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DEVOTED TO THE SCIENCE AND ADVANCEMENT OF AMATEUR RADIO

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In this Issue

CURRENT COMMENT

"Say Heart, what will the future bring?"

IT is not by any means inappropriate to preface our last-of the year "Current Comment" with the opening words of John Addington Symonds's poem "These Things Shall Be." A little heart searching is the accustomed thing for most of us to indulge in as we see an Old Year sliding into the past and a New Year rising ahead.

At this moment the Amateur Radio Movement in this country, looking back over 1954, cannot fail to regard it as one of the most interesting and successful of all the years since the war. The theme of *Annus Mirabilis* has been developed on this page enough times in recent months to render any further recapitulation unnecessary. What needs to be done now is to look ahead to 1955 and try to estimate how the coming year is likely to shape from the radio amateur's point of view. What, indeed, "will the future bring?"

Many of the answers, of course, lie shrouded in that same future and cannot be predicted. That does not in any way preclude discussion upon them, where forewarning allows forearming to take place.

Of two developments due to unfold in 1955 we have indeed already been forewarned. One is the probability that, by next Autumn, an alternative television service will have started in the 190 Mc/s region. The other is the official beginning, in the Spring, of the first of the B.B.C's three-programme sound broadcasting service on 90 Mc/s.

The first of these developments is likely to cause more concern to the radio amateur than the second, where the f.m. mode of transmission will impart certain advantages to the ordinary listener at the receiving end: for instance, he will be less likely to be troubled by amateur emissions which are predominantly amplitude modulated. This thought will not give a false sense of security to any radio amateur who observes, as he must do, that the extent of Band 2 from 87.5 to 100 Mc/s is such that, at least some harmonics from amateur bands can affect it. And broad band reception will not make things any easier.

These factors pale into insignificance, however, against the prospect of an entirely new crop of TVI problems besetting us when the alternative television service goes on the air. Subtracting the new standard i.f. of 35 Mc/s from 190 Mc/s suggests the possibility of flocks of local oscillators wandering about in the vicinity of 145 Mc/s—and even with Band I television this type of problem is not unknown in certain parts of the country. Just what other less obvious forms of interference will arise through beat effects between receiver oscillators, local transmitters and their sundry harmonics will remain to be seen and heard when Band III becomes active.

No undue despondency need be felt over this prospect if adequate "TVI sealing" along the lines so consistently advocated in this journal has been applied to individual transmitters. Much of the advice given in respect of TVI-proofing for Band I will apply for Band III.

In peering forward into the unknown of 1955 there is something else that should be taken into account, and it is a "something" for which amateurs all over the world have been waiting—nothing more nor less than an improvement in conditions on the long-distance bands. Such an improvement, steady and perhaps not immediately spectacular, is possible over the next year or so, gaining in intensity in conformity with the usual 11-year cycle.

As this development unfolds it will attract to the DX bands many who work only on the local bands at the present time.

The President, Council and Headquarters' Staff Send Christmas and New Year Greetings to Members Everywhere

At once, new problems of TVI will threaten those who, although forewarned, have not looked to their moats. New problems, too, in working through thicker levels of interference will present themselves, and success will come to the amateur whose equipment and operating standards are of the highest. It may well happen that there will be some measure of "natural selection" among the world's amateurs, in which those who can meet the new challenges will survive, while those who cannot will drop out of the movement through sheer inability to keep abreast.

If a slightly dolorous note seems to sound through some of the foregoing it is perhaps better than encouraging a complacent over-confidence, or any belief that all that matters is oneself and the man with whom one is in contact. Amateur Radio is at once intensely individual yet intensely gregarious, and it might not be a bad idea if each one of us remembered this in deciding what we are going to make of it in 1955.—J.H.

Everyone make one!

TWO important facts stand out from the Annual Report and the Statement of Accounts sent to members with the November issue of the BULLETIN: a fairly large drop in membership and a deficit in the region of £1000 for the year ended June 30, 1954. The falling-off in the number of members was not unexpected; in fact it was predicted

during the lengthy debates last year before the increased subscription rates were approved. The deficit is explained, in part, by the fact that the increased subscription rates did not apply until five months of the last financial year had passed. It is an unfortunate economic fact that expenses do not go down in proportion to a decline in numbers. In short, the Society needs to increase its membership in order to operate most economically.

Where are the new members to be found?

A large proportion of U.K. transmitting amateurs are members but many are not. In addition, there are thousands of radio enthusiasts who are at present on the fringe of the hobby: those who fall into the general category of short wave listeners and home constructors. Each one is a potential member of R.S.G.B. Overseas, too, there is also a large potential membership, particularly in the United States and the Dominions. In the U.S., for instance, there is no *outgoing* QSL bureau. Membership of R.S.G.B. confers on U.S. amateurs the privilege of sending cards through the Society's Bureau—a strong "selling" point. Incidentally, the overseas subscription of £1 1s. p.a. is exactly $3 U.S.

It is almost certain that every present member knows at least one other person who should be a member. One old timer has, in fact, obtained 33 new members in recent months. While it is unlikely that many will equal his record, we believe that membership can be greatly increased by a united effort. Every member should endeavour to "sell" the Society, particularly among new licensees, many of whom are unaware of the value of R.S.G.B. membership.

Whilst an increase in numbers is unlikely to lead to a decrease in subscription rates, it would allow services to members—such as a larger BULLETIN—to be improved and extended. Why not make a New Year's resolution to enrol at least one new member? Headquarters will send an application form and a specimen copy of the BULLETIN to any prospective member immediately on request.

Proud Moment at VE8RZ

DURING his recent tour of Canada the Society's Patron (H.R.H. The Duke of Edinburgh, K.G.) visited the Amateur Radio Station of Mr. R. Murray (VE8RZ) at Yellowknife, North West Territory. We are indebted to Mr. C. H. Harris (VE6HM) of Edmonton, Alberta, for sending us the accompanying picture which was taken whilst the Duke was preparing to broadcast a message to Canadian amateurs.

Mr. Murray explains the controls of his receiver to H.R.H. The Duke of Edinburgh. Mrs. Murray with her two children and another local amateur are in the background.

Council Ballot

AT the Ordinary Meeting of the Society held at the Institution of Electrical Engineers on November 19, 1954, Messrs. L. Cooper, K. Ellis, F. Fletcher and F. Ruth were appointed scrutineers of the Council Ballot.

London Meeting

ABOUT 70 members met in the Lecture Theatre of the Institution of Electrical Engineers on Friday, November 19, 1954, to enjoy a display of technical films kindly arranged by Wing Commander W. E. Dunn, O.B.E. (G2LR).

A vote of thanks to Wing Commander Dunn was proposed by Immediate Past-President Leslie Cooper (G5LC).

The Chair was taken by the President (Mr. Arthur O. Milne, G2MI).

N.F.D. 1955

MEMBERS are asked to note that the 1955 National Field Day event will take place during the week-end June 4-5 and not on June 6-7 as was inadvertently stated in the rules published in the September, 1954, issue of the BULLETIN.

A Modern Q5'er

IN the above article, which appeared in the November, 1954, issue of the BULLETIN, the values of the resistors should have been shown as follows: R1, 6, 7, 100,000 ohms, ½ watt; R2, 220 ohms, ½ watt; R3, 4, 22,000 ohms, ½ watt; R5, 10,000 ohms miniature potentiometer used as a variable resistor. The germanium diode specified (B.T.H. type CG1C) is now obsolete (although still available) but any other diode of approximately similar characteristics may be substituted, e.g., G.E.C. GEX33.

London Members' Luncheon Club

CAPT. FRASER (SU5EB), John Osborne (VS1BO) and J. Sumner (VP7NF), all of whom spoke during the after proceedings on Amateur Radio in the respective countries in which they have recently been resident, were among the visitors at the ordinary meeting of the London Members' Luncheon Club held at the Bedford Corner Hotel on Friday, November 19. The President (Arthur Milne, G2MI) took the Chair in the absence of the Club Chairman, Stanley Vanstone (G2AYC).

A special meeting of the Luncheon Club was held at the Royal Hotel during the period of the R.S.G.B. Amateur Radio Exhibition when an attendance of 32 was recorded. Stanley Vanstone presided.

LONDON MEETINGS

Programme 1954-5

December 17, 1954: **Annual General Meeting.**

January 28, 1955: Presidential Address followed by Lecture by **Mr. Frank Hicks-Arnold (G6MB).**
"ANTENNA MATCHING WITH THE ANTENNAMATCH"
(with practical demonstrations).

February 25, 1955: **Mr. R. C. Jennison.**
(Jodrell Bank Experimental Station)
"RADIO ASTRONOMY AND THE RADIO AMATEUR."

March 25, 1955: **Mr. Maurice Child.**
"THE HISTORICAL DEVELOPMENT OF WIRELESS COMMUNICATION."
(with demonstrations of early apparatus).

All meetings are held at the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, London, W.C.2. Buffet Tea from 5.30 p.m. Meetings commence at 6.30 p.m.

The R.S.G.B.

Amateur Bands Frequency Meter

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

ALTHOUGH the Amateur (Sound) Licence no longer requires a record of the precise frequency of operation to be kept it is, of course, still necessary to know the limits of the various bands in order to avoid off-frequency working. Just how close to the band edges it is safe to operate depends upon the accuracy of the frequency measuring device in use.

The heterodyne frequency meter to be described in the present article achieves a high degree of accuracy and follows normal practice in that it comprises a 100 kc/s crystal sub-standard and a variable oscillator checked by interpolating between successive harmonics of the crystal in the ranges covered.

The crystal itself may be compared with standard frequency transmissions such as those from station MSF at Rugby, operated by the Post Office for the National Physical Laboratory, WWV, the Bureau of Standards transmitter in the United States, or certain B.B.C. stations of which Droitwich on 200 kc/s is probably the most convenient.

To achieve as open a scale as possible provision is made for the coverage of the amateur bands only in two ranges: 1.75 to 2 Mc/s, the second harmonic of which includes the 3.5 to 3.8 Mc/s allocation, and 7 to 7.5 Mc/s. On the second range the fundamental, second, third and fourth harmonics serve for measurement in the 7, 14, 21 and 28 Mc/s bands.

The output from the frequency meter is taken from a low impedance point and fed directly into the receiver *via* a length of co-axial cable thus preventing to a large extent the radiation of oscillator harmonics on TV frequencies. A simple attenuator enables the output from the instrument to be controlled over a wide range. Either a c.w. or m.c.w. signal is available at will.

The addition of a further oscillator in the circuit provides a stable source of oscillations at approximately 1 Mc/s for aid in the preliminary calibration of the meter or for rapid checking of an uncalibrated receiver.

The Circuit

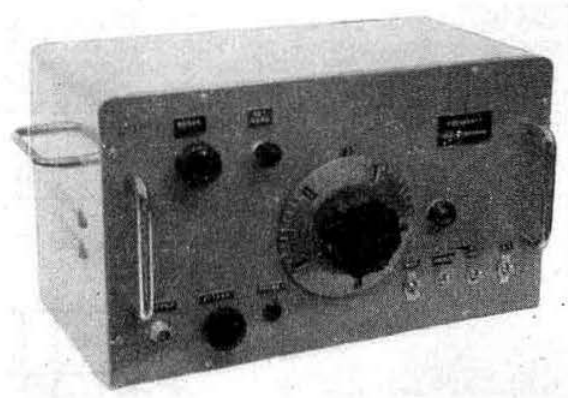
The crystal oscillator circuit is a modification of one appearing in the *Radio Amateur's Handbook* and has been found entirely satisfactory. The variable condenser, C18, in series with the crystal, is for setting the frequency of the latter against a standard frequency transmission, and is mounted on the chassis inside the case. If it is desired to control the frequency of the crystal to very fine limits it is suggested that either C18 be mounted on the rear drop of the chassis and a hole cut in the back of the cabinet for access or a small additional variable condenser of about 10$\mu\mu$F maximum capacity be similarly mounted and connected in parallel with it. This is a refinement only of interest to those requiring short-term accuracy beyond that normally to be expected from a crystal which is not temperature controlled.

The output from the crystal oscillator is fed to grid No. 1 of the mixer valve, V2, through C17.

An e.c.o. circuit is employed in the variable oscillator with a similar type of valve (Brimar 6BR7) to that used for the crystal oscillator. The 6BR7 has characteristics approximating to those of the 6SJ7 and is so constructed that microphony is held to a minimum. It will be seen from the circuit diagram that the grid is tapped down from the high potential ends of the coils and that a resistance, R1 (330 ohms), is included in the grid circuit on both ranges; this prevents any tendency to squeg.

Although the anode and screen of V1 are fed from a stabilised source of h.t. it is essential, in the interests of a good note, to connect C9 (8μF capacity) between the junction of R3 and R4 and chassis in addition to the normal r.f. bypass condenser, C8. Without C9 the note from either of the ranges tended to be a trifle rough on 28 Mc/s but with this additional capacity it is pure d.c. even on 144 Mc/s. Contrary to the normal specification for this type of oscillator circuit, the cathode taps on the coils are only approximately one-tenth the total number of turns from the earthy ends, a position which has been found to give better stability than the more usual third.

*32 Earl's Road, Tunbridge Wells, Kent.



Front view of the Amateur Bands Frequency Meter.

No matter how well made a frequency meter may be it is next to useless without a dial which can be read clearly to the necessary degree of accuracy. To this end a Muirhead component similar to that used on the National HRO receiver has been chosen. This dial provides 500 divisions approximately $\frac{1}{4}$in. apart with a scale length of some 12ft 6in.; it is to all intents and purposes free from backlash.

The purposes of V2 is to make audible, and V3 to amplify, the beats between the crystal oscillator harmonics and the variable oscillator when checking the calibration of the latter throughout its ranges or to detect the beat note between an external oscillator and the variable oscillator as is necessary when measuring the frequency of a transmitter. The output from V1 is taken across its unbypassed cathode resistor by way of an ordinary 500 ohm carbon track potentiometer. This gives a good measure of control of the signal fed to the receiver and, as the source is of low impedance, the loss in the co-axial lead is small. To avoid loading the receiver input circuit excessively, as well as to minimise radiation of the frequency meter harmonics from the aerial, it is recommended that a carbon resistor of 1000 ohms or so be connected between the centre conductor of the co-axial line and the aerial terminal of the receiver.

It is often difficult to pick out a frequency meter signal from other loud carriers on a band and it is a definite advantage, therefore, to be able to modulate the local signal if required. In this design modulation is introduced by employing V3 as an a.f. oscillator in conjunction with the coupling transformer between its grid and the anode of V2. The switch, S2, cuts the headphone jack out of circuit when modulation is applied.

The 1 Mc/s oscillator is admittedly something of a

luxury and could be omitted if the user had some means of identifying the various 100 kc/s harmonics from the crystal oscillator during the preliminary lining-up operation. The circuit is that of a cathode coupled oscillator, output being developed across R17. The larger this resistance the greater the output but the value of 4700 ohms shown is adequate. This type of oscillator is particularly stable and may be made even more so by the inclusion of resistance in series with the feed-back condenser C21. Both V4 and V5 are coupled through condensers to the injection grid of the mixer; if both are operated simultaneously the c.o. will "pull" the 1 Mc/s signal to a slight extent with the result that each 1 Mc/s point will be modulated with an audio tone, again a useful feature for rapid identification.

Construction

Good mechanical stability is an essential feature of a frequency meter which is to have any pretence to accuracy and for this reason the instrument, together with its power supply, is built into an Imhof type 1054A steel cabinet and chassis which are particularly solidly constructed. The dimensions of the chassis are 14in. by 7in. by 3in. deep.

The variable oscillator components are housed in a compartment formed of brass sheet 5¾in. long, 4in. wide and 3½in. deep to the left of the Muirhead gear box, V1 being mounted 1in. from the top in the position shown in Fig. 3. The series and parallel padding and trimming condensers C1, C2 and C3 are fitted on the chassis inside this compartment and are adjustable from underneath. L1 and L2

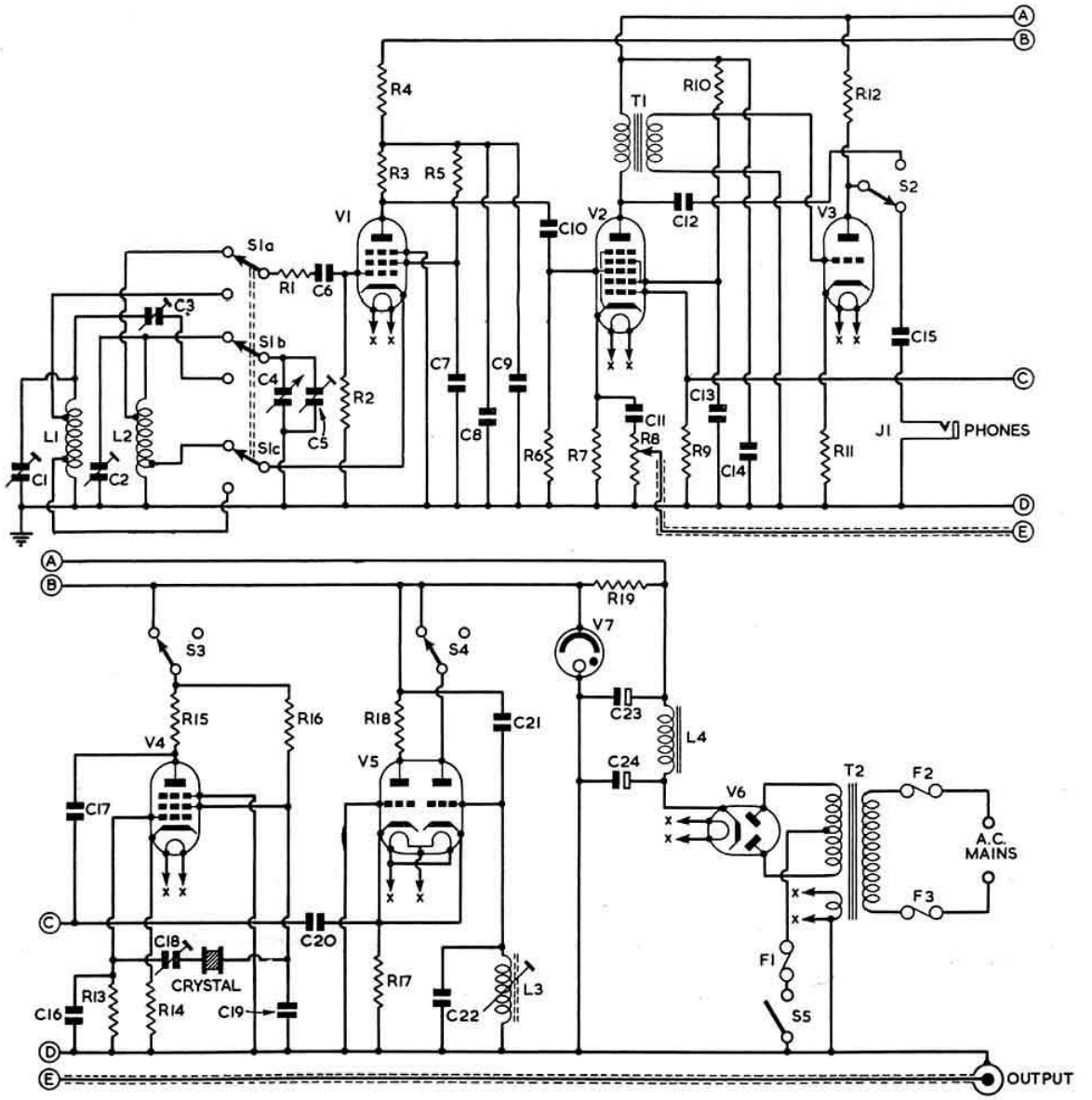


Fig. 1. Circuit diagram of the Amateur Bands Frequency Meter.

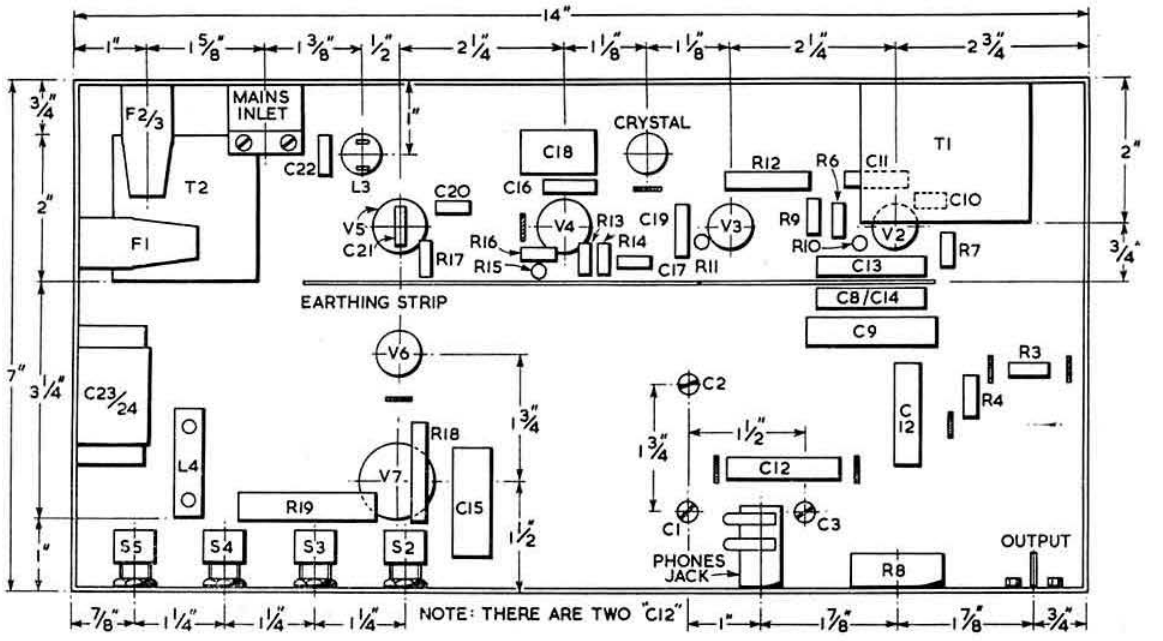


Fig. 2. The layout of components beneath the chassis. The positions of the insulated tie-points for mounting certain components are indicated.

occupy vertical and horizontal positions respectively between the band switch and the valveholder.

V2, V3, V4 and V5 are mounted in line along the rear of the chassis, V5 being nearest to the mains transformer. The B7G holder for the Salford type JCF/193 100 kc/s crystal is between and to the rear of V3 and V4 while the 6X4 rectifier and VR150/30 voltage stabiliser occupy the space between the mains transformer and smoothing choke L4 and the dial gear box.

On the underside of the chassis there is a strip of brass 8½in. long and 1in. high near to the four valveholders which serves as the earthing point for all connections. T1 is mounted on the rear drop of the chassis at the left-hand end, with the power socket and mains fuses occupying positions at the opposite end of the chassis. The h.t. fuseholder is bolted through the chassis to the right and on this side will also be found the reservoir and smoothing condensers C23 and C24. The disposition of the other components will be seen from Fig. 3.

All wiring is carried out in " push-back " and extensive use is made of tie points for mounting the smaller parts to prevent vibration.

On the front panel the band switch is at the left top corner with C5, the " Set Zero " trimmer, to its right. Along the bottom edge from left to right are the output co-axial socket, attenuator control, headphone jack and to the right of the dial the four toggle switches for modulation, crystal oscillator, 1 Mc/s oscillator and h.t. control. A Bulgin indicator lamp is fitted immediately to the right of the tuning dial.

Components List

C1, 2 75μμF air-spaced trimmer.
C3, 18 50μμF air-spaced trimmer.
C4 40μμF air-spaced variable.
C5 10μμF air-spaced trimmer.
C6, 17, 21 100μμF T.C.C. type SMP 101.
C7, 8, 13, 14 0.05μF T.C.C. Metalmite.
C9 8μF electrolytic, Dubilier Drilitic BR815, 150V wkg.
C10 30μμF T.C.C. type SMP 101.
C11 500μμF T.C.C. type SMP 101.
C12 0.007μF (0.05μF+0.1μF in series) T.C.C. Metalmite.
C15 0.1μF T.C.C. Metalmite.
C16, 22 200μμF T.C.C. type SMP 101.
C19 150μμF T.C.C. type SMP 101.
C20 20μμF T.C.C. type SMP 101.
C23, 24 8+16μF electrolytic T.C.C. type CE27L, 350V wkg.

L1 16 turns 24 s.w.g. enam., 1in. diam. ⅜in. long, cathode tap 2 turns, grid tap 11 turns from earthy end.
L2 67 turns 26 s.w.g. enam., 1in. diam. 1¼in. long, cathode tap 5 turns, grid tap 41 turns from earthy end.

L3 Osmor type QO5.
L4 12 H, 60mA, 550 ohm smoothing choke, Woden type PCF11.

R1, 14 330 ohms, ½ watt. Erie type 8.
R2, 5, 9, 16 100,000 ohms, ¼ watt Erie type 8.
R3 56,000 ohms, ½ watt Erie type 8.
R4 10,000 ohms, ½ watt Erie type 8.
R6 1 Megohm ½ watt Erie type 8.
R7 150 ohms ½ watt Erie type 8.
R8 500 ohms carbon track potentiometer.
R10 22,000 ohms, 1 watt Erie type 10.
R11 1,000 ohms, ½ watt Erie type 8.
R12, 18 47,000 ohms, 1 watt Erie type 10.
R13 500,000 ohms, ½ watt Erie type 8.
R15 150,000 ohms, ½ watt Erie type 8.
R17 4,700 ohms, ½ watt Erie type 8.
R19 8,600 ohms, 5 watt Erie type 16.

S1 3-pole double-throw ceramic wafer.
S2 S.p.d.t. toggle Claud Lyons B.A.T. 729.
S3, 4, 5 S.p.s.t. toggle Claud Lyons B.A.T. type 728.

T1 Bulgin intervalve type WIS 2535.

T2 250-0-250V, 60mA, 6.3V, 3A, Woden type PTM11a.

V1, 4 6BR7 Brimar.
V2 6BE6 Brimar.
V3 6C4 Brimar.
V5 12AU7 Brimar.
V6 6X4 Brimar.
V7 VR150/30 Brimar.

Miscellaneous

Slow motion dial and gear box: Muirhead type D115A.
Crystal, 100kc/s, Salford type JCF/193.
Co-ax socket: Belling-Lee type L.604/S/CD.
Co-ax plug: Belling-Lee type L.734/P/AL.
Cabinet: Imhof type 1054A.
Chassis: Imhof type C.
Panel labels by T. A. Butler & Co. Ltd., 48/52 Vittoria Street, Birmingham.

4 B7G McMurdo type XM7/UC1 valveholders.
3 B9A McMurdo type XM9/UC1 valveholders
1 I.O. McMurdo type B8/U valveholder.
2 cans McMurdo type 4/4.
3 cans McMurdo type 7.

Setting-up

Connect a co-axial lead between the frequency meter and a receiver tuned to the 1.8 Mc/s band and check that harmonics of the crystal are audible. If nothing is heard first make sure that C18 is not set to too low a capacity. Then, with the band switch on range 1 and a pair of high resistance 'phones plugged into the frequency meter, make sure that V1 is oscillating by noting the beats between the variable and the crystal oscillators as the tuning is varied. Adjust C2 so that 2 Mc/s is reached at around 490 degrees on the dial and coincides with one of the crystal harmonics. The " Zero Set " condenser, C5, should be at half capacity. Three crystal harmonics lower should bring the variable oscillator to 1.7 Mc/s and this should be checked on the receiver. If the calibration of the receiver is not known to within 100 kc/s the 2 Mc/s point will have to be found with the aid of the 1 Mc/s oscillator, the setting up of which will be dealt with later.

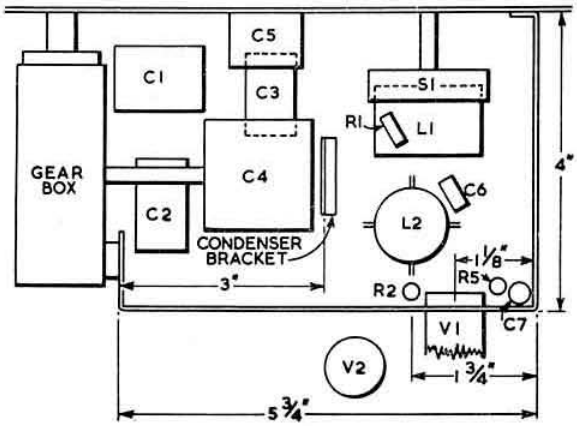


Fig. 3. Plan view of the components inside the variable oscillator screened compartment. The former of L2 is fitted with a wooden plug bolted to the chassis. L1 is mounted ¼in. above the chassis by means of two 6 BA bolts and spacers.

Switch now to band 2 and locate 7 Mc/s on the receiver by reference to the amateur band, and with the tuning dial at about 20 degrees and C3 at about 75 per cent of its maximum capacity, set the variable oscillator to this point by C1. To cover the 28 Mc/s Band fully the variable oscillator must tune to 7.5 Mc/s and this should occur at about 490 degrees on the dial. Some juggling with the capacities of C2 and C3 will be called for before the required range " fits " the dial, the operation being similar to ganging a receiver. Remember that C1 is adjusted at the *high* frequency end C3 at the *low*. When this range is approximately set, check that the fourth harmonic tunes between 28 and 30 Mc/s. If this is so the calibration of the meter may proceed.

First, the crystal oscillator should be checked against one of the standard frequency transmissions previously mentioned, MSF on 5 Mc/s being convenient. At the same time the 1 Mc/s oscillator can be adjusted, its tuning range (by variation of the iron core of L3) being insufficient for a mistake to be made on the fifth harmonic. To make quite sure, however, it can be checked with the aid of a broadcast receiver on the medium wave band. It should be remarked here that provided the crystal oscillates at all, its frequency will be very close to 100 kc/s, the variation obtainable on C18 being very small. Should the receiver cover only the amateur bands accuracy of the crystal may be checked by reference to Droitwich on a broadcast receiver, C18 being carefully adjusted until the quality of speech and music are barely affected.

Calibration

On range 1 note the dial readings for zero beat for 1.7, 1.8, 1.9 and 2 Mc/s and either draw a graph or record them in a book. It will be found that between the 100 kc/s points those corresponding to 50 kc/s are easily detectable together, in some cases, with those for 25 and 75 kc/s due to beats being formed between the harmonics of both the crystal and the variable oscillators.

