	V.F.O.— Exciter— 813	100	268 ft.	16 valve double superhet. Home made
G5WP	V.F.O.— Exciter— P.P.35T's	150 (100 on 3 ·5 Mc/s,)	14/28 Mc/s. W8JK Ro- tary and 138 ft. Windom	нко
G6CJ	BC221— Exciter— 813 or 803	150	200 ft. Vee (VK) 140 ft. Vee (ZS)	AR88
ZL1MB	V.F.O.— Exciter— VT127A	100	Sterba and Zepp	Eddystone 504
ZB1Q	Collins 18M and C.O./ 807 for 28 Mc/s.	24 25	W3EDP for LF 3/2\ C.F. for 28 Mc/s.	BC348 Pre-Amp. HRO Senior
VK2QL	6V6-807 24-25 133 ft. sing wire feed		133 ft. single wire feed	8 valve superhet
ZD4AB	V.F.O./C.O. —807	18-23	68 ft. single wire feed	BC348 and converter
BRS1535	-	-	66 ft. end fed and coupler	HRO and converter and BC453
G5KW/MD5	_	-	W3EDP and longwire	Eddystone 640 and Pre-Amp

Junior Section

The Junior Section was again run concurrently with the Senior event. Mr. A. E. Seymour (ZB1Q) of R.A.F. Signals, who put Malta on the map last year by giving many U.K. stations a four-band QSO, has stepped up from last year's fourth place to become this year's winner. After filling his zone chart to give almost a winning score of 1,100 points, he settled down to the completion of 266 contacts with Great Britain, and a total of 1,355 points.

Mr. F. T. Hine (VK2QL) of Homebush, N.S.W., needs no introduction. Using a long wire aerial and a home-made superhet receiver he obtained 1,156 points. Of these 84 were made on 3.5 Mc/s. and

over 300 on 7 Mc/s.

The third place goes to Mr. Tom Hall (ZD4AB) of Accra—a well-known DX operator—with a score of 1,115 points made entirely on 14 and 28 Mc/s.—and in spite of doing his duty to over 70 callers from the homeland.

Receiving Section

The entry was still rather small, although better

Senior Section Placing

Pn.	Call Sign	Pts.	Pn.	Call Sign	Pts.	Pn.	Call Sign	Pts.
•1	VK2DI	2,365	30	G5VU	1,240	59	VE2KS	664
•2	G5WP	2,352	31	VE3AGX	1,236	60	G5PQ	610
+	G6CJ	2,266	32	VK2GW	1,231	61	G6CL	609
•3	ZL1MB	2,215	33	G6RB	1,205		VK2YC	609
4	ZL2FA	2,126	34	G6LI	1,197	63	VK2HZ	608
*5	ZE2JV	2,064	*35	VEIPA	1,148	64	VS6AE	602
*6	G6RH	2,048	36	G3CUJ	1,123	65	VEICU	582
*7	GW3ZV	2,043	37	G8KP	1,114	66	G5MR	581
*8	VE3KE	1,977	38	GW5SL	1,112	67	ZS1BM	566
*9	ZS6GI	1,950	39	VK3XU	1,080	68	VE5QZ	524
10	G8KG	1,908	•40	VE2BK	1,060	69	VQ8AY	519
· 11	VK2EO	1,901	41	VE2AFV	1,047	70	ZEIJO	504
•12	VK6RU	1,802	42	VQ2GW	965	71	ZL4BO	499
13	G5DQ	1,763	43	VU2LJ	963	72	VE3ADV	490
•14	VK3XK	1,736	44	VK3CN	955	73	G8KU	488
15	ZS5U	1,603	45	VK50U	945	74	VK3PL	437
16	G6GN	1,566	*46	VQ8AD	905	75	VK5MY	430
17	ZS6CT	1,535	47	G6XN	897	76	VK3ACS	415
18	GSPB	1,513	48	G5FA	881	77	VK5LD	394
19	VK2RA	1,509	49	ZS6BT	860	78	GM3CIX	377
20	VK5FH	1,504	50	VE1EK	843	79	G3RP	344
21	G2VD	1,497	51	VK4RF	823	80	VK5DQ	318
22	G2QT	1,467	52	G4HJ	821	81	GM5CL	300
23	G2DC	1,443	53	VK3YD	749	82	VS6BA	297
24	VK4RC	1,340	54	GSRL	738	83	ZB1E	284
25	G5JU	1,322		GSJO	738	84	VQ8AF	263
26	G5DF	1,313	56	G6KP	701	85	VESCR	212
27	G3CNW	1,258	57	VEIIM	690	86	VK2OW	100
28	G5MY	1,255	58	G2DLJ	667	87	VK30J	42
29	ZL1HY	1,252	- 0	MCC-00001179 1			PONUE OF THE	

than last year. The complaint was again made by entrants that they were unable to receive the call signs of many stations because of break-in working and because contacts were completed without signature.

Junior Section Placing

Pn.	Call Sign	Pts.	Pn.	Call Sign	Pts.	Pn.	Call Sign	Pts.
•1	ZB1Q	1.355	7	VR2BJ	916	13	ZS5 BW	510
*2	VK2QL	1,156	8	ZB1AR	909	14	VK3TX	501
•3	ZD4AB	1.115	9	VK3UM	868	15	GSDA	478
4	VS9AL	1,079	10	VK5RX	849	16	VP1AA	302
5	VK4TY	1.066	11	VQ4CUR	692	17	MD4GC	261
6	ZL1MR	1,049	12	VK2ZC	624	18	VK3XB	128

Mr. William Ely, (BRS1535,) of Worthing, using an HRO with all modern additions, logged 218 QSO's in all the 24 active zones, whilst Major Ken Ellis, famous as MD5KW, SU1KE, etc., sent in an excellent log which would undoubtedly have been replaced by a high Senior Section entry if the MD5 stations had been allowed to operate.

Receiving Section Placing

Pn.	Call Sign	Pts.	Pn.	Call Sign	Pts.
*1	BRS1535	2,492	5	BERS447	1,479
2	G5KW/MD5	2,039	6	BRS15822	1,117
3	BRS1066	2,037	7	BRS250	973
4	BERS195	1,525	8	BRS17241	323

Prefix zone certificate.

Check Logs

Check logs were received from:—
G2AIW, AOL, EC, HAO, HPF, G3AIM, ATU, CLM, CXM,
DQC, HK, MY, SB, GM3TD, GW4CX, G5TL, G6AH, BB, HD,
NK, XL, G8ON, PL, E15F, VE1BY, 1EV, 10M, 3IJ, 3SR,
3XY, 4MF, 7CC, 7VO, VK2DG, 2RX, 3CX, 3RJ, 5KO, 5MO,
VO6EP, VP9CC, VS1CX, VS2CH, ZS2FD, 6BJ, 6HO.

A.R.R.L. to Oppose F.C.C. Licence Suggestions

A T the annual meeting of the Board of Directors of the American Radio Relay League, it was unanimously agreed to oppose the proposals of the Federal Communications Commission for changes in the American licensing regulations. As reported in the July BULLETIN, these changes include a 20 w.p.m. Morse test for all amateurs who wish to use telephony on the 3.5 and 14 Mc/s. bands.

[†] Not eligible for place.

THE MONTH ON THE AIR

By ARTHUR MILNE (G2MI)*

PROPOS our remarks last month, we are now pleased to say that the phoney "G2BRA" who had appropriated GM2BRA'S call-sign, was duly caught in the act by the green van boys, acting on information received. The thanks of all selfrespecting amateurs should be tendered to a well known member in Wales who overheard the culprit arranging to call someone and explaining the call he would be adopting as G2BRA was now too hot! Pirates are not the only people on the bands very early in the morning. Prompt action by amateurs and some equally slick organisation on the part of the G.P.O. unmasked the pirate almost as soon as he came on the air. Like "G4TQ" he also lived in Worthing. We should like to point out, however, that G3DMK, who worked both these stations, was under the impression that they were genuine and was in no way implicated. It would appear that due to a confusion of call signs, some amateurs think that he also is a pirate. This is not so. G3DMK is perfectly genuine and is situated in Catterick Camp, Yorkshire.

Television

We understand that two well-known makers of television equipment, Messrs. E.M.I. and Murphy are prepared to co-operate in the suppression of amateur interference to their receivers. This is a shining example of real co-operative spirit. We hope that other manufacturers will follow their example. In this connection it astonishes us that there is no one in the trade with sufficient enterprise to market high pass filters of the type described in the R.S.G.B. booklet Transmitter Interference. Offered at a reasonable price, these highly effective filters would sell like hot cakes. What about it, Radio trade ?

Notes and News

A1069 of Glasgow has been pulling them in; FA9WD, FA3DS, VP5AZ and HI6EC all on 14 Mc/s. being amongst his best. Incidentally do any of these FA's QSL?

BRS11494 reckons conditions have steadily deteriorated on 28 and 14 Mc/s. since 1946—he is not far wrong, either! On 28 he records VQ5ALT at 0930, CX5AP and ZP5BL around 1900. The pick on 14 Mc/s. are CP5FA at 0500 and a bunch of KR6's too numerous to mention, and VP6FT a new one (Cable & Wireless, Barbados). He says VE8's seem to pop up at all sorts of odd hours of the day. He comments on a CQ DX call made recently by a G. Back came a ZD4 on the same frequency R5 S8/9. The G called CQ DX again and back came the ZD4. The G then replied to a CQ DX from an I! Any chemist will syringe the ears for 5/- a pair and it's worth at least one IF stage and is cheap at the price!

DL8KT will be a special "Ham Fest" station operated by D.A.R.C. in Erlangen, Bavaria, from August 19-22. QSL will be by special card.

G8IG has a card from YS1SA-" his first G." Congratulations, Bert, on getting all the cards for a post-war W.A.Z. Bert has also made a 'phone W.A.V.E.—no mean feat.

G3BDU is on 1.7 Mc/s. only, but has received a number of cards for alleged contacts on the other bands. Is this a case of phonetic error or piracy? G3FCW is another victim of the call-sign cheats, this time on 7 Mc/s. VS2CH corrects the recently

published QTH of FNSDC. It is 117, Kailish St.,

Chandernagore, French India. From G3CYX we have notice that HB9HK will be operating from Leichtenstein as HB1HK on 14 Mc/s. during the period August 13-15 inclusive. As this notice may be too late, we have passed the information along to S.W.M., so that as many as possible may have the chance of working this rare country.

G3CQF has worked 3V8AB who says he is the old FT4AB and is located in Carthage. He states that this is the new prefix for Tunisia. What was the matter with FT4?

