Short Wave News

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For Transmitter and Listener

Contents

AN AMALGAMATED SHORT WAVE PRESS PUBLICATION

Short Wave News

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Editorial

WITH this number we bring to a close Volume 3 of the SWN. The temptation to indulge in a little reviewing of the past year's work, and some dreaming about the year to come, is too great to miss, so those of you who have been readers since Volume 1 must forgive your Editors for using this theme again, in the last Editorial of the year.

The most obvious development which readers will have noticed during the year has been the steady improvement in the appearance of the magazine, and we would like to take this opportunity of thanking our printers, The London Counties Press, (Hornsey Journal Ltd.,) 161 Tottenham Lane, N.8, for the interest and help they have given in this matter. Even your Editors await with excitement the delivery of each month's magazine, to see what the printers have thought up in the way of improved presentation.

We know readers will join with us in thanking them for giving us such an attractive little magazine, in spite of the terrific handicap of paper rationing. In this connection it may be mentioned once again that those of us who began publication after the war are limited to a quota of paper of 8 cwt. a period, whereas those magazines that were in existence before the war get a quota based on their previous trade. This may help to explain to those who still do not know just why the SWN cannot double its size and circulation. A similar situation arises over advertising. New post-war periodicals must not devote more than one-fifth of their space to advertising, which is fair enough to the reader, because a magazine's advertisements are its chief source of income, and there is therefore a natural tendency to devote as much space as possible to advertisements. Pre-war magazines do not work under this financial handicap. We have heard it said that "the advertisements are the best part" of some magazines, and whilst we should hate to have this said of ourselves, we do agree that advertisers can help to make a magazine attractive if they present their advertisement copy in a pleasing way, and we should like to thank those of our advertisers who have supported us regularly with attractive, interesting, and often well-illustrated advertisements. A note here, reminding readers to mention that they "saw it in the 'S.W. News,'" when replying to advertisers, will not be out of place.

We have been fortunate in having the services of a very varied selection of contributors during the year. Whether these have been British or from Overseas they have all been active amateurs or listeners who know from personal experience just what is happening in their particular sphere of interest. Much of the material which has appeared in the "News" during the year has been exclusive to us. We have also been the first amateur radio journal in the country to publish constructional details of some of the newer technical developments of interest to amateurs—such for instance as the Crystal Mixer VFO Units described for us recently by Evert Kaleveld, PAØXE.

Leaving the SWN itself for a moment, the biggest event of the year, so far as we were concerned, was the appearance in November of the first number of our companion journal, "Television News." The reception which this has received from its readers, the profession, and the trade, leaves us wondering what was wrong with the exhaustive survey one of our contemporaries carried out 18 months ago, following which they decided not to bring out a separate periodical devoted to television! At least we are in good company in believing in the future of television, two other publishers having entered this field with journals devoted entirely to television, quite apart from society publications.

And as for the coming year, our main wish, of course, is for more paper. Things seem a little more hopeful in this respect than they did this time last year, and we are keeping our fingers crossed. Even if we do not get any more paper than we have had this year, we can promise to produce another Volume up to the standard we have set ourselves in this present one. A.C.G.

The Editors and Staff of "Short Wave News" join in wishing our Readers a Happy Christmas and all the best for the New Year

SECOND ANNUAL

AMATEUR RADIO EXHIBITION

THE atmosphere of the second annual AMATEUR RADIO EXHIBITION, organised by the RSGB, was more like that at a convention than a trade show. The attendances at the Royal Hotel, Woburn Place, W.C.1., between November 17th and the 20th were—to judge from first impressions—certainly up to, if not well above, those of last year, and everywhere were to be seen groups of amateurs renewing old contacts. This year's Exhibition was patronised by twenty-six concerns as against sixteen last year, but the increase was chiefly made up by the larger radio manufacturers. The G.P.O. also had a stand on which much of interest could be seen.

The first display which came to our attention was Stand No. 1, that of Odeon Radio (56 College Road, Harrow, Middlesex) where we were pleased to see, amongst the other exhibits, the display of our publications—the SWN, Radio Constructor, the first number of our new journal "Television News," the Annual, "These You Can Hear," etc. Odeon Radio displayed a wide range of equipment of interest to the transmitting as well as to the receiving enthusiast, but the exhibit which must surely have attracted most attention was a miniature rack built transmitter just over a foot high, with an output of ten watts. This transmitter, which we shall review in detail in a later issue, is built of standard size components. It is ideal for those with very limited space, and within the first few hours of the Exhibition opening numerous orders had been booked for the unit, which is selling at about £16. Other firms who were displaying ranges of equipment too numerous to detail were Stratton & Co. Ltd., Radiocraft Ltd., Southern Radio & Electrical Supplies, Oliver Pell Control Ltd., Tele Radio (1943) Ltd., and Webb's Radio.

As always, new receivers came in for much enthusiastic attention. There were five which attracted our notice, too: the new Denco (Clacton) Ltd. D.C. R19 Communication Receiver, and the new Radiovision (Leicester) Ltd., "Commander," were within the range of amateur pockets. The other two, the EMI Communicative receiver, and the BRT 400 communicative receiver on the G.E.C. Stand, were produced primarily for professional use, but would at the same time greatly interest those amateurs who must have the very best. Also we were pleased to see a new Eddystone receiver—the "680." We shall be reviewing these receivers in detail in later issues of the SWN.

There was some nice cabinet work to be seen, particularly on the Alfred Imhof Ltd. stand, and we were pleased to see examples of our old friend's, Philpotts of Loughborough, cabinet work on several stands.

The latest Denco long-range televisor was on show on the Denco stand and came in for much attention.

Valves of application to amateur needs were to be seen on Mullard Electrome Products Ltd's stand, as well as on the G.E.C. stand and the Edison Swan Electric Co. Ltd. stand. Wodens had a comprehensive range of their transformers, etc., on view. Capacitors were shown by the Telegraph Condensor Co. Ltd., and meter and test equipment by Salfords, Taylors and Avos. With the RSGB stand and the stands of our contemporaries, the exhibition was a most interesting and friendly show, and could well be classed as a 'social' rather than a business event.

Book Review

Eye of Britain. Published by the British Broadcasting Corporation, 32 pp and cover, price 2/-.

"*Television, the miracle, is in Britain, now, a daily entertainment. Like heavier-than-air flight, or penicillin, or atomic energy, it has become an accepted feature of post-war living.*" These opening words point to the mood of this interesting booklet. It tells the story of the "miracle's" progress and what it has to offer. It comments on freak reception and hints that one day, maybe, we will have international television. It unfolds the story of the behind-the-scenes activities which go into a television production and tells us what makes television "tick." The OB boys get their due mention also.

The main object of this publication, however, is to commemorate the part played by the B.B.C. Television Service in the XIVth Olympiad. Norman Collins, the Television Controller, tells me that every Olympic competitor from overseas has been sent a copy of the booklet. Some unusual action pictures of the Games are only a few of the many fine photographs in this lavishly illustrated publication. The last page is in the form of a postscript by the Controller and he sums up the booklet and reassures prospective viewers that the existing 405-line system will be retained for some considerable time.

One of our contributors (who, for security reasons, shall be nameless) considers that "two bob is a bit steep." Your reviewer, however, hastens to assure viewers that in his considered opinion "Eye of Britain" can be highly recommended as an enlightening souvenir booklet. Something to read and enjoy now—something to look back on in years to come. And—something to show those who are undecided if television is really "worth while." W.N.S.

AN IMPROVED CLAPP OSCILLATOR

BY

E. KALEVELD, PAφXE

HAVE you got an old medium-μ triode? And four capacitors, one of which is variable? A coil, an RF choke? And one resistor? Well, if so, you have all the necessary components to build a really super oscillator, which is as stable as a crystal if built with good components on a rigid chassis, and is practically immune from changes in anode voltage. The writer can really recommend readers to try their hand at this oscillator, as it can be used for a really good VFO or for a wavemeter.

In this article, we shall discuss the oscillator only. Information on suitable buffer and doubler stages has already been given in both the "SWN" and the "Radio Constructor." A single EF50 stage will give all the isolation needed, if used as a buffer stage, following this type of oscillator.

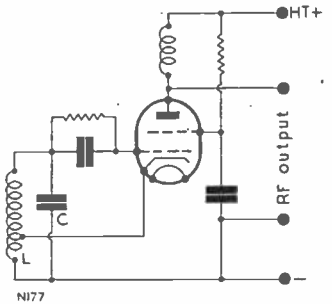


Fig. 1. *The ECO*

A perusal of Fig. 1 reveals the familiar ECO circuit, still the favourite of many an amateur. In such an ECO, we like to have as big a "C" as possible, because by having a big "C" any capacity variations in the valve itself become less noticeable. When we have a "C" of 100 μμF and the valve changes its grid-cathode capacity by, say, 1μμF, we get a change of one per cent. But if we have a "C" of 1000μμF, then the change is only one per thousand. But there is one snag; the bigger we make the "C" the more we destroy the "Q" of the circuit. For a good "Q" the L-C ratio has to be large. As always, a compromise must be struck to try and make the best of things.

But then along comes Mr. M. K. Clapp (see *QST* May 1948 and *Proceedings I.E.E.* March 1948) and designs a circuit without any compromise in it. This is shown in Fig. 2. The capacitors C2 and C3 are large, about 1000μμF, and are in parallel with the valve-capacitances. C2 is across the grid-cathode capacitance and C3 is across the

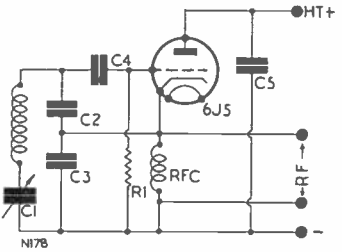


Fig. 2. *The Clapp*

anode-cathode capacitance. Nearly all of C3 is in parallel with the anode-cathode capacitance because C3 is in series with the large capacitor C5 (10,000 μμF). C2 is in series with C4, so that the capacitance of both together is always smaller than C4 only, which is about 100 μμF. In order to make the circuit-capacitance low, Mr. Clapp puts "L" in series with "C," from grid to ground. He thus gets a low "C" value across the coil, because the total value of "C" across the coil (C1, C2 and C3 all in series) is always smaller than C1 only.

The cathode is at RF potential, and is connected to the junction of C2 and C3 in order to get a Colpitt's circuit with capacitive reaction. The anode is at RF ground potential so that we have to take the RF from the cathode, which is grounded for DC by an RF choke.

This oscillator is practically immune from anode voltage variations, so that it can be keyed quite well at any bug-key speed, without "chirp" or tails. The frequency drift is negligible. From a cold start an 80-metre oscillator of this type gave only a few cycles creep on its eighth harmonic, for the first minute or so. After that it stayed absolutely fixed. No special temperature-compensating capacitors were used, just ordinary mica ones of good make.

The "Q" of the coil itself must be as good as possible, and it must be rigidly constructed. The number of turns depends on the size of the coil, but if we bear in mind that the total "C" across the coil can be found from the equation

$$\frac{1}{C}=\frac{1}{C1}+\frac{1}{C2}+\frac{1}{C3}$$

we can easily find the number of turns necessary to cover a certain frequency by means of the usual graphs. However, if we make C1 too small, the oscillator stops working. This cessation of oscillation does not occur suddenly, but very gradually. The milliameter in the anode circuit shows a gradual rise in current as C1 is made smaller, until the oscillations

finally cease. Above a certain critical value the oscillator remains constant, so that it is a good idea to make up C1 of two separate capacitors, one fixed (or semi-variable for band-setting) and a small one in parallel with it for band-spreading. The coil must then be adjusted so that we have constant oscillations throughout the entire range we wish to cover.