Calibration of range 2 should be carried out in a similar manner between 7 and 7.5 Mc/s and will be possible to at least the 50 kc/s points without difficulty. Interpolation between these points may be considered to be linear for most purposes but if the user wishes to ascertain the 25 kc/s positions exactly the receiver should be tuned to the 28 to 30 Mc/s band where the variable oscillator appears to tune four times as fast as on the fundamental and therefore each coincidence between the oscillator and the 100 kc/s points will represent a movement of 25 kc/s at the fundamental frequency. An alternative method of close calibration would be to employ V5 as a 10 kc/s multivibrator, locked to the crystal frequency.

It will be found that quite slight changes take place from time to time in the frequency of the variable oscillator and these should be corrected before readings are taken by setting the dial to the previously ascertained reading for the 100 kc/s point nearest to the frequency it is required to measure and setting V1 accurately to zero beat by means of variable condenser C5.

The tuning rate on range 1, assuming coverage from 1.7 to 2 Mc/s, is at least 1¼ divisions per kc/s and on the 28 Mc/s band nearly 4 kc/s per division. On the latter range, if full coverage to 30 Mc/s is not required, the tuning rate may be considerably improved by setting C3 for greater band-spread.

To measure the frequency of an external oscillator a short wire probe may be necessary and should be plugged into either the end of the co-axial cable or the output socket so that the incoming signal can be heterodyned by the variable oscillator. The latter is corrected, if necessary, at the nearest crystal harmonic to the unknown frequency but when actually taking a reading both the crystal and 1 Mc/s oscillators should be off.

If a modulated note cannot be obtained the connections to either the primary or the secondary of T1 should be reversed. The modulation frequency depends largely upon the capacity of C12. The 0.007μF used in the original model was obtained by series connection of 0.05 and 0.1μF condensers but this would not be necessary if a satisfactory note were forthcoming with the aid of a single component. T1 is not critical and almost any transformer with a ratio of between 3½ and 5 to 1 should be satisfactory. Such a change would, however, almost certainly require a different value of C12.

The air-spaced trimmer condensers C1, 2 and 3 built into the original model were surplus items which happened to be on hand but suitable Eddystone, Cyldon, or Polar components which will fit into the space available are readily obtainable. C1 and C2 may be one hole fixing but the rotor of C3 must be insulated from the chassis.

The tuning condenser C4 was, in this case, an Eddystone catalogue No. 1129 Microdenser. This type has now been discontinued but later models would be equally satisfactory. It is an advantage in mounting if the spindle is extended both ends of the condenser.

The 500 ohm potentiometer R8 is no longer a standard value but it is not a critical component and a larger value shunted with a resistance of 500 to 1000 ohms will be found equally satisfactory.

The author wishes to thank the various manufacturers who kindly supplied components for this instrument and the several amateurs whose valuable advice assisted in its development.

R.S.G.B. Amateur Radio Exhibition

LAST month at the Royal Hotel, Woburn Place, London, W.C.1, radio amateurs were given an opportunity, once again, of examining a wide range of new valves, components and equipment which had been especially produced for their benefit.

In the considered opinion of many, this Exhibition—the eighth of its kind organised by the R.S.G.B.—was easily the best so far, both in scope and variety of interest.

Amateur TV High Spot

In addition to the trade exhibits—a review of which will be published in our next issue—there was an outstanding demonstration of Amateur Television by Ralph and Jeremy Royle, G2WJ and Ian Waters, B.R.S.17906, with the co-operation and assistance of other keen amateur TV enthusiasts. It would be true to say that at no previous Amateur Radio Exhibition has greater interest been shown in a single exhibit than was shown this year in G2WJ/T.

GB3RS in Full Swing

After a lapse of one year an amateur transmitting station was once again in operation from the Exhibition. The station, which used the Headquarters' call GB3RS, gave contacts to hundreds of amateurs who were thus able to experience some of the thrills that awaited those who were fortunate enough to be present at the Exhibition in person.

Home Constructed Equipment Admired

The fine display of home constructed equipment aroused widespread interest as did the excellent displays arranged by the War Office and Air Ministry. Many qualified professional engineers expressed pleasant surprise at the extremely high standard of workmanship shown by their non-professional colleagues in the field of home construction.

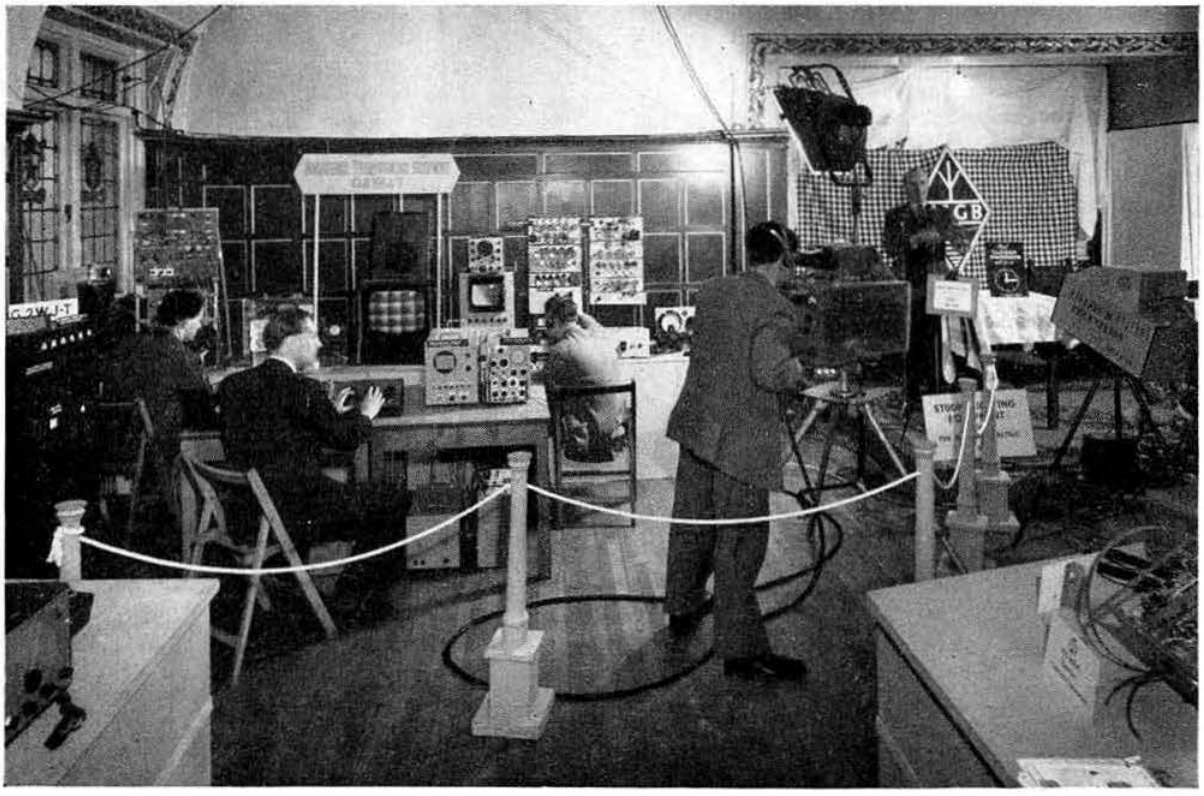
Portable mobile equipment and transistor devices were prominently featured on one of the R.S.G.B. stands whilst the Headquarters' stand displayed several pieces of equipment which have been, or are to be, described in the Society's Journal.

Single side-band enthusiasts and those interested in v.h.f. and u.h.f. equipment were able to examine first-class displays of up-to-date equipment.

Perhaps the greatest pleasure enjoyed by those who visit an R.S.G.B. Amateur Radio Exhibition is that of renewing old and making new friendships. The 1954 Exhibition proved no exception to the rule, for on every hand, visitors became conscious that the Ham spirit was much in evidence.

The Opening Ceremony

In the presence of a very distinguished company the Exhibition was opened at 12 noon on Wednesday, November 24, 1954, by Mr. Harry Faulkner, C.M.G., B.Sc.(Eng.),



A comprehensive view of the Amateur Television Studio at the Amateur Radio Exhibition. Jeremy Royle is controlling the camera. Ian Waters is in the background centre. Exhibition Manager, Phil Thorogood, is making an announcement.

(Photo. Tella Co. Ltd., Boswell Court, London, W.C.1)

M.I.E.E., Director of the Telecommunication Engineering and Manufacturing Association and until last year Deputy Engineer-in-Chief of the G.P.O. In the course of his speech Mr. Faulkner paid tribute to the pioneer achievements of radio amateurs and congratulated the Society on the lead it is setting by encouraging the use of single side-band techniques. He spoke of the important contributions made by the Society's representatives at the I.T.U. Conference in Atlantic City seven years ago and to the Society's participation in the C.C.I.R. Seventh Plenary Assembly held in London last year.

Mr. Faulkner spoke enthusiastically of the value of Amateur Radio in an emergency and of the part played by radio amateurs during the 1939–45 war. In declaring the Exhibition open Mr. Faulkner referred to the excellent support given by the Radio Industry, the Radio Press and the Services.

Mr. Faulkner speaking into the microphone during his visit to the Exhibition Station, GB3RS. Also in the picture, left to right, Mr. Cooper (Immediate Past President), Mr. Milne (President) and Mr. Bartlett, G5QA (President-Elect).

A cordial vote of thanks to Mr. Faulkner was proposed by Mr. Leslie Cooper, G5LC (Immediate Past President).

Informal Luncheon

Following the opening ceremony the President and Council entertained to luncheon at the Royal Hotel a number of distinguished guests and representatives of the Radio Industry and Press.

Among those present, in addition to Mr. Faulkner, were: Sir Noel Ashbridge, B.Sc.(Eng.), Rear-Admiral (L) Sir Percy Clarke, K.B.E., C.B., D.S.O. (President, British Institution of Radio Engineers), Air Vice-Marshal R. G. Hart, C.B., C.B.E., M.C. (Director of Engineering, Air Ministry), Brigadier L. H. Harris, C.B.E., T.D., M.Sc., F.C.G.I., M.I.E.E. (Engineer-in-Chief, G.P.O.), Vice-Admiral J. W. S. Dorling, C.B., M.I.E.E., Brit.I.R.E. (Director, Radio Industry Council), Mr. Charles Ian Orr-Ewing, O.B.E., M.P. (Parliamentary Private Secretary to the Minister of Labour and National Service), Mr. A. H. Mumford, O.B.E., B.Sc.(Eng.), M.I.E.E. (Deputy Engineer-in-Chief, G.P.O.), Capt. C. F. Booth, B.Sc.(Eng.), M.I.E.E. (Assistant Engineer-in-Chief, G.P.O.), Dr. R. L. Smith-Rose, C.B.E. (Director of Radio Research, D.S.I.R.), Mr. D. C. Balaam (Radio and Accommodation Dept., G.P.O.), Mr. G. D. Clifford (General Secretary, British Institution of Radio Engineers), Mr. Geoffrey Parr, M.I.E.E. (Honorary Secretary, Television Society), Mr. A. J. P. Hytch (B.B.C. Publicity), Miss Joan Cutting (R.I.C. Publicity, Wing Commander W. E. Dunn, O.B.E. (Air Ministry) and Major R. E. D. Matthews (Royal Signals).

There were also present no less than seven Past Presidents, namely, Gerald Marcuse, G2NM; Alfred Gay, G6NF; Ernest Gardiner, B.Sc., G6GR; Victor Desmond, G5VM; William Scarr, M.A., G2WS; Frederick Chairman, B.E.M., G6CJ and Leslie Cooper, G5LC.

A toast to the Society was proposed by Mr. Parr and the response came from the President. The President-Elect (Mr. H. A. Bartlett, G5QA) thanked the Radio Industry for its

A view of the Exhibition Hall. From left to right, Headquarters' stand, the V.H.F./U.H.F. stand and GB3RS.

support of the Amateur Radio movement and spoke of the generous action of the Radio Industry Council (through its Director, Vice-Admiral Dorling) in providing space for the Society at the Earls Court National Radio Show last September.

Lewer) and the General Secretary. Frequently, he stated, the R.S.G.B. delegates had made valuable contributions by seeking the support of other delegations for the official U.K. viewpoint. Mr. Mumford referred in particular to the behind-the-scenes activities of the R.S.G.B. delegation

Mr. Charles Ian Orr-Ewing speaking at the Luncheon. Others in the picture, from left to right, Mr. Cooper, Mr. Faulkner, Mr. Milne, Mr. Bartlett, Sir Noel Ashbridge and Dr. Smith-Rose. Mr. Parr and the General Secretary are in the foreground.

Mr. Orr-Ewing, replying on behalf of the Radio Industry emphasised that the Government recognises the value to the country of a vigorous Amateur Radio movement. He commented that communications generally would have been in parlous state during the early days of the 1939–45 war if the Government had not been able to call upon the

Mr. Mumford replying for the Society's Guests at the Luncheon following the opening of the Exhibition.

services of many skilled radio amateurs. The Radio Industry also appreciated the importance of the Amateur Radio movement and would do everything possible to provide the wherewithal for amateurs to pursue their studies.

The General Secretary (Mr. John Clarricoats) on behalf of the President and Council welcomed the Society's Guests and referred briefly to the part played by each one of them in the broad field of radio engineering.

Replying on behalf of the Society's Guests, the Deputy Engineer-in-Chief of the G.P.O. (Mr. Mumford) congratulated Mr. Milne (a member of the Post Office staff) on reaching the high office of President. He also spoke of the valuable work done behind-the-scenes at the Atlantic City I.T.U. Conference by the then President (Mr. Stanley

in securing support for the U.K. proposal to allow amateurs in Region 1 (Europe and Africa) to continue to use up to 200 kc/s in the 1.8 Mc/s band. "We in the Post Office"

Vice-Admiral Dorling (left) with Miss Joan Cutting and Mr. Geoffrey Parr at the Reception which followed the opening of the Exhibition.

said Mr. Mumford "have found that if you put your trust in the amateurs they will not let you down." Mr. Mumford hinted that the G.P.O. is looking into the question of the Morse Test with a view to deciding whether or not it can be dispensed with.

During the course of the luncheon the General Secretary read messages of greeting from several Past Presidents and friends of the Society who had been prevented from attending.

Following the luncheon, the President, accompanied by Mr. Faulkner and Members of the Council inspected the exhibits.

Photographs

Prints of the photographs used to illustrate this article may be obtained from Mr. E. W. Yeomanson, G3IIR, 9 Trewsbury Road, Sydenham, London, S.E.26.

R.S.G.B. IN RETROSPECT

The next instalment of "The R.S.G.B. in Retrospect" will appear in the January, 1955, issue.

The Principle and Application of Magslips

By T. R. BROOKE (G3CQP)*

THE basic magslip element comprises a rotor and a stator. The stators of most of the elements are similar in design, and take the form of internally slotted laminations carrying three sets of windings displaced 120 degrees with respect to one another. In appearance these stator windings resemble those of a small three-phase induction motor, and are often referred to as "phases." This is a misnomer however, as the currents induced in them from the rotor are in phase and only vary in their amplitude.

The rotors vary in design dependent upon the function for which the particular type of element is intended, but for use in a transmitter it generally takes the form of an "H" shaped laminated core carrying a single winding fed by slip rings and brushes.

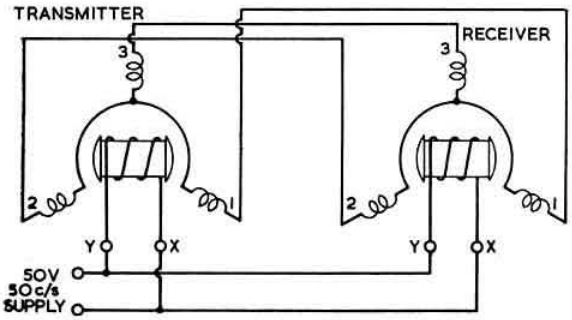


Fig. 1. Basic schematic of magslip transmission system.

Operation

Two of these elements connected as in Fig. 1 give the basis of a remote indicating system and operate as follows:

When an energising supply is connected to the rotor, currents are induced into the stator windings which will vary in magnitude with the position of the rotor. As the two stators are connected line for line, the currents set up in the receiving element windings will be identical with those of the transmitter. The resultant flux of these stator currents in the receiving element will lie along the same axis as the transmitter rotor. The receiver rotor flux will react with the flux set up in the stator and the resultant torque will cause the rotor to move round so that its flux axis coincides with that of the stator. Any change of position at the transmitting end will be faithfully followed by the receiver.

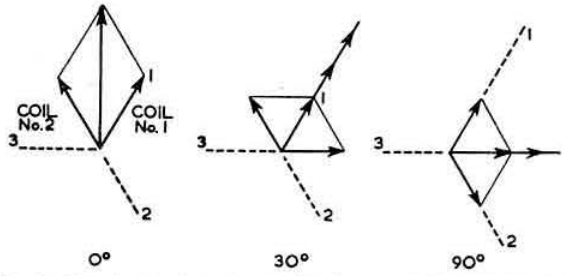


Fig. 3. Showing resultant flux position by vectorial representation of the individual flux values read from Fig. 2.

Stator Currents and Flux

The rise and fall and phase reversal of current in the individual windings of the transmitter stator through 360 degreees of rotor travel are represented by the curves in Fig. 2. These curves were plotted for an arbitrary value and are not intended to represent the actual current taken to any set scale; they are used because they give a simple guide to, rather than an involved mathematical explanation of, the production of a similar resultant flux axis in the receiver.

As the currents in the transmitter stator coils produce identical values in the coils of the receiver, these curves may be read as representing the flux value created by the currents in the receiver coils. From values of the three curves read off against any position of the transmitter rotor a vectorial representation can be made. The resultant flux direction shown by the vector will be seen to coincide with the position of the transmitter rotor (see Fig. 3).

The 2in. Receiver

When the job in hand is one of pure remote indication the use of a special magslip receiver is desirable.

These elements are designed to give a very high degree of accuracy whilst working at an extremely low flux value to minimise reaction on the transmitter should there be mechanical disturbance of the receiver rotor.

*7 Married Quarters, Langham, Holt, Norfolk.

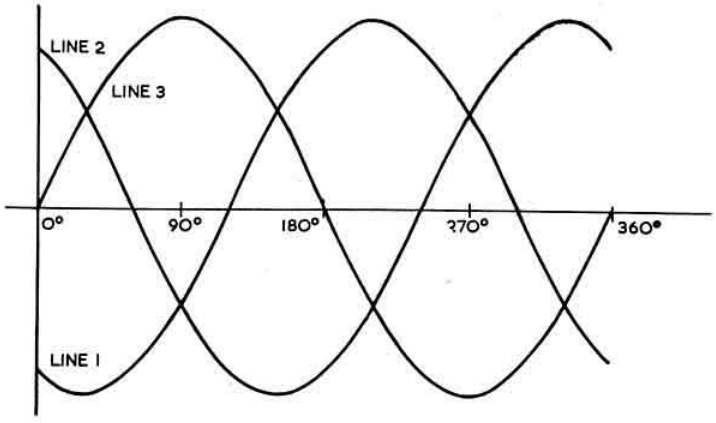


Fig. 2. Curves showing variations of stator winding current and flux for individual coils during one complete revolution of transmitter rotor.

The rotor comprises an " L " shaped vane and a balance weight mounted on a spindle $\frac{1}{16}$in. in diameter. Weight is kept to a minimum and balancing of the rotor is carried out so that the position of rest is indeterminate. The rotor is polarised by a fixed coil and it is from this type of receiver that the term Magslip was derived, being a contraction of MAGnetic SLIPring.

The torque developed by one of these units is of the order of 0.0005 oz/in. per degree of displacement, so accurate balancing of the pointer as well as the rotor is essential if accurate operation is to be obtained. This trouble can be overcome to some extent by mounting the unit so that the pointer travels in the horizontal plane.

To overcome static friction in the bearings, end play of the order of 0.01in. is allowed; the rotor travels this distance under the influence of the alternating energising current. The loading of these receivers is very small and up to 20 of them may be operated simultaneously from one 3in. transmitter.

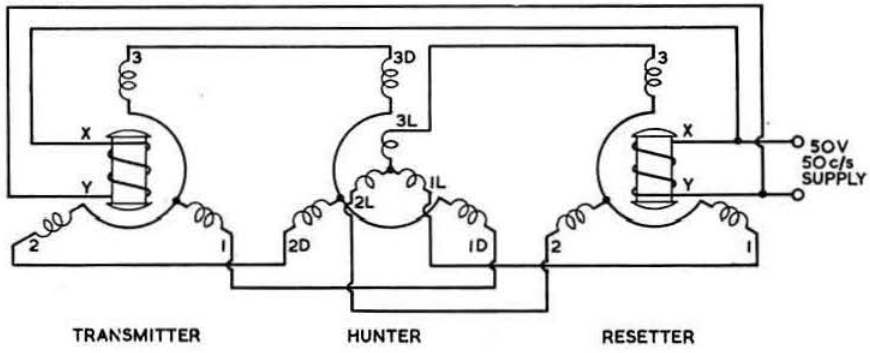


Fig. 4. Schematic of magslip hunter servo control.

Lining Up

At the driving end of the transmitter a hub is normally mounted in which is cut a slot $\frac{1}{4}$in. wide and capable of being lined up with a hole of $\frac{1}{8}$in. diameter in the end plate of the element. When these are aligned—usually by placing a $\frac{1}{4}$in. pin through the slot and into the hole—the rotor lies at 90 degrees to coil No. 3, and no current is induced in this winding.

The receiver can be made to agree with this condition when setting up by disconnecting the external lines from the stator and connecting line 1 to X, and line 2 to Y, thus leaving line 3 de-energised. The pointer can then be set to zero on the spindle with the current switched on.

If the gears driving the transmitter are engaged when the driving unit is accurately lined up at the zero position and the transmitter is " pinned," on connection to a receiver zeroed as in the previous paragraph, the receiver will read, at all times when the system is energised, in co-incidence with the transmitter.

The Magslip Hunter

The magslip hunter forms the sensitive link in a servo control system, and with the controlling and re-setting transmitters, makes up what is commonly known as a 3-element chain.

The main application of the hunter is the operation of a sensitive oil relay in an electro-hydraulic control system.

The element comprises a stator similar to that of the 3in. transmitter and a rotor wound in a similar form with three coils set at 120 degrees with respect to one another.

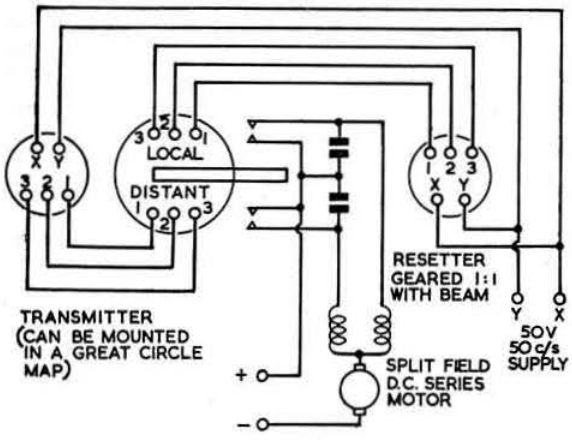


Fig. 5. Simple electrical servo using magslip hunter.

The rotor does not rotate in the accepted sense and is only able to turn through a very limited arc due to stops being fitted to the rocking bridge. Also fitted to this bridge are two coil springs in opposition to give automatic centering when the unit is not energised. The rotor is fed by three flexible leads, slip rings not being necessary with the restricted travel.

Fig. 4 gives the basic schematic diagram of the system. Any movement of the transmitter will cause a change in the flux position in the stator windings of the hunter. The rotor will be displaced and the oil valve opened. The servo will run, driving the re-setter transmitter (which is geared to the driven unit) until the rotor flux of the hunter agrees with that of the stator and the system will come to rest.

The hunter can be made to control a purely electrical servo by fitting contacts at either side of the control bridge. These contacts can then be used to operate a drive motor as in Fig. 5. On moving the transmitter one or other of the contacts will be closed and the motor will run until the position of the driven unit is in line with the transmitting element, when the contacts will open and the unit will come to rest.

There are many more forms of magslip elements, each designed for a specialised application (such as synchronous link and electrical computation) which are extensively used in the three services and to a lesser, but ever increasing, degree in industry.

However, for amateur use, the most suitable elements are undoubtedly the 2in. and 3in. transmitters and the 2in. receiver for straightforward remote position indication, with possibly the hunter for simple servo work. The 3in. transmitters are in two groups recognisable by the colour of the bakelite contact carrier. One is black, the other grey, and of the two the black one is designed for more accurate working.

TWO METRES AND DOWN

By F. G. LAMBETH (G2AIW)*

ON taking over this column from my good friend Bert Allen (G2UJ), I would like to join in the very appreciative valedictions which have been showered upon him. He deserves them all for his grand work over the last six years.

The practice of regular skeds on 2 m and, to a lesser degree, on 70 cm, appears to be becoming more widespread. In addition to G6LI's QSOs with PE1PL, mentioned last month, G5YV also works the Dutch station at mid-day, and until recently G8OU did also. There are, however, other skeds such as G5MA/G5CP and G5BD/GM3EGW (over 230 not out!), which are deserving of much praise. Doubtless there are others; let's hear about them. The knowledge gained by these efforts should be of real interest and value to all v.h.f./u.h.f. enthusiasts.

The lack of activity on 2 m is a matter to which urgent attention should be paid. It is sometimes impossible to hear a single station, but if one has the temerity to put out a call there are usually two or three others ready to work. It might be a good idea to do a little more calling. The results may be surprising!

G3GMX (Timperley, Cheshire) comments on this subject as far as the North-West is concerned. The early evening peak is about 19.15 G.M.T. when TV apparently takes over until 22.30; the late night peak comes at 2300 which, '3GMX says, is too late for him. Conditions in the Cheshire area appear to be very much as they are in the south. Sunday morning appears to be the only time when one can really expect a reasonable level of activity.

1250 and 10,000 Mc/s

G3GMX mentions that several locals have gear for 10,000 Mc/s; at least one 1250 Mc/s sked is being arranged. It would be interesting to hear from other members who may be able to work or receive on these bands.

News of any work or experiments on any other of the u.h.f. bands will also be most welcome. It is quite certain that there must be quite a lot of " back room " activity going on all the time: this is evidenced by the hints which are passed around every now and then. It is also certain that there are many operators who would be glad to join in the fun if they could only get a lead. So what about it? Any information on such experiments would greatly interest a lot of people.

Station Reports—2 m

G2ADZ, still faithful to his Welsh friends from his new QTH at Woolacombe, N. Devon, has recently worked GW2ACW, '8SU and '8UH. Bill hears many weak carriers, and goes back to the old plea that stations should sign on c.w. He is on the band between 19.00–20.00 G.M.T. daily and also on Sunday mornings 0.900–13.00. 70 cm enthusiasts will be glad to know that he expects to be active very shortly. G3JGJ, '3AGA and GW8SU are mentioned as also being ready for 70 or nearly so. On November 14, **EI4E** worked G2ADZ.

B.R.S.16075 (Southampton) sends a list of stations heard on an indoor dipole. They range from the London area to Cornwall and Wales, with the Midlands for good measure. Activity, however, does not appear to have been too high. The converter currently in use is a PCC84 cascode which is still on probation. G6TA and '3FIH are now both very well received in Southampton, apparently due to changes of QTH. When the beam goes up B.R.S.16075 should really hear the DX! **G5MR** (Hythe, Kent) found October 20–21 and November 2 excellent for QSOs with France. November 4 and 15 appeared to be excellent for Gs, but again—very little activity! Vernon puts his latest Ladder score at eight Regions, 57 stations and three countries, but thinks that further progress is likely to be slow at this time of the year.

G6LI (Grimsby) has given further information regarding his morning sked at 0.800 daily with PE1PL, except Sunday. Since October 11 contact has been made on every occasion. Information is exchanged daily between the two stations and is available, to anyone interested, on application. Co-operation in this work is being maintained by G3CCH (Scunthorpe), 35 miles farther inland. The main objects are to show that the North Sea path is open at daybreak and onwards, that bad weather will never quite prevent it, that an exceptionally good location is not necessary and that winter conditions are no real bar. Furthermore, '6LI wants to get more operators on during the early mornings. At the moment the work is taking up most of '6LI's time (to say nothing of '3CCH) and he promises to produce some weighty evidence before next spring.

G3CCH also reports on the same subject, but has had little success. The Dutch signal at Scunthorpe is very rarely readable and no contact has yet resulted. It seems that 35 miles of land makes a great deal of difference. '3CCH has worked G3IOE in a period of " brief openings " and has also been following GM3EGW's transmissions to G5BD. He finds the Scottish signals extremely weak these days, although solid copy on November 15.

First 2 m S.S.B. Station

G3CCH breaks new ground with what is believed to be the first active s.s.b. transmitter on 2 m running 50 W peak. A G3CWC-type exciter unit is employed with the balanced modulators on 144 Mc/s. Results so far have been enlightening: some stations report " unintelligible modulation " while stations with c.c. converters can hold the signal satisfactorily after a little practice. '3IOE (Newcastle-on-Tyne) read it easily. '3CCH prefers s.s.b. to being highly over modulated, particularly as it helps to avoid local interference. This still persists although there has been an improvement.

B.R.S.6327 (Earlsfield, S.W.18) sends a long list of stations heard reaching from the Channel Islands to Yorkshire. Good going which speaks well for the R.S.G.B. Converter used with an Eddystone 740 and a 3 element Yagi at 15ft! **GW8UH** (Penylan, Cardiff) did not work very much beyond 50 miles last month, but says GW2ACW, '3EJM, '8SU and himself are active most evenings after 22.30. GW8UH is also on every Sunday between 15.30–20.00 and after 22.30 but complains that he hears very little in the way of signals over 100 miles.

B.R.S.19162 (Dewsbury, Yorks.) is another listener who reports many evenings with nothing heard. He says the 17.30–19.30 period was almost completely negative through-

*21 Bridge Way, Whitton, Twickenham, Middx.

out the month. November 7 stood out as a " red letter " day when in the evening G3WW, '2FJR and later, '3GPT were heard at good strength. By 20.30 the band was flat again. Hugh who has been listening on 2 m since May has logged 30 stations in 15 counties. He is hoping to change his indoor Yagi for a 6 element stack. We are quite sure that will give you many more counties OM.