BRS18017 of Coventry says M1B is active again, QTH is M. Graziani, Republica di San Marino, Central Italy. MD2AF is in Tripoli, QSL via R.S.G.B. SV0UN on 14 Mc/s. C.W. is a U.N. station in Athens.

Our old friend Peter Keller, of XADZ, is active again as ZC6DZ. QSL via R.S.G.B.

BRS17097 describes an hour's listening recently on 28 Mc/s. July 10, 0915-1015 G.M.T.—ZEI, XZ2KN, VS7PS, ZS6, ZS3, PY, LU, WS calling a VK, VS6, VQ4, ZD4, ZD2, ZD1, EL7A, OQ, HB, I and OH. Who says the old 28 Mc/s. band is dead? The best signal considering the input was ZS6EB who was using 7 watts.
W6CRE/KC6 on 14020 is worth looking for.

G3RB reports from W4BRB that VP5BD will soon be active from the Cayman Is. Frequency to start with will be 7290 kc/s. His QTH is Post Cayman, B.R.A.C., B.W.I. G3ATU shows us a card from W7ERO, surely the most useless piece of pasteboard which ever wasted the time of



THE WORSHIPPERS

of a QSL manager. The sum total of information thereon is the call sign of the sender and addressee the sender's town and "R.S.T.569." No date, time, band, system of transmission or anything else. We have seen one from this station which did not even quote the RST. There is also no indication that the card confirms a QSO.

OX3MF and OX3UF are at Kangerdlugssuak,

E. Greenland. QSL via E.D.R.

G2YK reports that VQ4CUR will be operating from Zanzibar as VQ1CUR for the duration of the C.W. section of the "CQ DX contest"—frequencies

14008 and 28016 kc/s.

The "Wandering Major" has turned up again, this time as HZ1KE. With HZ1LD (late MD5LD) Kenneth is now operating on 14 Mc/s. QTH c/o British Military Mission, Taif, Saudi Arabia. Watch for the KE suffix. It may be heard from all sorts of "exotic" countries. G2YS reports TG9RB active on 28, 14 and 3.5 Mc/s. QTH is U.S. Air Mission, U.S. Embassy, Guatemala City. CP1AQ is another nice one on 14050 kc/s.

ZB1Q confirms that he was active on 3.5 Mc/s. and did contact W2QHH. He worked many G's

as well.

VU2BP informs us that VU7AF, who was the Indian Ambassador to Nepal is now in India once more. VU2HM has lost many of his QSL's and asks all his QSO's to re-QSL.

G3RB says TA1AT is OK and he has received

his card. QSL via R.S.G.B. In 1938 G2JD heard VU2JG calling G2YL on 14 Mc/s. CW; receiving no reply, JD offered to ring G2YL. Time passes by and in 1949 G2JD hears VQ4CJG, the same operator calling "CQ G" on 28 Mc/s. 'phone. Why did he want G? You'll never guess! Yes, he had a message for G2YL!

Activity in Greece

The following Greek calls are genuine:

SV0AI R. Army Sig. Corp., AJ Royal Navy, AK Royal Navy, AL R. Army Sig. Corp., PY ex PY1FG with UNSCOB, WB U.S. Sig. Corp., WF U.S. Sig. Corp., AG JUSMAPG, U.S. Air Group. The following are cancelled: SV0AB, WA, WD, IRM, WE (now G2AIQ), DM, UF, GY, AF.
Not known are SV0BC, BV, VF, CR, CD, GS.

SV0AJ is using a 6V6-807 CO/PA with 25 watts input. A V.F.O. is under construction and he hopes soon to be on 'phone. SVoAL (ex G3BWX) is the only one in Salonika. He uses a long wire but says gear is a fantastic price. A single pole six-way Yaxley switch cost 25s.! He hopes to be on with two nice 50ft. masts soon (100 watts input) and is on the lookout for G's between 1830 and 2100 G.M.T. 7000-7035 ke/s.

News from Cyprus

From MD7WE comes a long and interesting of amateur activities in Cyprus. original "service" station was operated by S/Sgt.
"Pappy" Henderson (D4AVL). He took his "portable" rig down (a 32 RA Tx and a SX 28!) so he adopted the call MD7QRQ. The next one was Lt. Bert Lowry, W90YV/D4AVH. He used the call-sign MD7QRP and contrary to G3ATU'S fears. he was quite genuine. 'QRP went off the air on Aug. 14, 1948, and was re-licensed as MD7BL. MD7TJ was operated by Sgt. John Volder, W6ZRL and also D4ABD. Many of these American-operated stations kept a very sketchy log and the chances of a QSL are fairly slim. A log of MD7QRP was kept, however, up to its close down.

At the present time there are three licensed stations active, MD7BL, HV and WE. MD7WE is issued to Sgt. Bill Edwards and he is assisted by

-Empire DX Certificates-

.. G6RH .. G3BI 11 .. G8IL 22 .. G2FSF 23 .. G8KP .. G2PL 12 .. G3DO G2FSR 3 .. G6ZO 13 .. G6YR .. G2MI 14 .. 24 .. G6WY G8II 5 25 G8IG 15 ... G4JZ W2QHH 26 ··· 27 ··· .. GI6TK 6 16 .. G5BJ G2EC 7 G6RB 17 .. ZL1HY .. VK2DI 28 .. 18 .. G8TD 8 G2AJ .. **GW4CX** Q G6KS 19 .. G6QB 29 W3BES . . 10 .. PAOGN 20 .. G6CL 30 .. G4GI Telephony Endorsement

GM2UU 2 .. VQ4ERR 3 .. G3DO

BRS15355 our correspondent. 'HV is operated by R.S.M. Bert Verinder in the Cyprus Signal Squadron. 'BL is the only 'phone station. Other stations have been active amongst which were MD7RCS and MD7DA, but both have now left the island. MD7AF and AC are pirates and nothing is known of any ZC4's. According to the Cyprus P.M.G. there never has been an official ZC4. The only genuine station was ZC4NX.

There seems to be some silly official notion that civilian Amateur Radio is dangerous to security. All that the ban achieves is to keep law-abiding amateurs off the air. The pirates carry on untroubled and anyone who wants to operate a "bad" station just goes ahead without much fear of being caught. The Service Amateurs hope to set up a

Cyprus Amateur Club.

Tail Piece

G2MI'S 5-year-old son who helps to open the morning post: "Look, Daddy, this man has got your call-sign wrong. He's put ESQ after your name!'

Congratulations

ARM congratulations are extended to Mr. Arthur L. Budlong, W1BUD, who has been appointed Managing Secretary of the American Radio Relay League in succession to the late Mr. Kenneth B. Warner, W1EH.

Mr. Budlong, who had been Senior Assistant Secretary for a number of years, became Acting Secretary on the death of Mr. Warner last September.

"Bud" has had a long and distinguished career and his wide experience of international conferences is unequalled in Amateur Radio circles. With the late K. B. Warner he represented the League at the Atlantic City Conference and last month fulfilled a similar duty at the Region II Inter-American Conference in Washington.

During the recent war, when he served with distinction with the U.S. Coastguard Service, his specialised knowledge of frequency allocation problems proved invaluable to the Navy and other

Government Departments.

Mr. Budlong takes office at a critical time in the history of U.S. Amateur Radio. That he will face the problems of the future as fearlessly as he has those of the past is certain.

Good luck, Bud!

R1132 Receiver

The Editor will be pleased to hear from any member who has successfully converted an R1132 receiver for operation on frequencies in the 28-30 Mc/s. amateur band and who is in a position to submit an article describing the modifications required.

Regional Conferences

-HE Region I Conference opened in Geneva, Switzerland on May 18, 1949, and up to the time

this issue closed for press was still in session.

For some weeks prior to August 5 Mr. G. Barba,
F8LA, President of the R.E.F., was present at the Conference as an observer, representing the I.A.R.U.

The Conference has been chiefly concerned with the preparation of a Regional Allocation Table (based on the broad principles laid down at Atlantic City) covering frequencies from 10 kc/s, to 4000 kc/s.

The 3.5 Mc/s. amateur band has been under severe attack by certain European nations who have pressed for its reduction to a width of only a few kilocycles. It is known however that the U.K. and other Governments have been in favour of allocating a band 300 kc/s. wide between 3500 and 3800 kc/s. to the amateur service on a shared basis.

It is hoped to publish further information on the Conference next month. Meanwhile members are

counselled to ignore rumours.

The Fourth Inter-American Radio Conference commenced in Washington, D.C., U.S.A., on April 25 and ended on July 9, 1949. Running concurrently with it was the Region II Conference, provided for under Atlantic City Regulations, the distinction between the two being that the F.I.A.R. Conference was restricted to the American Republics while the Region II Conference also included representatives of other nations with possessions in the American Continent such as Britain, France and the Nether-

The principal purpose of the F.I.A.R. Conference was to revise the regional regulations set up at Santiago in 1940, including revision of the Santiago Regional Allocation Table. The Amateur Radio service was primarily concerned with the allocation of frequencies in the band 3500-4000 kc/s. which, under Atlantic City regulations, may be made available in Region II for amateurs, fixed and/or mobile services as agreed upon by the Regional Conference.

The F.I.A.R. Conference assigned to amateurs the whole band 3500-4000 kc/s, but agreed "that fixed and mobile services except aeronautical mobile, will be allowed provided they do not cause harmful intereference to the amateur service" (the italics are

ours ! Ed.).

The final documents contain reservations to the Table on the parts of Argentina, Brazil, Cuba, France, Mexico and the British Colonies, all of whom felt that their national interests would not permit them to agree to an exclusively-amateur

allocation between 3500 and 4000 kc/s.

The Delegation of the Colonies of the United Kingdom of Great Britain and Northern Ireland in Region II for example, reserved its position with respect to the allocation of the frequencies between 3500 and 4000 kc/s. to the amateur service and considered that in the sub-division 3750 to 4000 kc/s. there should be no priority for the amateur service and any protection from interference should not be unilateral, but that protection to the fixed and mobile services should also be established.

R.A.F. Wireless Distress Call Methods

SINCE a Royal Air Force Halifax aircraft disappeared recently on a meteorological flight over the Atlantic, a number of radio amateurs—to whom an appeal was broadcast by the B.B.C. for news of any calls intercepted from the missing aircraft-have written to the Air Ministry to enquire what frequencies are used to transmit distress calls.