The reason for this cessation of oscillations with diminishing capacitance is as follows (see Fig. 2):—The frequency on which the circuit oscillates is determined by L1, C1, C2, and C3. We see, also, if we only consider the circuit L1, C1, that this circuit is connected between grid and ground. When this L/C circuit alone resonates on the oscillator frequency, it forms a short circuit between grid and ground. Now, you might say "that is impossible," for the resonating frequency of the whole circuit can never equal the resonating frequency of L1/C1 only! This, however, is only true when C1 is large. But with a sery small C1, the resonating frequency of L1 (C1+C2+C3) equals the resonating frequency of L1/C1

$$\left(\text{remember } \frac{1}{C}=\frac{1}{C1}+\frac{1}{C2}+\frac{1}{C3}\right).$$

Now we can also understand why the "Q" of the coil must be good, and also why the oscillator will not work above 10 Mcs. or so, because then the "Q" of the circuit gets so bad that we would need a pretty large C1 to keep the circuit oscillating. However, it is perfectly possible to make the job "perk" on 7 Mcs., so that we can do away with a multitude of doublers, should we wish to use this circuit as a VFO for the ten-metre rig.

Of course, the higher C2 and C3 the better the stability, but, for practical purposes, the best value is 1000 $\mu\mu$F. The relation of C2 to C3 determines the degree of reaction, but again a one-to-one relation seems to be best for valves such as the 6J5, 6C4, 6C5, etc.

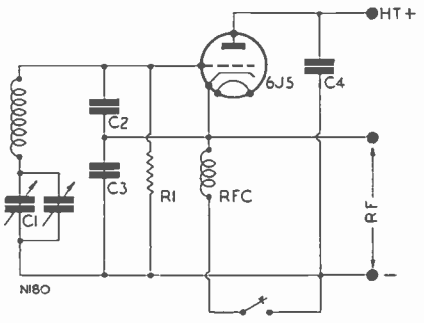


Fig. 4. The final circuit

C1: 140+15 $\mu\mu$F
C2: 0.001 μF mica
C3: 0.001 μF mica
C4: 0.01 μF mica
R1: 100,000Ω
RFC: 2.5 μH

However, this oscillator of Fig. 2 can be improved considerably. If you remember, at the beginning of this article, we said that C2 was in series with C4, so that the total capacitance across the grid-cathode was always smaller than C4, which is 100 $\mu\mu$F. The solution to the problem of taking advantage of the full value of C2 was found by PAØJQ. All he did was to omit C4, the grid capacitor, when he found that the circuit kept on oscillating nicely, because C1 now acts as a grid capacitor. A hastily built oscillator, using this modified circuit, settled to its frequency immediately, and stayed there for hours and hours. This oscillator was zero-beated against WWV on 15 Mcs. and, after a cold start in which the heater was also cold, stayed zero-beat for six hours, until it was switched off. Such results were obtained using ordinary parts, and with no special care in construction, so one does feel confident in saying that this oscillator is as stable as the best crystal oscillator.

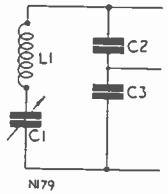


Fig. 3

The final circuit of this improved Clapp oscillator is shown in Fig. 4. In this, you will see that C1 is made up of two capacitors; one for band-setting, the other for band-spreading. Keying turned out to be as smooth as one could wish for, and, as shown, is done in the cathode, thus enabling full break-in to be used.

The writer has experimented a great deal with VFOs in association with PAØJQ, and we both feel that this oscillator is a great advance over any previous ECO. Besides its use as a drive unit for the transmitter, it has great possibilities as a wave-meter. Try it one rainy afternoon. We bet you will curse your ECO afterwards!

DODGING THE COLUMN

Following on our efforts to increase the quantity of material in each issue by using a smaller type, we have now been asked by one of our readers why we do not copy another journal and use three columns to a page instead of two. To us it seems obvious that three columns demand four margins, whereas two columns require only three. Thus by keeping to two columns we are able to put in more matter equal to the area represented by one margin. Two columns mean more material, not less!

On The Ham Bands

Conducted by
LES COUPLAND, G2BQC

IN spite of poor conditions, you have once again maintained your top-line logs. Tnx, chaps. Conditions have been very erratic on all bands, with complete fade-outs at times. These unusual conditions make SWL work all the more interesting, as one never knows what one will hear on tuning over the bands.

Denis Rickers, GW1048, queries HS2AS heard on 14 Mcs. in QSO with a W2. Well, he should be in Siam, but I have no definite gen. on this. Yes, VE8MI does put in a terrific signal at times. You will remember reading the reports from Frank Featherstone in SWN; we are pleased to tell you that Frank has now the call VQ4RF and uses an Army 21 set on QRP. He had a struggle to train his "boys" to erect his aerials, and one evidently tried to catch a pole which decided to come down faster than it went up. However, flowers were not needed. Frank's XYL has suggested renaming their QRA as "Little Daventry." Reports on VQ4RF's 28 Mcs. cw sigs. would be appreciated.

Readers' Reports

Cpl. Singletary, R.A.F., Dunkeswell, Devon, starts us off this month with his usual FB report and letter. Sorry about the name, Les, my mistake. 1-7 Mcs. (cw) G2dlg, 2bhn, 3ui, 3ale/A, 4lp, 5xb, 6nm, 7qc, 6ab, 8uo, GM3cdq (2130-2300 GMT). 3.5 Mcs. phone, D2CH, 2DY, 2MA, DA4EV, KP4BY, 4CO, 4CK, 4FJ, 4ES (KP4's 0130-0230). 7 Mcs. (cw), KH6ag, W9efp, 9kfo, PY6bt, 2afs, ZL2qi, 3fp, 3gu (0600-0700).

14 Mcs. (cw), J2aaa, KG6dg, KH6ba, el, es, mg, py, rp, KJ6ab, KL7ba, it, oo, um, KP6ae, KX6af, MD4th, OY3igo, VE8ay, mj, oh, pl, VK6ru, 7kb, 1z, VP8am, VQ2gw, VQ4alf, VR2bb, 2bd, VR5pl, VS1cw, VS7la, ZD4am, ZP1x/mm, ZS3d, and on phone—J2AFB, MI3CD, OQ5CF, VK7JB, VP6MO, VR2AP, VU2HM, YS2AG, which is indeed a good show (0600-0800).

28 Mcs. phone also turned up with some good stuff, the best being FF8FP, HI6EC, HL1AH, HR1MB, PZ1GB, TG9CH, VP2AC, 3TR, 4TAJ, 5AR, 6CDI, 9G, YS1AC, ZP7FA, and numerous ZLs. Les suggests that for a change from DX chasing one should listen to 80m phone, where you get things discussed in general. And how!

Mal Geddes, G2SO (Leigh-on-Sea), has been knocking off the DX on 14 Mcs. (cw), the best being, LU, TI, PY, CE, KB6, VR6, KH6. DX now stands at 60 countries, and 25 zones, all with two crystal frequencies.

Frank Barrett, W1087 (Brooklyn, N.Y.), uses a HQ 129X receiver, and lists the following 10 m phone signals, G2AG, AMG, BJS, BJX, G3ABZ, BM, DAN, SP, G4BU, MH, PV, G5BF, KS, ZT, G6BP, PZ, TZ, G8TH, UR, GW4CC, CX, NZ, and says the Gs really pack a wallop. Let's hear from you again, OB.

Monty Preston (London, S.W.12.), sends us a report once again, which includes, CR5AH (14075), FD1KP, FM8AD, FU8AB, KB6AD, KW6AK/KX6, KX6AF, PK5OO, PK6XA, VP1AA, VP8AM, VR1B, VR2AD, UM8AC, W8WEA/TRUK, W6ODD/CR8, XP1CQ (Nepal 14,230) ZD7AA, ZK2AA, ZD9AA, ZD8AB, and ZD1BD. That's what I call real DX!

H. J. Parratt, G2110 (Loftus), uses an O-v-1 RX and has heard some good DX on 14 Mcs., and 28 Mcs. phone, which includes HI6GC, HK1FG, PY2CK, PY7QG, VU2HM, VK2US, VO6J, VO2BN, VP4TH, YV5AB, ZC6XY, and 4X4AD (which seems to be the new prefix for Israel). 28 Mcs. TA3FAS (Turkey), UA1BE, WøRLL (1500-2100 GMT).

Bill Winchester G2152, (Eastbourne), queries TRIP and K4USA; TRIP is OK and is in Tripoli; K4USA will be a station issued with the new K prefix in U.S.A. 14 Mcs. phone, AP2F, CR9AG, HL1AR, J2HYS, 3KBE, K4USA, KG6AW, KP4CI, LU4EC, OQ5HL, PYI1K, TF3AF, UA1BE, VP4TAI, VQ5PBD, and numerous VEs. 73, OB, and let us hear from you again soon.

Bert Endersby, GW703 (Old Colwyn), sends in a bumper log, and seems to be having great fun with the monitor sessions. 14 Mcs. phone (29-9-48 to 29-10-48) AP4B, C3KC, CE2AX, 5BH, EL5B, ET3AB, J9ACN, KA1AI, KG6DI, MI3CD, MT2E, OQ5BM, PK5KO (14325), VK7AZ, VP3LF, VP3MCB, VP5AS, VQ4NSH. ZD1BD, and, on cw, CX1fy, KS4aj, PK5ac, VQ4ims, VS7ph, VU2md (1300-1500, 1900-2300). Bert wonders what stations were received in zone 39 during session 17 and 18. We will see, OB. How about a few DX QRAs, Bert?

Arthur Robinson, GI874 (Liverpool), 15, sends in his first report, which covers from July last. 14 Mcs. phone, AR8AB, CN8AB, CO2JL, EA3OY, EK1AD, HA1JK, HH3OL, LU4BM, MF2AA, OX3BE, TA3FAS, TRIP, YT1PK, and ZL3AC. 28 Mcs. phone, CR9AG, HL1AI, IS1AEW, J4AFA, MI3FC, OQ5JP, SHF1X, ST2AM, VP9F, and ZC6XY. The RXs in use being an Eddystone 640 and Hallicrafter SI9R, with G6HP multi-band dipole aerial.

Derek W. Bruce, G734 (Eltham, S.E.9), complains about the bad conditions on 14 Mcs. However, he managed to pull in the following on his 1-v-2—AP4A, 4B, C1CH, 3EA, 3CY, 3ET, 3KC, 7TY, CP3FB, AR1RJ, (Damascus) HH2PB, KV4AL, MI3CD, MP4BAB (new prefix for Oman, this station is ex-VS9GT). ST2GE, VP4TH, W6TWX/KL7, W7LZJ/C6 and 4X4AD. 14 Mcs. cw HH2bl, MI3ab, KM6aj, VP2gj, VP8ap, VS7bj, 9al, XZ2km, ZD1pw, and ZD9aa. (0600-0700, 1700-2200). The best from Derek's 10m log include W2WMV/C9, W7KMV/J9, CR9AG, HL1AY, J2RLK, KG6DO, ZC1AZ, 6XY, OA4AB, PZ1M, TG9CH, VP2AC, 3ACS, 4TAI, 5AR, 5CD, 6JC, YS1AC, and ZP7FA. I should say that when you heard PY7QG at 1637 GMT it would be him, and that the queer conditions which have prevailed recently would account for the unusual time.