G5BD (Mablethorpe), not content apparently with his usual sked, made personal QSOs with GM3EGW, G6UJ, G3CYY, G4LX, G2BDQ, G3JDD and G5YV. While in Scotland G5BD was very impressed by the amount of activity heard from GM3EGW's QTH. Apart from the above his only memory is of November 5, when contacts were good from the south with '5TZ's signal outstanding. **G2CZS** (Chelmsford) who mentions three openings—October 21, November 4 and 17—has worked among others G2UN, '5GZ, '6CW and '5BD. '5YV and '3GHO were heard on November 17 when signals were very much above normal. The present ladder score for '2CZS is seven Regions, 91 station and three countries. **G3HHY** (Solihull), busy preparing for B.Sc.(Eng.) finals, has recently become engaged to Miss Jennifer Tomlinson of Ewell East; most of his time has therefore been taken up. Congratulations, John and good luck. During the Christmas vacation he hopes to be on the air from Solihull with 40 watts to an 832. The receiver is a 26 valve triple conversion home-built special and an article is promised soon.

G5MA (Ashtead) mentions his sked with G5CP (22 out of 24). On the two unsuccessful nights Bob was heard in Chesterfield. He has also worked G2HCG, '2IQ, '3DO, '3EPW, '3IOO, '3FIH, '3GPT, '3IUD and '6XM. As these stations can be raised how about others in these regions coming on the band? **G3WW** (Wimblington) says it is very discouraging to call CQ on an empty band and excursions have therefore been made to 3.5 Mc/s where there is always a chance of several QSOs. On 2 m, November 2 was better than usual with G2HCG, '2FJR, '2DJM, '3JFR, '6XM and '8PX worked. Both G6XM and '3WW heard G2ADZ at around 449 but could not raise him. The band was open to the south on November 15, and Richard was able to demonstrate 2 in operation from Cambs., with new high level clipping in action, to G8RY who was visiting. '8RY is ready for action on 2 m with a 5 element Yagi and push-pull 826s. '3WW has heard '3CCH on single sideband but did not raise him.

Welsh stations, working one another, were heard off the back of the beam in the London area on the night of November 17.

G3GHO (Roade, Northants) says conditions were generally poor for most of the period with the usual stations worked from time to time. A very interesting contact was made with G2HCG/M who was worked continuously from near Dunstable to Northants, with solid copy all the way. G3GPT, G3EPW and G3IWJ, all in Lancs., were worked at good strength on November 3–4. In the last month 29 stations were worked and 24 heard; for an operator who is on the band as much as Mac is this is not good and is another prod to inactive operators. **G5CP** (near Chesterfield) has now completed a new p.a. using a pair of 24Gs with 150 watts input. His first Lancashire contact was with G5AU (Warrington); G3IUJ (Liverpool) has been heard several times. This is remarkable as hilly country immediately to the west makes it extremely difficult for '5CP to work in that direction. Ron is active every evening from 1845 onwards and would like to make skeds at any time, particularly 0800–0845 and 1300–1330 or any evening. His sked with G5MA (Ashtead) has been mentioned elsewhere in these notes. **G6XX** (Goole) will be running 100 watts to a 829B shortly. From Nottingham University Radio Society (**G3DBP**) we learn that operations are somewhat restricted at the moment but they hope to do more operating soon. Lately they have worked only G2BVN (Rearsby) and their " regular," G3GHO.

Regional V.H.F. Ladder

TWO METRE BAND

Psn.	Call & Location	Worked—Regions	Worked—Stations	Worked—Countries
1.	G5YV *Leeds, Yorks.*	15	202	9
2.	G3IUD *Wilmslow, Ches.*	14	114	6
3.	G3CCH *Scunthorpe, Lincs.*	13	80	5
4.	G3DO *Sutton Coldfield, Warks.*	11	47	3
5.	G8VN *Rugby, Warks.*	10	83	1
6.	G3BW *Whitehaven, Cumbs.*	10	20	5
7.	G5MR *Hythe, Kent*	8	57	3
8.	G6XX *Goole, Yorks*	8	21	5
9.	G2CZS *Chelmsford, Essex*	7	91	3

G8VN reports working G3GPT and G3DKF (Coventry) on November 7. G3DJX (St. Albans) has put up a higher aerial and is now making Midland QSOs. G2AOK (Stow-in-Wold) and G6CW (Nottingham) are again regularly heard in Rugby. **G3EHY** (Banwell) was heard again on November 14. **G3JGJ** (Plympton) worked G5TZ on November 2 and '2BAT several times during the month. Reg has heard several other QSOs at fair distance without being able to participate.

G3FIH (Bath) had a field day on November 15, working five stations in quick succession, including G3ISA (Beckenham) and G6AG (Bexley) as the most distant. G2BAT (Falmouth) was heard. In pouring rain, '3FIH unexpectedly worked G6XM (York), who puts out the strongest and most consistent signal from the north to the west and is often received when no other DX is to be heard. A sudden opening occurred on the night of November 20–21 when G3GPT (Preston), G3FMI (Chester) and G3JZG (Willenhall, Staffs.) were worked by **G2AIW.** This was after a period when none but local stations had been in evidence. G3DOV (Watton) and G3GJZ (Newmarket) were worked on c.w. on the morning of November 21.

London Activity Night

Monday night remains activity night in North London despite the televising of the " War in the Air " film. Operation now starts at 2015 G.M.T. and the idea is to get as many North London stations as possible on 2 m during the evening. All those interested are invited to rally round. Once a handful of QSOs commence, the thing becomes cumulative for the benefit of all.

Seventy Centimetres

Activity, judging by the lack of reports, would seem to have been almost nil. This however is not so, as the report below from G2RD (Wallington) will show. However, we should like to have some reports from the actual operators. One we do have is from **G2DDD** (Littlehampton) which mentions a successful sked with G3HBW (Wembley), 54 miles, with signals between 569–589. **G3HBW** also reports and hopes the sked will continue through the winter. '2DDD mentions that G2BSP (Bognor Regis) and G3JHM (Worthing) appear to be the only stations active, apart from himself, on the whole of the south coast. They would welcome skeds with other south coast stations and with operators on or near the north coast of France.

From Scotland comes a lone but very welcome report

from **GM6WL**, who says that there is a good deal of construction going on around his locality but that DX contacts do not appear to have been very good. GM6WL/P's contact with GM3DDE (Edinburgh), mentioned in the BULLETIN last month, has led to tests across the plateau, about 700ft a.s.l., which separates the Glasgow district from Edinburgh. Although the distance is only 35 miles, no contact has yet been made, but they will keep pegging away, possibly with increased power. If anyone else hears these transmissions they are asked to report on them.

GM3INK, a welcome addition to 70 cm in Glasgow, uses an 832A tripler. '3INK has sent his 70 cm 'phone signals 20 miles to GM3NG (Carluke) at S9 for an admirable first effort.

GM3FOW (Glasgow) who has returned to 70 cm after a long absence, also received '3INK's signals at great strength. GM6KH (Hamilton), has also been active exchanging signals at very good strength with '6WL.

G2XV (Cambridge) is operative and looking for QSOs from 1130 to 1300 G.M.T. every Sunday.

Quite a bit of 70 cm work appears to be going on in and around the Enfield district, G8SK and '3EOH being involved, with G3FD (Southgate) as an earnest collaborator.

Band Planning—70 cm

From **G3FZL** comes a plan to obviate the difficulty now experienced in searching for weak signals over the present bandwidth. He suggests (1) That the used portion of the band for crystal controlled transmitters be 433–435 Mc/s; (2) that this band be divided in a similar manner to the 2m band, *i.e.*, the 2 Mc/s be divided into county regions with the same bandwidth as those allocated on 2 m.

This would result in the following arrangement:

Zone	*Mc/s*	*Area*
A & B	433–433.2	All Scotland
C	433.2–433.4	Lancs., Yorks., and English counties northward.
D	434.8–435	All Ireland.
E	433.4–433.65	Cheshire, Derby, Notts., Lincs., Rutland, Leics., Warks, & Staffs.
F	434.65–434.8	Flint, Denbigh, Shropshire, Worcs., Hereford, Monmouth and westward.
G	433.65–433.85	Northants., Bucks., Herts., Beds., Hunts, Cambs., Norfolk, Suffolk.
H	434.25–434.5	Dorset, Wilts., Glos., Oxford, Berks., and Hants.
I	434.5–434.65	Cornwall, Devon and Somerset.
J	433.85–434.25	London, Essex, Middx., Surrey, Kent and Sussex.

The reason given for choosing these frequencies is that many of the continental stations are to be found between 434–435 Mc/s. It is realised that in certain cases new crystals would have to be acquired but it is thought that serious 70 cm workers would not consider this a drawback.

Comments on the suggestion are invited.

London Area Activity Report

The following list of active stations has been received from **G2RD**, covering the period October 10 to November 16. G2BVW (434.37 Mc/s), '2DD (434.79), '2DDD (435.6), '2DSP (434.97), '2FKZ (435.9), '2MDY (435.5), '2RD (435.53), '2WJ (436.0), '2XV (435.05), '3EGV (435.9), '3EOH (436.03), '3FD (436.05), '3FP (434.95), '3FSD (435.42), '3FUL, '3GDR (435.39), '3HBW (434.61), '3IRW (434.4), '3JHM (434.92), '3JQN (434.84), '4KD (435.95), '5CD (435.6), '5DT (434.9), '5RD (435.25), '5UM (434.37), '6NF (435.6), '8SK (435.0).

★ ★ ★

There has been rather a dearth of news this month but we hope that next time there will be more of interest to report. If you have something you think others would like to know, please spare the time to drop a line. Remember the London U.H.F. Group's Third Annual Dinner will be held at the Bedford Corner Hotel, London, on January 6, 1955, at 7 p.m., Tickets from G4KD, 35 Gibbs Green, Edgware, Middx., price 10s 6d. each.

The good wishes in the letters received this month are acknowledged and appreciated. I would like to extend to all readers of this column Greetings for a Happy Christmas and a prosperous New Year, with the sincere hope that conditions on all v.h.f./u.h.f. bands will improve during 1955.

Reports for the January issue not later than December 21 please; a little earlier, if possible, owing to the holidays.

FLASH !

2m Wide Open Again

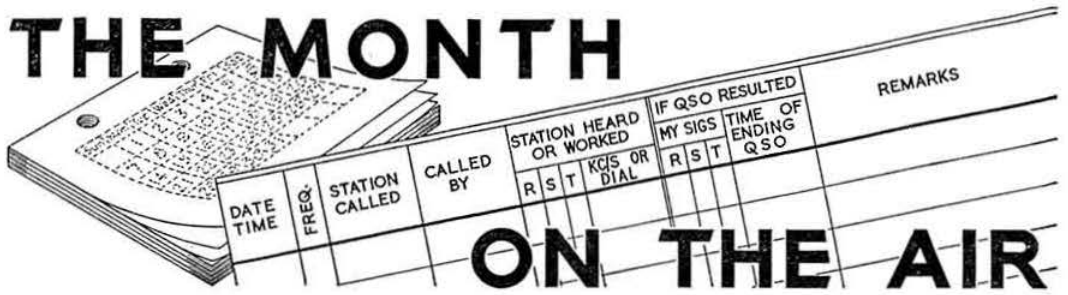
AFTER many months of relatively poor conditions there was a sudden 2 m opening on the evening of Friday, December 3, 1954, with exceptional signals over a path of at least 400 miles: from as far west as Wales and east to Central Europe. In London, the barometer had been rising steadily throughout the day, reaching its peak of 1031.55 mb at 2100 G.M.T., when it started to fall again. Reports received up to the time of going to press suggest that there was a rather narrow east-west duct along a line passing through London.

G5KW (London, W.3), who was on the band from 1800 to 0130, using 12 watts to three skeleton slots stacked a wavelength apart but only just off the ground, worked F8HL (RS59), DL3NQ (Weinheim, near Heidelberg, RS59+) and ON4BZ. '5KW reports that the latter was the strongest signal he has ever heard on the band, locals not excepted, and was S9+ for over four hours! Other stations heard included F3LP, PA0FB, PA0HAK and F9GH. G8KW (Wilmington, Kent) came on the band at 2300 and within an hour worked DL3NQ, DJ1VW (Cologne), PA0FB, PA0HAK and ON4BZ. G4AJ (London, W.1) worked ON4BZ (S9+; "never better"), ON4PA (RS57), F8HL (RST579), and DL3NQ (S9+) between 1940 and 2250. PA0FB was heard but not worked.

ON4BZ reported that conditions were the best for nearly two years, his most westerly contact being with GW3EJM (near Cardiff). In all, he worked approximately 20 Gs, the best being G8KW. Conditions were so good that he was calling "CQ any G who has not yet worked Belgium"! When he turned his beam northwards, CQ calls produced no result, although his signal was still fully readable in London.

Others known to have been active during the opening, which was characterised by an almost complete absence of fading, include G2YB (near Reading), G2WJ (Dunmow, Essex), G3FAN (I.o.W.), G3GDR (near Watford) and G6NB (Brill, Bucks.). From reports received, however, it appears that comparatively few v.h.f. enthusiasts were active at the time.

A fuller report will appear in next month's *Two Metres and Down*.



By S. A. HERBERT (G3ATU)*

AS so often happens during a time of sun-spot scarcity, a period of fairly good conditions is followed by a spell of indifferent conditions. Although the North Atlantic path was well down in performance, there was usually something interesting going on, on one band or another for most of the time. Twenty received much the usual attention; fifteen seemed to be improving, with DX workable during the week and there were actually reports of activity on ten!

Ten Metres

It makes a pleasant change to be able to start with this band and to know that at last some DX is being worked. **G3IDG** logged 14 countries during the month, including such DX as CR6BX, FA3JY, OQ5RU, VQ2NS, VQ4RF, ZS6 and ZD3BFC on phone and an FA on c.w. '3IDG (found on 28056 kc/s at weekends and from 1830–1930 during the week), wants to make skeds, particularly with ZS. His main grouse is lack of c.w. activity which is no new thing. For some reason, ten has always been largely a phone band, but perhaps when it really is wide open again, things will be different. **A1290** heard PY2AHS (S7-1655) and ZS6ZK. **B.R.S.19771** logged ZD3BFC and YU1GM, both new ones for him. **R. J. R. Crocker** added OQ0DZ (1140) and ZS6CV (1200) to his list.

Top Band

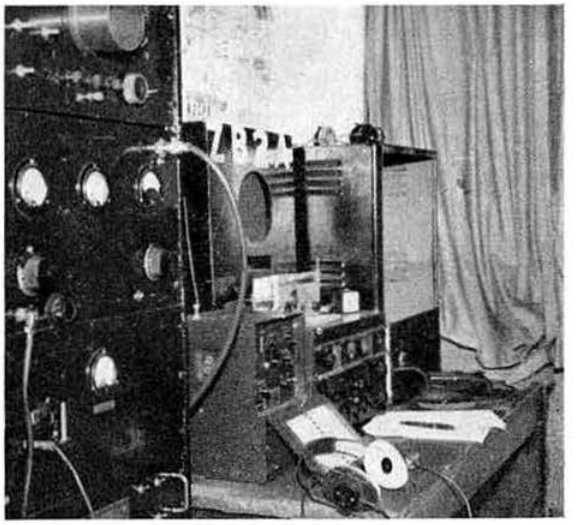
From the highest to the lowest frequency band, where a more settled state of affairs obtains. Static is still troublesome in the evenings but activity is at a high level. HB9CM is heard most nights and HB9T often worked, while OH2YV puts in a good signal around midnight. OKs are sometimes workable as early as 1700. Turning to real DX—ZC4RX is active (we believe he was worked during the R.S.G.B. Top Band Contest) and was RST559 on 1840 kc/s at 1830 on November 20.

G3JFF sends his promised list of stations heard in the Mediterranean area, where he battled with continuous heavy static, which made even strong signals only R2/3. Lots of stations sending fast Morse or signing only once could not be identified and Mike stresses the need for Gs wanting ZB1 and ZC4 QSOs to sign slowly and often. Stations often heard were G2JF, '2NJ, '3ERN, '3IBL, '3BFP, '3ABU, '3HIZ and '3HQQ. G2KO was R4/5–S6/8 on phone. G3JZQ was 569 with only 1.7 watts input and GI3HAJ was 579 using 4 watts. All were heard in the Gulf of Lyons. OK1AG was logged and OH2YV was S9 on two occasions. Very heavy static put paid to reception while in Malta and nothing was heard there.

G3HDQ worked what may be a new one when YO7XL replied to him at 2155 on November 19. The YO was RST569c and gave his QTH as Zgreba (which doesn't sound too promising; however, time will tell). **G8KP** worked him too and got the same information and is undoubtedly also keeping his fingers crossed. **B.R.S.20410** sends his first report. He is a Top Band enthusiast and uses an S740 and 0-V-1 with a sloping N/S wire 155ft long. This has pulled in ZL1AH (QSL in) and GC2CNC's transistor transmissions. Recent daylight reception in Wigan includes GC2FMV, HB, Gs and some 13 OKs! The only trans-Atlantic DX mentioned this time is W8GDQ, heard by **B.R.S.20106,** at 0600 on November 13. By now, things should be warming up over that path.

Fifteen Metres

General opinion is that conditions are improving somewhat. **Associate Dick Poppi** heard VQ2, 4, 5, ZE, ZS, PY, LU, W1 to 0, CE, HP, VP2, 4, 5, 6, 7, 9, KP4, KV4, KZ5, CR7; and picks out, for special mention, ZS9I, ZS9G, CX5AF, AP2K, VK5BY, VK6BS, 4S7YL, VU2, VS1EU, VS6CL, mostly on c.w. **B.R.S.20106** also took advantage of some good openings. On phone particularly nice ones were ZL4HE and VK4EL and, on c.w., AP2K, CE3AG, CR7AG, HZ1HZ, PJ2AA, '2AI, 4S7LB, VK4RW, '6GU and VU2JP. **P. M. Crawford** dug up VE1ZT, VP2TK, TI2LA and HK on phone and LU8AT, KG4AO and HC1MX on c.w. **A1291** heard some good phone. Possibly his best was XE2RE (1500); he also logged CO1CX, CR4AD, TI2DX, VP5SC, VS6CL and VU2RX to give him 56 countries heard on the band.

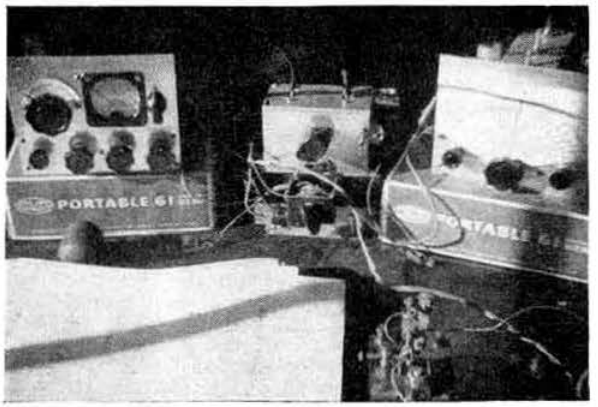


A view of the operating position at ZB2A. Activity is principally on 14 Mc/s phone although 21 is used when the band is open. European stations are usually worked on 7 Mc/s c.w. using a 25 watt transmitter.

* *Roker House, St. George's Terrace, Roker, Sunderland.*

R. J. R. Crocker finds splatter from a local beam station makes things difficult, but he heard a representative assortment on phone: KZ5AZ, KV4, TI2BX, 4X4, VS6CL, VP5, 6, CP5EK, SU1AS, CE4BP, W7AHH, CT3AN and sundry W/MMs were logged on an S750 with a 264ft long wire. **B.R.S.19771** logged W5AXI/MM (Gulf of Aden)—also licensed as KZ5FH/MM—and W4DGW/MM (off West Africa). **A1290** heard HC1LW, ZE, ZD3BFC, VQ5BVF and OQ0DZ. He finds the band opens as early as 0900 and is often good till after dusk.

G3GMY heard all continents within a very short space of time and worked four of them with SV1AB, VK6GU, W3RZL, OA4C and W8MVN. **G3AAE** had a prompt QSL from XE1PJ and chatted on the key with ZS7C, ZS9I and ZD3BFC (on phone), HZ1HZ, LU3EX, CR6AI and VK6GU, plus several WNs, all of whom were delighted to find themselves working DX! Doug. would welcome information on a 21 Mc/s beam with shortened elements.



G3CGD/P during the Low Power Contest. From left to right: the transmitter, aerial switching unit and bandset t.r.f. I-V-I receiver.

Twenty Metres

Still with G3AAE, who worked VQ6LQ for a new one, ZD3BFC (c.w. to phone), VK, ZL, JA and KG6AFY. He is still in the queue for FK8AC, who performs on the low end almost daily. **G3GMY** was successful with KH6IJ (2000), ZS3P, VQ4BNU, VQ2 and an abundance of Ws. **G3KBN** is the brand new call of E. J. L. Smart, formerly B.R.S.19894. Lynn is not yet transmitting on twenty, but is keeping his hand in logging c.w. such as VP8AQ (South Orkneys), ZL, VK9WZ, DU7SO, VP8AZ (Graham Land), CE3AG (2250) and FK8AC (S4 at 0815). On phone, ZL2BE and ZL2JB were strong signals. PY4CB gave VK1AC S9 plus 20 at 0815 (and said he was stronger at 0500!), while LU7AAT was heard calling ZM6AT. **G3JFF** managed some portable work from ZB1, working YI2AM, Gs and Ws with his 12 watt rig.

From Sardinia, G3JFF/IS worked Europeans in quantity, but nothing really distant. **Associate A. G. Edwards,** using an HRO and folded dipole, logged phone from KR6AZ, VS2CP, VK5JW, ZL, ZS1 and ZD3BFC. **Dick Poppi** found Far Eastern signals good, with CR9AH, FI8AP, FI8BB on c.w. VS6CL, '6CG and VS1YN were especially consistent.

B.R.S.20106 logged LU8EN when working VR2RO (0844–14016) and two days later, at 1145, he heard VR4RO being called on 14060 kc/s ('2RO will be trying hard to contact Europe, but it is going to be uphill work with low power during the present conditions). Norman heard FK8AC well around 0730. Some other rare c.w. DX to break through was VK1EG (1720), KR6AZ, UJ8AG, VP8AZ (2100, VQ6LQ, VE4PU, 5GW, 5PM and 7GI, FY7YE (1925), FM7WD, ZS3AH and sundry VK, ZL and W7. On phone, KX6AF, VS6CL, YN4CB and HC1PC, KR6AZ and ZL were encountered. **A1291** logged the phone of DU1UT, OY2Z, VP9VU, VP2DN, OA4DD, EL9A, KA7JM and MP4QAI. **P. M. Crawford,** waiting for the "Pacific Pipe-line" to open up again, logged VS2DO, '2DS, VS1FS, HR1SO, VE8CL, KR6IY (QSL received), ZD4BT and ET2XX on phone and LX1AY, KA6BA, YV and CX2CO on c.w. **B.R.S.19771** added new ones, VK1EG and FK8AC, plus VQ3CH, UA0KAD (Zone 18) and W8EGB/5 (New Mexico) on c.w. with XZ2ST and DU1AP two good ones on phone. **B.R.S.18017** picked up UA0FP (Zone 19), HH2C and YK1AH on c.w. and ZD2DCP, W7, W3ELJ/VE8 and ZL3FP, phone. **G3ATU** has heard little of note, but VS5KU is certainly worthy of mention. He was on the low end (RST 569 at 1400) working ZS, VQ4 and VK, getting gradually weaker until fading out at 1500. C.w. QSOs were made with FB8BE (1630) and VE6UU (1930—no connection with any other "UU"!).

Forty Metres

The distractions remain as usual, but activity has been high, helped by contests; the recent World-Wide DX Contest, in particular, stirred the band up more than somewhat. **B.R.S.20106,** in a list which almost puts twenty to shame, specifies—on c.w.—CE7ZU, LU1ZT, LU2ZI, VP8BE (0723—all Antarctic area), CE3AG, EA9DF, KV4, KP4, OQ5GU (0320), ST2NG, VK3AHS, '3JE, '3AE, '7LZ, VP5SC, VP6, VP2GW, VP9BM, ZD6BX, ZD2DCP, YV5BV, ZS1 and some 10 ZLs. In a QSO, **G5DQ** mentioned that he had found the long path to W6 open daily from 1530 to about 1615 and had succeeded in working several of them through the usual "WSEM" brigade! **G3JFF** tried his 12 watts and depite screening, succeeded in putting G3JFF/IS in contact with G3GUP, G3AAE and some Europeans. Things were getting interesting when shore leave expired. The one snag of being in the Services! G3ATU discovered VE8ML (0730), HH2LL (RST329—0830) and VP2KB (St. Kitts—2300).

Eighty Metres

B.R.S.19771 collected 4X4CW and 4X4DK, both on phone. **G3ATU,** whose transmitter refused to function on the band, listened helplessly to EA9AP and 4X4RE, both roaring in on c.w. at 0145, while **B.R.S.20106** logged YV5DE, KP4TF plus novices WN1GBB, KN2HXP and KN3IVG.

Overseas News

W6MHB (Cocos Island) writes as follows to **G2MI:** "Don't forget Cocos Island, about February 1. Will do my best for you boys if I'm permitted to do as I plan."

The present operators at ZB2A. From left to right: Sgt. Ian Padgett (B.R.S.20186), Sgt. Roger Whitehead (G3DBT) and Cpl. Tony Lawes (G3GFM). B.R.S.20186 is responsible for the despatch of QSL cards which are sent in return for all those received.

This Cocos is the island off Central America, bearing approximately 270 degrees True from the U.K. Look out for a TI9 call-sign. Ex-GM3AVO is now active from Singapore as **VS1GH.** In the course of his duties, he is expected to visit both **Labuan** and the **Nicobar Is.** once a month " so," he remarks, " there are interesting possibilities "! Also *via* G2MI there is news of **VS5KU,** now active on 14 Mc/s c.w. He is licensed additionally as VS4KU, though it is not yet certain he will be able to make the trip to VS4. He would like QSLs to be sent only *via* the R.S.G.B. Bureau and will himself confirm all contacts, but cards will not leave him until February next.

From **G6CJ** comes interesting news of David Mitchell, (ex-G2II, GW6AA, ZL1MP). In the course of his travels, he visited the Bahamas and was so impressed that he sold his property in New Zealand (including that incredible " aerial farm " at Tauranga), and is now settled on Eleuthera Is. where he is licensed as **VP7NI.** He already has a 560ft long wire, almost entirely over salt water and before long, plans to augment this with a high-gain beam for 14 and 21 Mc/s, directed on the U.K. Loud signals can be expected any time now! David, who is nothing if not versatile, is building his own house and later will add some tourist cottages, including a " visitor's shack," complete with transmitter and receiver, for the benefit of visiting amateurs anxious to try their hands on the air with a rare call!

SU1RB has left for pastures new and would like to thank all who have helped him to make life more bearable out there. G4CP is thanked for his efficient and friendly QSL handling, as are lots of Gs for pleasant QSOs. '1RB hopes to be active from ZC4 and will supply any SU cards still needed. **ON4QX,** who is on 14 Mc/s c.w. only, has been working quantities of DX and mentions FC6AA (Corsica) and LU4ZB (Melchior Is., South Shetlands).

The October issue of the Southern California DX Club's *Bulletin* includes the following interesting items. VR6AC was heard again by W5s (14352 kc/s), but W6MUR in his correspondence with Pitcairn, has no word yet of activity there. VK6MK has been hearing AC3PT on 14102 using A3 at 1200. He reports that VK1HM left Cocos in October, ZC2AC left in November and ZC2AD will depart next February, leaving no activity on the island. At the moment there is no activity from Christmas Is. (ZC3). ZC3AB has returned to VK and ZC3AA was never on the air. However, the operators of the Cable and Wireless station are changed periodically. Sooner or later, one of them will doubtless take out an amateur licence. W0AIW is trying to get permission to operate from Guadeloupe. He may be on from FG7 this winter. Thanks to the Northern California DX Club's *DX'er* for the following:—ZM6AR has officially received the call ZM7AA for future Tokelau operation; FM7WN has applied for an FG7 licence for use during his forthcoming vacation; W6RRG, in VP7 for a year, plans a short trip to the Dominican Republic (HI). Some of his group will make a quick trip to Ascension Is.

Navassa Island (KC4) is now officially recognised as a separate country and should be added to the Official Countries List.

* * *

As this is the last BULLETIN before Christmas, Season's Greetings from your scribe, together with best wishes for a successful and DX-packed New Year. Thank you all for your support during the past year. Please post your reports as early as possible for the January issue, in view of the usual Christmas postal bottleneck. Good hunting and 73.

V.E.R.O.N. Code Proficiency Transmissions

SLOW Morse transmissions are made from PA0AA on Sunday mornings from 0900 to 1000 G.M.T. on 3625 kc/s using A2 and A3. At the moment the speed is 15 w.p.m., the highest speed for the present course which ends during December. A new course will start in January or February, 1955.

Code proficiency runs are transmitted by PA0AA on the last Sunday in each month on 3505 kc/s (A1) at speeds of 15, 20, 25 and 30 w.p.m. PA0AA commences testing at 1100, the first proficiency transmission starting at 1115 G.M.T.

Certificates will be issued to those sending flawless copy of at least one minute of any of the four transmissions. If all four are sent in, a certificate will be issued for the highest speed correctly copied. When a higher speed is copied after a certificate has been issued an endorsement sticker is provided.

Applications for certificates, accompanied by the copy, and a statement that no assistance of any kind, personal or mechanical, was used, should be addressed to the Traffic Bureau, V.E.R.O.N., 77 Middenduinerweg, Santpoort, Holland. Two international reply coupons should be enclosed to defray expenses.

Johnnies' Lament

Take down the QSLs from the shack wall,
Alter the layout, it won't do at all,
Alter the tension and gap on the key,
Better work from the garden with the suffix /P.

Rebuild the big rig in a cabinet new,
Oh no, not black crackle, a delicate blue.
Throw out the junk box, it gets in the way,
Better work from the local with the suffix /A.

Farewell to the shack that's no longer my own,
Farewell to the old gang on one-sixty phone,
The XYL's got her ticket so QSP them
That I'm out on the lake with the suffix /MM.