An R.A.F. aircraft, if suddenly in distress, would be expected to send out an emergency call on the frequency of the station with which it is working. Having made its first call it then has the choice of

making a general S.O.S. call on any one of the following frequencies :-

(1) 6,500 kc/s. by day (at present taken to be from 06.00 G.M.T. to 19.00 G.M.T. in the U.K.) or 3,805 kc/s. by night.

(2) 370 kc/s., which is the standard R.A.F. frequency used for long-range fixing.

(3) 116-1 Mc/s., which is the frequency used by the pilot for R/T or radio telephone calls.

(4) 500 kc/s., which is the International S.O.S. frequency.

In most cases the aircraft would use R.A.F. frequencies-either H.F. or M.F.-so as to be fixed" by cross-bearings from its own stations. If it used the International S.O.S. frequency (500 kc/s.) it would probably be picked up on a D/F'd bearing by a G.P.O. coastal station or by ships which have either a loudspeaker alarm or automatic S.O.S. apparatus. The latter is tripped-off to sound an alarm should it receive the appropriate signal of 12 four-second long dashes at one-second intervals.

Once down on the sea the crew would probably use the dinghy set to send an S.O.S. call automatically on 500 kc/s. Dinghies are also fitted with a small short-range battery radar transmitter, known as

"Walter.

At one time the H.F. distress frequencies (3.805) and 6,500 kc/s.) were reserved strictly for S.O.S. calls although the M.F.-D/F organisation was also used for giving navigational aid. It was found however that the long silences on the higher frequencies tended to upset the efficiency of listening-out operators, so navigational aid is now given on 3,865 and 6,500 kc/s. as well.

Although most of the frequencies used by R.A.F. aircraft in distress have previously been published, it is doubtful whether the frequency of 370 kc/s. has

ever been made public before.

Radio amateurs should note that a radio silence is observed on 500 kc/s. (the International S.O.S. frequency) between 15 and 18 minutes past each hour, and between 45 and 48 minutes past each hour, for listening-out purposes. During these periods ordinary radio traffic stops by international agreement, and it is then that the weaker signals transmitted from, say, a dinghy, would be most likely to be heard. R.A.F. aircraft and search vessels when actively engaged on an air-sea rescue operation listenout for a longer period, viz. from 10 to 20 minutes past and again from 40 to 50 minutes past the hour. Where there is an independent operator for the purpose, an all-round-the-clock listening watch is maintained.

(The above information has been extracted from Air Ministry News Letter No. 131 dated July 29, 1949. The Society addressed a letter to the Under Secretary of State for Air on July 13, 1949, asking for a meeting to be arranged at which representatives of the Council could outline their views on the question of co-operation between amateurs and aircraft in distress.—Ed.)

U.S.A. Technical Publications

RESUMABLY because of the critical dollar position the Board of Trade had not-up to August 8th last—renewed the special authorisation, issued to the Society in July, 1948, to accept orders for U.S. technical publications. In view of this fact Headquarters is temporarily holding all remittances for these publications. If no decision has been reached by the Board by August 31, the remittances will be returned.

We deplore the circumstances which have again led the Treasury to look askance at the efforts of scientific bodies to keep their members informed on current U.S. technical developments. It is, of course, no compensation to know that the present embargo applies to all importers of foreign publications.



The 2 Metre Field Day

CUNDAY, July 3, 1949, was all that a field day should be, with perfect weather and plenty of activity to take advantage of the excellent

propagational conditions.

G5JU (Birmingham) worked 7 of the portables, G2ATK, 3AVF, MY, 5RP, 8KZ, GW4OS and GW5BM, and heard 3ENS and 3MA. In all 10 counties and 3 countries were contacted during the period of the contest, including GM3OL (Dumfries) who provided a strong and steady signal in contrast to somewhat variable signal strength generally.

G2WS/P, situated at Kings Standing on Ashdown Forest, Sussex, found that spot just as good for 144 Mc/s. as for 70 cm. (see July Notes). GW5BM/P (Radnorshire) provided an excellent signal all day long, with 3MY/P (6 miles S.W. of Sheffield) coming

W. H. Allen,* G2UJ

in extremely well at times, while 'WS got an RST 599 report from Dawlish, Devon. Many participants found the time too limited, and had by no means exhausted their scoring possibilities by the time the contest ended. G3EHY (Banwell, Som.) took full advantage of the plentiful activity and added a further 11 counties to his previous total of 18, which, incidently, he has gathered in less than 4 months' work on the band.

Continental 2 Metre Activity

We are informed by G6DH (Clacton-on-Sea, Essex) that there are now a good number of PA's looking for contacts with this country. those recently worked by 6DH are PAOIK (Apeldoorn), LU (Nr. Amsterdam), PN (Hilversum) and UHF (Leiden). Apart from ON4FG who is worked regularly, a QSO has also been made with ON4MVD (Antwerp). Several Dutch stations report having heard DL3FM (Duisburg), but so far as we can trace, only one DL has yet been received in this country, and that was DL4XS (Wiesbaden) working DL1AK -in German-at 1955 B.S.T. on July 10. This outstanding piece of reception was made by a newcomer, G3EBW (Hurst Green, Sussex), brother of G2QV who has been on the V.H.F.'s for a long time. DL4XS was on M.C.W., and signals were R5 S6 on a modified R.4790 and a 3-element rotary beam 30 ft. above ground. The distance is the best part of 350 miles. Good work, O.M.! For G2CPL (Lowestoft), conditions on the evening

of June 24 showed a remarkable bias towards Holland, and PAOAD, DT, LU and PN were worked one after the other.

Further 2 Metre News

G3EHY found conditions excellent, and plenty of activity, during the period June 10-July 10.

*W. H. Allen, M.B.E., 32 Earls Road, Tunbridge Wells, Kent

with the band open for long distance communication in nearly all directions every night. After the latter date there was some deterioration accompanied by a marked falling off in activity. This seems to indicate, he considers, that many operators only work on the band when everything is most favourable, and as soon as conditions start to fall off decide the band is dead, and show no further interest. This may be due to a disinclination on their part to listen for weak signals, or a lack of receiver efficiency. A poor signal-to-noise ratio is of little account on loud signals, but soon manifests itself when field

strengths commence to fall.

The twice-daily sked. between G2NH and G3EHY has now passed 150 contacts, and that between the Somersetshire station and GW2ADZ (Llanymynech) at 1800 G.M.T. daily is nearing its century. Some interesting data in regard to these two transmission paths has been obtained during the past 3 months. Midday contacts with 2NH (New Malden, Surrey) have proved, on the whole, more reliable than those in the early evening, but between 2100 and 2300 G.M.T. there is normally an improvement under almost all types of conditions. When things are really good, the best time for north to south contacts has been found to lie between 2100 and 2330 G.M.T., results getting better as the hour advances, but when deep depressions are about, with much rain and very low temperatures, the best time for working is undoubtedly in the middle of the day. G3EHY worked GM30L (Dumfries) on June 28, and has since had three more contacts with him, that at noon on July 3 being RST 579 both ways.

GW2ADZ finds his new QTH even better than his old one in Oswestry so far as the southern stations are concerned, but results to the northward are decidedly worse. His best DX to date is G3DAH (Herne Bay) 210 miles south-east, 5BY (Bolt Tail, Devon) 195 miles to the south and 3COJ 140 miles north-eastwards. No less than 14 counties were worked in 4 evenings.

The value of an efficient R.F. stage in extending the range of a receiver has been amply demonstrated to G4FB (Tonbridge, Kent). With his modified R.1147, in which the first valve is a Mullard EF54 mixer, only the nearer and louder transmissions could be received. The addition of an earthed-grid triode R.F. stage ahead of the mixer has, however, produced quite a different result, the increased sensitivity and improvement in signal-to-noise ratio bringing in G6WT (Torquay) among a number of other distant transmissions inaudible without the R.F. stage. The circuit employed by 4FB is that given in V.H.F. Technique, while the valve is a Mullard EC91.

July 2/3 provided G2CPL with a number of good QSO's, among which was his best 'phone G-DX to date—a 263 mile contact with G6WT at 2330 G.M.T. with strengths of S9 and S8 respectively. His sked, with G2NH at 1830 G.M.T. daily, ran during the past month with only one miss due to conditions. Another long term sked, is that between G5BD (Mablethorpe, Lincs) and G5WP (Woking, Surrey), the 60th, contact having taken place on July 19 with 100 per cent. results so far. 5BD worked G5BY, 284 miles, on June 28, for his best G-DX so far, and on an unspecified date enjoyed QSO's with PAO AD, DT, JU, LU, PN and ON4IF.

G3EHY asks us to mention that the following skeds. are in regular operation every day, irrespec-

tive of conditions:

1300 G.M.T. G3EHY calls G2NH 1755 " " GW2ADZ 2130 " " G2NH 2200 " " GM3OL

First G-GI and GI-GM Contacts?

Following the report last month from BRS16554 in Northern Ireland of his reception of G3DA and 5CP comes news from GI2FHN (Belfast) of what we think is the first G/GI contact on the 2 metre band, between GI2FHN and G3BW (Whitehaven, Cumberland) on June 29. On July 1 a further "first" was achieved when QSO's were effected with GM3BDA, 30L and 5VG. Which of the Scottish stations had the distinction of first working GI is not, however, stated. 'FHN contacted G3DA on July 3 and heard GW4OS/P, but unfortunately was unable to add a GW to his list. He is using a receiver with a 6J6 R.F. stage, a 6J6 mixer, 6C4 cathode-follower output to the I.F. and a 955 oscillator on 136 Mc/s. feeding into an Eddystone S640. The transmitter picks up 24 Mc/s. from the exciter unit of a lower band transmitter, and includes an 807 doubler, 815 tripler and an 829 P.A. running at 25 watts and feeding two stacked wide-spaced 3-element beams at a height of 20 feet. The frequency is approximately 145·2 Mc/s., derived, via the exciter, from an LM10 frequency meter employed as a V.F.O.

Working from his new address at Hythe, Kent, G5MR has worked F8OL (Meudon, Nr. Paris), G2KG (Chelmsford), 3WS (Romford) and 5UM (Knebworth) and has heard G3BKQ (Leicester). A bi-square beam is at present in use, but a more elaborate array is in process of construction. His

frequency is 145.37 Mc/s.

Further activity is reported from the Isle of Wight G3ARL (Sandown), who states that reception of 2 metre signals is very good in his locality.