Tom Jones (Birmingham) has been listening for DX in the early morning on 7 Mcs. He heard ZL2fi, 3gu, a few PY's, KL7's, etc. His log includes CM2gv, CN8an, CT3ab, KL7hi, (0640) UF6ac, VO2cd, VP3ag, (2210) 4aa, (0555) W5bk, 6em, 6wpd, øyss, ZB1at, ZL2nt, (0600-0630). 14 Mcs. cw—AP2f, CE5aw, CR7bb, CX6ad, FE8ab, HP1rd, J2cdj, 9ada, KA1ak, KG6dy, KH6ba, KL7it, PK1lm, 4aw, TG9jk, UL7bs, UI8ae, VE6ab, 7aad, 8ny, VP2aa, 4qj, 9cc, VQ2dh, 4ims, 4raw, 5jtw, VS1cw, 7la, 9al, XZ2jb, ZD1pw, 4am and ZE2ku. Congrats on your 7 Mcs. DX, Tom. I hope you continue the good work. I worked I8PAP on 21-10-48, 2020 GMT. He is aboard ship, and was then 600 miles east of Madeira, if this is any help to you.

Cliff M. Leach, G89 (Plymouth), sends in his log for 1-10-48 to 31-10-48, 14 Mcs. phone—VK2AJC, 2FH, 2GR, 2US, 3BM, HW, 1G, ZL, 5RN, NP, 7AZ, VE5SJ and KA1KI. All heard during a 4-hour listening period. The RX used is a R1155 with 75 ft. antenna 40 ft. high.

G. E. Cowell (Dudley) favours the LF bands. 1.8 Mcs., G2NV, 2FPR, 2FBP, 5OG, 3.5 Mcs., D2IN, 2IK, 2LP, EI7M, 7U, GM3BQ, 3ATV, 3ZH, 2DAV, OZ7HT, GC5OU, GW5VX, and the usual run of PAø stations. 7 Mcs.—EI5R, F9JA, GM4BK, GM3CA and GW3CIJ.

Fred Pilkington, G1717, obliges once again. Fred is trying to hear the DX on 40 in spite of QRM. No, OB, you will not hear Ws on 40m phone, as they are only permitted to use cw on that band. They are of course allowed to use phone on 80m, and occasionally put some good signals through on this band in the early morning. 14 Mcs. phone—C3EA, IS1AHL, KA1AF, MF2AA MI3PC, VK1MT, VK3AWN, 7AZ, VU2HM, VE2UJ and VO2BN. 40 M phone, DA3KA, D2CH, 2MY, F9PU, HB9HQ, 11BOT, LA3G, LX1CG, OZ3PO and PAøNU.

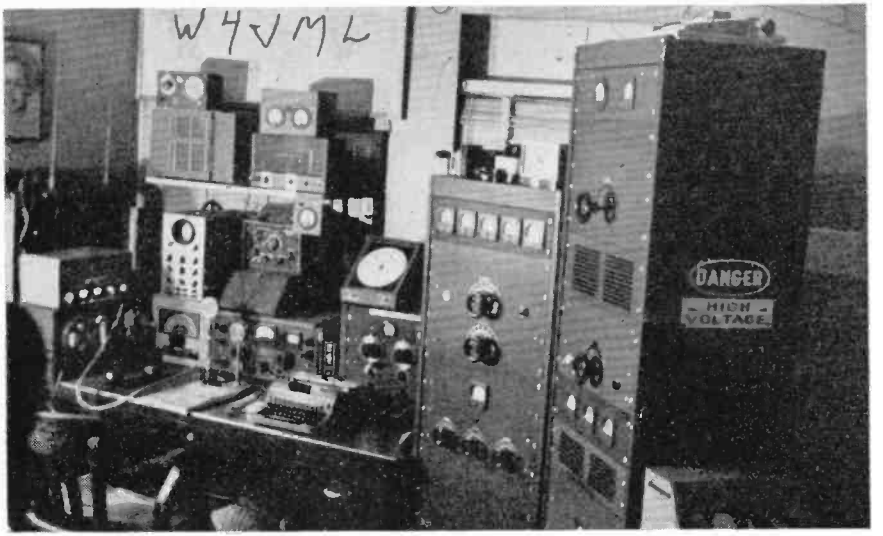
E. Cafley, G1462 (Gt. Yarmouth), now has a "640," and finds it to be a very FB RX. His best for 28 Mcs. is—AP2F, AR8AB, CR9AG, C7TL, HL1AY, J2RJG, KZ5MD, PZ1GB, VK7AZ, 6ZX, VE7EB, ZD4AB and YS1AP. 14 Mcs., CX1VD, CM9AA, HP1LL, J9ABW, KH6JQ, KV4US, ZD1SW, YS1IA and YT7AX.

P. G. Healey, G1804 (Nr. Reading), uses a 6 valve commercial RX, but hopes to build the DX one-valver in February "*Constructor*." This is his first report, so welcome to this section, OB. 14 Mcs.—CN8MA, CT1FL, EA1AE, G3CHN/MM, IS1AEW, VK7AZ, ZC6SQ. Yes, OB, the Channel Islands and the Isle of Man count as separate countries.

D. L. McLean, (Yeovil), excels himself this month with a really super log, so we will start with 28 Mcs. phone.—AP2E, 4B, CE3AB, CO7CX, CX3AA, EL6A, FF8FP, HK3CU, J3KBE, KG6BV, KL7OJ, KP4AC, KZ5MD, LU9EV, MD4JG, MI3AB, OA4BI, PK4DA, TG9CH, VE4LF, VK2ASN, 6KE, VP2GJ, 3TR, 4TAI, 5AR, VQ2JT, 4CRE, 4HRP, VS7PS, VU2GB, W5CCD, 6AGN, 7ILE/KX6, XE1VE, YS1AC, YV4AM, ZC1AZ, ZD4AH, ZE1JO, ZL1CD, 2JB, 3AY, 4CN, ZS1AX, 3D, 5MX and 6Q. Also W5MBY/MM, who was QRP with 5 watts, positioned in mid-Atlantic. He remarks on the excellent conditions on 28 Mcs. for ZL on Sept. 19th, between 0800-1100 hrs. 14 Mcs. phone also produced some good ones—BIZB seems to be the prize one. G3CDP/MM was heard at 2239 on the SS. "Standella" using 45 watts. Does this mean that Gs are now allowed to operate on the 'ham' bands when at sea? Anyone any gen. please? Other DX includes, HC1FG, LA2VA/Airbourne, MF2AA, VE4AJ, VK2AGW, 3BZ, 4FH, 5RN, 6DD, 7AZ, (0630-0730) ZD1BD, (1840-14395 kcs). 1.7 Mcs. phone—G2CUI, 2DWC, 2FLK, 2GD, 2ZG, 5FJ, 6GN, GW2BG, 3ALB, 27 Mcs. phone—W5BUZ, 7KDI and ø1IC. I think it must have been a printer's error, OB, when MD7QRP was listed as ex-D4ABO, instead of D4ABD. Thanks again for your excellent support to this feature.

Fred Clarke, G2FAY (Oldham), says that conditions have been very erratic on 14 Mcs.—ZL2eb, ZL4dv, ZL2go, ZL1gg, ZL2qm, VK5ko, 5rx, 2vc, 7lg, C1bc, LU9bo, VE5op, KL7gg, 7um, UH8kaa, ZS6ij and ZB1kg have not only been heard but QSO'd also. Fred says C1bc wishes to contact "G" stations, and his frequency is approximately 14060 kcs. Yes, OB, I think we all get our share of Russian SWL cards!

Ken Parker (Hayes, Middlesex) uses a V55R, with expander unit, and a half-wave dipole. He recently heard D4AVL say that he QSLs SWLs one hundred per cent., and he had special cards printed for them. He also said that if a card would make them feel any better he was in favour of it. I agree, Ken, but still hope that the SWL will try to make his report useful. 14 Mcs. phone, CE1AM, ET3AB, J9ACM, OQ5AV, TA3FAS, VK7AZ, ZD1BD. 28 Mcs. phone, CR9AG, HL1AE, KG6BW, VK9GW, VS6AE, W2WMV/C9 and last but not least W2EJV/PK3.



This fine photo shows the station of W4JML, Williamsbury, Kentucky. Equipment includes a 1 Kw. Tx. for 28 Mcs. with 5-element rotary beam; 50 Mcs. Tx. magnetic tape recorder, cathode ray equipment, etc.

Don Robertson, GM1051, managed to get two reports here for this month, so I will take the best from both. 40 m. cw, VE1us, KP4hu, VE1ua, W1knb, 2ter, 3agx, 6tkv, 6dwh, TI2exo, ZL4hi, W7hdb, Wøiha, ZL3gh, PY7ws, 2aff, ZL2jd, KS4ah, KM6ak, VP2ge, J2ahi (2115, 13-10-48) and KV4aa, which goes to show what can be heard on 40. 14 Mcs. phone—VK2AS, VP7NG, VE5SJ, VE4HA, ZC6JL, AR8BC. 10 Mcs. phone—VQ4SC, ZA1A, KG6SO, J2ALK, AR8BM and ZS6BV. Thanks again, Don, for a very nice log.

J. Carwardine, G2193 (Bournemouth), still uses his one-valver, and lists the following on 10 m. phone—PY6AO, YV4AM, ZD4AB, ZS2CI, CE3CU, HR1MB, KZ5MD, OQ5LL, VP6CDI, J2RLK, ZL1DW and VK2AKR.

Bob Ainge, G219 (Nr. Crewe), has got tired of listening on 14 and 28 Mcs., and has turned to 7 Mcs. RX used is a 0-v-2 with a 66 ft. Zepp—W7lgp (Utah), 7kgj (Montana), 7lin (Oregon), øasw (Min.), also W6lhn, 6gdd, 6kri, 5izd, 5gnn, VE7al, 7pc, KL7hr (7020 kcs.) and one station on phone, TI2OA.

Gordon Rowe, G2257 (Plymouth), sends in his first report. He uses a "One tuber" and the aerial is a 40 ft. centre-tapped wire. Welcome, Gordon, to this section. I hope we hear from you often. 14 Mcs. phone—CO2RY, MF2AA, PY2CK. 28 Mcs. phone—OQ5BA, TA3FAS, VE1CR, 3NO, 3BNQ, W5ERY, 6AOR, øAGO, ZB1FK, 1L and ZC6XY. The best time for hearing VK and ZL will be between 0700-0900 on 20 m, and 0800-1100 on 10.

DX QSLs Received.

E. Fields. UB5KBA.

L. Waine. UB5AG, TF3AB, KZ5MD, ZD4AB, PY5QG.

F. Clarke. ZL4DV, UH8KAA, CN8MZ, KL7CZ, VE7ADD.

D. W. Bruce. C1CH, CT3AA, HK1FQ, J2GHQ, KA1AI, KV4AA, VS1BA, W3MXP, W4HRR, W6YOZ, W8NXF, W8VYH, WøUOX, ZP3CM.

R. Filer. VP4TX, VS2BU, OQ5BW, 5BR, OK1PVV, CT1OR, CT1QA, YR5X, EL5B, YV5AY, HA4AB, CX3CN, SM3ZF, W3FII, 4TM, 4AZD, 4DSY, 51XL, 6RX, 6LYP, 6UYX, 7GC, 8PZM, øAIW, øOMG, K2UN, OX7B.