GARRULUS GLANDARIUS

A group of Old-Timers, with 230 years of active Amateur Radio between them, photographed together during Convention. From left to right Gerald Marcuse, G2NM, Past President (Licensed 1913), Maurice Child, ex-G2DC Vice-President (1907), John Clarricoats, G6CL, General Secretary (1926), Stan Gosling, G2VC (1924), H. J. Swift, G2WY (1924), Herb. Bartlett, G5QA, Executive Vice-President (1928), Harry Clark, G6OT, Vice-President (1926).

The World of Radio

News From All Quarters

I.E.E. Faraday Lecture 1955

"COURIER to Carrier in Communications" is the title of the I.E.E. Faraday Lecture to be given by T. B. D. Terroni, B.Sc., A.C.G.I., D.I.C., M.I.E.E., at centres throughout the U.K. The relevant dates are: Birmingham (January 4), Manchester (January 18), London (January 27), Swansea (February 8), Bristol (February 10), Leeds (February 21), Edinburgh (March 22), Dundee (March 25) and Belfast (April 5).

The lecture opens with a short cartoon film which traces the history of communication from the early days of the Persians and Egyptians up to the advent of the automatic exchange. It ends with a film showing how a telephone circuit is established between Birmingham and New York, indicating the route taken by the call, the localities involved and the people concerned.

Admission is by ticket obtainable from local organisers. For the London lecture, application should be made to the Secretary, The Institution of Electrical Engineers, Savoy Place, London, W.C.2.

The Television Society

THE programme of meetings of The Television Society during the first part of 1955 is as follows: January 6-8, Annual Exhibition (University College, London); January 19, The Fleming Memorial Lecture: "The Perception of Colour" by Prof. W. D. Wright (Imperial College) at the Royal Institution, Albermarle Street, London, W.1; February 11, "Television Coverage of Great Britain" by R. A. Rowden, B.Sc. (B.B.C. Research Dept.); February 24, "Modern Microwave Techniques" by R. L. Corke, A.M.I.E.E. (P.O. Research Dept.); March 10, "Distributed Amplifiers" by W. S. Percival, B.Sc. (E.M.I. Research Dept.); March 18, Annual Dinner at the Dorchester Hotel, Park Lane, W.1; April 1, "A Flying-spot (Mechau) Telecine System" by J. L. Bliss, A.M.I.E.E. (B.B.C. Eng. Design Dept.) and April 21, "Progress in Colour Television" by L. C. Jesty, B.Sc. (Marconi Research Labs.). The Annual General Meeting will be held on May 12.

Unless otherwise stated, all meetings are held at the Cinematograph Exhibitors' Association, 164 Shaftesbury Avenue, London, W.C.2.

British Institution of Radio Engineers

DURING his Presidential Address to the British Institution of Radio Engineers on October 27, 1954, Rear-Admiral (L) Sir Philip Clarke, K.B.E., C.B., D.S.O., outlined the considerable amount of development and production required in the British Radio Industry for the Armed Forces. Admiral Clarke cited as examples of what he called "operational research" the need for greater reliability and attention to the problems of maintenance under Service conditions.

Quoting the contribution of the Royal Navy to radio development, he paid tribute to the work of Admiral Sir Henry Jackson who was undoubtedly the pioneer of ship-to-shore radio communication. (Admiral Sir Henry Jackson was President of the Wireless Society of London in 1922.—EDITOR.) Sir Philip went on to question whether the Radio Industry makes the maximum use of its engineers and stressed the need for good relations between the Industry and the Services.

The Inventor of the Valve

COINCIDING with the Jubilee of the invention of the thermionic valve the Television Society has published a short biography under the above title of Sir Ambrose Fleming, whose original patent has given rise to the science of electronics and radio communication.

Written by his former student and assistant, Professor J. T. MacGregor-Morris, with a Foreword by Prof. E. W. Marchant and an Appendix of personal recollections by Mr. Arthur Blok, O.B.E., the text (134 pp.) is illustrated with many reproductions of original notes and letters, several of which are published for the first time.

As the edition is limited to 1000 copies its value will no doubt increase as time goes on.

Copies are obtainable from the Television Society's office at 164 Shaftesbury Avenue, W.C.2, price 10s. post paid, or through any bookseller.

Band III Television and F.M. Course

IN view of the interest shown in the first course on Band III Television and F.M. Broadcasting held at the Northern Polytechnic, Holloway, London, N.7, the Board of Governors have decided to commence a second, one day per week course on January 10, 1955. The course will run on Mondays from 9.30 a.m. to 4.30 p.m. Prospective students can obtain full details on application to the Secretary of the Department of Telecommunications Engineering.

Arctic Air Route

SCANDINAVIAN Airlines System (S.A.S.) recently inaugurated the first scheduled civil air service over the Arctic from Copenhagen to Los Angeles. Planes operating the service send out position reports on the hour on the following frequencies: *Telephony* 2868 kc/s, 5626.5 kc/s, 8913.5 kc/s and 4220 kc/s (or alternatively 2945, 5641.5 or 8862.5 kc/s); *Telegraphy* 2931 kc/s, 5611.5 kc/s and 8947.5 kc/s (alternatively 2987, 5671.5 or 8888 kc/s). The call-signs used on westbound flights are "Scandinavian Nine Three One" and on eastbound flights "Scandinavian Nine Three Two," followed by the plane's registration letters—LN-XXX, SE-YYY or OY-ZZZ for Norway, Sweden and Denmark respectively.

If sufficient interest is shown, it is possible that one of the radio amateurs on the staff of S.A.S.—among them SM5KP—will be willing to carry out experiments in connection with the flights. The aircraft regularly pass through the area round the Magnetic North Pole.

Broadcast Receiving Licences

BY the end of September, 1954, 13,527,864 broadcast receiving licences, including 3,677,796 for television and 245,836 for sets fitted in cars, were current in Great Britain and Northern Ireland. During the month, the number of television licences increased by 144,098 compared with 76,970 the previous month. Much of the increase is attributed to the operation of the new Post Office television detector vans.

First from the Scilly Islands

W. J. GORDON HECTOR (G3JTH) of 4 Porthcressa Terrace, St. Marys', is believed to be the first licensed amateur in the Isles of Scilly. He uses a B2 on 7 Mc/s.

Electrical Engineers Exhibition, 1955

THE Rt. Hon. Lord Citrine, P.C., K.B.E., Comp. I.E.E., Chairman of the British Electricity Authority, will open the Electrical Engineers Exhibition at Earls Court, London, at noon on March 15, 1955. The Exhibition, larger than ever before, will be open daily (10 a.m. to 7 p.m.) from March 15 to 19. The organiser is Phil Thorogood (G4KD).

Radio Components Show, 1955

MORE than 140 exhibitors will have stands at the Radio Components Show to be held at Grosvenor House, London, from April 19 to 21, 1955. The exhibition is organised by the Radio and Electronic Component Manufacturers' Federation, 22 Surrey Street, Strand, London, W.C.2.

Radio Show Dates

THE next National Radio Show is to be held at Earls Court, London, from August 24 to September 3, 1955, with a preview for overseas and other special visitors on August 23. Meanwhile, planning proceeds for a smaller exhibition, the Northern Radio Show, to be held at the City Hall, Manchester, from May 4 to 14, 1955.

" Communications and Electronics "

COMMUNICATIONS AND ELECTRONICS is the title of a new monthly magazine devoted to the use of electronics in British industry. Well produced on art paper, it costs 30s. p.a. from Heywood & Co., Ltd., Drury House, Russell Street, Drury Lane, London, W.C.2. The magazine may also be obtained on order, price 2s. 6d. per copy through booksellers.

Japanese Certificates

RULES for the award of seven new certificates have been announced by the Overseas Committee of the Japan Amateur Radio League, P.O. Box 377, Tokyo, from whom a leaflet giving details may be obtained.

Taylor Electrical Instruments

HIRE PURCHASE terms over a period of three months for the Taylor Model 120A Universal Meter, advertised on page 238 of the November issue of the BULLETIN, should have been quoted as Deposit £1:8:6 and three monthly payments of £3:0:7.

G3AAT/OX

LIEUT.-CDR. R. BRETT-KNOWLES, R.N., G3AAT, Signal Officer to the British North Greenland Expedition, states that QSL cards confirming contacts with the Expedition Station G3AAT/OX will be sent shortly to those who have already forwarded a card.

Helvetia 22 Contest

THE Annual Helvetia 22 Contest, organised by the Swiss National Society (U.S.K.A.), will be held during the period from 1500 G.M.T. on March 19 to 1700 G.M.T. on March 20, 1955. Full details may be obtained from Hans Baeni (HB9CZ), U.S.K.A. Traffic Manager, 5 Pfaffenbuehlweg, Thun, Switzerland, to whom entries must be posted by March 31, 1955. The rules are similar to previous years.

Clock-making Ham

G3IDG reports hearing ZS6CV say, during a 10 m contact, that he is interested in clock-making but has never worked another radio amateur with similar interests. For the benefit of any member who also makes clocks the following is ZS6CV's full name and address: W. H. Lucas, Shenfield, P.O. Box 6, Koekemoer, Transvaal, South Africa.

Walton Amateur Radio Exhibition

ARTHUR O. MILNE (G2MI), President of R.S.G.B. and Past President of the QRP Society, officially opened the Walton-on-Thames Amateur Radio Exhibition held in St. Mary's Church Hall on October 30, 1954. In the course of his speech Mr. Milne pointed out that the exhibition was not only the first of its kind held in the district but also the first public event arranged by the QRP Society. The opening ceremony was televised on an indoor circuit by members of the British Amateur Television Club as part of their demonstration.

The outstanding exhibit was undoubtedly the radio-controlled model Churchill tank operated by Messrs. Tamplin and Martin of the International Radio Controlled Models Society. The QRP Society's own stand was manned by Tony Cockle (G3IEE) who found himself inundated with enquiries about his transistor transmitter which was on show. An oscilloscope, waveform generator and loud-speaker arranged by Council Member Frank Hicks-Arnold (G6MB) to give simultaneous sound and vision evidence of changing waveforms and frequencies also aroused much interest. Members of R.A.E.N. travelled from Broadstairs and Chelmsford to show typical portable and walkie-talkie equipment used by the Network.

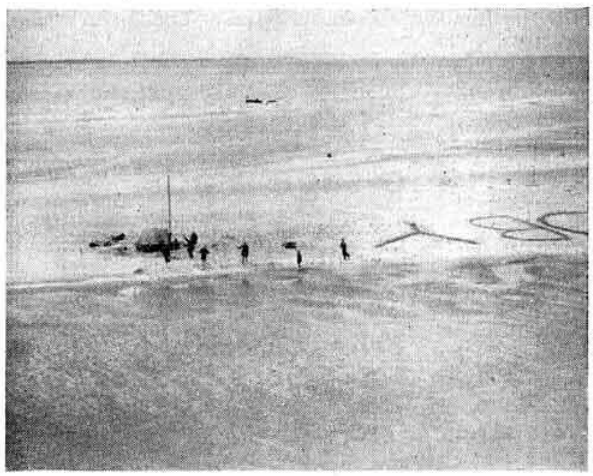
The commercial exhibitors were Mullard Ltd. (who demonstrated their " 5-10 " amplifier), Data Publications Ltd. (publishers of the *Radio Constructor* and " Panel-Signs ") and Proops Bros., Ltd.

The exhibition was attended by more than 350 amateurs and friends; the proceeds were in aid of a local charity.

Scroby Radio

FOR three hours on August 29, 1954, members of the Norwich Radio Club enjoyed the unique experience of operating an Amateur Radio station from the most easterly QTH in the U.K., namely, Scroby Sands, three miles out in the North Sea east of Great Yarmouth. The sandbank is rarely visited because of landing difficulties whilst at high water it is completely submerged.

The station, which worked under the club call-sign G3JGI, made phone contacts with British and Dutch stations using an input of 5 watts to a clamp modulated TT11. The receiver was an MCR1. Two half-wave aerials were used, one supported by two 18ft masts, the other by a kite. The operators were G3ASQ, '3BJU, '3CQE, '3HKD, '3HUL and '3IOR.



A view of the Amateur Radio station set up on Scroby Sands by members of Norwich Radio Club.

(Photo. by Swains (Photographers) Ltd., Norwich)

Edinburgh Exhibition

MEMBERS of the Edinburgh Amateur Radio Club and the Lothians Radio Society joined forces in building and equipping an Amateur Radio stand at the 1954 Hobbies and Handicrafts Exhibition organised by the Rotary Club of Edinburgh in aid of the Westerlea School for Spastic Children. The exhibition, which ran for four days, was opened on October 27 by Sir James Miller, former Lord Provost of Edinburgh.

Equipment on show included a converted ET4336K transmitter, and National HRO receiver with which many contacts were made on 3.5 Mc/s. Two television receivers were in operation on the stand to prove the freedom from TVI. A 2 m station was also in use. A museum section showing transmitters and receivers more than 25 years old was a great attraction. A transistor phone and c.w. rig was used on Top Band.

About 36,000 people visited the Exhibition, as a result of which it is hoped that the Westerlea School will derive considerable benefit.

Dorset Hamfest 1954

ALTHOUGH the attendance was not a record, the Dorset Hamfest held at the Askers Road House, near Dorchester, on November 21 was the most successful so far. The meeting opened with a welcome by the C. R., Charles Biggs (G2TZ) who had the support of the President-Elect, H. A. Bartlett (G5QA).

After lunch, the programme included a raffle for prizes donated by manufacturers, a film show and an auction of surplus equipment by Peter Blanchard (G3MT). The highlight of the meeting was a lecture by Frank Hicks-Arnold (G6MB) on the latest technique of dip soldering.

The organisers record their thanks to all who helped to make the Hamfest a success and especially to G6MB who made the long journey from London and to the manufacturers who generously donated prizes.

North-West Manchester Annual Get-together

THE Annual Get-together in North-West Manchester will this year take the form of a Hot-Pot Supper and smoking concert, for men only, at the Irlams-o'the-Height Conservative Club on December 18. Full details may be obtained from G3HNT (Telephone: Swinton 2807).

Presidential Address

MR. H. A. Bartlett (G5QA) will deliver his presidential address at the meeting to be held in the Lecture Theatre of the Institution of Electrical Engineers, London on Friday, January 28, 1955.

Radio Amateur Emergency Network

ALTHOUGH R.A.E.N. membership cards should cease to be valid at the end of this month, their validity is being extended for another three months. An announcement will be made early in the New Year regarding the procedure for renewing the cards of active members.

All E.C.O. appointments are nominally until the end of the current year only but in many cases the appointments will be renewed automatically. It is the intention of the Hon. Secretary to write to individual E.C.O.s in the New Year and to advise those for whom new nominations are required. It is an unfortunate fact that many E.C.O.s are still not sending in regular reports. In the absence of such reports it is impossible to know whether the E.C.O.s concerned are still interested or not. Even "nil reports" are better than complete silence! Some E.C.O.s have not sent a single report or letter since their appointment.

Nominations for E.C.O.s are still required from many parts of the U.K., particularly the North London, Manchester, Liverpool, North-West Lancashire and Cumberland areas.

News from the Groups

A very successful meeting organised by G3ELZ (E.C.O. for Grimsby) and attended by 28 members, was held in **Lincoln** on November 21. As a result of decisions taken at the meeting the county is to be divided for R.A.E.N. purposes into two control areas—North and South. The North control station is G3AXS (or G2FT) and the South G3FUR (or G3HES). The dividing line between the groups runs parallel to the bottom of the map of the county through Horncastle. The R.A.E.N. organisation in Lincolnshire will therefore consist of a county group, north and south area groups and local groups. Regular practices have been arranged.

Bristol is now active and the E.C.O. (G3JMP) has practice nets arranged. Activity is confined to Top Band at the moment although the group has some 14 Mc/s walkie-talkies available. At a meeting in Lichfield, mid-Staffordshire, members changed the name of the group to **South Staffordshire** as being more descriptive of the area served. After some discussion, it was agreed to continue the use of 3.5 Mc/s owing to the small amount of 144 Mc/s gear at present available. Another exercise took place on November 14, with the co-operation of the **Leicester** and **North Staffordshire** groups, although the latter's county net station was not heard. The principle difficulty appeared to be the high level of QRM. G3FZW (E.C.O. for South Staffs.) gave a talk to **Burton-on-Trent Amateur Radio Society** on November 10. **North Staffordshire** holds a practice net each third week, but the E.C.O. (G3COY) reports that lack of spare time is hampering group work at the moment.

R.A.E.N. Appointments

The following E.C.O. appointments have been confirmed by the R.A.E.N. Committee: A. R. Mee (G3ERV), 20 Greensdrift, Royston, Herts.; S. Poole (G3IMP), 26 Cross Road, Romford, Essex.

B. C. Oddy (G3FEX), "Bonigen," Maudlyn Close, Steyning, Sussex, has been appointed an Acting E.C.O.

T. J. Hayward (G3HHD), 41 Shortheath Road, Erdington, Birmingham, has resigned as E.C.O. and nominations for his successor are invited.

* * *

The R.A.E.N. Committee takes this opportunity of wishing all members a Merry Christmas and a Happy New Year. The Committee also records its thanks to all members and officers of the Network for their support during 1954.

CQ Single Sideband

By H. F. KNOTT (G3CU) *

S.S.B. versus TVI

REPORTS are frequently received to confirm the belief that s.s.b. is one answer to the problem of TVI. Many operators, after changing over to this system of transmission, are glad to find that interference to local television receivers, formally persistent, has disappeared. Although the reason for this may be due to several factors the need for linear amplification in this system is largely responsible. Linear amplifiers are by no means limited to s.s.b., in fact they may be used just as effectively with c.w. or d.s.b., although with the latter system some loss of efficiency must be accepted. The linear amplifier, as it name implies, amplifies with practically no distortion; the harmonic content is therefore negligible. However, there is little chance of any appreciable harmonic energy being transferred to the radiating system if the tuned circuit in the anode of the final amplifier has a loaded resonant Q of from 12 to 15. In other words, the anode tank circuit should have a Q high enough to attenuate any harmonics, but not so high that the anode circuit efficiency falls off. One word of caution is relevant here. While linear amplification may prevent harmonic interference, it does not prevent break-through at the i.f. or v.f. stages should the TV receiver be inadequately screened. A report on this, received from G3ECN, certainly bears out what has been said. Recently it was found that when running 120 watts input to an 813, amplitude modulated, serious interference was being caused to neighbouring TV receivers even after all the usual precautions had been taken. However, on adjusting the final to run in class B and driving it with G3ENI's s.s.b. exciter, the trouble disappeared. As G3ECN says, "One is certainly impressed by having been in the position of seeing both sides."

S.S.B. on Two Metres

G3CCH (Scunthorpe), is reported to be active on 144 Mc/s with a phasing exciter (the balanced modulators being on 144 Mc/s), and looking for contacts. Although not the first to use s.s.b. on this band (G3HHG carried out some tests over a short period earlier this year), G3CCH is to be congratulated on building the necessary equipment and deserves every encouragement. Incidentally, reception of s.s.b. at these frequencies necessitates the use of a crystal controlled converter.

Twenty Metres

Since this column last appeared (October issue) full details have been received of G2IG's recent DX activities on 14 Mc/s. His list of stations worked includes two-way s.s.b. QSOs since May 1 this year, excluding July when he was abroad. Each call is shown only once although some stations have been worked many times during this period.

May: W3EK, AP2CR*, W3QD, ZS6KD*, W3DGP, DL7AO, DL9LJ, W2AFQ, W2JJC, W4KVM/VO6*, W1UFT, DL4FD, DL4UZ and HB9FU. *June*: W3ZP, W2ICA, DL4CR, DL4AD, W2EGG, DL4IL, W2DSU, W9CAJ, HB9HF, W4KCO, W8ELP, W2KG, W2CAA, W2PFZ, W5PGV, VE2SU, W6JJU, K2HJF, W2QZ, W4FH, W3QD, W3IJF, W2AI, W7DND, W2ZBT, W9ARK, W4INL, W4HB, W8NS, W2UOX, and W2EB. *August*: KT1DD, W3SW/2, W2KQT, W9CWO, and W9UAZ. *September*: ZS3BC, W4PQ, W2ZG and W2EWL. *October*: VK4VJ, KR6OJ*, ZL1VK4CC, ZL2GL and KA2YA*

Lately, the band has been open during week-end mornings for ZL and VK contacts, and recently a 3-hour multiway QSO was maintained with ZL2GL, VK4VJ, VK4CC and KA2YA, the first three stations being S9 all through from 1000 to 1315 G.M.T. G2IG states that activity is rapidly increasing outside the U.K., and he is convinced that s.s.b. is worth as much as a beam aerial on 14 Mc/s.

Eighty Metres

G3HRO (Bromley) with G3BGR and G3JPE are the only new calls reported this month. G3HRO's transmitter is designed around the multiphase exciter, ends up with a pair of 807s in parallel, and is equipped with voice con-

*5 Kevington Drive, St. Pauls Cray, Orpington, Kent.

* First Two-way with G.

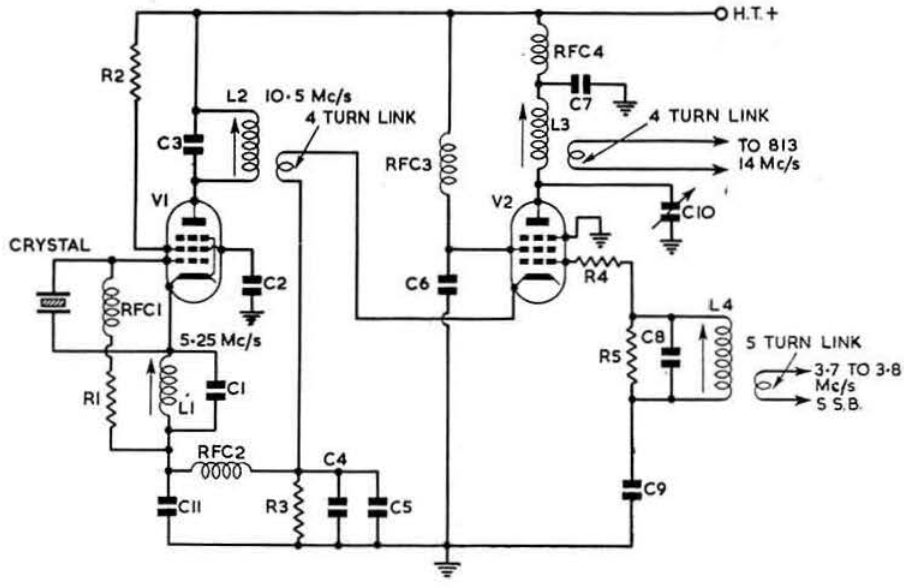


Fig. 1. Mixer circuit for 14 Mc/s operation from a 3·7 Mc/s exciter. C1, 3, 20 μμF; C2, 5, 6, 9, 11, 0.01 μF; C4, 50 μF; C7, 1000 μμF; C8, 200 μμF; C10, 50 μμF variable; L1, 2, 3, 4, winding to tune to appropriate frequency, ⅜in. diam. former. R1, 47,000 ohms; R2, 5, 10,000 ohms; R3, 250 ohms; R4, 100 ohms; RFC, 2.5 mh choke; V1, EL91, EL32; V2, 6CH6, 6AG7; Crystal, 5.25 Mc/s.

trolled electronic break-in and switching for two-band operation.

G3ENI who is rebuilding his filter exciter after carrying out a series of experiments on a prototype, is also arousing enthusiasm for the system in the Plymouth area, so much so that '3ECN and '5ZT will probably be on 3.5 Mc/s shortly, using filter transmitters. G3GKA has been constructing a phasing exciter to replace his filter rig, the results of which are quite pleasing. The transmitter contains many of the interesting features of the more popular circuits. The audio phase-shift network is that of the "S.S.B. Jr.", while the balanced modulators are modifications of the "Motorola" circuit. The r.f. phasing network is taken from a suggestion by Moxon in a BULLETIN article on the Terman-Woodyard high efficiency modulation. For those confronted with the problem of bias supplies for class AB1 and AB2 linear amplifiers, G3ESV points out that there is quite a big range of deaf-aid batteries of assorted voltages. If the exciter supply is used, the current will be fairly steady and will run around 50 to 100 mA in the case of a filter rig, which means that a small resistor will give all the bias generally needed. A couple of 50 μF electrolytic capacitors will look after the regulation.

A 14 Mc/s Mixer

The circuit shown in Fig. 1 has been worked out by G3ECH and has been found quite useful, particularly when an exciter is available for output on 3.5 Mc/s only. The 6CH6 is similar to a 6AG7; the EL91 could be replaced by any small output pentode of the EL32 class (even a 6V6 would do) although a larger valve is not needed. In the circuit it will be seen that a common bias resistor provides a sufficiently large bias to set the 6CH6 to projected cut-off so that good mixing is achieved. The circuit is used with a 5.25 Mc/s crystal to give 10.5 Mc/s injection into the cathode of the 6CH6, so that a 3.8 Mc/s s.s.b. signal fed in at the grid gives an output on 14.3 Mc/s. If 3.8 Mc/s is the highest frequency obtainable from the exciter then 10.55 Mc/s would be the optimum injection frequency. The circuit has a conversion gain of 20 db, and about 3 to 4 watts output, ample for driving an 813 to 150 watts.

Measurement of Single Sideband R.F. Power.

NEGOTIATIONS with the G.P.O. on the question of power rating for s.s.b. transmitters have resulted in a change which will permit the s.s.b. user a four-fold increase in the peak radiated power. Hitherto (see R.S.G.B. BULLETIN February, 1951, p. 292), the peak radiated power could not exceed that obtained when a steady sine wave audio input was applied to the modulator, and the power input to the final stage driven up to 150 watts, as read on the meter. By comparison with ordinary plate modulated telephony this peak r.f. power was only 25 per cent.

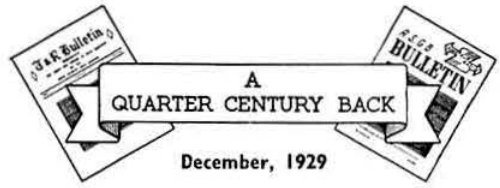
The following announcement from the G.P.O. makes it clear that a four-fold increase of power will now be permitted and gives the conditions under which the power will be checked.

The announcement from the G.P.O. states that:

"The peak r.f. power output from an A3(a) transmitter shall not exceed that obtained from the A3 transmitter working at an overall efficiency of 66 per cent. The power shall be measured by the following process:

1. Apply a pure sinusoidal tone to the transmitter and adjust the input to 150W d.c.; the deflection on a cathode-ray tube by the r.f. envelope shall be measured. (D.c. input power is the total d.c. power input to the anode circuit of the valve(s) energising the aerial).

2. Replace the tone by speech; the maximum deflection on the cathode-ray tube showing the r.f. output caused by the peaks of speech shall not be greater than twice the previously measured deflection for the tone input."



THE Editorial reviewed the more important events of the past year. Developments were recorded on 28 Mc/s and tribute paid to the pioneer work of Messrs. Noden and Somerset on 56 Mc/s. The importance of Contact Bureau was stressed and reference made to the Society's successful participation at the National Radio Exhibition. "There are more stations than ever transmitting nowadays and the congestion on some waves last year is nothing compared with the congestion this winter. This increase in activity is a sure sign that Amateur Radio is flourishing and driving more enthusiasts into its fold."

* * *

G. G. Livesey (FO3SRB) described the construction of a superhet receiver for the higher frequencies. The valves used were PM5X, HL610, DE5, PM6D and DEL610. "The frequency-changing arrangement for the first detector is quite straightforward; the r.f. choke must be of really high efficiency otherwise there will be difficulty in maintaining oscillation over a wide band of frequencies. The grid leak potentiometer return is useful for this." "The milliammeter is indispensable for indicating when the first detector is oscillating—this is shown by a drop in anode current."

* * *

"Micron" contributed an article on tuned circuits, in the course of which he described the meaning of resonant frequency, the importance of sharp tuning, and of effective resistance at resonance. "Unless the theory of tuned circuits is thoroughly understood it is not always easy for the amateur to decide what is the best way to proportion the inductance and capacity in a tuned circuit for a given purpose."

* * *

Station Description No. 2 featured G6CI, owned and operated by Brian Warren of Coventry. "Finally there is the DET.1 arranged as a 20 metre frequency doubler, the output of which is taken direct to the antenna."

* * *

H. K. Bourne enumerated the 7 Mc/s DX he had heard on a one-valve portable receiver with optional transformer-coupled l.f. stage. Unfortunately reception could not be obtained on the 14 Mc/s band owing to a "dead spot" caused by the h.f. choke.

Single Sideband Conventionette

APPROXIMATELY 40 members attended the Second Annual Single Sideband Conventionette held in the Fountain Room of the Royal Hotel, London, W.C.1, on November 27, 1954. Reg. Hammans (G2IG) was in the chair and after members and visitors had been welcomed on behalf of the Society by Leslie Cooper, G5LC (Immediate Past President), items of current interest to single sideband enthusiasts were very fully discussed.

Votes of thanks to H. F (Bert) Knott G3CU (for his manifold activities during the year) and to Ernie Dedman G2NH (for arranging the meeting) were passed unanimously.

The proceedings concluded with a display of coloured slides of interest to s.s.b. operators.

E.A.D.

What is a Ham?

An Anthropologist's Answer to a Seasonal Question

By J. G. MILLINGTON (G3JGM) *

THE first Ham of whom we have any record was the son of Noah. Apart from whom he begat, little is known of him. The following gen was obtained by crystal-gazing, using the germanium crystal we were unable to make into a transistor.

Operating with the call-sign ARK/MM, Ham Noahson was one of the few survivors of a wicked civilisation. Having advance information about the coming flood, he tried unsuccessfully to interest his fellows in R.A.E.N., warning them that they were all due to become Silent Keys unless they abandoned the evils of overmodulation, key-clicks, TVI and single sideband. They ignored his warning, however, and were all deservedly drowned, with the exception of one solitary operator on Mount Ararat, who maintained daily QSOs with ARK/MM until a station visit was finally fixed up. With no-one left to work, Ham went permanently QRT and took up his historical occupation instead, so that the art of ham radio was lost for many centuries. These were the Dark Ages.

"They ignored his warning . . ."