Stacked Arrays Again

A stacked array to end all stacked arrays has recently been under test by G2FJD. Thanks to the courtesy of the Cavendish Field Laboratory, Cambridge, two 100 ft. towers were made available to 2FJD for the period July 3–11, and with the assistance of BRS5832 an array consisting of 40 half-wave elements was hung from a cross-wire between the two masts. This array was calculated to give a gain of 15 db. over a single dipole, and to have a beam only 6 degrees wide in the vertical plane. The feeder employed was 100 ohm concentric connected to the bottom of the array via a "balun" transformer. During the 8 days mentioned 60 stations were worked including two PAO's and an ON4, and the following analysis of results obtained:

50-100 miles, 23 stations worked, average report $87 \cdot 3$ 100-150 , 9 , , , , $86 \cdot 5$ 150-200 , 8 , , , , , , , $85 \cdot 5$

Signal strengths from a given distance were found to be surprisingly consistent during the week, and other stations may be interested to compare their results for that period with the figures given. Nearly all contacts were made before 2230 B.S.T. The receiver was a neutralised 6J6 push-pull R.F. stage, 6J6 mixer, and a B28 IF/AF amplifier, while the transmitter was a modified SCR 522.

The 70 cm. Band

Having established the record of 28 miles with

G2FKZ/P, and seen it extended to 39 miles by 2FKZ/P-3BEX/P an hour later, as reported last month, G2WS decided to make a further attempt on July 24 to raise the distance. This he did by working G3BEX/P from Charing, near Ashford, Kent. Contact was established with the Devils Dyke, near Brighton, without difficulty, signal strengths on M.C.W. being S8 from 3BEX/P and S7 from 2WS/P. The distance was 50 miles. G2WS employed two aerials alternately, one having 16 and the other 24 stacked horizontal dipoles, and equal signal strengths were observed with the two arrays. During the day G3BEX/P and G2FKZ/P, portable near Dulwich, also effected contact.

G3AHB/A (E.M.I. Building, Hayes, Middlesex) succeeded in working G3BEX/P (Devils Dyke) on July 2. Signal strengths were S5/6 at Hayes and S8/9 in the other direction. By an error at 3BEX, the first call was put out with the transmitter disconnected from the aerial, but despite this handicap 3AHB received the Brighton station's M.C.W. R3 S3/7, with considerable fading. 3AHB employed an 8012 oscillator, running at 16 watts, and a 16-element array. It is interesting to note that on this transmission path signals travelled from a height of 130 ft. a.s.l. at Hayes to 750 ft. a.s.l. at Brighton, passing over a ridge of hills at Banstead, Surrey, 720 ft. high, 18 miles south of Hayes.

G5CR (Hayes, Kent) is now active on this band with M.C.W. from a transmitter consisting of a pair of 6J6's in parallel-push-pull, and a home-constructed superhet. receiver. So far contact has been established with G3BOB, also in Hayes, and with G2FKZ/P, while G3CU has been heard. Any reports on 5CR's signals would be most welcome.

G3FRG (Worthing) is testing gear on the band and would be pleased to hear from anyone hearing his signals. G3ARL (Sandown, I.O.W.) is listening regularly on the band in the hope of hearing something. As previously mentioned, 2 metre reception is very good there, and there is just a chance that 70 cm. might get through.

August 21-70 cm. Tests

All 70 cm. enthusiasts are looking forward to the forthcoming tests to be held on Sunday, August 21, details of which will be found on page 29 of the July issue, and it is hoped that on that day more stations will be on the band than ever before. It will, indeed, be surprising if we do not have the pleasure of reporting a still further increase in the DX record in the September Bulletin. Promises of co-operation have been received from a large number of members including G2WS/P, who will be operating from a site 3 miles West of Crowborough, Sussex, G6DP (Frodsham, Cheshire), who hopes to influence further activity in Cheshire and South Lancashire, and the South London U.H.F. Group. The latter organisation intends to field three stations, at Wantage, Berks., Ore, near Hastings, Sussex, and One Tree Hill, Dulwich, S.E., London, during the tests, and also to carry out long-range tests both before and after the event. These proposed extended tests are worthy of full support from all those interested in 70 cm. work, and further details may be obtained regarding sked. times, etc., by sending a stamped and addressed envelope to G2FKZ, 105 Underhill Road, London, S.E.22. Such skeds. will not cover the period of the Tests on August 21, as during that time transmissions will be made appropriate to the activity at the moment. There is a possibility of F8OL and other French stations being active on August 21.

TECHNICAL ARTICLES WANTED

Two Metre Field Day Results

A LTHOUGH the 18 portable stations which took part in the Two Metre Field Day on July 3, formed a relatively small percentage of the hundred odd stations known to be operating during the day, they were rewarded by a spell of good weather and excellent propagation conditions. Conditions were, in fact, much better than during the fixed event held earlier in the year and contacts over 200 miles were achieved by several competitors. G3AVF/P, Bovey Tracey, Devon, using a transmitter similar to that described in the August, 1948, BULLETIN, contacted G5BD, Mablethorpe, and G3CC near Hull, both distances in excess of 250 miles. The longest portable-to-portable contact—just over 200 miles—was also made by this station; the other half of the credit goes to G3MY/P, 6 miles S.W. of Sheffield.

Northern activity on 144 Mc/s. is increasing but few of the stations took to the open air. Cheltenham members found that one way of enjoying an event of this type is to hire a coach and head for high ground. They chose the summit of Clyro Hill, Radnorshire, 62 miles away, a site which proved excellent, but, unfortunately, due to the distance, almost two hours of valuable operating time were lost by GW5BM/P, whom they were supporting.

Equipment

The leading station, GW4OS/P, employed a 9001 R.F., 9002 mixer and 9002 oscillator with closed fore-shortened concentric line tuning. His exciter was a flexible 5-stage unit with 6C4 valves, and suitable for operation on all bands from 1·7 to 145 Mc/s. An 832 P.A. fed the 3-element rotary beam which was raised 20 ft. above the ground.

The runner-up, G3MY/P, favoured a 6J6 neutralised R.F. stage with a 6J6 mixer and 9002 oscillator in front of a BC454 receiver. His aerial consisted of two 5-element wide-spaced Yagi arrays stacked half-wave apart and fed in phase. A number of entrants were using modified BC625A transmitters which originally formed part of the SCR522 airborne equipment.

Several interesting suggestions have been noted in regard to future events of this kind. There was some criticism of the interference caused by heavily modulated telephony stations.

The following stations are thanked for forwarding check logs: G2FJD/A, G3CCP, G5JU, G6UH, G8QX and GM3OL.

Field Day Results

Psn.	Call Sign	Pts.	Location				
1	GW408/T	186	3 miles S.W. Mold, Flintshire (1,100 ft.).				
2	G3MY/P	170	Houndkirk Moor, Derbyshire (1,350 ft.).				
3	G3AVF/P	160	4 miles W. Bovey Tracey, Devon.				
4	G6XM/P	126	1 mile W. Aldershot, Hants.				
3 4 5 6 7 8 9	GW5BM/P		Clyro Hill, Radnorshire (1,241 ft.).				
6	G8KZ/P	103	2 miles N.W. Wendover, Bucks.				
7	G6NB/P	98	4 miles N.W. Woking, Surrey.				
8	G5RP/P	94	4 miles W. Wantage, Berks.				
9	G2ATK/P	83	7 miles S. Birmingham.				
10	G8SM/P	76	2 miles S.E. Guildford.				
11 {	G3DTK/P	68	Soil Hill, Queensbury, Yorkshire (1,300 ft.).				
1	G3ENS/P	68	3 miles S. Loughborough, Leics.				
13	G8TS/P	59	3 miles N.W. Farnham, Surrey.				
14	G5PI/P	31	3 miles S.E. Cambridge.				
15{	G2WS/P	30	3 miles W. Crowborough, Sussex.				
100	G8SK/P	30	Therfield, Herts.				
17	G8VR/P	23	Shooter's Hill, Woolwich, S.E.18.				
18	G3BND/P	22	Hartshead Pike, Ashton-u-Lyne.				

FORTHCOMING R.S.G.B. EVENTS

August 21 420 Mc/s. Tests.

October I-2 Low Power (3.5 Mc/s.) Contest. November 5-6 "Top Band" (1.8 Mc/s.) Contest.

420 Mc/s. Tests

THE following members have notified Headquarters of their intention to participate in the 420 Mc/s. Tests on August 21, 1949, details of which were given in the July issue of the Bulletin. It has been suggested that crystal controlled transmitters should operate between 432 and 438 Mc/s., i.e. the section which falls within the 3rd harmonic of the 144 Mc/s. band. All members are invited to take part in these tests, whether or not their calls appear below.

Call	Location
G2BVN	Romford, Essex,
G2CG/P	Near Barkway, Herts.
G2CNT	Cambridge.
G2DMN	Hinckley, Leicester
G2FJD/A	Cambridge.
G2FKZ/P	Near Wantage, Berks.
G2HK/P	Near Barkway, Herts,
G2HNA	Stafford (or portable).
G2WS/P	Near Crowborough, Sussex.
G3AGM/P	Dunstable Downs, near Whipsnade.
G3BBA	Toweester, Northants (c.c. 435 .72 Mc/s.).
G3BQQ	Wellington, Shropshire.
G3CCP	Shrivenham, Wilts.
G3CGQ	Luton, Beds.
G3CO	Shooter's Hill, London, S.E.18.
G3CU/P	Honor Oak, London, S.E.23.
G3BZG/P	Brockley Hill, Edgware, Middx.
C3DJG	Wellington, Shropshire.
G3DON	Shooter's Hill, London, S.E.18.
G3DSV	London, E.4.
G3EIW	Shooter's Hill, London, S.E.18.
G3ENS/P	Near Loughborough, Leics.
G3FDG	Wellington, Shropshire.
G3FRG/P	Chanctonbury Hill, Sussex (approx. 432 Mc/s.).
G3FZL/P	Near Hastings, Sussex.
G4CG	Wimbledon, London, S.W.19 (or portable in Surrey).
G5CD	London, N.W.11 (c.c. 432 05 Mc/s.).
G6HD	Beckenham, Kent.
G6NB/P	Staple Hill, Chobham Common, Surrey.
G6YP	Denmark Hill, London, S.E.5.
GSIN +	Shooter's Hill, London, S.E.18.
G8TS/P	Near Farnham, Surrey.
GSVR	Upper Belvedere, London.
GW4OS/P	Near Mold, N. Wales.
	be listening at a high point in the New Forest. A
twomomitton	may also be operated if the licence is received in time.

"Top Band" (1.8 Mc/s.) Contest 1949

N order to avoid a clash with the last evening of the Amateur Radio Exhibition and also because an All-European DX Contest (organised by C.A.V.) may be held at the same time, the Top Band Contest will now take place during the weekend of November 5–6, 1949, instead of as originally announced.