D. L. McLean. C1CS, ET3AE, D2IJ, KG6CT, KP4CI, OZ6PX, VE4RO, 7FC, 7MQ, 7RV, 7VT, VK2ALL, 2SV, 3EE, 3HW, 3IG, 3QW, 3VK, 4DO VQ5PBD, VU2KM, W7LDB, ZL4GA, ZS1AG, ZS5BS.

Conrad Tilly. VS9GT, VK3JT, VK3IK, VK2AIU, ZL3CX, VE4RO.

Reg. Baldwin. AK1AI, VK5TR, ZS6JS, ZS6JS, ZD1BD, HC2KJ, VK3AJB, W7AKC, W2AFR, VE8MI, TG9JK, W5AMR.

MONITOR SESSIONS

Session 15

This was a 28 Mcs. session, between 1700-1900 and judging from the logs the DX was quite plentiful. **D. W. Bruce** using a 4-valve TRF and a 28 Mcs. dipole heard these :—

CO7CX, CO7RQ, HC1KV, HK4CO, HR1MB, LU5AX, PY1IK, PY2JJ, VE5EA, VE7AFJ, VE7MS, VE7UW, VE7ZM, VP2AC, W5NDS, W5KNC, W6AZT, W7AUS, W7GUI, W7MBX, WøDPB, WøIMK, WøJWD, WøNTA, YS1AC.

D. J. H. Wort says that "having thrown together the odd parts of my O-v-2 I decided to have a go." He remarks on the bad QRM and the large number of East Coast W's. His DX was CN8ET, CO7IN, EL7CX (?), HK4EB, TA3FAS, VE7KH, VE7UW, VO2GS, VO6AN, W4FT, 4GA, 4INL, 4LMT, 5KYR, 7GUI, 7KWX, 7LIP, 9CKP, 9NLP, 9RRX, and many VE1, 2 and 3s.

Eric Coates found the band a "mass of W4s" with QRM from one end of the band to the other. Here is the log: KP4HZ, KZ5MD, W4's KCQ, KDG, KBX, LBY, INL, NYB, FT, DVZ, RBY, NLA, JYS, EWY, LHK, NKA, 7EK, 7LIA, 9RFN, 9JYU, 9BPA, 9FDD, 9HEI, øRWC and VE3's, AFA, AKN, BIK, FU and HC.

H. J. Parratt, using an O-v-1 with 40 ft. inverted L logged W4DVZ, 4LBY, 4JG, 4KDG, 7EK, 7EWX and 9LP.

Fred Randall, using a BC348 with RF 24 unit and a 28 Mcs. rotary 2-element dipole logged CN8EQ, LU3DH, PY4MK, PY4RS, TA3FAS, VE3ABP, VO1Y, VO2M, VO3FK, VO6AM, VP4TR, VS7PS, W4LHK, W5KYR, W9NHD, WQDPB and ZB1F.

Session 16

This was chosen to see just what could be heard on and Mcs. in the way of DX. Though a little early, some very interesting ones were logged. **Martin Harrison** heard I1AQI and I1EQ on phone and these on CW: HA1kk, I1afl, pl, dv, OH2op, OK1gt, PZ1fm, UA3bu, 3ket, 4kcd, 9kab, 9kca, UB5ab, 5af, 5ag, UR2ah, VE7yy/1 and YU7aa.

James Endersby, with his BC348, says he wishes the session had been a little later as the W's, etc., were just beginning to come through towards the end of the session. However, he logged HA1FA, I1YQ, 1YI on phone and on CW: I1cc, I1dv, I1mq, KP4cc, OH2ni, 2op, 5oa, UA3hu, 4kcd, 4kea, UB5ag, W1qxq, 4dmr and YU7aa.

Tom Jones, with his V55R receiver, hooked FA9rz, PY7ws, UA3bq, 3dm, 4kcd, 9kab, 9kca UB5af, and UR2ah.

FUTURE SESSIONS

Session 21

Date : December 12th, Band : 3.5 Mcs. Time : 1900-2030. Target : Any call outside the United Kingdom.

Session 22

Date : December 18th. Band : 7 Mcs. Time : 2100-2300. Target : Any call outside of Zones 14 and 15.

Session 23

Date : December 27th. Band : 14 Mcs. Time : 1800-2100. Target : Any station in Africa or Asia.

SWN QSL LADDER
(for confirmed reception)

Little change to report in this month's positions. Down at Nos. 17 and 18, Denis Shallcross and J. Edwards change places and several others have increased their totals. Apart from these items, no sensational developments have occurred.

S.O.S. :—Will G. W. Cardwell, Bill Hamilton, P. Godfrey, Bob Ainge, Maurice Wilks, H. G. Prynn, Les Singletary and any other wallpaper collectors please send along their scores for the Ladder ? Thanks, OMs. !

Position	*Name*	*Countries*	*States*	*Zones*
1	M. Preston (London)...	130	48	38
2	E. A. A. Hardwick (Misterton)	130	35	35
3	C. G. Tilly (Bristol) ...	125	44	36
4	D. L. McLean (Yeovil)	120	48	35
5	A. J. Slater (Southwick)	67	45	33
6	A. H. Onslow (Hove)...	94	47	?
7	E. W. J. Field (Watford)	86	?	?
8	D. Robertson (Wick)...	78	40	32
9	A. Levi (Belfast) ...	75	12	29
10	E. Cafley (Yarmouth)	69	38	28
11	R. Masters (Portsm'th)	63	42	29
12	D. E. F. Burney (Tring)	52	44	23
13	W. Winchester (Eastbourne)	48	?	20
14	D. G. Garrard (Ipswich)	45	22	13
15	P. Bysh (London) ...	42	14	18
16	L. H. Waine (Yeovil)	39	37	21
17	D. Shallcross (Borrowash)	34	5	8
18	J. Edwards	32	26	16
19	W. J. C. Pinnell (Sidcup)	29	3	13
20	J. J. Carr (Ramsgate)	12	9	14

TOPICAL DX QRAs

C7ENX : Box 692, Nanking, China.
J9ANZ : Navy 1175, c/o FPO, San Franciseo, California.
KG6CT : R. Frazier, CT2, Box 24, Navy Communications Station, Navy 926, c/o FPO, San Francisco.
KG6DW : P.O. Box 100, Guam.
MD2KP : 14182106, Sgt. Mackintosh, 1st Squad., 1st Infantry Division, Signals Regt., Tripoli.
OQ5LL : Box 129, Leopoldville, Belgian Congo.
PK60B : Box 222, Sourabaya, Java.
ST2JR : R.A.F. Station, Khartoum, Sudan.
SVoWA : APO 206, c/o Postmaster, New York.
VR1B : c/o R. Brownlie, 79 Palace Street, Ashfield, Sydney, Australia.
VR2BD : L. Bloomfield, RNZAF, Laucala Bay, Suva, Fiji.
VU2EV : P.O. Box 161, Calcutta, India.
YV4ABH : USAF Mission, Maracari, Venezuela.
XZ2EM : 17 Link Road, Rangoon, Burma.
ZA2AA : Via Box 28627, Basle, Switzerland.
ZB2E : J. C. Torr, 4 AMQ, RAF New Camp, Gibralter.

A group photograph of the Clifton Amateur Radio Society, the South London Chapter of the ISWL, taken on the occasion of the recent successful Field Day. Further details are given in ISWL Notes.

JOTTINGS from the NOTEBOOK

By G3AKA

WE all know that our old pal VP6CDI likes us to call him a few kcs. off his frequency, but have you heard the latest ? It seems that a few dx-hungry Ws kept calling him while he was in QSO—the old old story. So, 6CDI promptly started a Black List. In consequence, just to show who the boss *really* is, the aforementioned Yanks now call "CQ NO VP6"!!

Have you heard that G5—who makes a habit of swooping on your frequency to call DX that he hasn't heard ? He hears you calling some juicy slice of DX and calls on spec. Unfortunately it often works, though on one occasion recently some victim got browned off, waited till the G5 had signed and then sent "SPIV" slowly. We hope the hint will be taken.

Then there is that very ingenious pirate in Malta. When ZB1AA was the latest issued call he used ZB1AB. When ZB1AB was issued he started using 1AC, and so on. He is now working well down the alphabet!

Quickies : ET3AN says that ET3AT is a phoney.....G8PO, of aerial fame, is now in Australia and has been alloted the call VK3WV .....TA3FAS is said to be having trouble with the local constabulary, who are becoming suspicious. Hence a possible QRT.....To join UA1KEC on Franz Josef Island we now have UA1KED..... The Middle East boys have been co-operating and all cards for MD calls can now be sent to one address. Other African prefixes will probably join the list in due course. The new MD QSL Bureau is Middle East Service Radio Association, GHQ, MELF.

Now for the "care-of's"—those undercover merchants and wanderers who like their cards to be sent through other sources than direct. This month's list is OE1AW via W2NFR, OE1AD/OE1AS/OE1AX/OE1FF/OE1DF all via PAoBK, YR5T via W6AY, ZC6XY via W9CFT, VP3MCB via VE3BCR, EP1J via W4IYT, I8PAP via ARRL, PK3IXN via VERON.

VQ3EDD is back in G-land as G5YM.....VS1BG is also home again.....G3DEZ is out in Pakistan.

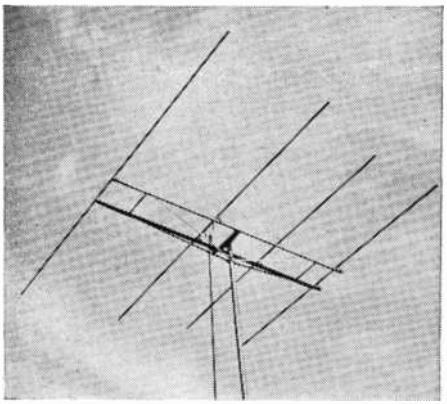
Juicy calls Dept : VU4AC is active from the Laccaldives.....VQ8CB is active and will interest those after Zone 39—he is on 14120 kcs..... VS4RS is in Sarawak.....TT1KY dropped a hint that he is in Tannu Tuva.....As mentioned last month VK9NR is now active on Norfolk Island .....FB8AB may soon be on again, not only from Tananarive but operating portable from some of those exotic Indian Ocean islands.

We regret the passing of yet another fine Old Timer—VQ3TOM.....Remember we said that ZD7AA looked a bit fishy ? Well, we were right, as he turns out to be a W with a perverted sense of humour. Say goodbye to that QSL!.....Now that 4X4 is the prefix for Israel, "Arab" Palestine is now using ZC8. The first one encountered was ZC8PM who said QSL via W2AIS. Then we worked ZC8AG who asked for QSLs to go via SM5FL.

The results of the ARRL Contest are now to hand. Top scorer was XF1A (XE1A) who clocked the most fantastic score of 765,000 points with 3,000 QSO's!! And CM2SW scored 493,280 with 2066 contacts. Top of the Ws. was W2GWE (who, incidentally, came out top W last year) with 302,574 points in 84 hours, operating time. This was made up from 422 contacts with 104 different countries. So, if you want DXCC, quickly get yourself a kilowatt!

The honours for Britain go to GI6TK (121,728), GW3ZV (53,946), G6BQ (53,568) and G2EC (45,308).