The characteristics of a genuine ham, however, remained virtually unchanged and are still as follows:

Rc or Conk Impedance, viz., the mental resistance to non-radio topics. Frequently high. Conductivity in the opposite sense is also high, and two hams together thus constitute a full-wave circuit for the rectification of errors, generally known as a QSO.

Gm or Mutual Conductance of ideas between hams in QSO, also usually high, so that gen rolls down the steep slope with some momentum.

Amplification Factor (μ) which controls the extent to which a ham is willing to amplify his ideas and thus indirectly the length of a QSO. This is a variable factor and differs appreciably according to the frequency at which it is measured. It may be generally stated that μ varies inversely as the frequency up to 144 Mc/s, and is thus at its maximum on Top Band, with 2 metres a good second.

The Influence of QRM

Other characteristics may be less concisely stated. Principally, these are susceptibilities to varying types of QRM. The most frequent and difficult to cure is XYL QRM, which is next to TVI as a cause of QRT, the ultimate disaster, and the worst thing that can happen to a ham. Even a Silent Key may be presumed to be still operating on higher frequencies, but a ham permanently QRT is a terrible thing. The poor chap may possibly become a mental case through sheer frustration.

"If you really loved me you wouldn't care about the DX."

Arising out of, and usually additional to XYL QRM is harmonic trouble. All rigs should be harmonic proof, even if it means operating in a cage of wire netting, for a harmonic enjoys nothing better than smashing 813s at several quid a blow of his little axe while chuckling at the pretty tinkle of glass. If you can be sure of an all-ham jury, infanticide may be a good idea in cases of persistent harmonic trouble. Older harmonics, out of a misplaced desire to help, frequently tighten up all the loose screws on top of i.f. cans with a screwdriver. ("But, darling, you did say you liked to see him taking an interest. . . .") The lives of hams suffering badly from XYL and harmonic QRM are like a continuous Donald Duck film. It is very sad for them.

Minor QRM arises also from gardening. The bachelor ham thinks of a garden as simply somewhere to put the aerial, but the married ham's ideal garden is six inches wide and half a wavelength long. It is, unfortunately, usually difficult to get XYLs to appreciate that a garden is simply a site for radiating r.f. at a suitable angle. Much time is therefore lost to radio through spurious emissions of vegetables, flowers, odd jobs and the like. ("The sink won't empty dear. Do you think it's that grid stopper you lost the other day?") It needs infinite patience and an equable temper to be an active ham under such conditions and the story of heroism and endurance behind many a CQ will never be told. ("If you really loved me, you wouldn't *care* about the DX!")

During the Dark Ages the chief hobby was religion, and even so chaps had to retire to monasteries to get enough peace to concentrate on it. We look forward to the day when, for similar reasons, Hammeries will be found at suitable elevated sites in rare DX countries and dispirited hams, weary of the world, instead of taking the Queen's shilling or whatever it was, will be said to have taken the 807, symbolic of a life dedicated to the art and science of ham radio!

* *17 Tettenhall Road, Wolverhampton.*

LONDON U.H.F. GROUP ANNUAL DINNER

Bedford Corner Hotel, Bayley Street, Tottenham Court Road,
at 7 p.m., on January 6, 1955
Tickets 10/6

Mobile Column

By JOHN A. ROUSE (G2AHL)*

WINTER is not perhaps the best time for mobile and portable work but the long evenings can be made full of interest by using them to prepare for next season's fun. Now is the time to get down to the job of building and testing a really compact mobile rig rather than wait until it is wanted next spring.

The winter months are a suitable time, too, for making sure that interference from the car's various electrical devices is thoroughly suppressed. This is not as simple a matter as it may sound but attention to it now can mean greatly increased operating pleasure next season.

For those intending to use their mobile equipment right through the winter one of the most important items is the battery. During the summer most car batteries are kept properly charged by normal motoring but the increased use of the batteries in winter may render the ordinary charge insufficient to meet the combined requirements of both car and radio. Special care of the battery is therefore necessary and will pay handsome dividends: the main requirements are a battery charger and a hydrometer to test the specific gravity. Making a charger and installing a plug and socket arrangement so that it can be easily connected and disconnected is a very worthwhile project. Not only will it assure trouble-free radio operation but it will also increase the general enjoyment of motoring. If the necessary bits and pieces cannot be found in the junk box, kits of parts, or complete chargers can be purchased quite cheaply. The battery should, of course, be regularly topped up with distilled water and the terminals kept clean and lightly coated with vaseline. It is also a good idea to make up a pair of really heavy leads for connecting the starter motor to another battery in case all precautions fail and the battery voltage drops too low, particularly during a session of operation from a fixed site. The leads are particularly important to owners of some of the newer cars which have no provision for a starting handle.

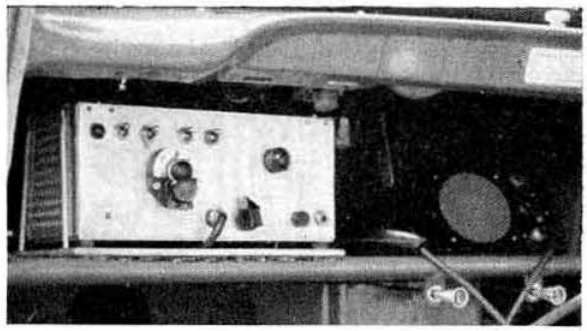
Mobile Calling Frequencies

Mr. Jack Ridley, **G2AJF**, Chairman of the R.A.E.N. Committee, points out in a note to Headquarters that his committee would raise no objection to R.A.E.N. Calling Frequencies being used by mobile stations in normal circumstances. This means that mobile operators equipped with crystals for calling purposes would automatically be ready to help R.A.E.N. should an emergency arise. It should be remembered, of course, that during an emergency these frequencies are strictly for *calling only*. Incidentally, when 28 Mc/s again opens for DX it may become necessary to select a mobile frequency at the high end of the band as suggested previously.

Mobile Equipment and Station Reports

G3MY (Sheffield) has installed a 3.5 Mc/s mobile rig (measuring 10in. ×4in. ×4½in.) in the parcels tray of his Ford " Zephyr," next to the car radio. The transmitter section consists of a 6C4 Pierce c.o., 2E30 p.a., 9003 crystal microphone amplifier and N78 modulator. A crystal controlled converter using a 6AG5 and 6BE6 feeds into the car radio, which tunes 800–1100 kc/s. The selectivity is, however, rather poor. Very careful filtering of battery leads has reduced ignition interference to acceptable levels without extra suppressors on the car but a noise limiter seems to be necessary in order to eliminate what is left plus interference from other cars and motor-cycles. The 10ft centre-loaded aerial is mounted on a polythene base clamped to a steel plate welded *into* one of the rear overriders, co-ax feed coming out of the boot. A brass tuning slug enables the system to be tuned to any frequency between 3600 and 3800 kc/s. Excellent results are being obtained up to 15 to 20 miles groundwave but sky-wave contacts are few and far between.

G2ACT (Ashton, Preston) is a mobile operator who is used to working DX—at any rate, he gets out well to Europe with his equipment. Part of his success is due to the use of a very simple crystal converter for 14, 21 and 28 Mc/s which feeds into a medium wave Command set. An article describing its construction is in preparation. **G3EJR** (Whitehaven) reports that he is getting good results from a home-made vibrator supply, using a standard mains transformer. The 6.3 and 5V windings are connected in series and fed from a 6 volt vibrator. The fact that the junction of the two windings is not an exact centre tap does not appear to affect operation. It is necessary to ensure that the l.t. windings used are capable of carrying the vibrator current safely (when calculated at an input/output efficiency of about 70 per cent.).



G2ATK/M's 2 m mobile equipment, which measures 10in. by 4½in. by 6in. deep, is carried on the parcels tray of his Ford " New Anglia." The rotary converter is mounted in the engine compartment above the battery. No holes had to be drilled during the installation as they were already provided for a normal broadcast car radio.

G2ATK (Birmingham) continues to operate very regularly on 144 Mc/s. A particularly interesting contact was with G2HCG/M while on the A5 road. Contact was first made when '2ATK/M was at Tring and '2HCG/M near St. Albans. The latter could be heard until he reached Northampton. While travelling from South Wales, G3NL (Worcs.) was worked and G2NV heard when at a point eight miles south of Worcester. Some idea of G2ATK'S neat mobile arrangement can be gained from the accompanying photograph.

* * *

The next " Mobile Column " will appear in the February, 1955, issue of the BULLETIN; but correspondents are asked to forward items for inclusion on that occasion as soon as possible.

The " Worked All America " Award

The issuing authority for this attractive award, L.A.B.R.E., announce two alterations in the rules governing it. 1. Additional Country (No. 58). *San Andres and Providencia Is.* (*HK*0). Credit will be given for contacts made after November 15, 1945. 2. *Newfoundland and Labrador* (*No.* 38). Credit will be given only for contacts made *before* December 31, 1954. The award is given for confirmed contacts with 45 or more countries in the American area and the complete rules may be obtained from L.A.B.R.E., Avenida Treze de Maio 13, Caixa Postal 2353, Rio de Janeiro, Brazil, enclosing return postage or I.R.C.

**Assistant Editor, R.S.G.B. BULLETIN.*

Tests and Contests

Low Power Contest

THE annual low power event has, over the years, acquired an atmosphere which is unique among amateur contests: along with their surprisingly effective half-watt signals the competitors somehow manage to radiate an aura of real friendliness. Everyone seems to be hoping that the other fellows are doing well; and there is none of that ruthless scrambling for the top positions that one encounters elsewhere—in what other contest, for example, would an entrant quite happily break-off for a couple of hours to attend a film show?

So on October 2–3, leaving others to worry about overrunning 807s or 813s, the faithful QRP enthusiasts were once again coaching along their miniature 9003, 1T4, DL93, 3S4 and similar output valves. Not so many managed to join the party this year, and scores were generally a little lower, but all those who did show up seem to have enjoyed themselves thoroughly—as usual.

John Hunter (G3AZ) of Bletchley, Bucks., scoring 2390 points from 85 contacts with stations in 35 code areas, takes top place for the first time. He was closely followed by those two regular QRP enthusiasts, I. T. Cashmore (G3BMY), Halesowen, Worcs., and John Yeend (G3CGD/P) operating near Cheltenham, both of whom worked 31 code areas. The highest number of contacts was made by G3JKO, Nottingham (91 contacts, 35 code areas) but with his " QRO " rig (150 volts to the anode of a 9003) he was able to claim only 5 points a time.

Getting down to the Half-watt

The equipment in use at the three leading stations was:

G3AZ: 6SJ7 e.c.o., 6J5 cathode follower, 6V6 p.a. with 130 volts (less 15 volts cathode bias) h.t. End-fed half-wave aerial. Triple conversion superhet.

G3BMY: SP61 e.c.o., 6J6 cathode follower/grounded-grid p.a. with h.t. stabilised by CV45. Zepp aerial. CR100 receiver.

G3CGD/P: 3S4 Hartley, 3S4 b.a., 3S4 p.a. with 90-volt dry battery. Two half-wave dipoles, one north/south, the other east/west. 1-V-1 bandset t.r.f. receiver.

Although the three leading stations all used three-stage transmitters, entrants generally showed a slight bias in favour of two-stage rigs. The complete break-down of the 24 entries submitted was: 11 two-stage; 10 three-stage; 3 single-stage. Owing to the modification in rules affecting grounded-grid output stages, '3BMY had to add 0.12 watts (half the power to his driver stage) to that of his power amplifier (0.33 watts). The circuit he uses, which is perhaps not widely known, is shown in Fig. 1. The neat arrangement of a twin-triode 12AU7 as a self-neutralising power amplifier with a broad-band coupler in the grid circuit is favoured by G4JW.

A last minute change in earthing arrangements proved necessary at G3CGD/P when it was found that the tent pegs had been forgotten, so that the earth rods had to be hastily pressed into service for this purpose.

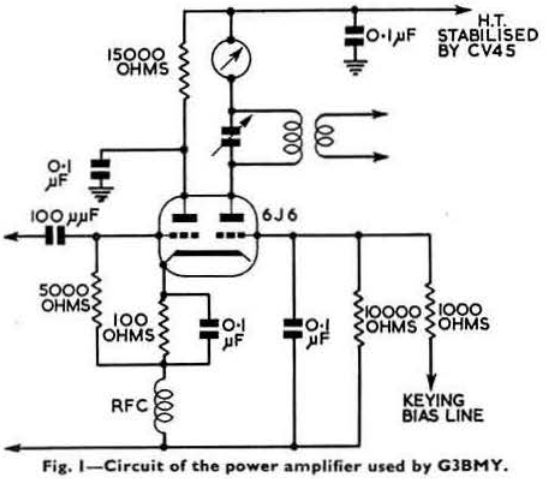


Fig. 1—Circuit of the power amplifier used by G3BMY.

Results of Low Power Contest, 1954

Posn.	Call-sign	Power in watts	Scoring contacts	Score
1	G3AZ	0.49	85	2390
2	G3BMY	0.45	84	2280
3	G3CGD/P	0.45-0.5	78	2180
4	G5LQ	0.475	61	1830
5	G4NS	0.48	63	1810
6	G6VC	0.5-1.0	72	1780
§	G5SX	0.5	71	1720
7	G3RD	0.5	51	1480
8	G2AVC	0.5	50	1420
9	G3HRK	0.45	44	1400
10	G3HQQ	0.48	40	1200
11	G3JKO	1.8	91	1155
12	G5JL	0.45	34	1120
13	G4JW	0.5	38	1100
14	G8UQ	0.48-0.9	46	1050
15	G3HTI	0.42	34	1040
16	DL2RO	0.8	55	1020
17	G3GDW	0.5	32	960
18	G3GMK	1.0	47	950
19	G2KF	0.9	40	880
20	G5TO	0.9	42	860
§§	G3DOP	1.0	40	860
21	GC2FZC	1.0	46	835
§§	G3JHX	0.98	1	30

§ Entry invalid—No circuit diagram.
§§ Entry invalid—No declaration.

Thinking it over

Conditions were not really favourable for European working on QRP and DL2RO deserves congratulation for contacting from Hamburg a good percentage of the entrants with 90 volts to a 3S4 p.a. Entrants found that the first two hours or so in each leg of the contest generally provided the most contacts, indicating that scores would have been considerably higher had there been more activity.

Several constructive comments were made on the rules, though as usual some of these tend to cancel out: for example, while three stations expressed disappointment with the new times, three others specifically praised them. More points for European contacts, a maximum power of 1 watt with increased points down to 0.1 watt, and a separate code area for DL2 were other ideas put forward. G4TM raises the important question of providing a clear identification signal for QRP stations in order that non-competing QRO stations, intent on giving points to entrants, shall not waste their time—and cause needless QRM—by working one another under the impression that they are helping a participant. All suggestions that seem likely to improve or make more popular this excellent little contest will receive most careful consideration by the Contests Committee.

Useful check logs were received from G2AOL, '2DHV, '2DPY, '3DGN, '4TM, '4XC and '6AH.

The Second 420 Mc/s Contest, 1954

THE 420 Mc/s Contest, held during the week-ends of September 11-12 and 25-26, did not attract as many entrants as it was hoped. Logs were received from 10 entrants, although at least 40 stations are known to have been active on the band during the event. A combination of poor conditions and inclement weather was undoubtedly responsible for the lower level of activity compared with the Contest held in May.

The Leading Stations

First place goes to H. T. McFarlane (G8SK) who scored 1279 points, having 38 contacts with 24 stations. His station was operated from the fixed location at Enfield and a portable site 2 miles south-west of Dunstable. Lionel Dyke (G3GZM), who was second with 884 points, took his portable station to the Clee Hills, 5 miles east of Ludlow, Salop, at approximately 1550ft above sea-level. His energy was rewarded when he effected the only long-distance contacts made during the event, incidentally also boosting the score of several other stations. His 13 contacts with 10 stations show an average of 68 miles per QSO. Third place is occupied by Arnold Mynett (G3HBW) who operated from his home at Wembley. Despite his situation in a valley only 100ft above sea-level, effectively screened to the north and west, he managed to knock up 824 points by making 40 contacts with 25 stations.

Mention must be made of the entry received from G3JQN who operated G3JQN/A from Sanderstead, Surrey. The Contests Committee were reluctant to have to disqualify his entry owing to his omission of a signed declaration, but in fairness to the others who submitted an accompanying declaration in accordance with the rules, this had to be done. His claimed score of 1,029 points appears in the list in the position it would have occupied if he had qualified.

Full descriptions of the above stations are tabulated below.

Conditions

As mentioned earlier, conditions on the whole were poor. Stations in the Home Counties managed to work stations on the South Coast, however, during the course of each week-end. It was not until the afternoon of Sunday, September 26, that there was any marked improvement. G3GZM/P on the Clee Hills was able to work successfully several stations in the area around London, and was heard by others. Between 1535 and 1635 G.M.T. contacts were made with G3FP (Thornton Heath), 130 miles; G8SK/P (Dunstable), 95 miles; G3FZL (Forest Hill), 132 miles, and G3JQN/A (Sanderstead), 132 miles.

G3HBW endeavoured to arrange a fixed transmitting and receiving schedule for Northern and Southern stations. Unfortunately, no activity was reported from the North of England. Some stations were active in the Midlands area, but contacts were few.

Activity Record

Apart from those listed in the table, the following stations were reported active: G2DD, '2DSP, '2DUS, '2FKZ, '2FNW, '2HDY, '2MV, '2RD, '2WJ; '3CGQ, '3EOH/P, '3EYV, '3FSD, '3FUL, '3FZL, '3GDR, '3HAZ, '3IOO, '3IRW, '3JGY, '3JHM; '4MW; '5DT, '5IG, '5KH, '5RD; '6NF, '6YU, '6ZP.

G3MI is thanked for submitting a useful check log.

Results of the 420 Mc/s Contest

Psn.	Call-sign	Location	Best QSO (miles)	Points
1	G8SK / G8SK/P	Enfield / Dunstable ...	95	1279
*	G3JQN/A	Sanderstead	132	1029
2	G3GZM/P	Clee Hills, 5 miles E. of Ludlow	132	884
3	G3HBW	Wembley	53	824
4	G2XV	Cambridge	60	803
5	G3FP	Thornton Heath	130	689
6	G5UM	Knebworth	40	446
7	G2DDD	Littlehampton	61	388
8	G2WS/P	Westerham	47	302
9	G5CD	Hendon, N.W.11	25	253

** Disqualified—No Declaration; claimed score shown.*

CU IN BERU?
JANUARY 29—30

The Second 420 Mc/s Contest, 1954

Call-sign	Transmitter	Receiver	Aerial System
G8SK—G8SK/P	Push-pull c.o. (6J6), tripler (6J6), tripler (6J6), buffer (6J6), push-push power doubler (6J6), trough line. Input 5 watts.	12AT7 g.g. push-pull r.f. amplifier, crystal mixer, tuneable oscillator, harmonic amplifier (6J6), head amplifier (6AK5).	16 element stack
G3GZM/P	Crystal oscillator, fundamental 8 Mc/s, tripling to 24 Mc/s (12A6), tripler (TT11), frequency doubler (TT11), amplifier (832), tripler (832), p.a. (832). Input 18 watts.	Crystal mixer with cavities fed to cascode I.F. strip (18 Mc/s). Tuneable oscillator from 34.5 Mc/s fundamental and hi-Q cavity. Cascode to Command receiver on 18 Mc/s.	8 driven elements backed by wire mesh reflector. Fed with 300 ohm tubular feeder.
G3HBW	12AT7 Pierce c.o. on 8 Mc/s, EL91 tripler, EL91 tripler, EL91 doubler, push-pull 6C4s, 832, QQV06/40 tripler, QQV06/40 driving ACT22 common-grid, earthed cathode coaxial p.a. Input 100 watts.	DET24 co-axial r.f. stage, push-pull 1N21 open line mixer with crystal controlled local oscillator (6C4, 6J6, 6J4) and cascode i.f. head amplifier into modified AR77. I.F. 25-31 Mc/s.	24 element stacked co-linear array, centre fed through two $\frac{1}{4}$-wave Q-bars and one parallel matching stub with 300 ohm tubular feeder.
G3JQN/A	10 watt 144 Mc/s transmitter driving CV53 tripler into a CV53 p.a. Input 5 watts.	G3BKQ-type converter into National HRO.	8 driven $\frac{1}{2}$-wave elements with wire mesh reflector.

The 420 Mc/s Tests

INTEREST in the " Tests " section of this year's 420 Mc/s event proved most disappointing, and it is evident that the majority of workers considers that the time has now come when a point-scoring contest can be successfully run on the band. After careful consideration of the entries, the Contests Committee is recommending to Council that the Arthur Watts Trophy be awarded to Arnold Mynett (G3HBW). G2FKZ and G3GZM are also thanked for submitting interesting accounts of their equipment and experimental work.

First Top Band Contest, 1955

THE scoring system for overseas contacts has been slightly modified for the First Top Band Contest, 1955.

Logs from all users of the band will be very welcome, irrespective of the number of contacts made. Some of the check logs usually received would take high positions in the results if submitted as entries.

Rules

1. The contest is open to all fully paid-up members of the Society resident in G, GC, GD, GI, GM and GW.

2. The contest will run from 2100 G.M.T. on Saturday, January 15, to 0800 G.M.T. on Sunday, January 16, 1955.

3. Entries will only be accepted if submitted on foolscap or quarto paper and set out in the form below:—

First Top Band Contest, January 15-16, 1955

Name ..... Call-sign .....

Address ..... Claimed Score .....

Transmitter .....

Aerial System.....

Receiver .....

Time G.M.T.	Call-sign of station worked	Report and serial no. SENT	Report and serial no. RECEIVED	Claimed score	Leave blank
	G2——	599001	599004		
	G3——	599002	599006		

Declaration: I declare that my station was operated strictly in accordance with the rules and spirit of the Contest and I agree that the ruling of the Council of the R.S.G.B. shall be final in all cases of dispute.

Signed.....

4. Details at the top of the entry form must be completely filled in and the declaration signed, otherwise the entry will be disqualified.

5. Entries must be addressed to the Hon. Secretary, Contests Committee, R.S.G.B., New Ruskin House, Little Russell Street, London, W.C.1, and must bear a postmark not later than Monday, January 24, 1955.

6. Proof of contact may be required.

7. The contest is confined to two-way telegraphy contacts.

8. Only the entrant will be permitted to operate his apparatus during the Contest.

9. An exchange of RST reports and a self-assigned three-figure number starting between 001 and 100, and increasing by one with each successive contact will be required before points may be claimed. All reports must be acknowledged with " R."

10. Only one contact with a specific station during the contest will count for points.

For purposes of this rule, G2——, G2——/A, G2——/P and G2——/M are all regarded as the same station.

11. The system of scoring will be as follows:—

(a) Contacts with stations in the British Isles (G, GC, GD, GI, GM and GW) score one point each.

(b) Contacts with stations other than G, GC, GD, GI, GM and GW score 3 points each.

12. The power input to the final stage of the transmitter or to any preceding stage must not exceed 10 watts.

13. The Somerset Trophy *will be awarded to the station in the British Isles with the highest total score. Certificates of merit will be awarded to the stations placed second and third.*

Affiliated Societies Contest, 1955

Rules

1. The contest is open to all Societies in fully-paid up affiliation with the R.S.G.B. Each competing Society must submit an entry signed by an officer of the Society, stating the call-sign to be used. Entries must be addressed to the Hon. Secretary, Contests Committee, R.S.G.B., New Ruskin House, Little Russell Street, London, W.C.1, postmarked not later than December 31, 1954. No alteration of call-signs will be permitted after the closing date for entries. A full list of all competing stations will be circulated direct to each Society by post during January, 1955.

2. The contest will be confined to two-way telegraphy (A1) contacts only, and will be in two sections. The first section will be held between 1800 and 2300 G.M.T. on Saturday, February 12, 1955, and the second section between 1800 and 2300 G.M.T. on Sunday, February 13, 1955.

3. Operation will be in the 1.8 Mc/s band.

4. Only one transmitter—which may be either the Society transmitter or that of one of the members—and not more than two receivers may be used.

5. The input to the anode circuit of the valve or valves delivering power to the aerial, or to any previous stage, must not exceed 10 watts.

6. Ten points will be scored for contact with another Affiliated Society station, and one point for contact with any other British Isles station. The final score will be the sum of the scores for the two sections.

7. Only contacts with stations in the British Isles (prefixes G, GC, GD, GI, GM and GW) will be permitted to count for points. Proof of contact may be required.

8. Competitors will call " CQ RSGB." An exchange of RST reports and a self-assigned three-figure number starting between 001 and 100, and increasing with each successive contact, will be required before points may be claimed.

9. Only one contact with a specific station will be permitted to count for points in each section of the contest.

10. Transmitter operators may be changed as often as desired, provided the terms of the licence are observed.

11. Logs (preferably on foolscap or quarto paper) must be set out as shown below:—

Affiliated Societies Contest, February, 1955

Name of Society..... Claimed Score.....

Address of Station..... Call-sign.....

Transmitter .....

Receiver(s) .....

Aerial(s) .....

Date	Time	Call-sign of station worked	Report and serial no. SENT	Report and serial no. RECEIVED	Signature of Operator	Points Claimed
		G2——	589001	579005		
		G3——	599002	599016		
		G3——	569003	559025		
					Total ...	

Declaration: I declare that the station for which I was responsible was operated strictly in accordance with the rules and spirit of the contest, and I agree that the entry will become the property of the Council of the R.S.G.B. whose decision shall be final in all cases of dispute.

Date..... Signed..... Office.....

12. The entry form must be completed and signed by an officer of the Society, who will be held responsible for the conduct of the station.

13. The terms of the Transmitting Licence must be strictly observed.

14. Any station reported operating off-frequency, or causing interference due to poor notes or spurious emissions, may be disqualified.

15. Any station frequently receiving tone reports lower than T9 will be disqualified.

16. The Edgware Trophy *will be awarded to the Affiliated Society with the highest total score.*

17. The decision of the Council of the R.S.G.B. will be final in all cases of dispute.

18. Entries must be postmarked not later than February 21, 1955, and must be addressed to the Hon. Secretary, Contests Committee, R.S.G.B., New Ruskin House, Little Russell Street, London, W.C.1.

Affiliated Societies' Contest, 1955

The attention of all Affiliated Societies is drawn to rule (1), which requires that entries must be submitted by December 31, 1954. It is hoped by this means to avoid the confusion which has resulted in previous contests concerning the status of stations worked.

Council Proceedings

Resume of the Minutes of the Proceedings at a Meeting of the Council of the Radio Society of Great Britain, held at New Ruskin House, Little Russell Street, London, W.C.1, on Tuesday, October 19, 1954, at 6 p.m.

Present.—The President (Mr. A. O. Milne in the Chair), Messrs. H. A. Bartlett, L. Cooper, C. H. L. Edwards, D. A. Findlay, A. C. Gee, R. H. Hammans, F. Hicks-Arnold, J. H. Hum, L. E. Newnham, N. F. O'Brien, and John Clarricoats (General Secretary).

Apologies.—Apologies for absence were submitted on behalf of Messrs. I. D. Auchterlonie and R. L. Varney.

* * *

Membership

Resolved (a) to elect 65 Corporate Members and 9 Associates; (b) to grant Corporate Membership to 25 Associates who had applied for transfer.

Resolved, unanimously, to waive for a period of one year, the subscriptions of Messrs. R. W. Harris (G3GGX) and J. F. Proctor (G3JFP) on the ground that they suffer from blindness.

The Secretary reported that of the 811 members whose subscription became due on July 1, 1954, 197 became overdue on September 30, 1954.

The Secretary submitted details of the reasons given by the 63 members who had written to resign during the five weeks ended October 16, 1954. Only 17 had resigned on financial grounds. Of the remainder 20 had lost interest, 18 gave no reason and 8 gave miscellaneous reasons.

Applications for Affiliation

Resolved to grant affiliation to the Upton House School Radio Club (Leytonstone, London) and the South Coast Radio Club (Port Shipston, Natal, South Africa).

420–460 *Mc/s Band*

It was reported that the G.P.O. would be prepared to see whether the proposed "exclusive" allocation to U.K. amateurs between 430 and 440 Mc/s could be increased by about 5 Mc/s at the lower end of the band.

(An earlier proposal from the G.P.O. indicated that in about two year's time the 420-460 Mc/s band would be re-allocated, with amateurs sharing 420–430 Mc/s and 440–450 Mc/s and retaining 430–440 Mc/s on an "exclusive" basis. The band 450–460 Mc/s would then be given over to the fixed and mobile civilian services.—Editor.)

It was agreed to inform the G.P.O. that the Council is of the opinion that the suggestion to increase the width of the proposed "exclusive" amateur portion of the 420–460 Mc/s band would represent a worthwhile improvement.

Convention

Letters expressing appreciation of the arrangements made by the Convention Organising Committee were submitted from the Hon. Secretary, I.R.T.S., and from the Acting Hon. Secretary, I.V.H.F. Society.

Resolved that a letter of warm appreciation be sent over the President's signature to each Member of the Organising Committee.

N.F.D.—Wirral Group

The President reported upon correspondence which had passed between himself and the Region 1 Representative in regard to the disqualification of the Wirral N.F.D.Group entry. (See Resume of the Minutes of the Meeting held on September 19, 1954.—EDITOR.)

After discussion, the President agreed to invite Mr. B. O'Brien to send a "Letter to the Editor" setting out the views of the Wirral Group regarding the disqualification of their N.F.D. entry.

Redundant Ship's Lifeboat Equipment

It was reported that a member had offered to put the Society in touch with two shipping companies who are anxious to dispose of, as gifts, quantities of redundant ship's lifeboat equipment.

Resolved to accept the offer with thanks.

Mr. Edwards agreed to contact the shipping companies concerned and to report on his discussions to the R.A.E.N. Committee.

"*Two Metres and Down*"

It was reported that the preparation of the monthly v.h.f. commentary would, as from the December, 1954, issue of the BULLETIN, be undertaken by Mr. F. G. Lambeth (G2AIW).

The President agreed to write, on behalf of the Council to Mr. W. H. Allen, M.B.E. (G2UJ), thanking him for his past services in connection with the monthly v.h.f. commentary.

R.S.G.B. Certificates of Proficiency

Resolved (a) to amend the rules governing the award of R.S.G.B. Certificates of Proficiency (W.B.E. and B.E.R.T.A.) so as to allow club stations to qualify; (b) to make no charge for R.S.G.B. Certificates of Proficiency awarded to affiliated clubs; (c) to make a charge of 2s. 6d. per certificate in the case of non-affiliated Clubs.