Direction Finding Contests

THE Contests Committee has not found it practicable to arrange a Direction Finding Contest this year. The proposed event which was planned for September 25 will, therefore, not take place.

R.S.G.B. Band Plan

DURING the past few weeks several thousand printed cards (5½in. × 3½in.) giving full details of the R.S.G.B. Band Plan proposals, as published in the April, 1949, issue of the BULLETIN, have been distributed to U.K. amateurs through the medium of the QSL Bureau. Members who have not yet received one of these cards are invited to apply to Headquarters for a copy. The complete RST code is set out on the reverse side and there are also some suggestions for "Good Operating," making the card a useful source of reference for all amateurs.

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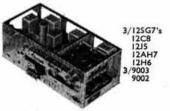
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June Council Meeting

Resume of the Minutes of a Meeting of the Council of the Society, held at New Ruskin House, on Tuesday, June 14, 1949.

Present.—The President (Mr. V. M. Desmond) in the Chair, Messrs. W. H. Allen, A. P. G. Amos, I. D. Auchterlonie, F. Charman, D. N. Corfield, W. N. Craig, S. K. Lewer, J. W. Mathews, A. O. Milne, W. A. Scarr, P. A. Thorogood and John Clarricoats (General Secretary).

An apology for absence was submitted on behalf of Mr. A. J. H. Watson.

Membership.

Resolved (a) to elect 117 Corporate Members, 23 Associates, 3 Junior Associates. (Total elected 143.)
 (b) to grant Life Membership to Messrs. Collings, BRS17032,

(b) to grant Life Membership to Messrs. Collings, BRS17032, and C. B. Bradshaw, BRS14982.
(c) to grant Corporate Membership to 10 Associates who had applied for transfer.
(d) to grant affiliation to the A.S-T. Amateur Radio Society, the Barnet and District Radio Club, and the Dunfermline Radio Society.
Aerial Masts and Supports.
It was reported that the Society's legal advisers had submitted an Opinion on the operation of the Town and Country Planning Act, 1947, insofar as it may affect the erection of aerial masts and supports. (See Resume of the Minutes of the May Council Meeting.)

Resolved to publish a statement in the Bulletin based on the Opinion expressed by the Society's legal advisers. (See July

Third Party Traffic.

The A.R.R.L. wrote agreeing to draw attention in QST to the fact that U.K. amateurs are not permitted to handle third-party traffic. (See Resume of the Minutes of the May Council Meeting.)

The Transmitting Licence."

Resolved to place an order for 5,000 copies of a revised edition

Resolved to prace an order for 5,000 copies of a revised edition of the above publication.

Photographs of Past Presidents.

Resolved to authorise the expenditure of a sum not exceeding £25 for the provision of framed photographs of Past Presidents.

Contests. Resolved to recommend the Contests Committee to prepare

Resolved to recommend the Contests Committee to prepare rules for an Affiliated Societies contest and to investigate the possibility of linking-up such a contest with a D/F Contest.

The Contests Committee were requested to give early consideration to a proposal that a telephony contest be arranged and to a suggestion that those who had recently participated in N.F.D. should be asked to express their views on the question of input power for future N.F.D. events. Finance.

Resolved to accept and adopt the financial statements as prepared by the Hon, Treasurer, Regional Representatives' Conference.

Resolved to accept certain recommendations adopted at the recent R.R.'s Conference held in Birmingham. (See July issue.) It was agreed to give further consideration to the question of reviving Regional Notes when more definite information becomes available in regard to improved paper supplies.

available in regard to improved paper supplies.

Mr. Amos drew attention to a statement published in The Short Wave Magazine to the effect that the design of the F.O.C. badge had been registered. Mr. Amos considered that the Council should protest to the F.O.C. that the badge is a close copy of the R.S.G.B. badge which has been in use for 25 years.

Resolved to write to the Hon. Secretary of the First Class Operators Club, and to ask that the line block now used by the Club be replaced by one more closely resembling the shape of the actual badge.

The meeting terminated at 9.30 p.m.

Affiliated Societies' Trophy

The Council has been pleased to accept an offer made by the Committee of the Edgware and District Society, to present to the Society a special Trophy—to be known as the Edgware Trophy—which will be competed for by societies in affiliation with the R.S.G.B.

Rules for an Affiliated Societies' contest will be appropried

Rules for an Affiliated Societies' contest will be announced

Slow Morse Transmissions

B.S.T.		Call		kc/8.		Town
Sundays		. *				
09.30	***	G6NA	***	1840	***	Guildford
Mondays						
13.00		G3AXN		1870	***	Southend-on-Sea
20.00		G2AJU		1900		Stutton, Ipswich
20.00		G2DJS		1800	***	Bradford
20.00		G3BHS		1820		Eastleigh, Hants.
20.00		G3DSR	***	1750		Derby
21.00	***	G2BLN	***	1900	***	Bournemouth
21.00		G8VR	***	1850	***	London, S.E.2
Tuesdays						
13.00		G3AXN	***	1870	***	Southend-on-Sea
20.00	***	GI2HLT	***	1900		Belfast
22.00	***	GSTL		1896		Ilford
22.30	***	G4GA	***	1896	***	Chingford
22.30		G6JB		1820		Salcombe, Devon
23.00		GM4AN	***	1820	***	Kirkealdy
Wednesda	vs					
20.00		PAOAA		3625	***	Hilversum
20.00		GSAFD	***	1783	***	Southampton
22.00		G6NA		1840		Guildford
22.00	***	G3DLC	***	1800	***	Grays, Essex
Thursdays						
18.00		G3AXN		1870	***	Southend-on-Sea
22.00	***	G2BCX	***	1873		South Woodford
22.30	***	GSARU	***	1873	***	South Woodford
22.30		G3OB		1803		Manchester
Fridays						
13.00		G3AXN		1870	***	Southend-on-Sea
19.00		G3BLN		1900	***	Bournemouth
20.00		G2AJU		1900	***	Stutton, Ipswich
20.00	***	G3AKW		1860		Wirral
20.00		G3BHS	***	1820	***	Eastleigh, Hants.
20.30		GSLZ		1868		Gravesend
22.30		G6JB	***	1820		Salcombe, Devon
23.00		GM4AN	227	1820		Kirkealdy
Saturdays						1000
23.00		G3CHY		1800		Aston-u-Lyne

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

Representation

Mr. G. G. Gibbs, G3AAZ, has resigned as Representative for the Welwyn and Welwyn Garden City area. Nominations in writing for his successor should reach the General Secretary by not later than August 31, 1949.

WEST OF SCOTLAND REGIONAL MEETING

SATURDAY, SEPTEMBER 17th, 1949 ENGINEERS & SHIPBUILDERS INSTITUTE 39 ELMBANK STREET, GLASGOW

(near King's Theatre) 2 p.m.

Assemble Business Meeting 2.30 p.m. 4.45 p.m. Ragchew Dinner at Cadora Restaurant, 120-122 Union Street 6 p.m.

Inclusive charge 10/6. Reservations to T.R.'s, C.R.'s or the R.R. Mr. D. Macadie, GM6MD, 154 Kingsacre Road, Glasgow, S.4, not later than September 11th, 1949.

DEPENDABILITY

Reception conditions range from excellent to very poor, signal strength from strong to very weak, and to cope successfully with all such conditions you need a pair of highly sensitive and dependable headphones.



maximum reception results, insist that your local dealer supplies you with a pair of the rightly famous S. G. BROWN Type "F" headphones. Sea, land and air W/T operators, serviceexperimenters and men. radio amateurs all vouch for their dependability.

> TYPE "F" (Featherweight)

PRICE 30 /- PER PAIR

YOUR LOCAL DEALER CAN SUPPLY

Send for descriptive Brochure "T.R.," it gives details of full range. Prices from 30/-up to 105/- for Moving Coil Type K.



SHAKESPEARE STREET, WATFORD,

Best Buy at Britain's RECEIVER UNIT BC624. (SCR522). An eleven-valve

American receiver, unused but slightly soiled, which employs valves of the 12 V. 15 A. series. Included are 3 9003, and 1 9002. The receiver as supplied tunes between 100–156 Mc/s. with 4 spot frequencies. It is necessary to modify the receiver for continuous tuning, as the local oscillator is crystal controlled and cannot be tuned. We therefore supply with each set circuit diagrams and full modification instructions for "Ham" use. Supplied complete with all valves. The price is only 25/-carriage paid, and represents exceptional value.

carriage paid, and represents exceptional value.

RCA CRYSTAL CALIBRATED WAVEMETER TYPE
TE 149. A precision piece of Test Equipment covering the frequency range 2·5 to 5 Mc/s. on fundamentals, and from 5 to 20 Mc/s. using the second and fourth harmonics. The crystal used has an accuracy of ·01 %, and the overall accuracy is better than ·02%. Transmitters from 250 kc/s. upwards can be calibrated by using harmonics of their output. A unique feature of this instrument is the dial, which is calibrated directly every kilocycle. In many ways, therefore, it is superior to the BC221. The Wavemeter is enclosed in a neat metal case with carrying handle, size 7" × 8" × 9", and the whole equipment includes valves (INSGT, 1A7GT, 1QSGT), spare valves, Instruction Book and Circuits, case of spares, etc. As is usual with brand new American equipment, everything is in absolutely perfect condition. Definitely a buy for the discerning. absolutely perfect condition. Definitely a buy for the discerning.

ONLY £4 19s. 6d. Plus 5/- carriage and packing.

TEST SET TYPE 73. Consists of a special purpose Oscilloscope with a 3½"-tube. Controls are Brightness, X and Y Shift Focus, Amplifier, In/Out, Velocity, etc. The equipment is, contained in a metal case size 19" x 12" x 8½" and is complete with CR tube and all valves. It operates from A.C. mains 230 V. 50 c/s. Supplied complete with comprehensive instructions for conversion to a standard oscilloscope, together with all parts necessary for conversion. In brand new condition Priced at only £7 19s. 6d., carriage paid.

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This Month's Bargains

We have decided to extend our special summer valve offer for a further MONTH. You cannot buy BRAND NEW VALVES cheaper, so anticipate your needs NOW and save £££££'s

We will give you 25% Discount on your order for any selection of 12 or more valves from our list below, these may be all one type or mixed as you wish, but remember NOT LESS THAN 12.

TRANSMITTING TYPES. 250TH, 45/-; 100TH, 35/-; 813, 55/-; 832, 25/-; 807, 7/6; 15E, 10/-; 316A, 17/6; 8012, 17/6; 805, 30/-; 836, 17/6; 811, 20/-; 866A, 22/6; 723A/B, 60/-; 872A, 40/-.