V.H.F. NEWS



Four-element beam at HE9RAJ, Bussigny, nr. Lausanne

CONDITIONS on 144 Mcs. at the beginning of the month were not so good as previously, and few reports of activity are in this month. However, by the second week of November tropo conditions improved greatly, and G6DH used these to make yet another first contact, this time with F8OL of Meuden, about 20 miles South of Paris. The contact was made at 2030, was S9 plus both ways, and was over a distance of 240 miles. 6DH remarks that 8OL's signals on 144 Mcs. were better than when he previously heard him on 60 Mcs. This was on the 10th November. The next day contact was made again at 0800 and ON4FG was putting in an S8-9 signal. G2XC (Portsmouth) and G6WT (Devon) were both putting in S9 signals at 6DH's QTH (Clacton-on-Sea), on the evening of the 10th, and 2XC, 3DEP, and 2NM were contacted. G2AAN/A, G2AJ, 2MV and several other unidentifiable carriers were heard. 6DH concludes by saying that " when tropo conditions are good, there is no doubt that 2 metres gives amazing results. I should think it would have been quite possible to have worked 400-500 miles had there been stations on."

G6DH now has four countries worked to his credit.

F8OL transmits daily at 1930 to 1940 GMT, automatic CQ on 144 Mcs. G6DH's skeds have been altered somewhat. They are now :—0730 on 3.5 Mcs. for exchange of reports with ON4FG with QSY to 144 Mcs. during the QSO. 1840, ON4FG calls on 144.1 Mcs., 1845 G6DH calls on 145 Mcs. with beam S.E. 2100 ditto, with beam S.W. for London, etc. 2130 ON4FG calls. 2145-2230 G6DH active with beam in various directions. G6DH makes an interesting comment on receiver sensitivity. He says that in general there is no doubt that for a good receiver sensitivity and aerial gain, 2 metres gives rather better results with tropo propagation than does 5 metres. He then goes on to say that there still seems to be a number of insensitive receivers about, and in this connection the following may be useful for those who wish to assess their sensitivity. Aerial noise should be quite easily audible above any receiver noise, as it is on, say 5 or 10 metres. Also, auto-interference should be about the same intensity as it is on 5 metres.

D. Outram, using a much modified 1392A with 955 oscillator, and a converter using 956-956-954 mixer and 955 oscillator into an SX24, has logged the following on 144 Mcs. during the past few months : G2AJ/P, G6VX, G5SP/P, G3BLP, G2MN, G5XA, G5DT, G2AXG, G5KH, G2FP—G5AA, G8KZ, G2CIW, G5KJ, G2AX, G2XC, G5OS, G2NH and G8SK.

Activity on 60 Mcs. and 50 Mcs. has been at a very low level. Regarding conditions on the latter band, the MUF went up to around 48 Mcs. for USA recently, but no contacts have been reported. G6DH has been hearing American F.M. broadcast on 44.7 and 44.9 Mcs. for the first time this season, but generally speaking, the MUF has been running below that of last year.

From **Arthur Simons**, G5BD (Mablethorpe), we learn that G5BY worked ZS1P recently on 50 Mcs. Activity on this band seems to be at a very low level now, but it appears that good contacts are still to be had by those who are prepared to spend time watching the band. 5BD is now on 145 Mcs. and with a long wire—pending the completion of a beam—has worked G2IQ, 6VX and 4OU. He heard 2IQ working F8OL—40 miles south of Paris—recently but could only hear 2IQ. He hopes that once the beam is up he will put Lincolnshire on the map for 145 Mcs., as he has done on 60 Mcs.

G2DHV has been doing well with his 60 Mcs. portable 1½ watt phone rig. With a half-wave dipole, 25 feet high, he has worked 21 stations in six counties during five days' operation. 2DHV has been working cross band with G2FKZ—the latter being on 436 Mcs. 2FKZ's maximum distance on 436 Mcs. to date is 34 miles.

P. Outram, London N.W.1., has been finding his much modified 1392 A Rx ok on 145 Mcs. He says that this Rx makes a good 145 Mcs. receiver if the front end is completely rebuilt. He has got the oscillator covering from 137 to 151 Mcs. and the only coupling at present to the mixer stage is via stray capacities! But the job is working well, he having heard PAØPN, G5TZ, G8DM and G2AX. He is building a new converter with a 717A rf—900 rf—954 mixer and a 955 oscillator. He agrees with those who say that two rf stages really are necessary for receiving dx on 145 Mcs. He hears many fone carriers which cannot be resolved with his present equipment. Well that's all for this month. Let's have reports please on all the V.H.F. bands. We shall be particularly interested to hear from those of you who are just starting on the V.H.F's. So let's hear what you are doing even if you don't think you are doing particularly well.

Around the Broadcast Bands

A Monthly Survey by "MONITOR"

All times are given in G.M.T.

(For EST subtract five hours; for AEST add ten hours)

FIRSTLY, your scribe would like to send all readers of this column greetings for the Festive Season at Christmas and the New Year—may 1949 bring you lots of elusive DX. Now to the past month's mailbag.

● **Australasia.**

New Zealand. Wellington. Reports on "Radio New Zealand's" two transmitters are coming in. Sidney Pearce heard ZL3, 11,780 kcs. from 0700-0900 being R6. News at 0830 (except Sundays). ZL4 was heard in parallel with ZL3 on 15,280 kcs., and also R6, but generally swamped by a Russian Station. Ray Aldridge (Amersham) has heard ZL3 at 0800 with R5-7 signals. (Sorry to hear you have been in hospital, Ray. Trust you will have a speedy recovery after your operation).

J. P. Barden lists ZL4. R8.

Australia. Sidney Pearce, Berkhamstead, lists the following: VLG3, 11,710 kcs. R6 with news at 1530 for Asia, in parallel for U.S.A. VLB9, 9615 kcs. VLC3, 11,760 kcs. and for S. Africa VLA6, 15,200 kcs. Off at 1615 with U.S. and British National Anthems. Pearce also sends in the new schedules of "Radio Australia" which came into force on November 1st.

French BC for Tahiti: 0600-0645 over VLA11 9530 kcs. VLG, 6 15,240 kcs. (Saturdays, replaced by VLC 15,200 kcs.).

To British Isles: 0700-0745, VLC1O, 21,680 kcs., replaced by VLC 17,840 kcs., 0700-0815, VLA6, 15,200 kcs. replaced by VLA11, 9580 kcs. VLB3, 11,760 kcs. remains at present.

2000-2155 VLC replaced by VLC9. For South America: 2155-2315. VLC replaced by VLC9. For Africa and West Coast of U.S.A.: 0430-0545 VLG11, 15,200 kcs. for Africa will be instead for N. America. Others no change.

● **Asia.**

French Indo-China.

Saigon. "Radio Saigon" Hanoi, 11,780 kcs. sends schedule to your scribe which states the following English Broadcasts are given:—

Daily.	0045-0100.	News Bulletin.
Monday	1000.	News.
	1015.	Talk on Indo-China.
	1025.	French songs.
	1330.	Concert by the band of the Garde Republicaine.
	1400.	News.
	1415.	Talk on Indo-China.
Tuesday	1000.	News.
	1015.	Talk for Women.
	1025.	South American Music.
	1330.	Talk for Women.
	1340.	Musical Comedy.
	1400.	News.
	1415.	Dance Music.
Wednesday:		
	1000.	News.
	1015.	"One Musician a week."
	1330.	Sketch.
	1400.	News.
	1415.	Accordion Music.
Thursday:	1000.	News.
	1015.	Topical Talk.
	1330.	French Stars on the Air.
	1400.	News.
	1415.	Dance Music.
Friday.	1000.	News.
	1015.	French and English Songs.
	1040.	Listeners' Letter Box.
	1330.	Musical Requests.
	1350.	Listeners' Letter Box.
	1400.	News.
	1415.	Waltzes.
Saturday.	1000.	News.
	1015.	French Standpoint.
	1025.	French Songs.
	1330.	French Standpoint.
	1340.	Dance Music.
	1400.	News.
	1415.	Dance Music.
Sunday.	1000.	News.
	1015.	Dance Music.
	1330.	"Up and Down the record library."
	1400.	News.
	1415.	Dance Music.

Ray Aldridge has heard "Radio Saigon" at 2300 with R7-8 sigs.

Pakistan. "Radio Pakistan" Karachi, 6075 kcs. Schedule 0200-0400 weekdays. to 0430 Sundays. (News in English at 0230). 0700-0830 (News in English 0800), 1200-1730 (News in English 1530). (Leytonstone Chapter ISWL).

Afghanistan. Tom Williamson gives an "eye lifter" by mentioning a station he has heard and maybe located in Kandahaar. It was logged on August 30 on 7950 kcs. with R5, QSA3 sigs., giving Oriental music and announcements in unknown language (presumably Afghan) closing at 1730. Any hope, fellows, on this super DX?

China. Hankow. XLRA 11,500 kcs. heard intermittent from 2200 with Eastern music. Also heard around 1615 with talk in Eastern dialect. (Leytonstone Chapter ISWL).

Chunking. XGOY 11,913 kcs. with R6 sigs., at 1400, up to R7 at 1600 Channel has much cw, QRM states Pearce, who says Standard Time is now in force in China, and adds the following :—

XGOA Nanking 11,880 kcs. R7 at 1400 when giving news in English and closing at 1515 after reading of news in Cantonese by lady. Also heard R5-6, but severe QRM at times on 15,105 kcs., in parallel. Air Mail veri dated Oct. 11th for XGRZ (XGOA) on 17,765 kcs. gives following schedule :—

15,105 kcs. 0200-0400. For N. America (News. at 0215 and 0330).
0900-1050 for Phillippines, (Australia (News in English 1000-1010.)
1050-1230 for Mongolia, Japan, etc.

For South Africa, Europe 1300-1515 on 11,880/15,105 kcs.
1300-1330. News in Kuo Yu (5985, 9730 kcs. also).
1330-1340. Music. 1340-1350 News in French.
1350-1400. Orchestrals.
1400-1415. News in English (5985, 9730 kcs. also).
1415-1430. Russian Music.
1430-1445. News in Russian (Thursday : French Commentary).
1445-1500. Cantonese Opera.
1500-1515. News in Cantonese (sign off).

Malaya. "Radio Malaya" Singapore 4825 kcs., has been heard again and reported by Pearce carrying the Blue Network Programmes from around 1500 weekdays to sign off near 1550 after slow and quick news at 1530 except on Saturdays, when closed about 1620 after slow and quick news at 1600. Has been heard signing recently after fast news only. Your Scribe understands that the transmissions from " Radio Malaya " on 7200 kcs. will start three hours earlier on Sundays. 0130-1530 relay of MW Transmitter.

● **Europe**

Cyprus. Near East Arab Broadcasting Station Limassol 11,720 kcs./9650 kcs. Heard around 1430 with R7 sig. on 11 Mcs., frequently giving programmes in Arabic and new (Arabic) at 1600 and 1830. (Pearce)

Forces Broadcasting Service, Cyprus, transmits from the new Nicosia TX and can be heard from 0300, relays BBC news at 0400. Closes at 2000 with Ted Lewis' " Goodnight." (R.A. DX Session).

Back to the Near East Arab Broadcasting Station, and to a recent letter from E. W. J. Fields of Watford, who says they are the Sharg-Eb Adna stations, and operating now from Cyprus with a power of 7.5 kw.—QRA-P.O. Box 219, Limassol, Cyprus.