Audited Accounts

The Honorary Treasurer submitted the Audited Accounts for the year ended June 30, 1954, together with the Report of the Auditors, a copy of which had been circulated in advance to each Member of the Council.

Resolved (a) to receive the Audited Accounts and the Auditors' Report; (b) to submit the Audited Accounts to the membership at the Annual General Meeting on December 17, 1954; (c) to publish the Audited Accounts in the November issue of the Society's Journal.

Annual Report

The General Secretary submitted a draft Annual Report of the Council.

Resolved (a) to accept and adopt the draft Annual Report, (b) to submit the Report to the membership at the Annual General Meeting on December 17, 1954; (c) to publish the Report in the November issue of the Society's Journal.

Cash Account

Resolved to accept and adopt the Cash Account for September, 1954, as submitted by the Secretary.

Reports of Committees

Resolved to accept as Reports Minutes of Meetings of the Contests, R.A.E.N. and Exhibition (Home Constructor's Section) Committees.

Arising from the Minutes of a meeting of the Contests Committee it was reported that Mr. R. Walker (G6QI) had resigned from the Committee. The Secretary was instructed to thank Mr. Walker on behalf of the Council for his past valued services to the Committee.

The Council accepted a recommendation of the Contests Committee that, where possible, dates and brief details of overseas contests should be published in the Society's Journal.

The Council accepted a recommendation of the R.A.E.N. Committee to the effect that the appointment of E.C.O.s shall be automatically renewed at the end of their term of office unless the Committee, in the light of a report from the Honorary Secretary of the Committee, see fit to call for the re-nomination of individual E.C.O.s.

The Council took note of a Report from the Exhibition (Home Constructor's Section) Committee dealing with the Society's participation in the National Radio Show, Earls Court, September, 1954.

The Meeting terminated at 9.20 p.m.

County Representation

THE following is a list of Corporate Members who have been duly nominated to serve as County (or District) Representatives for the years 1955 and 1956. The nominees will take office as from January 1, 1955.

REGION 1 (NORTH-WESTERN)

Cheshire.—L. N. Goldsbrough (G3ERB), 54 King's Lane, Bebington, Wirral.
Cumberland.—J. Hudson (G4NS), 16 Monkhouse Road, Salterbeck, Workington.

REGION 2 (NORTH-EASTERN)

Northumberland.—D. G. Lucas (G3AKH), 33 Broad Chare, Newcastle-on-Tyne 1.
Yorkshire West.—J. R. Petty (G4JW), 580 Redmires Road, Sheffield 10.

REGION 3 (EAST MIDLANDS)

Birmingham.—G. Swinnerton (G6AS), 120 Grange Road, Olton, Birmingham 27.
Staffordshire.—W. A. Higgins (G8GF), 28 Kingsley Road, Kingswinford.
Worcestershire.—N. T. Harper (G4MI), 33 Vicarage Road, Amblecote, Stourbridge.

REGION 4 (WEST MIDLANDS)

Derbyshire.—W. R. Chaffe (G2DLJ), 147 Pear Tree Road, Derby.
Leicestershire and Rutland.—K. G. Chapman (G3AFZ), 292 Gwendolen Road, Leicester.
Lincolnshire.—L. J. Coupland (G2BQC), 214 Wyberton West Road Boston.
Northamptonshire.—L. Critchley (G3EEL), 36 Waterloo Road, Peterborough.
Nottinghamshire.—R. I. Sills (G3IQM), 38 Montford Crescent, Sherwood, Nottingham.

REGION 5 (EASTERN)

Essex.—G. Cutting (G3GNQ), "Lamorna," Well Lane, Galleywood, Chelmsford.

REGION 6 (SOUTH CENTRAL)

Hampshire.—E. R. L. Bassett (B.R.S.16075), 42 Norham Avenue, Shirley, Southampton.

REGION 7 (LONDON)

London, North.—S. H. Iles (G3BWQ), 29 River Bank, Winchmore Hill, N.21.
London, East.—G. Norris (G3ICI), 134 Meads Lane, Ilford, Essex.

REGION 8 (SOUTH EASTERN)

Kent.—L. S. King (G4IB), "Glenisla," Maidstone Road, Lower Green, Pembury.

REGION 9 (SOUTH WESTERN)

Bristol.—R. T. Poeton (G3CTN), 37 West Broadway, Henleaze, Bristol.
Cornwall.—J. Watson (G3AET), 24 St. John's Terrace, Deveron, nr. Truro.
Devon.—A. J. Scanes (B.R.S.4948), 77 Woolsery Avenue, Whipton, Exeter.
Somerset.—W. J. Green (G3FBA), 82 Bloomfield Avenue, Bath.

REGION 13 (SCOTLAND—SOUTH EASTERN)

East, Mid- and West-Lothian.—Rev. Walter M. Ferrier, B.D. (GM3BDA), St. Andrew's Manse, North Berwick, East Lothian.

REGION 14 (SCOTLAND—WESTERN)

Renfrewshire.—J. K. McDowall (GM3AR), 15 Ruthven Avenue, Giffnock.
Stirlingshire and Clackmannanshire.—R. Bacon (GM3JAI), 15 Leven Street, Bainsford, Falkirk.

Representation

THE following is an amendment to the list of Regional Representatives published in the December, 1953 issue:

Region 12 East Scotland
Mr. B. McK. Davidson (GM3ALZ), 42 Smithfield Drive, Aberdeen.

* * *

Change of Address

The address of the Region 8 (SouthEastern) Regional Representative, Mr. R. J. Donald (G3DJD) is now "Wild Geese," Westmeston Avenue, Rottingdean, Sussex.

THE following is an addition to the list of T.R.s published in the December, 1953, issue of the BULLETIN.

Region 3—Worcestershire
Redditch
S. H. Avery (G4PR), 81 Bramfield Road, Droitwich.

Slow Morse Practice Transmissions

Organiser: C. H. L. Edwards (G8TL)*

G.M.T.	Call	kc/s	Town
Sundays			
09.00	G3GYV	1900	Whitley, near Warrington
09.30	G3BKE	1900	Newcastle on Tyne
10.00	G6MH	1990	Southend-on-Sea
11.00	G2FXA	1900	Stockton-on-Tees
11.00	G3GZA	1837.5	Bristol
12.00	G3LP	1850	Cheltenham
12.00	G3JBU	1850	Northampton
12.00	GI5UR	1860	Belfast
14.00	G5AM	1900	Witnesham, Ipswich
21.00	G2FIX	1812	Nr. Salisbury
23.30	GI3CFI	1900	Coleraine, N.I.
Mondays			
19.00	G3NC	·825	Swindon
19.00	G3JBU	1850	Northampton
19.15	G2FRX	1850	Plymouth
21.00	G3BLN	1900	Bournemouth
21.00	G3FSM	1900	Brentwood
22.15	G2BRH	1900	Ilford
Tuesdays			
18.30	G2FXA	1900	Stockton-on-Tees
18.30	G3JMP	1875	Bristol
20.30	G3GDZ	1905	Kingsbury, N.W.9
21.00	G3EFA	1855	Southport
21.30	G3DBP	1915	Nottingham
23.30	GI3CFI	1900	Coleraine, N.I.
Wednesdays			
19.00	G3GZA	1837.5	Bristol
19.00	G3HUB/A	1902	Chelmsford
22.30	G3FBA	1910	Bath
23.30	GI3CFI	1900	Coleraine, N.I.
Thursdays			
19.00	G3NC	1825	Swindon
19.15	G2FRX	1850	Plymouth
20.00†	G2CPS / G2CNX / G3GWT	1910	Hull, Yorks.
20.30	G3JQM	1878	Barwick, Yeovil
22.30	G3ADZ	1940	Southsea
23.00	G3LA	1915	Brentwood
23.30	GI3CFI	1900	Coleraine, N.I.
Fridays			
18.00	G3GEN	1900	Gloucester
19.00	G3BLN	1900	Bournemouth
20.00	G3IIH	1900	Wirral
20.30	G3IMP	1920	Romford
Saturdays			
13.00	G2FXA	1900	Stockton-on-Tees

† *Alternately.*

Members using this service are requested to send listener reports to the stations concerned.

* *28 Morgan Crescent, Theydon Bois, Epping, Essex.*

Silent Key

RALPH BLOXAM (GM6LS)

It is with deep regret that we record the death—quite suddenly on October 28, 1954, whilst in London—of Ralph Bloxam (GM6LS). Thus another Old Timer has been removed from the ranks of the pioneers of Amateur Radio.

Ralph was first licensed just after World War I since when his station had been consistently active. During recent years his call was heard on all bands from 160 to 2 metres.

His passing will be keenly felt by a large number of radio amateurs, both in this country and abroad.

Deep sympathies are extended to his son, Roy (now in the U.S.A. under the exchange of school teachers plan), and other relatives.

S.R.

Forthcoming Events

REGION 1

Blackpool.—No meeting in December.
Bury.—January 13, 7.30 p.m., 52 The Drive, Seedfield, Bury
Chester (C. & D.A.R.S.).—Tuesdays, 7.30 p.m., Tarran Hut, Y.M.C.A., Chester.
Crosby.—Tuesdays, 8 p.m., over Gordons' Sweetshop, St. John's Road, Waterloo.
Isle of Man.—December 15, January 5, 19, Manor Guest House, Victoria Road, Douglas.
Lancaster (L. & D.A.R.S.).—January 5, 7.30 p.m., George Hotel, Torrisholme.
Liverpool (L. & D.A.R.S.).—Tuesdays, 8 p.m., St. Barnabas Hall, Penny Lane, Liverpool 15.
Manchester (M. & D.R.S.).—January 3, 7.30 p.m., Brunswick Hotel, Piccadilly, Manchester.
Preston.—December 17, Belle Vue Hotel, New Hall Lane, Preston.
Rochdale (R.R.T.S.).—Fridays, 7.45 p.m., 1 Law Street, Sudden.
South Manchester.—Fridays, 7.45 p.m., Ladybarn House, Mauldeth Road, Manchester 14.
Southport.—Thursdays, 8 p.m., Y.M.C.A., off Eastbank Street, Southport.
Stockport.—December 22, January 5, 19, 8 p.m., Blossoms Hotel, Buxton Road, Stockport.
Warrington (W. & D.A.R.S.).—December 16, January 6, 20, 7.30 p.m., King's Head Hotel, Winwick Street, Warrington.
West Cumberland.—January 6, 7 p.m., Kells Community Centre, Whitehaven.
Wirral (W.A.R.S.).—December 15, January 5, 19, 7.45 p.m., Y.M.C.A., Whetstone Lane, Birkenhead.

REGION 2

Bradford.—December 28, January 11, 7.30 p.m., Cambridge House, 66 Little Horton Lane.
Catterick.—Wednesdays, 7 p.m., Loos Lines, Catterick Camp.
Darlington.—Thursdays, 7.30 p.m., 129 Woodlands Road.
Doncaster.—January 12, 7.30 p.m., Y.W.C.A., Cleveland Street.
Hull.—December 28, January 11, 7.30 p.m., "Rampant Horse," Paisley Street.
Leeds.—Wednesdays, 7.30 p.m., Swarthmore Educational Centre, 3 Woodhouse Square.
Middlesborough.—Thursdays, 7.30 p.m., Joe Walton's Boys' Club, Feversham Street.
Pontefract.—December 16, 30, January 6, 8 p.m., "Fox Inn," Knottingley Road.
Rotherham.—Wednesdays, 7 p.m., "Cutlers' Arms," Westgate.
Scarborough.—Thursdays, 7.30 p.m., B.R. Rifle Club, West Parade Road.
Sheffield.—December 22, 8 p.m., "Dog and Partridge," Trippet Lane. January 12, 8 p.m., Albreda Works, Lydgate Lane.
Slaithwaite.—Fridays, 7.30 p.m., 3 Dartmouth Street.
Spenborough (S.V. & D.R. & T.S.).—December 29, January 12, 7.30 p.m., Temperance Hall, Cleckheaton.
York.—Thursdays, 7.30 p.m., Club Rooms, Y.A.R.S., Fetter Lane.

REGION 3

Birmingham (South).—January 3, 7.30 p.m., Friends Hall, Watford Road, Cotteridge. (M.A.R.S.).—December 21, 7 p.m., Midland Institute. (S.R.S.).—January 7, 7.45 p.m., Church House, High Street, Erdington.
Coventry.—December 17, 7.30 p.m., Priory High School, Wheatley Street. (C.A.R.S.).—December 20, January 3, 7.30 p.m., 9 Queens Road.
Kenilworth, Leamington, Warwick.—December 16, 7.30 p.m., Dalehouse Lane.
Malvern.—January 3, 8 p.m., "Foley Arms."
Rugby.—January 6, 7.30 p.m., B.T.H. Recreation Hall, Hillmorton Street.
Solihull.—January 7, 7.30 p.m., Royal Oak Hotel Solihull.
Stoke-on-Trent.—December 29, 8 p.m., "Lion's Head," John Street, Hanley.
Stourbridge (St. A.R.S.).—January 4, 8 p.m., King Edward VI School.
Walsall.—January 12, 26, 8 p.m., Technical College, Bradford Place.
Wolverhampton.—December 20, January 3, 8 p.m., Stockwell End, Tettenhall.
Wrekin.—January 3, 8 p.m., Wrekin Services Club, Roseway.

REGION 4

Alvaston.—Tuesdays, Thursday, 7.30 p.m., Sundays, 10.30 a.m., Nunsfield House, Boulton Lane, nr. Derby.
Chesterfield.—Tuesdays, 7.30 p.m., Bradbury Hall, Chatsworth Road.
Derby (D. & D.A.R.S.).—Wednesdays, 7.30 p.m., Derby College of Arts and Crafts, Sub-basement, Green Lane.
Leicester (L.R.S.).—December 20, January 3, 17, 7.30 p.m., Holly Bush Hotel, Belgrave Gate.
Lincoln (L.S.W.C.).—January 5, 7.30 p.m., Technical College, Cathedral Street.
Mansfield (M. & D.A.R.S.).—December 14, January 11, 7.30 p.m., Denman's Head Hotel, Market Place, Sutton-in-Ashfield.
Newark.—January 2, Northern Hotel, Appleton Gate.
Northampton (N.S.W.C.).—Fridays, 7 p.m., January 7, 6 p.m., Clubroom, 8 Duke Street.
Nottingham.—December 17, January 21, 7.30 p.m., Sherwood Community Centre, opposite Woodthorpe Drive, Sherwood.
Peterborough.—January 5, 7.30 p.m., 21 Hankey Street.
Retford.—January 3, 7 p.m., Sun Inn, Cannon Square.

REGION 5

Chelmsford.—January 4, 7.30 p.m., Marconi College, Arbour Lane.
Lowestoft & Beccles (L. & B.A.R.C.).—December 29, January 12, 7.30 p.m., Y.M.C.A., Lowestoft.

REGION 6

Cheltenham.—January 6, 8 p.m., Great Western Hotel, Clarence Street, Cheltenham.
Gloucester (G.R.C.).—Thursdays, 7.30 p.m., "The Cedars," 83 Hucclecote Road, Gloucester.
High Wycombe.—January 25, 7.30 p.m., "Denewood," Totteridge Hill, High Wycombe.
Oxford (O. & D.A.R.S.).—December 29, January 12, 7.30 p.m., Club Room, "Magdalen Arms," Iffley Road, Oxford.
Portsmouth (P. & D.R.S.).—Tuesdays, 7.30 p.m., British Legion Club, Queen's Crescent, Southsea. (Clubroom open every evening).
Southampton.—January 1, 7 p.m., 1 Prospect Place.
Stroud.—Wednesdays, 7.30 p.m., Subscription Rooms.

REGION 7

Acton, Brentford & Chiswick.—Tuesdays, 7.30 p.m., A.E.U. Rooms, 66 Chiswick High Road, W.4.
Barnes, Putney & Richmond.—January 7, 337 Upper Richmond Road, S.W.14.
Bexleyheath.—December 30, January 13, 7.30 p.m., Congregational Hall, Chapel Road, Bexleyheath.
Bromley (N.W.K.A.R.S.).—December, Shortlands Hotel, Station Road, Shortlands, Kent.
Chingford.—December 17, 31, Venue from G4GA (SIL 5635) or B.R.S.19765 (SIL 6055).
Chislehurst & Sidcup.—January 7, "Seven Stars," High Street, Footscray.
Croydon.—January 11, 7.30 p.m., "Blacksmith Arms," 1 South End, Croydon.
Dorking.—Tuesdays, 7.30 p.m., 5 London Road.
East Ham.—Tuesdays, 8 p.m., 12 Leigh Road.
Ealing.—Sundays, 11 a.m., A.B.C. Restaurant, Ealing Broadway, W.5.
East London (E.L.A.R.T.S.).—December 19, 2.30 p.m., Town Hall, Ilford.
Enfield.—December 19, 3 p.m., George Spicer School, Southbury Road, Enfield.
Finsbury Park.—December 21, 7.30 p.m., 164 Albion Road, Stoke Newington, N.16.
Guildford & Woking.—Christmas Recess.
Hendon & Edgware.—Wednesdays, 8 p.m., 22 Goodwins Avenue, Mill Hill, N.W.7.
Hoddesdon.—January 6, "Salisbury Arms."
Holloway (G.R.S.).—Mondays (R.A.E.) and Fridays, 7 p.m., L.C.C. School, Eburne Road, Holloway N.7. December 17, Junk Sale.
Ilford.—Thursdays, 8 p.m., G2BRH, 579 High Road.
Kingston (K. & D.R.S.).—Alternate Wednesdays, 7.45 p.m., Penrhyn House, Penrhyn Road.
Lewisham (R.A.R.C.).—Wednesdays, 8 p.m., Durham Hill School, Downham.
London (R.S.G.B.).—December 17 (A.G.M.), January 28 (Presidential Address), 6.30 p.m., I.E.E., Savoy Place, Victoria Embankment, W.C.2.
London (U.H.F. Group).—January 6, 7 p.m., Bedford Corner Hotel, Bayley Street, Tottenham Court Road (Annual Dinner).
Norwood.—December 18, January 15, Windermere House, Weston Street, Crystal Palace.
Southgate & Finchley.—January 13, 7.30 p.m., Arnos School, Wilmer Way.
Slough.—January 4, Venue from G2HOX or G3BTP, 13 Quaves Road, Slough.
Sutton & Cheam (S. & C.R.S.).—December 21, "The Harrow," Cheam Village.
Welwyn Garden City.—January 4, 8 p.m., Council Offices, Welwyn Garden City, Herts.

REGION 8

Brighton (B.D.R.C.).—Tuesdays, 7.30 p.m., "Eagle Arms," Gloucester Road.
Chatham (M.A.R.T.S.).—December 20, January 3, 17, 31, 7.30 p.m., Services Rendered Club, 14 High Street, Brompton, Chatham.
Hastings (H. & D.R.C.).—December 21, January 4, 18, 7.30 p.m., Saxons' Cafe, Denmark Place.
Isle of Thanet (I.O.T.R.S.).—Fridays, 7.30 p.m., Hilderstone House, Broadstairs.
Maidstone (M.K.A.R.S.).—Tuesdays, 7.30 p.m., Elms School, London Road.
Worthing (W. & D.R.C.).—January 10, 7.30 p.m., Adult Education Centre, Union Place.

REGION 9

Bath.—December 20, 7.30 p.m., 12 Pierrepoint Street. (Details from G3FBA. Telephone No.: 3861).
Bristol.—January 21, 7.15 p.m., Carwardine's Restaurant, Baldwin Street, Bristol 1.
Exeter.—January 7, 7 p.m., Y.M.C.A., St. David's Hill, Exeter.
North Devon.—January 6, G2FKO, 38 Clovelly Road, Bideford.
Plymouth.—December 18, January 15, 7 p.m., Tothill Community Centre, Tothill Park, Knighton Road, St. Jude's.
Torquay.—December 18, January 15, Y.M.C.A., Castle Road, Torquay.
Weston-super-Mare.—January 4, 7.30 p.m., Y.M.C.A.
Yeovil.—Wednesdays, 7.30 p.m., Grove House, Preston Road.

Continued on p. 301

Regional and Club News

BATH.—A series of lectures on "Aerials" in preparation for the Radio Amateurs' Examination is to be given by G3FBA at the monthly meetings. All interested will be welcome.

BRADFORD AMATEUR RADIO SOCIETY.—At Cambridge House, Little Horton Lane, on December 28, A. Smith, B.Sc. will lecture on "The Electron." On January 11, G. F. Craven will give a talk on "Oscilloscopes—their design and construction." *Hon. Secretary*: F. J. Davies, 39 Pullan Avenue, Bradford 2.

BRIGHTON & DISTRICT RADIO CLUB.—A recent series of demonstrations of 2 m equipment by Reg. Moores aroused great interest. Meetings are held on Tuesdays at the Eagle Inn, Gloucester Road, Brighton. The club station is active on 3.5 Mc/s and Top Band. *Hon. Secretary*: T. J. Huggett, 15 Waverley Crescent, Brighton 6.

BRISTOL.—"Communication Receivers for Amateurs" was the title of a lecture given by R. G. Lane (G2BYA) on November 19. The lecture will be concluded at the December meeting. Slow Morse classes are to be started in the New Year and interested members are asked to contact the C.R. or Hon. Secretary for further details.

BURY.—Great interest was shown in the Group's stand at the Bury Rotary Club's Hobbies Exhibition. Home constructed equipment was displayed. The exhibition station, using the call-sign G3BRS/A, employed a Panda transmitter (loaned by the makers) on 3.5 and 14 Mc/s and an N.F.D. rig on Top Band.

COVENTRY AMATEUR RADIO SOCIETY.—Meetings at 9 Queen's Road are arranged for December 20 ("Hamfeast"), January 3 ("Mathematics" by T. R. Theakson), January 6 ("Night on the Air"), and January 8 (Childrens' Party). The annual dinner will be held at Barras House Hotel on February 25.

GRAFTON RADIO SOCIETY.—The Society took part once again in the Annual Handicrafts Exhibition arranged in connection with Islington Civic Arts Festival from November 15 to 19. Transmitters were in operation on Top Band and 3.5 Mc/s. Demonstrations of portable work were arranged with G3JFM and G3AFC. Lectures during the month included one on "The Metropolitan Police Radio System." There was also a talk on meters arranged by AVO. *Hon. Secretary*: A. W. H. Wennell (G2CJN), 145 Uxendon Hill, Wembley Park, Middlesex.

KINGSTON & DISTRICT AMATEUR RADIO SOCIETY.—An unusual talk on "The Apidictor"—an electronic device for determining the condition of bees in a hive—was given by the inventor, E. F. Woods, on December 1. A Junk Sale is arranged for December 15 and G.E.C. are demonstrating their 912 amplifier and metal cone speaker on January 13. The Annual Social will be held on January 8.

MERSEYSIDE RADIO SOCIETY.—The A.G.M. will be held at Larkhill Mansion House, West Derby, on December 22 at 8 p.m.

NORWOOD & DISTRICT.—Judging of the entries in the Annual Competition for the "Ann Cup" and "Trophy" will be carried out at the December meeting. All local members and friends are invited to attend.

NORTH WEST KENT AMATEUR RADIO SOCIETY.—At the November meeting, the President of R.S.G.B. (Arthur O. Milne, G2MI) gave an interesting illustrated talk on his recent visit to Yugoslavia.

STOCKPORT RADIO SOCIETY.—Recent visits have been to Holme Moss TV station and the Shirley Institute where the electron microscope was demonstrated. Two social events are planned—a Hot Pot Supper on December 15 and a visit to the circus late in January. Classes for the R.A.E. have commenced under the direction of G3JLX. Meetings are held at the Blossoms Hotel, Buxton Road, on Wednesdays. *Hon. Secretary*: G. R. Phillips, 7 Germans Buildings, Buxton Road, Stockport.

SUTTON & CHEAM RADIO SOCIETY.—The usual Christmas Junk Sale will take place at the Harrow Inn, Cheam, on December 21. A constructional contest is to be held in February and it is also hoped to arrange a visit to an Ice Show the same month. The Annual Dinner has been fixed for March 12, 1955. *Hon. Secretary*: F. J. Harris (G2BOF), 143 Collingwood Road, Sutton.

TORBAY AMATEUR RADIO SOCIETY.—A Social Evening and Dinner will be held at Oswalds Hotel, Babbacombe, Torquay, on February 5, 1955, commencing at 7.30 p.m. Tickets, price 8s. 6d. each, may be obtained from Donald Cawley (G2GM), 1 Littlegate Road, Paignton. The next meeting at the Y.M.C.A., Torquay, is on December 18 at 7.30 p.m. when members' problems will be discussed. *Hon. Secretary*: L. H. Webber (G3GDW), 43 Lime Tree Walk, Newton Abbott.

WEST LANCASHIRE RADIO SOCIETY.—R.A.E. and Morse classes are now being held, full details of which may be obtained from the *Hon. Secretary*: S. Turner (G3JUB), 5 Balfe Street, Seaforth, Liverpool 21.

SOUTHEND & DISTRICT RADIO SOCIETY.—"Spot Wobble" by G. Hart and "V.H.F. Broadcast Reception" by H. Wilkinson were subjects for recent lectures. *Hon. Secretary*: J. H. Barrance, M.B.E. (G3BUJ), 49 Swanage Road, Southend-on-Sea.

TEES-SIDE AMATEUR RADIO CLUB.—Commencing December 17, 1954, the Club will meet on alternate Fridays at 8 p.m. in the new headquarters at Settlement House, 132 Newport Road, Middlesbrough. *Hon. Secretary*: B. Wilson (B.R.S.19449), 297 Linthorpe Road, Middlesbrough.

County Representatives

County (or District) Representatives who are retiring at the end of December are asked to forward to their Regional Representative or to their successor the card file of members which should be in their possession.

Forthcoming Events (Contd. from page 300)

REGION 10

Cardiff.—January 10, 7.30 p.m., "The British Volunteer," The Hayes, Cardiff.

Neath & Port Talbot.—January 12, 7.30 p.m., Royal Dock Hotel, Briton Ferry.

REGION 13

Dunfermline.—Thursdays, 7.30 p.m., behind 34 Viewfield Terrace, Dunfermline.

Edinburgh (I.R.S.).—December 16, 30, 7.30 p.m., Chamber of Commerce Rooms, 25 Charlotte Square, Edinburgh.

REGION 14

Falkirk.—December 31, January 14, The Temperance Cafe, High Street, Falkirk.

Glasgow.—December 29, 7 p.m., Institute of Engineers and Shipbuilders, 39 Elmbank Crescent, Glasgow, C.2.

A view of the Bury Radio Society's stand at the recent Hobbies Exhibition sponsored by Bury Rotary Club.

Letters to the Editor

B.E.R.U. Contests

DEAR SIR,—I am authorised by the Contests Committee to reply, somewhat belatedly, to the two letters concerning B.E.R.U. Contests which were published in the October issue of the BULLETIN.

Firstly, it should be explained to Mr. Jones that the decision to discontinue the Receiving Section of the Contest has been taken by the Committee this year, and approved by Council, after several years hesitation and a last-minute reprieve last year. The very poor support—only eight entries from the many thousands of eligible members of Empire Societies—and the peculiar fact that there is more mis-reading of rules among the few receiving entries than all the transmitting entries makes the amount of work involved quite out of proportion for a voluntary committee.

Secondly, dealing with the complaints of poor publicity made by both Mr. Jones and Major Drudge-Coates, every effort is made to increase participation in all contests, and this applies particularly to B.E.R.U. The rules are circulated every year in ample time for publication in all Empire society publications, and quantities of reprints from the BULLETIN are also sent to the Headquarters of each Empire society. It is a matter for continued regret that little or no response is forthcoming from Empire societies, although details of all contests which are received at R.S.G.B. Headquarters are given publicity in the R.S.G.B. BULLETIN. Additionally, arrangements have been made this year for reprints to be sent by direct post to all competitors in last year's contest, outside the U.K., and for reprints to be available in Canada from VE2BK. Full details have also been sent to I.A.R.U. Headquarters for inclusion in a forthcoming I.A.R.U. Calendar item dealing with International Contests. So far as direct members of the Society are concerned, both at home and overseas, a reminder of the dates and a reference to the BULLETIN issue containing the rules appears in " Contests Diary " each month.

Dealing with Mr. Jones comment on the connection between the increase in the subscription and contests, may I say that the Contests Committee is a voluntary body which does not include any member of Headquarters staff, and that all preparation of rules, judging, checking and reports of contests, and all the associated correspondence is done entirely in the spare time of the members. The members of the Committee do their job because they are interested and enjoy doing it.

Mr. Jones, no doubt, has already discovered that he is in error concerning the Telephony Section of the Contest; there was, of course, no Telephony Section before the war, and it was not, in fact, instituted until some years after the war. He will also note that the trend is, in fact, towards more contests—the 1954 programme included two more Society contests than in the previous year.

The Committee shares Major Drudge-Coates regret that more information could not be included in the report of the 1954 B.E.R.U. of the equipment used by the winner, ZS2A. The reason for this is that the information given in the report was all that was given in the winner's entry. It is rarely possible for the Committee to be certain of the identity of the winner of a contest more than a few days before the report is required for publication, and on this occasion the publication of the results would have been delayed a further month had we waited for more information to be made available.

Yours faithfully,
A. W. W. TIMME (G3CWW),
Finchley, London, N.3. Hon. Secretary, Contests Committee.

Two Metre Open Contest

DEAR SIR,—I note with disappointment that the Contests Committee has decided to take no action with regard to portable station entries in the above contests.

The Contest Committee itself is disappointed with the number of entries received, though the activity was there (more than 100 stations). Further, the Committee has no desire to discourage activity on Two Metres! Both of course are very commendable views. This attitude of the Contest Committee puzzles me because they are responsible for both and it seems curious that they have not analysed why there are so few entries in view of much activity in such contests. I submit the following observations:

1. Since it is a *contest* then there should be equal opportunity to win it, *other things* being equal. This cannot be said of Two Metre contests.
2. No stations will *ever bother* to submit an entry knowing they *cannot* win from the start with the exception of just a few who try to support the lists.

Writing up does take much time—why waste such time?—that is a reasonable attitude if one considers the contest unfair from the start.