RECEIVING TYPES. 9002, 954, 955, 956, 6H6, 6SH7, 4/6. 6J5, IR5, IT4, IS4, 5Z4, 6SN7, 6J7, 6K7, 6K8, 6C5GT, 6Q7GT, 12K8, 12SQ7, 12SA7, 12SR7, 12A6, 25L6GT, 6V6, 6X5, 6F6G, 7/6. VRI50/30, VRI05/30, 0Z4, 6C4, 5U4G, 1616, 5X4, 5Y4, 717A, EF55, R10, 0A4, 6K6, CV52, 6N7, 9/- ea. 6AG5, 6L6G, 10/-. 6AK5, 12/6; 6J6, 15/-; 931A (Photocell/Multiplier),

Please include 1/6 for postage and packing at these prices.

If you are cramped for space you can ON YOUR HAVE THIS

Portable Transmitter/Receiver in black crackle case, complete with power pack for 120/230 V. 50 c/s. operation. Three separate units very similar to the B2 Receiver/Transmitter made for the same purpose. High efficiency 6L6 Transmitter crystal controlled 2-8 Mc/s. and 3 valve superhet receiver 2-8 Mc/s. Max. Transmitter input approx. 30 watts. Full instructions supplied with each unit, very limited quantity avajlable.

We are giving these away at £8.15.0 each. Size overall 104" x 84" x 34" Packing and Postage 5/-

MUST HAVE ONE OF THESE BEAMS American Telescopic Plywood Masts

These excellent 30 ft. masts can be erected by two people in half an hour on tripod support and will carry a really heavy beam antenna, their hollow construction lends itself to this application, together with the fact that they are non-metallic and the telescopic feature allows tune up at a height of only

5" din. at base, 3" dia. at top, only £4.10.0 each. tripods 8' long 4" dia. Packing and Carriage 10/-

Please write for photos of these two lines.

FOR ALL YOUR HAM REQUIREMENTS

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PLEASE PRINT YOUR NAME AND ADDRESS The Red House, Phillips Street, Aston, Birmingham, 6 Phone: ASTON Cross 3381

NORTH OF SCOTLAND REGIONAL MEETING

SUNDAY, SEPTEMBER 18th, 1949 NORTHERN HOTEL, ABERDEEN

Asser	nble	***	***	***	***	12.30 p.m.
Lunch	٠	***	***	***	***	I p.m:
Busin	ess Me	eeting	***	***	***	2.30 p.m.
Tea	***	***	***	***	***	5 p.m.

Inclusive Charge 10/6. Reservations to T.R.'s, C.R.'s, or the R.R. (Mr. John Douglas, GM2CAS, 223 Abbotswell Road, Bridge of Dee, Aberdeen), not later than the 11th September,

A.R.C.I. DX Contest

The Amateur Radio Club of India announces that its first DX Contest will take place during the weekends of September 17–18 and September 24–25, 1940. The contest is open to licensed amateurs located in countries lying between the longitudes 10° East and 180° East (this excludes America and the United Kingdom). Contacts may be made on either telegraphy or telephony and serial numbers must be exchanged.

Dorking and District

Dorking and district members willing to support local R.S.G.B. activities are invited to communicate with the T.R.— Mr. J. Greenwell, G3AEZ, 7 Sondes Place Drive, Dorking.

Walsall Technical College

A Radio Amateurs' Examination Course is being organised at the above College to commence in September. Members who wish to attend these classes should write to the Principal, Bradford Place, Waisall, Staffs. A Radio Amateurs' Club has been formed recently and meets every Wednesday evening at 7.30 p.m. in Room "G," Wisemore Annexe.

U.N. Broadcasts

Broadcasts from the United Nations Headquarters at Lake Broadcasts from the United Nations Headquarters at Lake Success are transmitted daily, Mondays to Fridays, from stations WNRA 21,610 kc/s., WNRI 18,160 kc/s. and WOOC 15,130 kc/s. The programmes include relays from the meetings of the General Assembly and its main committees. Reception reports or requests for the latest schedule of broadcasts may be addressed to United Nations Radio, Lake Success, New York, U.S.A., or to the United Nations Information Centre, Russell Square House, Russell Square, London, W.C.1.

Interested in ZL?

Mr. David Mitchell (ZLIMP, ex-GW6AA) is due to arrive in Liverpool, per S.S. Athenic, on August 27, for a six weeks business trip. During his stay Mr. Mitchell will be pleased to meet any member who seeks first-hand information concerning New Zealand conditions. Letters may be sent to him c/o R.S.G.B. Headquarters. Incidentally as a result of the paragraph published in a recent issue of the Bullerin Mr. Mitchell received a large number of letters from members interested in settling in New Zealand.

Technical Committee

Mr. A. J. Bayliss, B.Sc., G8PD, co-author of V.H.F. Technique has again been elected to serve on the Technical Committee. Mr. Bayliss was a member of the Committee until he left England last year on a business trip to the Middle East.

COUNCIL, 1949

President: VICTOR M. DESMOND, G5VM.

Executive Vice-President: W. A. Scarr, M.A., G2WS. Immediate Past President: S. K. Lewer, B.Sc., G6LJ. Hon. Treasurer: A. J. H. Watson, F.S.A.A., G2YD. Hon. Secretary: J. W. Mathews, G6LL.

Hon. Editor: Arthur O. Milne, G2MI.

Members: W. H. Allen, M.B.E., G2UJ, A. P. G. Amos, G3AGM, I. D. Auchterlonie, G6OM, F. Charman, B.E.M., G6CJ., D. N. Corfield, D.L.C. (Hons.), A.M.I.E.E., G5CD, P. A. Thorogood, G4KD. Co-opted Member: W. N. Craig, B.Sc., G6]].

General Secretary: John Clarricoats, G6CL.

Grimsby and Cleethorpes

Members living in the Grimsby and Cleethorpes area are cordially invited to a preliminary meeting to be held at 7.30 p.m. on August 25, at G3APX, 267 Hainton Avenue, Grimsby (side entrance), with the object of promoting regular meetings.

North Eastern Amateur Transmitting Society

At the recent A.G.M., it was reported that the membership of the N.E.A.T.S. now exceeds 80, including 52 licensed amateurs. Mr. R. Green, G3ZP, was elected Chairman in succession to Mr. T. Orr, G3IV. The new Hon. Secretary is Mr. A. Cherrett, G3BEJ, 22 St. Julien Gardens, Cochrane Park, Newcastle-on-Tyne, 7. Meetings are held at the British Legion Rooms, 1 Jesmond Road, usually on the third Monday in every month.

Radio Controlled Models Society

The growing interest in the radio control of models is reflected an e growing interest in the radio control of models is reflected in the expanding activities of the R.C.M.S. In the Society's first News Letter recently issued, the membership at the end of March, 1949, is given as: Manchester 41, London 54, Country and Overseas 115. Mr. J. Heathcote, "Glenvilla," 8 Henniker Street, Swinton, Lancs., has been elected Hon. General Secretary in succession to Lt. G. C. Chapman, R.N., who now becomes Technical Secretary.

Slade Radio Society

A full programme of events covering the third quarter of the year has now been arranged. The programme includes: August 19: "Communication Receivers" a talk by the Chief Engineer of Radiovision Ltd. August 21: A visit to the Empire S.W. Station, Daventry. September 4: Direction Finding Test, September 16: "Television Construction" a talk by Mr. Lean on home-built television receivers. September 18: Inter-Club Direction-Finding Test. All Midland Societies are cordially invited to take part. September 30: "Class C Amplifiers" by Mr. N. B. Simmonds. October 2: Midnight Direction-Finding Test.

Visitors are welcome at all meetings. Pull carticular tests.

Visitors are welcome at all meetings. Full particulars of the Society and its activities may be obtained from the Hon. Secretary: Mr. C. N. Smart, 110 Woolmore Road, Erdington, Birmingham 23.

Side Slip Mr. E. J. Buick is T.R. for Slough and not Mr. F. J. T. Tuckfield as stated in the Resumé of Council Meeting Minutes published on page 28 of our last issue. Mr. Tuckfield is Hon. Secretary of the Slough R.S.G.B. group.

From our Post Bag

Not all correspondence reaching H.Q. is concerned with Amateur Radio, but even so the following letter is perhaps a little out of the ordinary:

Intie out of the ordinary:

"I would very much like your opinion as to whether anyone could have a connection with this house by radio or microphone and hear and see us day and night without us knowing where it comes from. They mention Radar and Uranium, is it possible they have linked up with our radio. There is no sound outside the house but a buzzing noise inside. We are not on the telephone but it has once been installed. By the way they say they see us upside down..." upside down. . . .

SOUTH EASTERN REGIONAL

— MEETING —

SUNDAY, OCTOBER 9th, 1949 ALBERMARLE HOTEL, BRIGHTON (opposite Palace Pier)

... 12 noon Assemble Lunch... . I p.m. Business Meeting 2.30 p.m. Tea 4.45 p.m.

Inclusive charge 9/-. Tickets from C.R.'s or the R.R. Dr. W. P. Cargill, "Truro," Coxford Road, Southampton, not later than October 1st, 1949.



BROWN-E.R.D. 13 inch Portable Disc Recorder An Important S. G. BROWN Product.

DISC RECORDER

Incorporating the latest advances in Sound-on-Disc Recording

Write for interesting brochures presenting full technical details of this latest development in Sound-on-Disc details of this latest development in Sound-on-Disc recording. Also 17-inch models for the Professional user.

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Lowest Prices in the Country

RADIO CABINETS. Solid Mahogany 31 thick, size 16" x 11" x 7", woven silk speaker fret ex-manufacturer's surplus. Complete with pressed steel chassis to fit. In original cartons. A Wonderful Bargain at 10/6 each. (Carriage 2/6.)

R.F. UNITS. Ideal for 2, 5 and 10 metre converters. Used, perfect. Complete with Valves. Types 24 and 25, 8/6. Type 27, 17/6. (Carriage 2/6 each.)

ALADDIN COIL FORMERS. As specified for " Electronics Televisor," 6d. each. Iron dust cores, 2d. each.

BARGAIN PARCELS. Full of useful gear in perfect condition. NO "JUNK." Money refunded if dissatisfied. 5/-, 10/- and £1 post free.

THE ALLEN RANGE OF TELEVISOR COM-PONENTS. Fully approved by Publishers of "Electronics Televisor." Scanning Yoke, 35/-. Line Output Transformer, 35/-. Focus Coil, 35/-.