Schedule :— 0345-0635, 9650, 6170, 6135 kcs.
1035-1500, 11,720, 9650, 6170 kcs.
1545-2015, 9650, 6170, 6135 kcs.

Re the F.B.S. Cyprus, J. P. Burden has had a very nice veri letter from the Chief Announcer, Leslie A. W. Diamond, TX about 1 kw. and ½-wave dipole aerial. Announces as " This is the Forces Broadcasting Station—Cyprus." Opens with fanfare. Sends letter veri—do not have QSL cards.

● **South America**

Ecuador. HCJB, Quito, the " Voice of Andes," now uses a new frequency, in 17,789 kcs., says Ray Aldridge who heard them at the early part of October, and on the Air on Tues., Wed., Thurs. and Fri. English programmes are given on Thurs., from 2000-2100. Sigs. were R5-7 QSA 3-4 with bad QRM from an American. According to a letter Ray received from the Station's Chief Engineer—Clayton Howard—they commenced broadcasts on this new frequency in the first week of October, and will, if tests prove successful, use the frequency for transmissions to Europe during the summer months, when we are on BST. Judging by the recent condition of the 17 Mcs. Band, these tests may not turn out too good, because, other than BBC stations, the band is dead about 1900 ! Maybe it will depend on whether we get any summer next year, Ray ! ! Anyway, I'm hoping for two weeks FB WX to visit the South Coast and the Torquay area. What a delightful part of England this is.

● **Africa**

Canary Isles. EAJ43 Santa Cruz has been heard signing off at 2250 with call " Radio Club de Teneriffe, Viva Franco, Arriba Espana." Sigs. R7 QSA3 with hetro. 7 Mcs. This news comes from Tom Williamson of Harpenden, Herts., and is included in a very FB log sent in by this reader. Your Scribe's ears are just itching to get hold of some of the " goods " listed by him ! My " assistant " Peggy,—who scans through those letters you send me—likes to hear DX too ! ! By the way fellows, Peggy says she would like to have some picture postcards of your town, if you are located abroad. What say, some of you fellows ? Just mail them c/o Monitor, SWN.

Cape Verde Is. CR4AA, Praia, heard on 5895 kcs. at 2115 with Portuguese announcements. Sigs. R3 QSA3/2 with colossal cw QRM. Quite unreadable at times. (Williamson).

Portuguese East Africa. Angola. CR6RF, Benguela, " Radio Club do Angola " and hear fairly regularly around 1900-2100 with average signal R6-7 QSA3-4 with heavy intermittent cw QRM. Looks as if they do relay Luanda, OM, as you say (Williamson).

Arthur Cushen " down under " in sunny Invercargill, N.Z., says he has a QSL card from them showing Elephant and map of Africa. (Box 19, Benguala Angola is the QRA for these reports chaps). Just sent your scribe a folder giving only schedules and no mention of verifications ! I still need a CR6 for my " Countries " ! !

CR6RG, Dondo, 8242 kcs., heard several times at 1900. Schedule 1830-2030. Call: Radio Dihmang. Usual type of programme of records/announcements in Portuguese. Signal R4 QSA3, cw QRM (Williamson). CR6RB, Benguala 9165 kcs. heard at 1830 and closing at 1900. Very heavy cw QRM almost wipes out this station most of the time. Not heard recently. R3 QSA3. (Williamson).

CR6RH Sa de Bandeira 9230 kcs. Heard 1915 with records and Portuguese announcements. R3 QSA3. Call: "Radio Club do Huilla." CW QRM very heavy (Williamson).

● **QSL Section**

E. W. J. Field has a card from the Danish SW station in Copenhagen, which shows a view of Broadcasting House there. A note on the back of card says that they started, on Oct. 1st, a regular service beamed to North America in Danish. BCs to other parts of the world will be made in a few months, and in the principal languages. No schedule or details of freqs. are mentioned. VLC, VLC4 and VLG6 have also obliged Ernie.

J. P. Burden: Radio Brazzaville (Air-Mail for 6024, 7000, 9440, 9984 and 11,970 kcs.). BFEBS (Air mail for 11,730, 15,300 and 9690 kcs.). Radio International Tangier, PCJ, PGD, PHI. Warsaw III, Radio Luxembourg, HI2T, HI4T.

Arthur Cushen: Munich (11,870), CR6RF, CR6RB, HOLA, Danish Brigade (6220), CFVP (6030), Monte Carlo (6035), Singapore (4895).

Sidney Pearce: HH2S, VLB11, VLC7, VLC, VLH5, VLG6, YNDG, HC2AK, XEQQ, TGWA, XGRZ (17,765), XGOY, JKF, VP4RD, PJC2, "Radio Africa." (VY.FB OM.)

● **6 QRAs.**

Compiled by Sidney Pearce for your interest :—

XGOA. The Central Broadcasting Administration, 25 Tze Tang, Hsiang, Nanking, China.

ZOY. Broadcasting Dept., P.O. Box 250, Accra, Gold Coast.

HI1R. "Le Vox de Fundacion" Calle Constitution, San Cristobal, Dominican Republic.

HJAE. The Voz de los Laboratories Fuentes, P.O. Box 31, Cartagena, Columbia.

● **Honour List**

No.	*Name and Country*	*Countries verified*	*Countries heard (over 50 only)*
1	A. Cushen (N.Z.)	110	126
2	S. Pearce (Eng.)	109	113
3	J. Beaunoir (Natal) ...	85	106
4	M. Preston (Eng.) ...	59	117
5	E. W. Field (Eng.) ...	55	84
6	J. A. Jagger (Eng.) ...	50	98
7	G. Kensy (B.Z.G.) ...	50	000
8	A. Levi (N. Ireland) ...	49	55
9	D. T. B. Williamson (Eng.)	47	102
10	A. V. Wilkinson (Eng.)	46	102
11	L. W. Lowis (Eng.) ...	45	83
12	R. Aldridge (Eng.) ...	43	93
13	C. M. Southall (U.S.A.) ...	41	76
14	E. Friend (Eng.)	40	62
15	E. Strangeway (Eng.) ...	34	73
16	J. Burden (Eng.)	31	109
17	D. O. French (Eng.) ...	29	70
18	W. F. Kehler (B.Z.G.) ...	20	56
19	R. Iball (Eng.)	12	70
20	S. D. Tovey (Eng.)	12	56

YV1RX. "Ondas del Lago," Apartudo 261, Moracaibo, Venezuala.

Vienna. Public Administrator of the Austrian Broadcasting System, Argentinierstrasse, 30a, Vienna, Austria.

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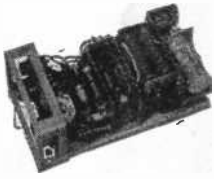
With Power and L.F. Amp. Unit.

Frequency 7.3-9 Mcs., six valves, 3/VP23s, 2/V248As, SW75 (pen), metal rectifiers, Vibrapack, for 12 V., in two units. Xmtr/Rcvr. size 10½×4×6 ins. Power Amp. 11½×4×6½ ins., plus spares, aerial and Instruction Book (less junction cable).



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per set.
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E275.	H.W.	130	125	25	3½ × ¾D.	3/3d.
E277.	H.W.	150	150	30	4 × ¾D.	3/9d.
E281.	F.W.	12	4	100	1¼ × ¾D.	3/6d.
E285.	F.W.	20	12	750	2½ × 2 × 6¾	5/-
E287.	H.W.	36	WX6	0.25	Westector	1/-

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Three Ceramic (Wearite type) Wafers. Five positions, single pole, each. Overall length 8ins. × 2¼ins. wide. at **3/11** Post Paid

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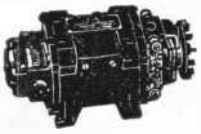
Rotary Transformer, input 11.5 V. Output 250 V. at 125 mA. Diameter 3 ins. × 5½ ins. Priced at **25/-** Post Paid each

Pyrex Glass Aerial Insulator, 3 ins. ribbed at 1/3 each, or 11/3d. doz.
Pyrex Glass Aerial Insulator, 7 ins. ribbed at 2/6d. each, or 22/6d. doz.
Pheonix Glass Dome Insulator, diameter 2½ × 1¾ ins., at 2/6d, or 22/6d. doz.

BRAND NEW, IN MAKER'S CARTON.

UNIVERSAL ELECTRIC MOTOR



For 200-250 V. AC or DC mains by simply wiring, data supplied.
Very useful for light bench work, develops better than 1/10 h.p., speed in excess of 2,500 r.p.m., a 1-inch spindle is available for driving when the fan is removed.

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Input, 24 V., 16 A. Output, 1200 mA: Size 11 × 5½ × 5½ ins.

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NEON LAMPS

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E2 . Neon lamp, S.B.C. fitting, 110 V. striking at 55 V. length 1¾ ins. at **2/6** each Post Paid

E270. Tubular neon lamp, end contacts; striking at 130 V., requires limiter resistance, length 8½ ins., diameter ¼ inch, at **3/6** each Post Paid

BRAND NEW

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Half-wave Dipole Aerial, 9 ft. 3 ins., with reflector 9 ft. 7 ins., and crossarm 4 ft. 11½ ins., for approx. six metres, either vertical or horizontal mounting to existing mast or wall bracket with 39 ft. of 80 ohm. 12 mm. co-axial cable and co-axial plug.

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Comprises: Five-digit push button switch, five pilot bulb holders, 3 pos. four-pole Key switch, wired to 12-pin Jones-type plug, in metal box, 5½ × 4 × 1½ ins., with wiring diagram.

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VISIT OUR BRANCHES IN ENGLAND, SCOTLAND AND NORTHERN IRELAND

KA1AI — Clark Field — Philippine Islands

One of the most consistent of the dx 'phone signals to be heard in this country is that of KA1AI on 14 Mcs. One of our readers. Reg Baldwin, ISWL G828, of Walthamstow, London, has been reporting on KA1AI's signals consistently from May to August and has just received a most interesting letter and photos from which this article has been prepared. Thanks for sending them along, Reg. —*Editor.*

THE gear at KA1AI (Pampanga, Philippine Is.) consists of a pair of 833A's with an input of 1 kilowatt. These are driven by a modified BC610 using 100TH's as drivers. A pair of 810's in class B are used as modulators. The aerial is a Rhombic with six wavelengths per leg and is 90 feet high. This rhombic is beamed on the centre of the States, though it puts a good signal into Europe. It is hoped to put up a "V" beam for Europe in the very near future.

The station is operated by Stan. R. Basham. Stan says that KA1AF is only four miles from him and runs 800 watts to a pair of 810's into a "V" beam. Once Stan gets his "V" beam up he hopes to "*Top*" AF, as he does at present, into the States with his rhombic. So here's wishing you luck, Stan.

As reported in the *SWN* in October, a recently passed Philippine law prohibits amateur radio contact with any station other than U.S.A., or U.S.A. Occupied Territory stations. As KA1AI says, this is a great pity, as many fb signals from Europe are heard in the Philippines, but they just must not be answered.

In Stan's letter to Reg, he remarks that he seldom answers SWL reports because of the great number of useless cards and reports he receives. But he comments "Yours deserves an answer." This bears out what we are repeatedly saying in these pages. If SWL's will send good, useful, intelligent reports covering a reasonably long period they will get those much coveted QSL's and photos. There are some forty or more amateurs in the Philippines and an amateur radio club, the Philippine Association of Radio Amateurs, with their headquarters at the Radio Training Institute Buildings, 345 Palma, Quiapo. Cards for all KA stations may be sent to this address, though stations operated by U.S. Service personnel usually prefer their cards to be sent to a home QTH. In KA1AI's case, this is :— APO 74, c/o P.M. San Francisco, California, U.S.A.