3. Optical clarity coupled to high a.s.l. sites does give enormous advantages that the Contest Committee does not appreciate. This happens in most /P cases. A few fixed stations only are so placed.

4. If the Contests Committee suggest I go /P too, the answer is that the Open Contest will virtually become a third portable Two Metre field day. This means the fixed station, on whom activity rests the whole of the year, is utterly *ignored* and *not encouraged*—no certificates, no cups, etc.

5. Furthermore, the fixed station cannot enter the /P Contest. I wonder why?—I'd like to know. Perhaps the Contests Committee will inform me. They say we must have an " open " contest, a " portable " contest so what of the *fixed station* too, unless, of course, that activity is to be discouraged. It looks that way.

In view of the peculiarities of the Two Metre band special contest rules should be laid down to be fair to all and to give equal opportunity of winning the Society cups, etc.

I suggest G2UJ and a committee of Two Metre men be organised to make recommendations on Two Metre contests alone.

Yours faithfully,
H. W. PARKER (G2ADZ)
Woolacombe, N. Devon.

The Editor does not necessarily endorse the views and opinions expressed by contributors to this feature.

Wirral N.F.D. Entry

DEAR SIR,—Most members will have read that the major portion of the Wirral entry for National Field Day was disallowed, as " The stated use of power was in excess of 5 watts." As this group prides itself that its station has always been operated within the spirit of the event, we are anxious that the full details should be known, so that our misdemeanour does not assume exaggerated proportions in the imaginations of those who read the results.

Through a regrettable error on the part of the A.R., the power-input details were given as 230 volts at 22 milliamps; or 5.06 watts (FIVE POINT NOUGHT SIX).

While it must be fully admitted that the Contests Committee was well within its right to disqualify us on these figures, we are disappointed that no attempt was made to notify us of these intentions, and if, as was stated in the Committee's report in the BULLETIN, they realised that it was " an error of slide-rule," no opportunity was offered to us to rectify that error. Our first intimation was the results in the BULLETIN. We are one of two groups disqualified for this reason, so the clerical work involved would not have been very great. It would certainly have saved some ill-feelings within our group, and subsequent correspondence.

We appreciate that the Contests Committee, a voluntary body, have a great and tedious task on their hands in cross-checking the N.F.D. entries, but we feel strongly that it would have enhanced the spirit of Ham Radio if they had adopted a less judicial attitude. As our stated power was 1.2 per cent (ONE POINT TWO) in excess of that permitted, we question whether, using normal meters, it is possible to measure to an accuracy better than 5 per cent.

Yours faithfully,

N. KENDRICK (G3CSG)	B. O'BRIEN (G2AMV)
L. ROBERTS (G3EGX)	J. WYLDE (G8BM)
L. N. GOLDSBROUGH (G3ERB)	E. N. EVANS (G3FRT)

R.A.E.N. Procedure

DEAR SIR,—I am sure that GM3HLQ's views as expressed in this column last month are not typical of those held by the majority of R.A.E.N. members. Flag-wagging is certainly not one of the objectives nor, come to that, is form filling. Procedure is necessary to ensure that all operators in a radio network conform to the same general rules which are laid down to assist them in the speedy handling of their messages.

Our Scottish friend appears to favour the view that messages should be sent without recording: who sent them, when they were sent, to whom they were addressed, and the route used, etc. He has the undoubted advantage over myself and many of my compatriots in that he can memorise a number of messages and repeat them " off pat " some time later. Perhaps he will recall the childrens' game where messages are started at one end of a human chain, the final recipient announces what he had received, to the amusement of all.

The R.A.E.N. Committee felt that if the messages were written down on suitable forms they could be re-transmitted or relayed without the wording being altered. Also serious omissions in preamble or address would be obvious and could be rectified before the final acceptance of the message for onward transmission by radio or G.P.O. line. In addition, the message form would be available in the event of queries arising from any source at any time.

It is not the intention of the Committee to " push around " R.A.E.N. members; the procedure and message forms were designed to assist all who may be called upon to utilise their Amateur Radio equipment in the event of an emergency.

Yours faithfully,
W. J. RIDLEY, (G2AJF),
Ford End, Chairman, R.A.E.N. Committee.
Chelmsford, Essex.

DEAR SIR,—Soon after commencing service with the R.A.F. I happened to enter a hut where four regulars were engaged in a heated argument—three of them maintaining that there could be no such thing as a one-man band! I immediately joined forces with the odd man out, and it was not until I had been holding forth for an hour that I realised the whole thing had been arranged.

If Mr. Callanan (November BULLETIN) had similar ideas when phrasing his denunciation of R.A.E.N. organisation, then I have risen to the bait again.

Surely he does not seriously imagine that holding an Amateur (Sound) Licence *alone* certifies one as capable of handling any "live" traffic, far less that of a serious nature? War-time R.A.F. operators had to undergo a schedule of training many times more arduous than that of the Radio Amateur in his first year of c.w., yet not more than 25 per cent of them

could handle even administration channels with efficiency (these are my own figures). When it is realised that the majority of service links used QRO transmitters on reasonably clear channels, how much more difficult is the task of the R.A.E.N. operator, using low power equipment under emergency conditions?

Mr. Callanan obviously has a keen interest in the success of this service, and has, perhaps, had experience in other than Amateur Radio circles; but I beg him to cease helping others to underestimate the qualities and organisation needed to achieve this object.

The article on R.A.E.N. procedure was an excellent beginning, and I have only three small criticisms, relating to the specimen message and form. Firstly, are the BT's in the preamble necessary? Service procedure called for short breaks, and these were never used on busy channels. And why does PC49 have two appearances in so short a programme?

Finally, the section on the Form for " Operator's Use Only " appears a little ambiguous, and I much prefer the layout adopted by the Services. I feel that if R.A.E.N. forms were made similar, operation would be further streamlined, and it would make for better overlapping of all sections: Civil, Military and Amateur.

Not having seen an official Message Form for many years, it may well be that the one depicted in the BULLETIN is a copy of those in current use—in which case I bow out, if not gracefully, then with tact.

Yours faithfully
JOHN J. YEEND (G3CGD).

T.R./E.C.O., Cheltenham.

In Support of QRO

DEAR SIR,—From time to time we read in your correspondence column letters in favour of low power working which state that the full power of 150 watts is excessive for the effective working of all parts of the world, and deplore the use of kilowatts by other countries.

While agreeing with many of these arguments, I feel we are facing a very real danger by overlooking some of the advantages of QRO and I would like to give my reasons for saying this.

Generally speaking, QRP works on the basis that the station has a low power transmitter, a good quality receiver and a quiet location so far as QRN is concerned. How many of us have the third requirement? I haven't. To be readable, the incoming signal has to have fair strength at my QTH.

In addition, in my locality one often hears teleprinter, photo and ship transmissions on our " exclusive " band (I work only on 14 Mc/s). These days, one is becoming all too familiar with the " noise " transmissions put out by commercial stations to clear a path in the amateur band for their own transmissions. No QRP expert could work a weak c.w. station if a teleprinter station started to work on his frequency. But would this happen if a few 1 kW amateurs were working in the vicinity of the teleprinter receiver? It seems unlikely, for the amateurs would interfere with the teleprinter service without themselves being troubled by the distant teleprinter transmitter.

We live in an age of grabbing commercialism. Few people outside our own world respect idealism and moderation in radio matters. One has only to listen to the broadcast stations in the 7 Mc/s band to appreciate that point. The only way to stop the grabbing is to make the band unsuitable for other stations by filling it with powerful signals.

Let those who prefer QRP use it. But for the rest of us, better no ideals than no Amateur Radio! What is the use of QRP in a band full of broadcast stations?

Yours faithfully,
A. H. WICKHAM (GM3IAZ).

Rutherglen, Glasgow.

Without Prejudice

DEAR SIR,—I read with astonishment the letter from G2AKY (November issue of the BULLETIN) as it was the first intimation (being the Loughton station concerned) I had received that an action of mine had caused a fellow amateur such a degree of heartburn.

G2AKY is entirely wrong when he says that I broke in on the QSO uninvited. I did, in fact, ask G8TL/M to let me in as I had a report (certainly of great interest to him) to QSP from G5RV; G8TL/M on going over to G2AKY made a standby for me to join the QSO. This I did, passing, as is usual practice, reports to both stations. Contact was eventually established with Chelmsford, during which time the transmission was passed at least twice by G8TL/M and once by myself to G2AKY, but he was not there to receive it. G5RV in concluding the QSO thanked both G2AKY and G3JBS for their co-operation.

I trust that, in view of this explanation (which can be verified by the other stations taking part) G2AKY will offer apologies with the same degree of alacrity with which he published accusations of bad manners, etc.

Yours faithfully,
A. W. SHEPPARD (G3JBS).

Loughton, Essex.

Long-Delay Echoes

DEAR SIR,—From time to time there are reports that echoes with time delays of many seconds have been heard on radio transmissions. Such echoes, if they really occur, are of great scientific importance. I should be glad if anyone who has ever heard such echoes would send me full details, including the date, time, frequency, station concerned, and if possible, the approximate time delay of the echo. I should also be grateful for any references to Amateur Radio journals in which reports of such echoes have been published.

Yours faithfully,
B. H. BRIGGS, Ph.D. (G2FJD).

Cavendish Laboratory
Cambridge.

The R.S.G.B. Amateur Radio Exhibition—Where were the Component Manufacturers?

DEAR SIR,—I took the opportunity of visiting the Annual R.S.G.B. Amateur Radio Exhibition this year. It was the first time for five years that I have been able to do this and what a change seems to have taken place during that period.

Had I been a complete newcomer to our hobby or just a casual visitor to the Royal Hotel I should have come away with the impression that the Amateur Radio station of 1954 operating on frequencies lower than 30 Mc/s had no receiver and comprised a commercially built transmitter, a tape recorder, and large air and water-cooled valves. An amateur constructing the majority of his own equipment will only be one interested in s.s.b., TV, v.h.f., or R.A.E.N. in which field there is practically no commercially made gear available at present.

Excluding the valve manufacturers (a very well-known name in this line was conspicuous by its absence) I recall there were only three of the 23 or so stands exhibiting any form of components suitable for use in the mainly home-constructed station. Where were the manufacturers and/or retailers of the condensers, resistors, transformers, other accessories and the receivers within the reach of an amateur's pocket? The commercially made transmitters, etc. all have their place in such an exhibition, but surely, even if the component manufacturers were unable to exhibit their products individually, there would be one enterprising retailer with their agencies who could have come forward to show the components which are available at the present day to the amateur who builds his own transmitters, converters and auxiliary gear.

In this year's exhibition, the most attractive stands were the displays of amateur-constructed equipment and great credit must go to those exhibitors but one still has to peruse photographs and lists in catalogues and advertisements to obtain any idea of the up-to-date components available for home construction of any kind of equipment.

Yours faithfully,
JOHN EATON (G3EZZ).

Langley Mill, Nottingham.

New Books

P. H. BRANS' TELEVISION AND SPECIAL TUBES VADE MECUM (11th Edition). Published by P. H. Brans, Ltd., Antwerp.

Following publication of the 9th and 10th Editions, which deal respectively with Valve Characteristics and Equivalents, the trilogy is now completed. The 11th Edition is divided into 10 main sections the chief of which cover Cathode Ray Tubes, Crystal Devices, Controlled Rectifiers, Special U.H.F. Tubes, Gas Discharge Tubes and Photo Tubes.

A simple index enables the reader to locate and classify a particular valve or tube.

THE A.R.R.L. ANTENNA BOOK 6th Edition. Published by the American Radio Relay League, and available from R.S.G.B. Headquarters. Price 13/6 post free.

Within the compass of its 282 pages this new edition of *The A.R.R.L. Antenna Book* brings to the reader a wealth of up-to-date information on Wave Propagation, Fundamentals, Transmission Lines, Multi-Element Directive Arrays, Long Wire Antennas and Multi-Band Antennas. Special chapters deal with aerials for 3.5 and 7 Mc/s and for 14, 21 and 28 Mc/s. V.H.F. and u.h.f. aerial systems are also treated at great length: there is also a chapter on aerials for the Top Band. Much useful information is given on the practical aspects of aerial construction including the construction of rotary beam arrays. The last three chapters deal comprehensively with aerials for D/F work, reception and mobile operation. There is an excellent bibliography and a first-class index.

In an introduction A. L. Budlong, General Manager, A.R.R.L., writes: " The war-time and post-war periods just passed have brought a clearer understanding of the principles of antennas and transmission lines, a growing volume of useful design data and the development of methods and devices for determining and optimizing the performance of an antenna system. It is with these aspects of antenna operation that the material in this new edition is largely concerned."

How well the authors have succeeded in their important task will be apparent from a close study of this new work.

Silent Key

HENRY J. R. REIDER (ZS1P)

The death, on November 22 last, of Henry J. R. Reider, ZS1P, of Three Anchor Bay, Cape Province, has deprived South African Amateur Radio of one of its best-known personalities.

Mr. Reider made telecommunication history in 1948 by picking up the first clear television pictures to be seen in the Union, direct from Alexandra Palace, 6000 miles away, on a table-model television set at his home.

An Honorary Life Member of the S.A.R.L. Mr. Reider achieved recognition in many spheres with his inventions. He served in the Royal Corps of Signals during World War I and was an active amateur for many years.

He is survived by his widow and four children to whom condolences are offered.

New Members

Corporate Members, Home (Licensed)

G2CV †T. B. COCKING, 4 Bittacy Park Avenue, Mill Hill Village, London, N.W.7.
G3CDJ R. R. ADAMS, 121 Bellingham Road, London, S.E.6.
G3FBZ J. JEFFS, Willow Brook, Jinacre Hill, Wightwick, nr. Wolverhampton, Staffs.
G3HMK F. E. PARTLETT, "Burford," Hatfield Road, Little Baddow, Chelmsford, Essex.
G3HZT *P. S. FRASER, 263 Bear Road, Brighton 7.
G3IAJ *A. H. PAUL, 54 Northgate Road, Crawley, Sussex.
G3IFZ D. FORD, 6 Johnson Road, Short Heath, Willenhall, Staffs.
G3IUM F. J. WARMAN, 213 Sutton Road, Walsall, Staffs.
G3IWH I. J. HALL, 20 The Rise, Greenford, Middlesex.
G3JLE R. J. P. BOBY, 63 Bartlemas Road, Oxford.
G3JUL G. C. VOLLER, 426 London Road, Isleworth, Middlesex.
G3JVI N. E. JONES, Castle House, Moreton, nr. Ongar, Essex.
G3JVU F. B. ALLEN, 4 Cobham Street, Gravesend, Kent.
G3JWK K. W. STARNES, 12 Hickings Lane, Stapleford, Notts.
G3JWQ B. A. MAYCOCK, 25/27 Oxford Street, Ripley, Derbys.
G3JWU J. E. HUNT, 49 Oxford Street, Ripley, Derby.
G3JXG *F. T. HODGSON, 7 Florence Avenue, Somerscales Street, Hull, Yorks.
G3JXL H. E. JONES, 88 Normanton Lane, Littleover, Derby.
G3JXM N. H. JESSEP, 12 Sunrising Estate, East Looe, Cornwall.
G3JYH J. B. HARDING, 16 Junction Road, Norton-on-Tees, Co. Durham.
G5NS F. BROWN, 58 Whaggs Lane, Whickham, Newcastle-on-Tyne.
GI3ACV †R. GABBEY, 24 Clande Boye Road, Bangor, N. Ireland.
GM3MX †R. W. BELL, Main Street, Pitlochry, Perths.
GM6IS J. P. MALE, 4 Campbell Street, Greenock, Renfrew.

Corporate Members, Overseas (Licensed)

4S7EP R. E. H. PERERA, 120 De Soysa Road, Moratuwa, Ceylon.
DL2VO Major R. CARLYON, R. Sigs., 1 Corps Signal Regt, B.A.O.R. 15.
DL2VU R. W. HULSE, Royal Signals Troop Attached, Kings Dragoon Guards, B.A.O.R. 6.
OD5BA J. ATTAR, American University of Beirut, Beirut, Lebanon.
OE2HW H. WIEDER, Plainstrasse/20/I, Salburg, Austria.
VE2LE B. PANNETON, 601 Bonaventure Street, Trois-Rivieres, Quebec, Canada.
VE6UB R. A. STUNDEN, 2115-10 Street N.W., Calgary, Alberta, Canada.
VP7NF †I. L. SUMNER, 8 Scarsdale Villas, Kensington, London, W.8.
VQ4EZ G. F. KEEN, P.O. Box 12200, Nairobi, Kenya.
W1IJL C. M. MANITSAS, 592 Springfield Street, Chicopee, Hampden, Massachusetts, U.S.A.
W2BJH A. S. HOWELL, 156 Eastland Avenue, Rochester 18, New York.
W2CNT E. G. SCHUM, 98 Scholfield Road, Rochester 17, New York.
W2PUN H. B. LEAKE, 59 West Main Street, Webster, New York, U.S.A.
W2SAW A. N. RINGLER, 466 Weaver Road, Webster, New York, U.S.A.
W2ZCZ R. L. WILDER, 25 Maple Road, Baldwinsville, New York, U.S.A.
W3ECR R. E. HATFIELD, R.F.D. 3, Lancaster, Penna., U.S.A.
W4PBA †Capt. R. F. MEANEY, 844th Signal Co. (UHF), Camp Gordon, Ga., U.S.A.
W5HPV I. F. WOLK, 2609 Tolosa Drive, Dallas 28, Texas, U.S.A.
W5VRI Major B. D. JOHNSON, U.S.A.F., MOQ 65, R.A.F. Station, Lakenheath, Suffolk.
W6BGS M. C. LITCHFIELD, Royal Hotel, Woburn Place, Russell Square, London, W.C.1.
W8SHW M. G. CARPENTER, 309 South Sandusky Avenue, Upper Sandusky, Ohio, U.S.A.
YU1GM R. W. THOMPSON, American Embassy, Belgrade, Yugoslavia.
ZE5JE F. M. SPENCE, P.O. Umniati, Southern Rhodesia.
ZL3LC G. H. DIEDRICH, c/o ZL3FY, 14 Northcote Road, Christchurch, New Zealand.
ZS6DF J. E. F. HOLLOWAY, 116 Algernon Road, Norwood, Johannesburg, South Africa.
ZS6AHW C. POTGIETER, Box 7764, Johannesburg, South Africa.

Corporate Members (Foreign Receiving Stations)

245 D. RAPPENECKER, 92 Barnehurst Avenue, Barnehurst, Kent.
246 M. P. BRENNAN, 23 Hennessy's Road, Waterford City, Eire.

Corporate Members (British Receiving Stations)

20333 R. M. KENNETT, 549A Green Lanes, Harringay, London, N.8.
20334 R. LEAH, 2 Ferndale, Bayston Hill, Shrewsbury, Salop.
20335 J. W. ROBERTS, 54 St. Annes Road, Denton, Manchester, Lancs.
20336 M. G. CAMPBELL, 50 Chessel Avenue, Bitterne, Hants.
20337 J. M. HEATH, 28 Norwich Road, Wheatley Park, Doncaster, Yorks.
20338 P. JAGO, 6 Coronation Road, Crosby, Liverpool 23.
20339 *E. M. ROBERTS, 135 Cherry Tree Avenue, Walsall, Staffs.
20340 T. B. CUTMORE, 49 Burnt Ash Road, Lee, London, S.E.12.
20341 S. S. MCQUEEN, 86 Mitre Road, Glasgow, W.3.
20342 J. SPRAY, The Service Garage, Staplecross, Robertsbridge, Sussex
20343 D. R. LEE, 4 Barnard Green, Welwyn Garden City, Herts.
20344 *J. K. ELEY, 4 Meller Road, Western Park, Leicester.
20345 Dr. J. P. CAPLAN, 132 Harley Street, London, W.1.
20346 R. R. HALL, 51 Jackson Avenue, Rochester, Kent.
20347 E. H. PHILLIPS, 57 Trafalgar Street, Gillingham, Kent.
20348 W. B. HAWKINS, 26 Lympstone Close, Southend, Essex.
20349 W. E. LEE, 1 Spratton Villas, Wellington Street, Matlock, Derbys.
20350 R. SHORT, 27 Garfield Road, North Chingford, London, E.4.
20351 D. D. BARGERY, Moor Lane, Wincanton, Somerset.
20352 B. J. KNOTT, 155 Lymington Road, Torquay, Devon.
20353 A. A. KENDALL, 272 Worton Road, Isleworth, Middlesex.
20354 R. V. HINCHLIFFE, 54 Ponsford Road, Knowle, Bristol 4.
20355 L. D. GREGSON, 38 Rowsley Street, Leicester.
20356 D. W. ATKINSON, "Hildaslea," Angmering, Sussex.
20357 G. A. GRAY, 4 Bengal Road, Ilford, Essex.
20358 H. DAVEY, 6 Station Road, Dunstable, Beds.
20359 *E. G. AUGOOD, 33 Parkstone Avenue, Hornchurch, Essex.
20360 A. P. DAY, 63 Lovell Road, Cambridge.
20361 F. R. GARRAD, 96 Penerley Road, Rainham, Essex.
20362 G. R. STYRING, 62 Southgrove Road, Sheffield 10, Yorks.
20363 P. A. DAVIS, Army Apprentice School, Harrogate, Yorks.
20364 T. J. COX, 2 Sunray Avenue, Tolworth, Surbiton, Surrey.
20365 L. A. SANDY, 30 Drakefield Road, Upper Tooting, London, S.W.17.
20366 W. E. OAKLAND, 49 Elmcroft Close, Staines Road, Bedfont, Feltham, Middlesex.
20367 R. R. THOROGOOD, Cable & Wireless, Ltd., Engineering School, Porthcurno, Penzance, Cornwall.
20368 J. D. PEARSON, 1 Sheffield Villas, New Holland, Barrow-on-Humber, Lincs.
20369 R. J. B. ASKE, 55A Kenilworth Road, Leamington Spa, Warwick.
20370 J. R. TAYLOR, 86 Grove Road, Windsor, Berks.
20371 C. REED, 12 Knowle Lane, Wookey, Nr. Wells, Somerset.
20372 J. H. A. ISGROVE, 13 Park Place, Risca, Monmouth.
20373 *W. BRAND, The Old Rectory, Droxford, Hants.
20374 *L. A. WILD, 1 Dig Dag Hill, Cheshunt, Herts.
20375 *D. A. ROBSON, The Beeco, Ramsay Road, Banchory, Kincardine.
20376 *G. B. FISK, 10 Willow Grove, Cleadon, South Shields, Durham
20377 *I. M. HAIGH, 294 Littleton Road, Kersal Vale, Salford 7.
20378 *W. DALTON, 47 Cameron Street, Leeds 9.
20379 *F. MORRIS, 40 Hexham Road, London, S.E.27.
20380 *T. R. GILL, 21 Peelhouse Lane, Widnes, Lancs.
20381 *J. MCMICHAN, 76 Castlegate, Jedburgh, Roxburgh.
20382 *H. TOMKINSON, "Norwood," Bramhall Moor Lane, Hazel Grove, Cheshire.
20383 *S. F. COBB, 2 Dorrit House, Dickens Court, London, W.11.
20384 *R. L. BASSENDEN, 31 Lansdowne Road, Flixton, Lancs.
20385 *N. C. DAVIES, 97 Boswell Street, Liverpool 8.
20386 *E. H. C. SIMMONS, 100 Manor Way, Barnehurst, Bexleyheath, Kent.
20388 *Flying Officer M. J. L. FADIL, Officers' Mess, R.A.F. Celle, B.A.O.R. 23.
20389 *W. H. BRADBURY, Four Chimneys, Elms Avenue, Hendon, London, N.W.4.
20390 *A. E. TAYLOR, 622 Saffron Lane, Leicester.
20391 *W. HEYES, 1 Summerhouse Drive, Bexley, Kent.
20392 *A. M. THATCHER, The Bungalow, Worksop College, Worksop, Notts.
20393 *J. D. SLATER, 8 Hickling Road, Ilford, Essex.
20394 D. C. HAMILTON, 42 Morion Road, Knightswood, Glasgow, W.3.
20395 P. HARROW, 16 St. John's Church Road, Folkestone, Kent.
20396 K. D. HALLAM, 2 Park Avenue, Birmingham 19.
20397 G. BRAMSON, 141 Lower Richmond Road, London, S.W.14.
10789 †R. J. LANG, 94 Haig Avenue, Southport, Lancs.
18542 †R. T. SYMONS, "Hesdin," Mount Ambrose, Redruth, Cornwall.

Associates

P. J. AITCHISON, c/o H. Aitchison, 46 Whirlow Grove, Sheffield, 11.
C. E. BULL, 74 Cornwall Road, Ruislip Manor, Middlesex.
J. E. CRONK, 93 Thurlow Street, Walworth, London, S.E.17.
C. S. DYER, 2A Gold Street, Saffron Walden, Essex.
W. D. HENDERSON, 160 Headstone Lane, N. Harrow, Middlesex.
R. I. HILDER, The Laurels, Dunchurch Road, Rugby, Warwick.
B. W. PARTRIDGE, 219 London Road, Bishops Stortford, Herts.
B. R. PICKERING, 1 Pendennis Close, Kings Norton, Birmingham 30.
C. POUNCEY, 186 Enfield Street, Pemberton, Wigan, Lancs.
B. ROSEWELL, 106 Winston Road, Stoke Newington, London, N.16.
D. SHARP, 96 The Woodlands, Southgate, London, N.14.
B. M. SILVERMAN, 58 Fountain House, Park Street, London, W.1.
C. L. SMITH, 56 Old Church Road, Whitchurch, Cardiff, Glam.
D. J. SMITH, 24A West Street, Colchester, Essex.
R. SYKES, Green Gates, Uplands, Ashtead, Surrey.

Corporate Members (British Empire Receiving Stations)

871 W. R. PRINGLE, 46 Hyde Vale, London, S.E.10.
872 *G. SCHINAS, 28 Mrabat Street, Sliema, Malta.
873 H. S. ROOS, Weltvreden, 40 St. Kilda Road, Crawford, Cape Town, South Africa.
874 D. A. GRAY, P.O. Box 26, Mongu-Lealui, Barotseland, North Rhodesia.
875 *E. RAYSON, c/o "Raneleigh," Centre Danenong Road, Dingley, Victoria, Australia.

Corporate Members, Home (Licensed)

G2AKQ †F. B. JONES, "Heathlands," Ashley Heath, Ringwood, Hants.
G3WH †J. P. EDWARDS, Officers Mess, No. 4 T.R., Royal Signals, Gaza Lines, Catterick Camp, Yorks.
G3BGR †S. D. PERCIVAL, 33 Teme Road, Worcester.
G3FMZ B. R. BROWN, 8 Harewood Avenue, Eastburn, nr. Keighley, Yorks.
G3HLJ *D. M. ROBINSON, The Bungalow, Peacemarsh, Gillingham, Dorset.
G3HVB F. J. DICKENSON, "Hilary," 372 Old Bath Road, Leckhampton Hill, Cheltenham, Glos.
G3IXT *G. H. MYERS, 61 Downs Park Road, Hackney, E.8.
G3JDM P. J. WRIGHT, 63 Probert Road, Oxley, Wolverhampton, Staffs.
G3JDN P. D. LUCAS, 42 Heston Road, Earlswood, Redhill, Surrey.
G3JEG *G. B. MARSTON, Eilansgate House, Hexham, Northumberland.
G3JFP J. F. PROCTOR, Briar Rose, Bevendeam Avenue, Saltdean, Sussex.
G3JNV H. H. WARD, 41 Alexandra Street, Derby.
G3JOR V. E. CAPELL, 16 Station Road, Toddington, Beds.
G3JPC W. E. T. SKILTON, The Parks, Minehead, Somerset.
G3JPG R. R. PARKER, 57 Wilton Estate, Wilton Way, Dalston, London, E.8.
G3JVK R. P. WAYNE, 6 Colebrook Close, Worthing, Sussex.
G3JWC E. T. WARD, 21 Rangemore Street, Burton-on-Trent, Staffs.
G3JWV Fl/Lt. J. J. SNEE, Officers Mess, R.A.F. Station, Hemswell, Lincs.
G3JXN J. E. TINDLE, 10a Stanhope Road, Highgate, London, N.6.
G3JXU D. G. CHATFIELD, 42 Perry Street, Northampton.
G3JYI †J. J. DENN, 538 Officers Married Quarters, R.A.F. Watton, nr. Thetford, Norfolk.
G3JZN J. BARRY, 20 New Road, Radcliffe, Lancs.
G3JZR J. K. CURTIS, 10 Albert Road, Portishead, Bristol.
G3JZV T. R. MORTIMER, 5 Gitsham Gardens, Purbrook, Hants.
G3KAA L. S. CUTTING, 62 St. Michaels Crescent, Luton, Beds.
G3KAJ D. K. JAGGER, Sgts. Mess, R.A.F. Shawbury, Shrewsbury, Salop.
G4PR *S. H. AVERY, 81 Bromfield Road, Redditch, Worcs.
G3GMV N. H. RHODES, 75 The Turnways, Headingley, Leeds, 6, Yorks.
G3GSM G. H. R. CHILD, 52 Gladstone Road, Wimbledon, London, S.W.19.
G3INM H. DAY, 3 Prospect Place, Huddersfield, Yorks.
G3JLG H. W. ELLIS, c/o MTCA Radio Station, Davidstow Moor, Camelford, N. Cornwall.
G3JOJ A. D. CURRAH, 11 The Glebe, Cubert, Newquay, Cornwall.
G3JSG *H. DAVIES, 18 Harrow Avenue, Rochdale, Lancs.
G3JVN D. S. KEEN, 51 Court Way, Colindale, London, N.W.9.
G3JXH *T. J. DUTTON, 19 Kingsthorpe Road, Warstock, Birmingham, 14.
G3JYA E. A. SMITH, 48 A.M.Q., R.A.F. Hemswell, Nr. Gainsboro, Lincs.
G3JYQ *H. D. WOODWARD, 16 Abbotsford Road, Manchester, 21.
G3JZD D. SHONE, 5 Albert Drive, Orrell Park, Liverpool, 9.
G3JZU G. TOMLINSON, 22 Queens Drive, Billingham, Co. Durham.
G4OM †C. J. FISH, Fromefield House, Frome, Somerset.
G8UT †B. P. D. CHALLIS, "Aloha," 43 Dorchester Close, Dartford, Kent.