Shop Hours: 9 a.m. to 6 p.m. Thursdays I o'clock.

ORMSKIRK COULPHONE COULPHONE,

'GRAMS:

RADIO PRODUCTS MAINS TRANSFORMERS

16'6 POST PAID

WHY BUY SURPLUS WHEN YOU CAN PURCHASE BRAND NEW, FULLY GUARANTEED GOODS AT LOWER PRICES

Standard size drop through type with top shroud interleaved and impregnated windings. Screened primaries tapped for and impregnated windings. Screened primarie 200-230-250 volts. (a) 250-0-250 v. 60 mA. 6-3 v. 3A., 5 v. 2 A. (b) 250-0-250 v. 60 mA. 4 v. 4A., 4 v. 2A.

16/6 The following types have UNIVERSAL L.T. WINDINGS enabling 4 or 6.3v valves and 4 or 5v. rectifiers to be used.

19/-19/-22/-22/-

SEND 21d. STAMP FOR ILLUSTRATED TRANSFORMER LIST AND 48 PAGE CATALOGUE.

EX-GOVT. SURPLUS

If you are interested in ex-Govt, surplus then send an extra 2½d, stamp for 16 page Illustrated Catalogue of over 200 items and over 50 types of ex-Govt, valves.

EXAMPLE: Brand New Boxed R.C.A.813 Valves 55/-

COULPHONE RADIO

"The Return of Post Mail Order Service"

53 BURSCOUGH STREET, ORMSKIRK LANCS.

INSTRUMENT WIRE.—LEWCOS Enamelled wire is now stocked in all even gauges from 16 to 40 SWG. Prices are attractive. Example—30 SWG 5/2 per lb.

FOUR GANG CONDENSERS.—300 μμF. Ceramic insulation. As used in the R107, 3/6 each. Ideal for use in Communication Receivers in conjunction with the Denco Maxi-Q Coils. Full range of these available.

METERS .- 500 uA. 2" diameter. Ideal for Field Strength meters. Brand new, 7/- each.

IF TRANSFORMERS.—II0 kc/s. Two types available. Intervalve type with flying lead. Diode type without flying lead. Either type 6/6.

LARGE AND VARIED RANGE OF COMPONENTS ALWAYS IN STOCK. FULL LIST AVAILABLE Trade List issued.

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Compare these prices with others

ELECTROLYTIC CONDENSERS 8+16 μF, 450 V. ... 3/6 ea. 20+20 μF, 200 V. 4/6 ea. 25 μF, 25 V. ... 1/3 ea. 25 μF, 50 V. ... 1/3 ea. 50 μF, 50 V. ... 2/- ea. 4 μF, 450 V. 8 μF, 450 V. 16 μF, 450 V. 32 μF, 450 V. 4 μF. 450 V. ... 2/- ea. 8 μF. 450 V. ... 2/- ea. 16 μF. 450 V. ... 2/9 ea. 32 μF. 450 V. ... 5/6 ea. 8+8 μF. 450 V. ... 3/- ea. Reduction of 2/- for lots of I doz. of any one type. The above are NOT ex-Government but brand new.

P/A Decoupling Condensers ·002 μF. 2·5 kV. Test ·0015 μF. 8 kV. working 1/6 ea. ... 6/9 ea.

BOOKS.—We have a complete range of R.S.G.B., Short-wave Magazine and Bernards publications. EDDYSTONE PRODUCTS.—We are stockists of all

first-class short-wave components. C.W.O. Please add postage.

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7 Station Approach, Slough. Slough 22526



The Clapp Oscillator

The Clapp Oscillator

DEAR SIR,—With reference to Mr. Payne's letter in the July issue and Mr. Dunn's earlier article, it is a pity that some of the isolating properties of the circuit should be lost when using condenser tuning, and the alternative method of tuning, namely, to vary the inductance, is certainly attractive. Would it not be feasible to modify a variable iron dust cored coil for this purpose?

There seems to be no reason why the tuning coil and condenser could not be isolated physically as well as electrically, from the valve, in which case the tuning unit could well be placed at the operating position, and the V.F.O. proper mounted in the main transmitter, the two units being joined by a length of coaxial cable.

Yours faithfully,

Golders Green, London, N.W.11.

Golders Green, London, N.W.11.

The 420 Mc/s. Tests

The 420 Mc/s. Tests

DEAR SIR,—It was with great pleasure that I read the simple rules attached to the R.S.G.B. 420 Mc/s. tests and saw the photograph of the superb trophy presented by Mr. Arthur Watts.

I am expressing the opinion of many other 70 cm. enthusiasts when I say how glad I was to see the title of 420 Mc/s. Tests in preference to contest; especially as many of the stations taking part will be less fortunate than those of us who are able to operate from mountain tops and selected sites. This is truly an experimental band, and may we keep it 80. We of South London are keenly looking forward to the day, feeling sure that the enthusiasm alone, of the participants will be more than sufficient to make the occasion a great success.

Yours faithfully.

London, S.E.24.

Yours faithfully, H. F. KNOTT (G3CU).

In a Big Way-continued

DEAR SIR,-G5JU's letter in the June BULLETIN makes pretty DEAR SIK,—GOJ U'S letter in the June BULLETIN makes pretty reading—my congratulations to him and to you for publishing it!

I agree wholeheartedly that some action is wanted, and wanted now, but I don't for one moment expect the "ample reserve of Society funds" to be used in the way suggested, and I certainly would not expect an increase of subscription to be made to foollitate the recovered sales.

would not expect an increase of subscription to be made to facilitate the proposed scheme.

My subscription provides me with the BULLETIN and access to the QSL Bureau (my stamps and envelopes). The quality of matter in the BULLETIN sometimes falls far short of my expectations, but on the whole I reckon my 15s. well spent and I have the privilege of being a member of the R.S.G.B.

The acknowledged "capital" of Great Britain is London and a move of the H.Q. to the Provinces would lead to a great fall in prestige and assist the growth of "rival formations." Amateur Radio is not a hobby for the exploitation of grandiose schemes which benefit the few, at the expense of the majority as, indeed, Q5JU's scheme would.

The present requirement is surely for a more realistic develop-

indeed, G5JU's scheme would.

The present requirement is surely for a more realistic development. As examples I quote: More and better articles in the BULLETIN; the formation of a H.Q. library with a "by return" postal service to benefit all members; a club room where members in London can meet informally at any reasonable hour on any weekday (without appointment with the secretary!); a useful function for GB1RS; reconsideration for a limited application of the recently turned-down benevolent scheme; a component exchange register; last, but not least, some form of sign outside the present H.Q. announcing to the public (and to members who are interested!) that it is in fact the H.Q. of the R.S.G.B.

Ham Radio thrives on all the little things we all do—for

Ham Radio thrives on all the little things we all do-for others as well as ourselves—what about it?
Yours faithfully,

H. E. BENNETT (G8PF) (Ex VU2, VS1, VS7) Colchester, Essex.

DEAR SIR,—I should like to add my contribution to the opinions expressed on the subject of subscriptions and the Society's Headquarters.

Society's Headquarters.

I know there are many people like myself who will strongly support the line taken by BRS18223, particularly in regard to the "doubtful privilege of being a Londoner," which, as far as I can see, simply involves the additional liability of six shillings per annum. On this point I would suggest the abolition of the subscription differential applicable to members in the London area in favour of one between licensed and non-licensed members. The former to pay a guinea, and the latter fifteen shillings. As regards the affect of revenue on policy, one must appreciate that in spite of what G&ON says on the subject, the Society will only prosper so long as its policy attracts enough members to provide sufficient subscriptions to yield the revenue necessary to pursue

the policy, and that revenue is certainly not proportional to the

the policy, and that revenue is certainly not proportional to the rate of subscription.

The Society has many critics and, we must admit, many short-comings, but surely its primary object is to safeguard our interests and privileges in the field of Radio Communication. These privileges are primarily those of the licensed members, and it is for this reason I suggest they pay the higher subscription rate. Secondly, the Society's influence with the Authorities is proportional to the percentage of licensees it represents, and its aim should be to achieve their total membership. By this I do not mean that non-licensed members are of little consequence; on the contrary, they are potential licensees.

not mean that non-licensed members are of little consequence; on the contrary, they are potential licensees.

My strongest censure goes to G5LP for what I take to be implication that the subscription should be increased to eliminate what he considers the undesirable element. From this may we assume that the less affluent are not desired as members?

Personally, I do not care where the Headquarters of the Society are situated so long as the place chosen provides for the closest co-operation with those authorities with whom they have to maintain continual contact in the interests of the licensed ham, but I do feel the scheme suggested by G5JU would constitute a considerable expense and would be an unwarranted extravagance. extravagance.

I am satisfied that the Officers and Staff of the Society are watching my interests and those of my fellow hams, and that being a member provides me with the very pleasant comradeship of other members. I ask no more and wish to pay for no more!

Yours faithfully,

R. WALKER (G6QI).

P.S.—Notwithstanding my last paragraph, I strongly deprecate the Society's attitude to the Town and Country Planning Act in relation to aerials, as outlined in the Editorial of the July issue of the BULLETIN. I regard it as an unquestionable duty of the Society to take this matter up on behalf of its members, with the Central Land Board and/or other suitable

authority.

(The Central Land Board is concerned primarily with development charges. As far as is known no authority has yet suggested that an amateur should pay a development charge for erecting a lattice mast on his own property. Any such demand should be reported to Headquarters.—Editor.)

DEAR SIR,—From comments one has heard on many hands (including from a number of one's own group) there is a wide-spread feeling that the time has come for a reassessment of National Field Day.

Originally the purpose of National Field Day.

National Field Day.

Originally the purpose of N.F.D. as practice for emergency operation was fully achieved. But post war much of the spirit of the occasion seems to have evaporated and disastisfaction is apparent by reason of the large amount of effort which needs to be put into it in these all too busy days.

If Field Day could be simplified and its organisation rendered less difficult, I am sure we should see a pre-war resuscitation of interest for the event. I would therefore suggest that while the scoring rules should remain unchanged, the rules governing equipment should limit all stations to one aerial not exceeding 150 feet in length, and an input power not exceeding 10 watts on all bands.

150 feet in length, and an input power not exceeding to ward on all bands.

The fantastic aerial arrays now so largely used favour disproportionately those groups which have many people to design and erect them, and they are out of keeping with the underlying reasoning that Field Day stations should be compact outfits, capable of being put up at very short notice.