Adding an "S" Meter

By "CENTRE TAP"

While this description is primarily intended for constructors of the "Basic Superhet" this useful accessory can be incorporated in any circuit of a similar type.

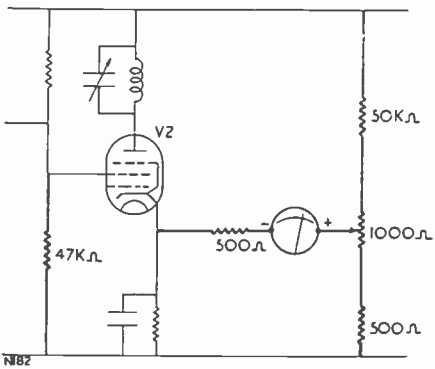


Fig. 1. The S Meter circuit. New wiring and components are shown in heavy line and existing wiring in faint line

FROM the time the superhet circuit first became popular most of the better quality receivers have had some form of visual tuning indicator. With the purely broadcast type receiver the demand was prompted by the need for a visual, and therefore normally more accurate, indication of correct tuning adjustment to avoid spoliation of reproduction by cutting the sidebands. In quite a number of Service receivers, too, the meter has a switched position to assist the operator in tuning by watching for "a maximum dip," although forquite a different reason! In this manner the meter is switched in series with the H.T. feed to one or more of the AVC controlled IF valves, when a downward reading in proportion to the strength of the signal is obtained.

The anode circuit milliammeters used by amateurs were of this type and were often fitted upside down so that the needle movement would be to the right with increasing signal strength. The magic eye, too, is a first-rate tuning device but its usefulness is not as great as that of a forward reading meter to the amateur or SWL.

Other Uses

Quite apart from the "S" meter's normal role of enabling realiable *relative* reports on carrier strength, it serves as a tuning aid, a guide to receiver performance and an invaluable asset in making alignment or other adjustments. It is essential for measuring back-to-front ratios of beams for other stations, and when it is remembered that an S7 to 8 undermodulated signal may sound stronger than an S5 or 6 fully modulated signal it is small wonder that one so often hears of misleading and erratic "reports."

Simple Circuit

The circuit shown in Fig. 1 is in actuality just as simple as it looks, both in wiring and in the initial adjustment, and is similar to that used on some commercial communications receivers. The existing wiring of the Basic Superhet is depicted in dotted lines and no disconnections have to be made. Those adapting for use in other cirtuits should note that the resistor from the H.T. to the screen will, of course, be part of the normal circuit. That from the screen to chassis will possibly have to be added and it should be of a value approximately equal to that on the H.T. side.

Operation

No current flows through the meter under "no signal" conditions, but as the AVC voltage rises current flows as the cathode becomes less positive and a forward reading obtained. The resistor between the meter negative terminal and the cathode is to prevent excessive current on very strong signals and by increasing or decreasing its value the meter sensitivity can be varied. It should also be noted that it serves to prevent the bias from falling below its proper value via the resistor on the positive side of the meter by which it would be shunted.

If it is found that the needle bangs over hard against the back stop, either the value of the 470 ohm. resistor from the potentiometer to chassis should be reduced or the value of the resistor from the potentiometer to HT positive should be increased. At this point, it should be added, the needle will go over hard to full-scale each time the set is switched on.

The initial setting is made when the set has had time to warm up and when the aerial lead has been removed and the aerial terminal shorted to chassis. The needle is then set to zero by the potentiometer adjustment.

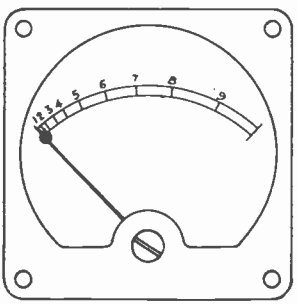


Fig. 2. Sketch showing how the S Units are crowded at the low end, "fanning" out as the units get higher

Practical Considerations

A one mA FSD moving coil instrument is used for the meter and in calibrating the scale it must be borne in mind that it will be far from linear. It will be cramped at the low reading end and a rough general approximation is given in the scale in Fig. 2.

A convenient form of mounting may be obtained with the assembly supported by brass brackets on the back of the meter itself, thereby saving chassis space. If a midget pre-set type of potentiometer is used this arrangement will occupy the minimum of space. The resistors, other than the two forming the potential divider for the valve screens, can also be mounted on the platform, which is of thin paxolin or bakelite.

An alternative arrangement with the meter forming a separate external unit (as in the Eddystone and some Hallicrafter models) may be preferred, in which case the leads can be taken to a valve socket mounted at the rear of the chassis into which a plug from the unit can be connected.

LICENSING OF GERMAN AMATEURS

WE have been informed by Hr. Hans Haberl, Secretary of the Deutscher Amateur Radio Club—DARC—that German amateurs will be licensed very shortly. As reported previously in the SWN, authority was granted for licences to be issued from September 1st, last, but the necessary legal procedure has not yet been completed. We gather that about 500 licences are ready for early distribution however.

The amateur prefix will be "DL," starting DL1AA up to DL1ZZ, followed by DL2AA, etc. There will be two classes of licence, first 20 watts with some restrictions regarding telephony and then 50 watts C.W. or telephony.

We have been asked to publish address of the DARC—QSL Bureau, which is DARC, Munich 27, P.O.B. 99, Germany.

After the chaos of war such as Germany has been experiencing it is only to be expected that some time will elapse before pre-war organisations can find their feet again. It is a pity that so many pirates have raised their heads and confused the issue as to whether or not the D calls to be heard were genuine or not. This statement from DARC should help to clear the air considerably and we know all readers will join us in wishing DARC prosperity and good fortune in the future. DARC looks after the interests of the transmitting amateur in Germany in the same way as the R.S.G.B. does in this country, and its QSL Bureau should be regarded as the official one. There are in Germany—as in this country—a number of S.W.L. Clubs and organisations, some of which do attract a considerable number of transmitting members, and these run their own QSL Bureaux—as do we in the I.S.W.L. However, those Bureaux in Germany which have been handling the DA, etc., cards are "pirate" ones and should not be patronised by readers. As soon as the genuine DL calls are heard on the air readers should use the DARC QSL Bureau unless they are sending their cards via the I.S.W.L. or R.S.G.B. Bureau.

WORLD RADIO HANDBOOK FOR LISTENERS

Important Notice to Broadcast Station Listeners

We are pleased to announce that we are now in a position to supply copies of the above-named publication to readers. It will be remembered that this publication was reviewed in our September issue.

Published and edited by O. Lund Johansen of Copenhagen, this book is published in several languages, including English, two or three times each year. It is an invaluable reference book for those interested in short wave broadcasting. It gives, in alphabetical sections, details of every station of note, with frequencies, call-signs, power, schedules, interval signals, details of station personalities and a host of other interesting and useful material. It also lists medium and long wave stations. From the identifications angle, the Handbook deals with the type of programme radiated, the musical score of identification chimes, etc., and other hints of great interest in tracking down stations. Another very useful item is the inclusion of data on whether each station verifies reports and, if so, what form the QSL takes.

As we have already said, in the review referred to, this book is most beautifully produced on "heavy duty" paper with an attractive card cover and is well illustrated with pictorial maps. It would grace the most exclusive listener's shack!

Every keen SWL must get a copy of this Handbook—now! Address your orders to "World Radio Handbook," 57 Maida Vale, London, W.9. The price of the Handbook is 6/6—and it is worth every penny!

(*NB:* If you have any friends who may be interested send along their names and addresses and we will forward them illustrated brochure and order forms.)

Radio Melange

A pot-pourri of current topics

HISTORY REPEATS ITSELF !

Recently the Bell Telephone Laboratories, U.S.A., demonstrated the " cats-whisker crystal " in a new and revolutionary role as a replacement for the radio valve. The fact that many of the leading radio journals in the U.S.A. have recently carried articles on this development suggests that this " crystal," termed the " *Transitor*," will have a far-reaching effect on radio design and circuits of the future. Essentially, the "*Transitor*" consists of a piece of germanium crystal with a three contact holder, and investigations have shown that it will even oscillate and amplify. No source of power is required, such as for the cathode in a normal radio valve, and therefore it will be an advantage where compact and light-weight design in equipment is essential, *i.e.*, deaf aid apparatus, pocket receivers. Experiments using the 1N34 germanium crystal in the above role, modified accordingly, have given promising results. The voltage again is approximately ten, which is as good as that of an ordinary triode. Frequency and power limitation have not so far been fully exploited, but in suitable circuits it was found possible to reach 10 Mcs., and powers developed averaged 50 milliwatts. Experiments on these lines were being investigated as far back as 1923 by various bodies, but results were not very promising. There is no doubt that the " cats-whisker and crystal " is back in the news, and maybe it will not be long before the " crystal set " will be the amateur's most prized possession, and his super-duper DX communication receiver will be " under the table."

RADIO VANS AID FARMERS

Two-way radio telephony is playing its part in helping Scottish farmers get in the harvest in the quickest possible time.

Mr. Daniel Ross, Lanark dealer for Britain's famous Ferguson tractors, has equipped his five service vans and his headquarters with radio so that help may be sent with the least possible delay to any of his two to three hundred customers who run into trouble with their equipment.

At a time when any hold-up in farming may mean food spoiled, farmers working in the remotest Lanarkshire hill-villages can have help sent to them by radio almost as quickly as if they lived close to large towns.

With a fixed station in Lanark town, Mr. Ross keeps in continuous touch with his service vans as they travel about the country on their routine day's service work and plots their position on a map in his office. As soon as an S.O.S. is received from a farmer the nearest service van can be directed to the scene of the hold-up and very often a minor adjustment can be made in a few minutes where, without radio-aid, the farmer might have been inactivated for half a day or more.

Mr. Ross uses Pye equipment for his five mobile and one fixed station and they operate on a frequency of 73.275 megacycles. According to the G.P.O. the Simplex single-frequency working equipment is the first of its type to be used by a commercial concern in this country. Output of both the fixed and the mobile stations is 12 watts R.F.

The aerial of the fixed station is 850 ft. above sea level and although there are a good many high hills in the area the fixed transmitter has an average working range of about 25 miles, while from high ground a range of 40 miles has been achieved.

The mobile unit measures 12 ins. by 11 ins. by 11 ins. and a control panel is fitted under the dashboard of the vans.

" I reckon," says Mr. Ross, " that each van will save about a gallon of petrol a day now that we have the radio, but that's not the important thing. What matters is that we can get help to farmers quickly, which is the whole idea behind the Ferguson service scheme."