Corporate Members (British Receiving Stations)

20399 E. A. DIGNUM, 59 Melbourne Court, Anerley Road, London, S.E.20.
20400 J. FOWELL, 14 Bishton Road, Albrighton, nr. Wolverhampton.
20401 F. T. N. BRETT, Ivy Farm House, Kemsing, Kent.
20402 J. J. DELL, c/o Jones, 3 Leith Yard, Kilburn High Road, Kilburn, London, N.W.6.
20403 G. J. BULLMAN, "Faraday," 84 Whitmore Park Road, Holbrooks, Coventry.
20404 R. G. LUNT, 10 Hillside Close, Ronkswood Farm, Worcester.
20405 V. G. STRICKLAND, 60 Blakemere Road, Welwyn Garden City, Herts.
20406 W. H. YOUNG, 65 Adys Road, London, S.E.15.
20407 F. L. MURPHY, 116 Ferney Road, East Barnet, Herts.
20408 F. WICKINS, "Chanctonbury," Woodland Grove, Claverton Down, Bath, Som.
20409 K. A. Smith, 117 Swiss Drive, Ashton, Bristol.
20410 W. IBALL, 213 Garswood Road, Garswood, Wigan, Lancs.
20411 D. SWANZY, Oakland Cottage, Ightham, Kent.
20412 R. G. HILLS, 13 Edna Street, Battersea, London, S.W.11.
20413 B. G. EDWARDS, 3 Teevan Road, Croydon, Surrey.
20414 K. SHEPHERDSON, 34 Northolme Road, Hessle, E. Yorks.
20415 G. A. FRAMPTON, 6 Springwell Close, Streatham, London, S.W.16.
20416 D. F. OWEN, 19 Horncastle Road, Lee, London, S.E.12.
20417 E. BARKER, 55 Aubrey Street, Middlesbrough, Yorks.
20418 *J. G. HANSFORD, 30 The Chase, Ickenham, Middx.
20419 *R. G. RICKARDS, Lane End, The Glade, Holmbury St. Mary, Surrey.
20420 *N. D. SANDERSON, 113a Earls Court Road, London, S.W.5.
20421 *P. I. CLARE, 12 Herries Road, Glasgow, S.1.
20422 *W. M. LEE, "Avondale," Bryntirion Hill, Bridgend, Glam.
20423 *R. C. ENEVER, 122 Lynn Road, Newbury Park, Ilford.
20424 *J. K. NETTELL, 256 North Hyde Lane, Southall, Middx.
20425 *G. A. HADLEY, 33 Lodge Road, Wolverhampton, Staffs.
20426 *M. L. TEAGUE, South Hill Farm, Stow-on-the-Wold, Glos.
20427 *R. J. NEWLAND, 90 St. Marys Road, London, E.13.
20428 *A. R. A. BUNNAGE, 45 Thornton Road, Belvedere, Kent.
20429 *N. D. LOWE, 61 Station Road, Beeston, Notts.
20430 *H. GATES, 6 Birchdale Gardens, Chadwell Heath, Essex.
20431 *W. MILLS, 16 Castle-view Road, Knock, Belfast, N.1.
20432 *S. M. CLARKE, 31 Ashburtham Place, Greenwich, London, S.E.10.
20433 *E. PARSONS, 53a Dordans Road, Luton, Beds.
20434 *N. F. GILBRIDE, 5 Higher Duke Street, Miles Platting, Manchester, 10.
20435 *R. HOGBEN, Cardrona, Minnis Lane, River, Dover, Kent.
20436 *L. H. HITCHCOCK, 253 Rayne Road, Braintree, Essex.
20437 *P. W. FEAR, 12 Pine Avenue, Gravesend, Kent.
20438 *F. G. BRYANT, 7 Burford Avenue South, Salisbury, Wilts.
20439 *J. B. HAMMOND, 6 Robertson Road, Kelloholm, Sanquhar, Dumfries.
20440 *A. G. WINGROVE, 305 Compton Buildings, Compton Street, London, E.C.1.
20441 *D. B. KERSLAKE, 73 High Street, Barry, Glam.
20442 *C. J. WHITE, 90 Fairbank Road, Bradford, 8.
20443 *M. B. GREENBERG, 8 Hillersdon Avenue, Edgware, Middx.
20444 *E. ANDERSON, 12 Drumlanrig Place, Dundee, Scotland.
20445 T. SAUNDERS, "Linden," Broadstone Avenue, Walsall, Staffs.
20446 *J. HEINRICHSONS, 21 High Street, Annan, Dumfries.
20447 *E. F. HARVERSON, 179 London Road, Staines, Middx.
20448 *Dr. R. S. HOLGATE, 67 Chew Valley Road, Greenfield, Oldham, Lancs.
20449 *F. J. PALMER, 54 Eden Park Avenue, Beckenham, Kent.
20450 *J. CROSS, 179 Christleton Road, Chester, Cheshire.
20451 *Dr. C. H. WHITTLE, 41 Newton Road, Cambridge.
20452 *N. E. J. FENN, 3 Harley Close, Wembley, Middx.
20453 *J. M. BRINKMAN, 233 Seven Sisters Road, Finsbury Park, N.4.
20454 *D. H. G. BROWNJOHN, 21 Glenthorpe Road, Copnor, Portsmouth, Hants.
20455 *B. E. CLIFFE, 8 Moorbank Drive, Sheffield, 10.
20456 *L. J. WRIGHT, Eppfield, Copplestone, Crediton, Devon.
20457 *W. A. D. MEARS, 104 Chadacre Road, Stoneleigh, Surrey.
20458 *A. WILLIAMS, 21 Old Farm Crescent, Droylsden, Lancs.
20459 D. ADAMS, 142a Hamlet Court Road, Westcliff-on-Sea, Essex.
20460 D. C. TERRY, 32 Ardoch Road, London, S.E.6.
20461 J. J. WOODS, 78 Clive Road, Enfield, Middx.
20462 R. A. COLLINS, 67 Hamilton Road, Salisbury, Wilts.
20463 D. M. BOWDEN, 21a Parkhill Road, London, N.W.3.
20464 L. L. DAVEY, 9 Ernest Road, Hornchurch, Essex.
20465 G. J. HODGES, 31 Caswell Crescent, Leominster, Hereford.
20466 D. J. BRITTON, 22 Mackie Avenue, Filton, Bristol.
20467 J. W. LITTLE, 5 Langside Road, Bothwell, nr. Glasgow.
20468 A. H. EDWARDS, 12 Gladstone Avenue, Sealand Road, Chester, Ches.
20469 W. G. Howe, 20 Union Street, Farnborough, Hants.
20470 A. SWALLOW, 1 Oddfellows Terrace, Scoutbottom, Waterfoot, Rossendale, Lancs.
20471 E. W. KIRK, 39 Weald Way, Romford, Essex.
20472 A. J. HUZZEY-MORGAN, 53 Salisbury Road, Barry, Glam.
20473 *R. FARR, 55 Harvey Road, Ilford, Essex.
20474 *M. G. RIMMER, British Railways (W.R.) Hostel, Old Oak Common Lane, London, N.W.10.
9546 †J. E. BURRELL, The Crown Inn, Weston, Nr. Towcester, Northants.
6841 †A. J. RAWLINGS, 43 Mackie Avenue, Filton, Bristol.
12605 †R. J. AMBLIN, 45 Cherry Road, Banbury, Oxon.
15625 †G. L. WILLIAMSON, 40 Kingsley Road, Hounslow, Middx.
18165 †C. R. BALDWIN, 7 Oldbury Court Road, Fishponds, Bristol.

Corporate Members (British Empire Receiving Stations)

876 *L. M. NAM, 62 Koek Road, Singapore.
877 *D. V. LINTON, c/o Cable & Wireless, Ltd., P.O. Box 14, Bahrain, Persian Gulf.
878 R. H. TAYLOR, c/o 45 Albert Road, Deal, Kent.
879 F/Off W. E. GAUNT, Officers Mess, Headquarters, Middle East Air Force, R.A.F. Ismailia, M.E.A.F. 10.
880 S. H. BROUGHTON, 3116 S.E. 39th Avenue, Portland, Oregon, U.S.A.
881 4106401 J/T COPSON, Billet 309, R.A.F. Sharjah, Persian Gulf, M.E.A.F. 24.
882 *W. A. S. GATES, "Crossmount," 14 Ivey Street, Lindfield, New South Wales, Australia.

Associates

R. P. W. BRANDON, "Oakleigh," 19 Priory Road, Wells, Somerset.
P. COHEN, 38 Drumby Crescent, Clarkston, Renfrew.
N. R. DAVEY, 9 Ernest Road, Hornchurch, Essex.
J. E. PACKER, Cable & Wireless, Ltd., Porthcurno, nr. Penzance, Cornwall.
P. RISCHMILLER, 58 Chingford Avenue, North Chingford, E.4.
A. B. WOOLFORD, 42 Greenway Avenue, Taunton, Somerset.

* Denotes transfer from Associate Grade. † Denotes re-elected.

Contests Diary

1955

January 15-16	-	Top Band (No. 1)
January 29-30	-	B.E.R.U. †
February 12-13	-	Affiliated Societies
May 1	-	Two Metre Field Day (No. 1)
May 21-22	-	420 Mc/s Contest (No. 1)
June 4-5	-	N.F.D.
July 2-3	-	Two Metre Open
August 7	-	Two Metre Field Day (No. 2)
September 4	-	Low Power Field Day
September 10-11		420 Mc/s Contest (No. 2)
September 24-25		420 Mc/s Contest (No. 2)
October 1-2	-	Low Power
November 12-13		Top Band (No. 2)

† *For Rules, see page 140, R.S.G.B. Bulletin, September, 1954.*

OFFERS INVITED

Offers are invited for the following unused valves: 807s (14 in protective boxes, 3 loose); 813s (10 all boxed, believed to be RCA-Jan types); GT1C (3 boxed); SP61 (10 in protective boxes); EF50 (10 Red Sylvanian type (some marked Mullard), in protective boxes); 5Y3GT (2); 6J5GT (9); CV187 (11, ex-A.M., boxed); 6H6 (10); 6K7 (3); 6J7 (16); 6AG6 (5).

Offers are also invited for a Radio Aid Office Intercom. System, complete with control equipment and five wall-type loudspeakers in good condition.

Communications and enquiries should be addressed to the General Secretary, R.S.G.B. Headquarters, New Ruskin House, Little Russell Street, London, W.C.1.

Affiliated Societies

THE following are additions to the list of Affiliated Societies published in the August, 1954, issue of the BULLETIN.

REDDITCH AMATEUR RADIO SOCIETY (G3CEE), c/o S. L. Stubbs, 10 Woodland Road, Redditch, Worcs.

SOUTH COAST RADIO CLUB, c/o H. Dollenberg, First Avenue, Port Shipston, Natal, South Africa.

UPTON HOUSE SCHOOL RADIO CLUB, c/o R. H. Lamb, 17 Queens Road, Leytonstone, London, E.11.

Can You Help ?

● W. Breton (GC3HFE), Palmerston, St. Johns, Guernsey, C.I., who requires information on the R.A.F. type TR9H and TH1396 sets?

● C. S. Harrison (G3CDC), 5 Upton Drive, Sherwood, Nottingham, who wishes to buy or borrow the circuit diagram and any other details of the R.A.F. type T1403 transmitter?

● A. Renwick (G3JIC), 11 St. Paul Street, St. Helens, Lancs., who requires details of the conversion of the broadcast band of an R1155 receiver to cover Top Band? He also wishes to hear from any member who has converted an T1154 transmitter for 14 Mc/s.

EXCHANGE AND MART SECTION

ADVERTISEMENT RATES. MEMBERS' PRIVATE ADVERTISEMENTS **2d.** per word, minimum charge **3s.** **Trade Advertisements 6d.** per word, minimum charge **9s.** (Write clearly. No responsibility accepted for errors). Use of Box number **1s. 6d.** extra. Send copy and payment to **National Publicity Co., Ltd., 36-37 Upper Thames Street, London,** E.C.4, by **22nd** of month preceding date of issue.

A BC342 no power supply. Main tuning mechanical drive requires attention. Good condition. Offers: Box 421, National Publicity Co., Ltd., 36-37 Upper Thames Street, London, E.C.4. (421

ACCOMODATION. ZC4FB, returning U.K. early February, requires: Single bed-sitting-room, with full board in Leicester/Loughboro' area. Permission to instal rig at later date appreciated. Please write: Ross, Box 216, Famagusta, Cyprus. (444

AERIAL coils for AR88 receivers available. P.C.A. Radio, Beavor Lane, Hammersmith, W.6. (412

AR88D semi-rebuilt, some components deficient; in maker's cabinet, £15. SCR 522 transformers (126-158-159-160), £2 10s. set. (158-159) £1. 13 Riverside, Hendon, N.W.4.

BC348H with power pack, speaker, £16/10. 813 (2), 829, 30/- each. New, unboxed guaranteed. Free delivery within 50 miles. G3GHB, 31 Franklin Road, Birmingham 30. (377

BC453 with built-in power supply £5. HRO coil B.S. 7 Mc/s £2. G.C. 7-14 Mc/s 30/-. Box 395, National Publicity Co., Ltd., 36-37 Upper Thames Street, London, E.C.4. (395

BOOK Bargain Offer. American Radio Relay League Handbook, 1952 Edn., 21/-. Video Handbook, 30/-. Basic Electronic Test Instruments, 32/-. Orders now being taken for the 1955 A.R.R.L. Handbook. A. F. Bird, 66 Chandos Place, London, W.C.2. TEM 0081.

BOOK bargains. *Wireless Direction Finding*, 12/6. *A.R.R.L. Handbook*, 10/-. *Television Receivers*, 7/6. *Foundations Wireless*, 3/6. *Mathematics Wireless*, 3/6. *Ilford Manual Photography*, 2/6. *Wireless Worlds* 1947/50 Offers. K. Oliver, 28 Ennismore Avenue, Guildford. (405

CLEARING out stacks of good gear including complete units, valves, transformers, condensers, resistors, relays, rectifiers, D104 and other microphones, crystal headphones, pick-ups, new band switches, mains switches, potentiometers, Qualtape principle deck and other gear too numerous to list. I may have what you need at your price. S.A.E. with enquiries. Box 431, National Publicity Co., Ltd., 36-37 Upper Thames Street, London, E.C.4. (431

DECCOLA parts for sale, receiver chassis, HI-FI amplifier, power pack, auto-change table. Bargain, £25. Also three 12in. Goodmans Axiom speakers at £5 each. Basis for radiogram. G3JVA, 9 Cedar Avenue, Sidcup. Footscray 6746. (423

IMPORTANT NOTICE

All exchange & Mart advertisements must be sent with remittance made payable to:

THE NATIONAL PUBLICITY CO., LTD.

36-37 Upper Thames Street, London, E.C.4

The Society and its Advertisement Manager cannot intercede in any matters arising from advertisements appearing in this section.

EXCHANGE AR88D for Eddystone 750 and good BC221 (octal tubes) having correct calibration tables or good 3in. or 5in. commercial scope. Cash adjustment if necessary. Box 398, National Publicity Co., Ltd., 36-37 Upper Thames Street, London, E.C.4. (398

EDDYSTONE 640, £16/10. 740, £24, both mint condition. Canadian No. 9 Transmitter/Receiver 12V d.c. input 813 final, offers, all carriage extra, details: L. Grout, 68 The Drive, Worthing. (446

FOR SALE. A modulation meter for all Ham bands reading RF carrier and modulation percentage direct. 145 Oscillator with accurate calibration chart and 600 volt power supply used as v.f.o. extremely stable, stabilised HT and LT. Crystal convertor for measuring TVI harmonics using shack receiver, infallible TVI checker complete with valves and crystal. Tunable to any television band. Ecko Pattern generator giving vertical and horizontal bars also sound output. Tunable on any one television band. Wanted: Variac about 500 watts. s.a.e. details. G3HSC, 29 Plough Lane, Wallington, Surrey. WAL 7999. (432

FOR SALE. CR 100 receiver. Excellent condition, £20. o.n.o. G8TB. 67 Old Lodge Lane, Purley, Surrey. UPL 7517. (436

FOR SALE. SX28 perfect, £42/10. Radiovision Preselector, £6. BC453 and p.p., £3/10. New O/D transformer MR/7 10W, 25/-; MR/T (3), 7/6; C.B.D., 5/-. Meters 150 mA (6), 5/-; 12in. 3 ohm speaker, £1. Ericsson phones (2) 10/-. Beckett, Hempstead Road, Uckfield, Sussex. (422

FOR SALE. Wilcox-Gay v.f.o. complete and unmodified, with manual, £5. Class D 6V a.c. Wavemeter. Brand new, with manual, £5. R.F. 26 Unit. New with valves, £1/10. 1155 receiver (Ekco). Brand new. Complete with power pack, £9/10. (2) 829 (brand new), £2 each. (1) 100TH (new and boxed) £2. A. R. Osborne, G4OV. " Four Winds " Mount Joy, Bridport, Dorset. (443

FOR SALE. (4) HK257B/4E27 new but repacked for postage. Wanted: (2) 456 kc/s crystals for HRO. Box 433, National Publicity Co., Ltd., 36-37 Upper Thames Street, London, E.C.4. (433

FOR SALE: 829B, 30/-; 5B/255M (2), 10/-; QQZO4/15 (2), 10/-; 12AT7 (6), 6/-; EF91 (5), 3/-; EF95 (6), 4/-; 6BE6 (2), 5/-; 6BJ6 (2), 5/-; 6BH6 (2), 5/-; ECC91 (5), 5/-; EL91 (10), 5/-; Crystals ¼in., 2656.5 kc/s, 4976.0 kc/s, 5/- each. B7G type 10,000.00, 10906.66, 21933.30, 11898.33 (2), kc/s, all at 10/-. 14100 sub-miniature wire-ended, 7/6. TV aerial chimney lashings, 5/-. 2.1 Mc/s Wearite 1FTs (6), 5/- each. D.C. rotary 12V in and 300V at 216 m/a out, 10/-. Box 450, National Publicity Co., Ltd., 36-37 Upper Thames Street, London, E.C.4. (450

GRUNDIG Tape Recorder—brand new TK9, in Mint condition, £57. S. C. Ingram, G6ZY, 47 Putney Hill, S.W.15. Putney 6851. Delivered free London or Birmingham. (427

HALLICRAFTERS S.52 receiver, post-war not surplus. 450 kc/s to 45 Mc/s, bandspread, b.f.o., a.n.l. speaker. As new, with auto-transformer. Best offer over £20. Box 428, National Publicity Co., Ltd. 36-37 Upper Thames Street, London, E.C.4. (428

HRO 10 kc/s to 30 Mc/s, bandspread 14, 21, 28 Mc/s, local delivery otherwise buyer collects, £24. 10-valve sound and vision strip, London frequency, well made, £4. 73 Deepdene, Potters Bar, Middlesex. (Phone P.B. 4592.) (437

HRO receivers type MX with coils, loudspeaker and powerpack, as new, £30. Headphones type H.S.30 without transformers, 8s. each. Transceivers C.W. 3W transmitter range 4–8, 5 Mc/s superheterodyne receiver with coverage of 200–530m and 1, 9–12, 4 Mc/s, dry battery supply, £18. Avanish Electronic Ltd., 27 Oldham Road, London, W.10. Telephone: LAD 2688. (447

METALWORK.—All types cabinets, chassis, racks, etc., to your own specifications. Philpott's Metal Works, Ltd. (G4BI), Chapman Street, Loughborough. (99

NEW G.E.C. 12in. CRT, £10. TV console cabinet, £5. V55R, £7. Part TV, £4. MCR1 all coils p.p. less 3 valves, £2/10. 829s, 35/-. Wanted: Compact 14 Mc/s transmitter. Woodfield, 77 Manchester Road, Wilmslow, Cheshire. (435

NEW Labgear wide band multiplier and 50 watt band switched coil turret, £6/10. Transformers: modulation UM2, £3/10. Power 620V 200mA—375V 250mA—5V 3A twice, £2. —2.5V 10A, 15/-. 500V 300mA 50V 100mA, £1/5. New Eddystone 3ft rack, £1. VCR138 base and screen, 25/-. 1155 coil unit complete, Denco T10 and T20 coils and base; offers G3AFX, 4 Ederoyd Rise, Stanningley, Leeds. (445

OFFERS for following: all new. 9in. Aluminised tube. 9in. rubber mask. 12in. rubber mask. 12in. magnifier. Allen line transformer. Scanning coil to suit. P.M. focus coil. " EE " TB valves. " EE " transformer 350V/250 mA/ LT. EHT transformer 5KV. Also: 3in. Indicator unit with tube. 1355 (TV Modified) Unit with valves. VCR97, etc. Carriage extra. 149 Longfellow Road, Coventry. (426

PATENTS and Trade Marks, Handbooks and advice free. Kings Patent Agency, Ltd. (B. T. King, G5TA, Mem. R.S.G.B., Reg. Pat. Agent), 146A Queen Victoria Street, London, E.C.4. Phone: City 6161. 50 years' refs. (98

QRO transmitter complete with push-pull 813s, £30. DB20 preselector, £12/10. 45 Mc/s TV strip with all EF50s, new, £2/10. BC455 with valves, £2. Carriage extra. 23 Windsor Road, Cambridge. (396

QSLs and log book (P.M.G. approved). Samples free. State whether G or B.R.S. Atkinson Bros., Printers, Elland. (400

QUANTITY components, ex-Government units. 200 valves, transformers, VCR97 bases (1/-), 100s paper condensers, " parcels." Cheap—move anticipated. s.a.e. long list. G3HPM, Poulton Hall, nr. Wrexham. (449

R1155 aluminium, with output stage excellent, £5, or exchange Class D or similar, RF24 new, 15/-, and RF 24 mod. 28 Mc/s, £1. S. Gaunt, 43 Appian Close, Kings Heath, Birmingham, 14. (408

R S.G.B. BULLETIN. Complete volumes or separate issues from 1949-1953 urgently required. Offers please to Box 399, National Publicity Co., Ltd., 36-37 Upper Thames Street, London, E.C.4. (399

SALE. BULLETINS, March '43 to Feb., '54. (Dec. '47, and Aug. '53 missing). Offers to Dyer, 29 Heathfield Road, Shooling, Southampton. (414

SELLING out. Brand new 1155A built-in power pack output stage speaker separate, £10/10. 1224 Battery Super 1-10 Mc/s, £4 10. Automatic telephone with dial, wall mounting, £4/10. Power unit No. 19 set, £2. Parmeko speaker re-entrant type variable output transformer, £2. Signal generator with power pack, tested, part assembled, 30/-. Used condition Indicator 62 complete less dial, £2. Rack mounted Admiralty Type 6 20 watt amplifier and power pack all valves less meter, £5/10. o.n.o. Showell, 29 Stafford Road, Forest Gate, London, E.7. (417

SALE: Taylor 130A megohmeter (unused), £7/10. Garrard R.C. 75A autochanger (unused), £10, plus carriage. Grampian 392/6 mains/batt. amplifier, £12, plus carriage. Box 451, National Publicity Co., Ltd., 36-37 Upper Thames Street, London, E.C.4. (451

SOS de G2FUI—wanted for HRO Senior: main tuning dial knob, or complete dial with knob, valve cans, aerial terminals, your price. Also crystal, 42, b/s coils. p.p. if reasonable. Dunn, 153 High Street, Brentwood, Essex. (439

SX 28 circuit complete but main tuning, S-meter, i.f. cans, control knobs, external terminals damaged, condition poor. Basis for rebuild or attention by enthusiast. Offers: Box 424 National Publicity Co., Ltd., 36-37 Upper Thames Street, London, E.C.4. (424

S640 as new, £19. S38, £13, or exchange with cash adjustment for SX28, all replies answered. Smith, 95 Mulgrave Street, Liverpool. (441

(Continued on page 312)

EXCHANGE AND MART SECTION

(*Continued from page 311*)

VACUUM rectifiers U19/23, suitable replacement GU50, 7/6 each. EL32, 6K7G, EF36, EF39, 5/- each. 6SH7, 4/- each. HL23, 6/6 each. 6L6, 7/6 each. 829B, 60/- each. Please add 3d. each postage: many others (s.a.e. list). Jeapes, 129 Cambridge Road, Trumpington, Cambs. (413

VCR97 TV in working order. Chassis only; suit beginner, £5. Buyer collects. G3FDS 12A Cherrydown Avenue, Chingford, E.4. (404

V.F.O. built-in stabiliser, p.p. calibrated 3.5 to 28 Mc/s; f.b. job, compact, £5/10. G3JIC, 11 St. Paul Street, St. Helens. (415

WANTED very urgently: Collins 75A-3 receiver and 32V-3 transmitter. Exceptional cash price paid for mint equipment. Will purchase separately and will collect in U.K. Earlier models considered—full details, serial number, etc., with first letter. G2AMJ, 27 Westella Road, Kirkella, Hull, Yorkshire. Telephone: Kirkella, Hull 56358. (448

WANTED: any B2 equipment unmodified; also 1082 for sale, cash. J. Knight, C & W Training School, Porthcurno, Cornwall. (452

WANTED by Amateur, good class American communications receiver, transmitter, freq. meter, 809, TZ40, 6SQ7 valve. Box 354, National Publicity Co., Ltd., 36/37 Upper Thames Street, London, E.C.4. (354

WANTED: HRO coils, receivers, power packs, AR88Ds, AR88LFs, SX28s, BC348s, AR77s, and many other types, also laboratory test equipment and R54/APR4, TN17, TN18 and TN19 units. Details please to R. T. & I. Service, 254 Grove Green Road, Leytonstone, London, E.11. (LEY 4986). (1010

WANTED: BC Hallicrafters, ET4336 transmitters, AR88 Ds and LFs receivers and spare parts for above, also BC221 frequency meters. Best prices. P.C.A. Radio, Beavor Lane, Hammersmith, W.6. (410

WANTED: *CQ*, January, March, April, June, November, December, 1945, May, 1946. *QST* before 1924. *Radio* before 1936. *R*/9 before April, 1935. Many *QTC*, *Ham Chatter*, *Xtal*, *Radio ZS*, *Amateur Radio*, *Break-in*, *Calling CQ* (de Soto). G3IDG, 95 Ramsden Road, London, S.W.12. (440

WANTED. Crystal filter for Eddystone 358X, also 350-0-350V 200 mA transformer with usual heaters, tapped primary, modulation and driver transformer, also tank tuning condenser for T1154. G3JBU, 7 Western Terrace, Northampton. (434

WANTED. Eddystone 63in. × 19in. four-poster rack. Condenser cover, r.f. unit cover. T3, T4 and crystal for AR88D. G3IFV, The Beeches, Nichols Lane, Winterbourne, Gloucestershire. (429

WANTED. FL8 filter unit. State condition and price delivered to: M. Barnsley, 17 Cross Street, Bradford, Manchester, 11. (407

WANTED. Good class communications receiver. Electronic Bug Key and Class D wavemeter crystal. Price and condition to G3IUV, 16 Stanbury Road, Bristol, 3. (438

WANTED. RCA speech amplifiers type M1-11220 J or K, and aerial tuning units BC939a. Offers stating quantity and price to P.C.A. Radio, Beavor Lane, Hammersmith, W.6. (411

WANTED. Receiver R1359. Selling: G73 signal generator complete, £20. o.n.o. BRS14220, 39 Oxtoby Way, S.W.16. POL 7224. (425

WANTED urgently. Condenser microphone, perfect condition, hire or purchase. All letters answered. Box 442, National Publicity Co., Ltd., 36-37 Upper Thames Street, London, E.C.4. (442

6ft G.P.O. rack (buyer collects) 30/-. R1392 exchange good commercial 3in. or 5in. scope Kodak Retina II value, £30, exchange for Wearite tape deck. Urgently wanted: good VHF signal generator approx 30-200 Mc/s, also CR 100 wanting repair. Box 397. National Publicity Co., Ltd., 36-37 Upper Thames Street, London, E.C.4. (397

420 Mc/s convertor, ASB8 r.f. ARN5A lines, crystal controlled, power pack, £5. 829B, 35/-. 3B/401J, 40/-. Other gear, books, QSTs, etc. G5RP, Old Gaol House, Abingdon, Berks. (403

640 receiver, £17, practically unused. Purchaser collects at Richmond, Surrey. Box 409, National Publicity Co., Ltd., 36-37 Upper Thames Street, London, E.C.4. (409

APPOINTMENTS SECTION

Situations Vacant

A PROGRESSIVE post is available for an Aerial Designer (V.H.F.) in a large Group of Companies. Send details immediately of experience and salary required to Box 416, National Publicity Co., Ltd. 36-37 Upper Thames Street, London, E.C.4. (416

HOME OFFICE require Wireless Technicians at Pinner and the provinces. Must have sound knowledge of radio engineering, preferably V.H.F. Salary £370—£485 approx. Promotion and establishment prospects. Write Home Office Communications Branch, Whitehall, London, S.W.1. (394

LEADING Valve and Cathode-ray Tube Manufacturers require statistical clerk. Should have good knowledge of simple statistics, or mathematics to matriculation standard, with interest in Radio/Television. Must have completed National Service. Salary £400 approx. Excellent future prospects. Pension Scheme. Box No. 300. Dorland Advertising, Ltd., 18/20 Regent Street, London, S.W.1. (419

RADIO MECH/ENGS wanted. Aeronautical Radio maintenance. Unlicensed from £8-£10. Licensed from £11 with increases dependent upon experience; post-war equipts., etc. Air Transport (Charter) (C.I.), Ltd., 7 Willow Road, Colnbrook, Bucks. Colnbrook 280. (418

TECHNICAL INSTRUCTOR (BROADCASTING) required by the NIGERIAN BROADCASTING SERVICE for two tours of 12 to 15 months each, with possibility of permanency. Salary scale (including expatriation pay) £1,307 rising to £1,453 a year plus GRATUITY at rate of £150 a year. Outfit allowance of £60. Liberal leave on full salary. Free passages for officer and wife. Assistance towards cost of children's passages or grant up to £150 annually for maintenance in U.K. Candidates should have instructional experience and should have a good theoretical and practical knowledge of radio communication as applied to M.F., H.F., and V.H.F. transmitters and receivers and a knowledge of mathematics and electricity and magnetism. Write to the Crown Agents, 4 Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M2C/30513/RC. (402

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