As for the proposed power restriction, I think few would disagree, since equipment is difficult to hold down to the present 5 watt limit—and in many cases I am sure it is not so held down. The figure of 10 watts has a very good tradition in British

The figure of 10 watts has a very good tradition in British amateur radio history.

Knebworth, Herts.

Yours truly, J. H. Hum (G5UM).

(It is worthy of record that there was greater support for the 1949 event than for any previous N.F.D. Nearly 250 official stations participated. Scores were higher than ever before, and interest more widespread. The views expressed by Mr. Hum will be considered by the Contest Committee as will the views of all other members who have written to Headquarters in regard to N.F.D.—Editor.)

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VALVES: 9004s, 955s, 6SJ7s, 4/6. IR5s, 6V6Gs, 6/6. 6C4s, 6G6s, 9/-. 6AG5s, 10/-. KT8Cs, 12/6.

MAINS TRANSFORMERS. 350 V.-0-350 V., 100 mA. (4 V. 4A. CT. 6·3 V. 3 A.C.T.) (0-4 V.-5 V. 2 A.). G2OO's Price Only, 22/6.

INERT CELLS. 1.5V. 40 cells, 12/-. Sample Cell 71d. TAIL WARNING UNIT. APS/13. F.B. 420 Mc/s. Transmitter/Receiver 5-6J6s, 2-2D21s, 9-6AG5s, and a VR105/30. 17 Valves altogether. A bargain at only 9 gns.

12 V. VIBRATOR UNIT No. 4. Ex. 22 Set. 325 V. at 80 mA. Ideal Car Radio Set. G200's Price 19/6 Only.

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THE A.R.R.L. ANTENNA BOOK (Fifth Edition—1949) by the Headquarters Staff of the A.R.R.L. The standard manual of design and construction of amateur radio aerial systems and

Headquarters Staff of the A.R.R.L. The standard manual of design and construction of amateur radio aerial systems and related subjects, completely rewritten 288 pages, a bibliography of aerial design, 831 illustrations including 72 charts and tables. Obtainable through R.S.G.B., price 7/-, delivery about 4 weeks.

A his book should be studied and re-studied by every amateur and student of radio. The proper design and adjustment of aerials is such an important matter that it is surprising to find so little available literature. The interpretation of the necessarily complex fundamental principles and calculations, to suit the reader with no interest in the beauty of mathematics, but with a job of aerial work to do with a limited arithmetical equipment, is a task which would not be undertaken lightly. Fortunately it has been most successfully tackled, and this little book must be a real delight to any amateur worth his salt.

The first five chapters form a textbook in themselves, on the principles of aerials, transmission lines, propagation, and directive aerial systems. From these chapters the reader has the information for an intelligent design by his own calculations, and to suit his particular problem. The following chapters are a kind of "ready reckoner" for the amateur who does not wish to study the principles, or make his own calculations. They are, of course, much more than that, but that is the trend. There are also chapters on mechanical construction of masts, towers, and rotary beams, and one on "Finding Directions."

The book is enthusiastically recommended to amateurs and students, as an immensely useful and practical treatment, and a book which they will keep close at hand. It is very delightfully produced, and, in every way, the A.R.R.L. are to be congratulated on a splendid job.

Mention the Bulletin when writing to Advertisers

ELECTRONICS IN THE FACTORY.—Edited by Professor H. F. Trewman, of E.M.I. Institutes, Ltd. 188 pages and 63 illustrations. Published by Sir Isaac Pitman & Sons, Ltd.,

Trewman, or E.M.I. Institutes, Ltd. 188 pages and 63 illustrations. Published by Sir Isaac Pitman & Sons, Ltd., London. Price 20s net.

This survey of the applications of electronics to industry is almost entirely the work of staff members of E.M.I. It is of particular interest to directors, general managers, production engineers, and others concerned with the methods used in industry. It explains what can be done, and has been done, and, in a general way, how it is done. But there is no attempt to describe methods, circuits, or apparatus in technical detail, or to do more than give a bird's-eye view of the field. The book, in the reviewer's opinion, should increase the awareness of executives to the value of these new tools which are now available, but about which there is so much ignorance.

After a brief introduction to electronics, the book deals with timing circuits, counting equipment, and control of generators and motors. Dielectric heating, eddy current induction heating, and welding control have separate chapters, as also have servo-mechanisms, applications of photoelectric cells, intrusion-detection systems, and electronics in chemistry.

A chapter is given to electronics in medicine and surgery, and though these are not normally considered as factory matters, the editor rightly included them.

the editor rightly included them.

The last chapter deals with a number of applications not easily grouped under the previous headings, such as strain gauges, stroboscopy, ultrasonics, etc.

The book is attractively written and produced, and is recommended to members as a most informative survey.

ELEMENTS OF ELECTRONICS. By G. Windred, A.M.I.E.E. 197 pages, 100 illustrations, and 6 plates. Published by Chapman & Hall, London. Price 15s. net. It is probable that the reader of this review either has only a

It is probable that the reader of this review either has only a rather vague idea of many of the physical principles involved in modern electronic devices, or, being more fortunate, is often asked by others for direction as to where a simple explanation may be obtained. This book sets out to supply such a need, and many engineers and amateurs whose training did not include the physics studied by a student to-day, will be glad to have this opportunity of filling the gaps.

The author discusses the domain of electronics, dividing the subject into two branches: electron physics and electronic engineering. He then starts with the electron, its discovery, the determination of its characteristics by various investigators, and a summary of modern electrical theory in terms of electrons. The production of electrons, and their behaviour in vacuo and gases, precedes a treatment of photoelectric effects, and leads on to thermionic valves.

Amplifiers and oscillators, including velocity modulation methods and the magnetron, are described in a clear but brief

way, and merely in explanation of the principle. Gas-filled valves come next, and then mercury-are rectifiers.

A short chapter on X-rays precedes a chapter on cathode ray tubes, and, naturally enough, this is the cue for an account of the principles of television.

Other chapters deal with such subjects as the sound film, electron optics, the electron microscope, the cyclotron, the betatron, and radiolocation.

The book is descriptive clearly illustrated simple in treatment.

The book is descriptive, clearly illustrated, simple in treatment and expression, and interesting.

T.P.A.

Around the Trade

A comprehensive summary of almost 200 Special Purpose and Power Tubes with their essential characteristics, conveniently classified and indexed for easy reference, has just been published by the Raytheon Manufacturing Company. Nearly 50 subminiature types with their complete technical data are listed together in chart form for the first time. While all pertinent information and applicable basing diagrams are provided for special purpose, transmitting, rectifier, magnetron, klystron rugged, transistor, hearing aid, radiation counter and voltage regulator types. Copies of this Raytheon Special Purpose and Power Tube Chart are available free upon request by writing to Radio Receiving Tube Division, Raytheon Manufacturing Company, 55 Chapel Street, Newton 58, Massachusetts, U.S.A.

The latest addition to the range of radio components made by Erie Resistor Ltd., of Carlisle Road, London, N.W.9, is a stud potentiometer. Introduced to meet the need for a neat, totally enclosed, improved substitute for the wafer switch and its externally connected resistance network, the Erie Stud Potentiometer has, by virtue of its limited number of moving parta, greater life and low contact resistance—features that also enable it to be produced rapidly at low cost. The resistor elements employed are the Erie standard 5B resistor which can be supplied in the standard value range of from 10 ohms to 10 megohns ± 20%. Types available are non-switch with nine steps and D.P.S.T. switch with seven steps. A tapping can be provided at any step except the third and sixth. The diameter of the unit is 1 ½ " excluding tags and bush sizes are 0 ·375" (32 T.P.1) and the spindle is supplied with standard Erie and R.E.C.M.F. flats in ½" integers up to 2½" long (maximum) inclusive of bush.

A new 144 Mc/s. C.W. and telephony transmitter and associated power supply unit has recently been marketed by Labgear Ltd., Willow Place, Fair Street, Cambridge. The transmitter is crystal controlled and provision is made for three 8 Mc/s. crystals with front panel switch selector control. The crystal oscillator employs an EF50 valve, and this is followed by two stages of frequency multiplication employing QVO4-7 valves, the final R.F. amplifier being an 829B dual beam tetrode. The speech amplifier has ample gain to permit the use of a crystal microphone and the modulator stage consists of a pair of 6L6G valves. Provision has been made for the use of the same aerial for transmission and reception.

It is claimed that careful design of the tuned circuits has eliminated the possibility of tuning to the wrong harmonics. The transmitter, which is very conservatively rated at 25 watts input, together with the speech equipment is housed in a fully enclosed cabinet (19 in. front panel) while a similar cabinet contains the power supply unit which includes separate high tension supplies for the exciter, power amplifier, speech equipment and modulator.

The transmitter unit (Cat. No. E5024) is priced at £40 and the

The transmitter unit (Cat. No. E5024) is priced at £40 and the universal power supply unit (Cat. No. E5024/A) costs £20.

SPOTLIGHT ON

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- Since July, 1925, the BULLETIN has aimed at providing up-to-the-minute news and information on every phase of Amateur Radio. This objective can only be achieved if members are prepared to furnish details of their experimental and constructional work.
- Articles on a wide variety of Amateur Radio topics— both transmitting and receiving—are always welcome and will receive the most careful Editorial considera-
- New circuits, Ingenious hints and tips, successful aerial systems and photographs of station layouts are invited. Editorial assistance will be given if the subject is of sufficient general interest.
- To avoid later disappointment, authors are urged to submit a synopsis of full-length articles at an early stage.
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ALL BULLS. Pre-Oct. '31 Wanted; also Dec. '31, Jan. '32, Feb, Dec. '33, Nov. '44, Mar. '45.—HERRIDGE, 95 Ramsden Road, London, S.W.12.

ARSSD for sale, perfect condition, matched speaker, £50, buyer collects.—G2FRM, 132 Bath Road, Reading, Berks.

CT3 turret, cost £6 10s., and pair suitable I.F.T.'s £3; 1,000 V. power pack £2; Tritet/PA 6v6/PT15 with valves £2; 1155 £7; Chiradis Radio Course 10s.—34 Birch Avenue, Romiley, [816]

Cheshire.

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FOR SALE.—1 · 4 V. Valves unused. 3D6, ILN5, IR4 2s. each.
—Box 831, PARRS, 121 Kingsway, London, W.C.2. [831

FOR SALE.—2 R.C.A. 813's with bases, maker's cartons 35s. each. Wanted: B2 transceiver, power pack, coils, etc., complete.—S.A.E. Advertiser London. Box 817, Parrs, 121 Kingsway, London, W.C.2. [817

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('phone 368).

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