NEW AMATEUR RADIO LEAGUE IN HUNGARY

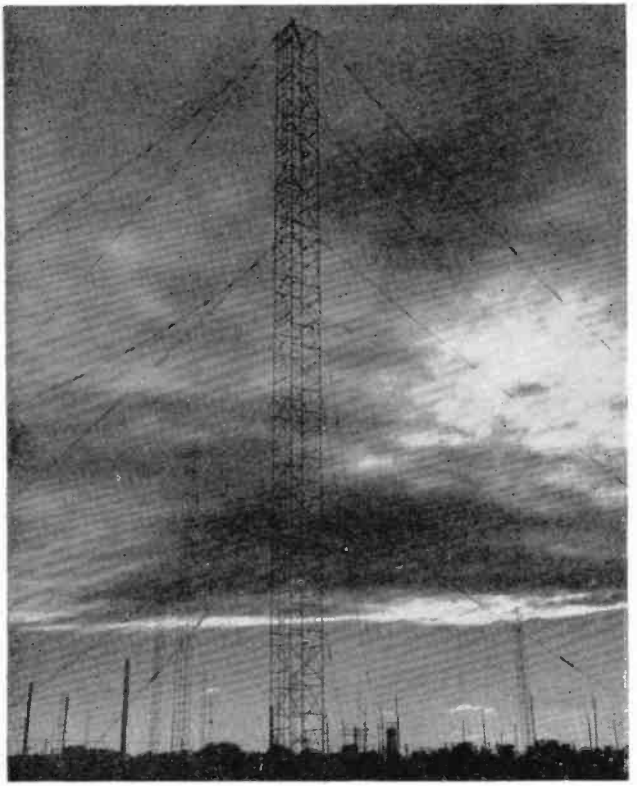
The official representatives of amateur radio in Hungary have now been reorganised. The name of the new league is :—Magyer Rovidhullamu Radioamatorok Egyesulete or in English, The Hungarian Shortwave Radioamateur League.

The officials are :—President : Paul Pamlenyi. Vice-president : Zoltan Papp. Secretaries : dr Ladislas Radnai and George Neu. Post can be mailed to Budapest 4, Postbox 185. This is also the address of the QSL Bureau. The other Hungarian QSL bureaux whose addresses have been published in various journals have been private ones and no longer exist.

The new league hopes to build up friendly contacts with other amateur organisations throughout the world in the best traditions of the ham spirit, and they hope that this action will help to further the cause of world peace.

INEXPENSIVE TELEVISION

Owing to the exceptional interest shown in the series of articles under the above heading, in " Radio Constructor," it has been decided to reprint the series (revised and enlarged) in our Data Booklet series. The book will be published this side of Christmas, and we can now accept advance orders. The price is 1/8, including postage.



W.R.U.L.

Short Wave Broadcast Station of the World Wide Broadcasting Foundation

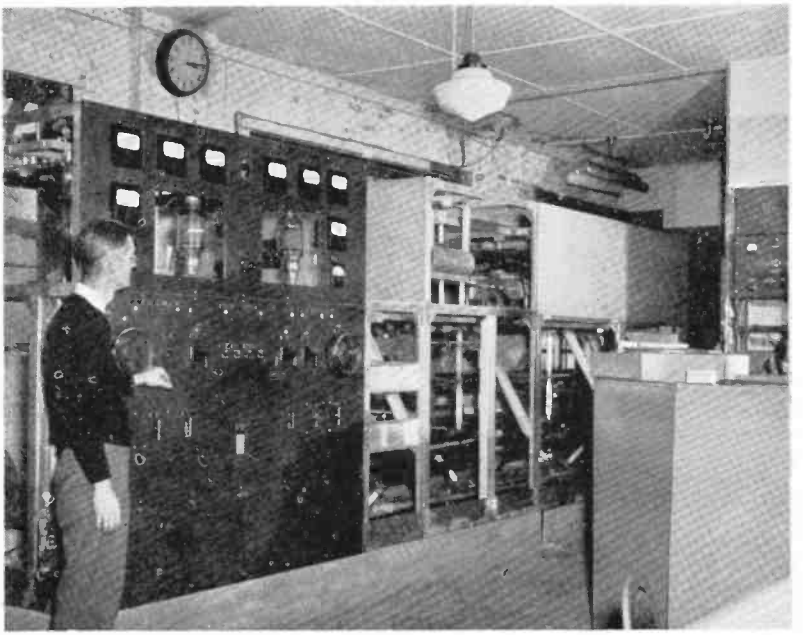
Photo showing some of WRUL's aerials at SCITUATE, Mass.
(Photo—Stephen W. Plimpton, Boston, Mass.)

Readers will remember that on February 29th last, from 2030 to 2100 G.M.T., the World Wide Broadcasting Foundation radiated a programme especially devoted to the I.S.W.L. This programme was arranged for us by one of our readers, Chas. Southall, of Springfield, Philadelphia, and we feel sure all who heard that programme will be most interested to read this description of the World Wide Broadcasting Foundation and its station W.R.U.L. compiled from material supplied to us by Charles.
—Editor

W.R.U.L. was born as long ago as 1919 when Walter Lemmon, a young radio inventor—to whom incidentally we owe the single dial tuning now universally used on radio receivers—was acting as scientific-aide to President Wilson. At this Conference he saw that the delegates stood on no real common ground. He realised that something revolutionary would have to be done if the people of different outlooks, cultures and customs were ever to be brought together in mutual understanding.

It was not until 1935, however, that he had gained sufficient support to launch his international broadcasting project—an idea he had been fostering ever since he had realised what a powerful factor international broadcasting could be in furthering international understanding and good will.

At first, station W.I.A.L. was used, but later W.R.U.L. came into being as the first World Radio University. Faculty members from Harvard, Massachusetts Institute of Technology, Tufts and other New England Colleges co-operated in providing programmes in academic and cultural subjects in all the major tongues of the world. In addition to the broadcasts,



WRUL's new 250 Kw Tx under construction at SCITUATE, Mass. This will make WRUL the most powerful independently owned S.W. Broadcasting Station.
(*Photo—Stephen W. Plimpton, Boston, Mass.*)

W.R.U.L. offered to serious listeners students' textbooks at low prices. Questions and answers and examinations were handled by mail. The World Radio University became so popular and successful that by 1939 it was offering virtually entire academic curricula to students in thirty-one nations. These programmes were being broadcast in series form in twenty-five languages. As an instance of the use to which these broadcasts were put by listeners, in 1938 Basic English courses were beamed to Latin American Countries and were completed by 5000 students in 19 countries.

W.R.U.L. programmes were also designed to foster world peace and they thus came in for some adverse comments from Goebbels in pre-war Germany. He referred to the station as "this American meddler in the Fuerher's New Order." It was not long however, before W.R.U.L. was able to get its own back! When the Nazis overran Norway in 1941, Norwegian shipowners were forced to issue orders to their ships to return to Norwegian ports. After conferring with the Norwegian Embassy in Washington, Mr. Lemmon instructed W.R.U.L. to put out appeals to all Norwegian ships to ignore the instructions received from their German controlled owners and to proceed instead to the nearest Allied port. The success of this appeal was made known in 1945, when Mr. Lemmon was presented with the King Haakon Peace Medal and it was disclosed that the whole of Norway's 900-vessel merchant fleet had steamed into Allied ports.

Other war work done by W.R.U.L. included the establishing of contact between the parents of British children evacuated to America, by a series of programmes called the "Bridge of Friendship"; propaganda to Yugoslavia resulting in considerable delay to German plans, and news bulletins at dictation speed directed to countries unable to secure reliable news of their own. By 1942 "listener-mail" had reached the 20,000 mark, news and cultural programmes being directed to Holland, France, Belgium, Greece, Norway and other countries.

In 1943 all short-wave stations in the United States were put under Government Control and this lasted until 1947, when a start was made again of broadcasts of educational and news services. United Nations Radio Division made use of W.R.U.L. for daily summaries of events at Lake Success.

W.R.U.L. is financed through contributions and fees in much the same way as other American Universities. No "air-time" is sold commercially and the station is not Government-subsidised. The target set for 1948 was 550,000 dollars needed to enable the station to carry through its expansion programme.

Our photos show W.R.U.L.'s new 250 kw. transmitter under construction at Scituate, Mass. This will make W.R.U.L. the most powerful independently owned short-wave station in the States. (Photos:—Stephen W. Plimpton, Boston, Mass.)

International Short Wave League

MONTHLY NOTES BY G3AKA

ANNUAL SUBSCRIPTION 1/-

News from the Chapters

Bristol (Sec.: N. G. Foord, 71 Brynland, Avenue, Bristol, 7).

Great news from Bristol—a Chapter has been formed and membership is now over the 40 mark ! Norman Foord and Dudley West, the CR, got together with a few local members and between them have built up the Chapter in a remarkably short space of time. Meetings are at present held twice each month, on alternate Fridays at the Redcliffe Community Centre, Bedminster, starting at 7.30 p.m. The Chapter is known as the Bristol & District SWL Club. Morse Classes are in the hands of Mr. Emery and the Library is organised by Mr. Clapp (not THE Clapp !). Talks, a Constructional Section, a VHF Section, Competitions and a News Sheet are among the many attractions offered. Visits to local shacks are being organised.

We extend our congratulations to Norman Foord and Dudley West for their energy and initiative in forming the Chapter and we wish the club a long and successful life. Members who live within reach of the Chapter HQ are cordially invited to drop a line to the secretary for full details.

Stamford (Sec.: F. K. Parker, 122 Empingham Road, Stamford, Lincs.).

Yet another Chapter can now be added to our growing list, this time Lincolnshire takes the plunge. The Chapter is in the hands of F. K. Parker (Sec.), F. Naylor (Treas.) and J. Allen (Chairman). Plans for the club transmitter are going ahead and 1.8 Mcs. will be the band for the first tests. Then it is hoped to do a bit of 3.5 Mcs. phone. The call will be G3CUD/A, so keep an ear open lads. Needless to say, the secretary would be more than pleased to hear from prospective new members for the club. Best of luck, OM's.

North West London (Sec.: F. Wells, 8 Evangelist Road, Kentish Town, N.W.5.).

The club is just getting into its stride for the winter. The enjoyable visit to Electronic Prototype Designers will be followed up by a visit to the Marconi-Osram valve works at Brook Green.

The club transmitter is really taking shape now so we look forward to hearing you on the air soon, chaps.

East London (Sec.: A. F. Baldwin, 28 Wallwood Road, Leytonstone, E.11).

We have had quite a spate of activity-reports from Frank this month—probably due to the elation of the lads for winning the DX Contest ! New members have been enrolled and the old problem of accommodation is beginning to be felt. Looks like another Chapter in East London might solve the problem. The club receiver has been shelved in favour of a modified B2 with EL2 output stage. Talks recently have included "The BC Bands—what to hear and when," by G1687 and "The Amateur Bands" by G193.

We are asked to remind local members that there are no rules or regulations—enthusiasm being the only stipulation. There are no financial obligations and coffee and cakes are provided free. In the words of the secretary, "What a Chapter !!"

Southwest Essex (Sec.: L. Barrett, 367 Rush Green Road, Romford).

Local members please note that Ken Goodley, who has previously been acting as CR and secretary, is now acting only as CR. The new secretary is given above. This is all part of a general re-organisation of the Chapter. A transmitter for 7 and 3.5 Mcs. is on hand and a top-band tx is under construction. Frank Pardy, G3DZJ (ex-VS2BT) is back in the run of things again and will use his call for the club transmitter.

Another important alteration is that meetings are no longer conducted at Vallence House, Dagenham, but at "The Shack" —at the secretary's address given above.

The local representatives for S.W. Essex are now as follows :—

CR : K. R. Goodley, 34 Blenheim Avenue, Ilford.

Ilford : S. N. Radcliffe, B.A., 124 Collinwood Gardens, Ilford.

Dagenham : F. R. Pardy, G3DZJ, 79 Burnside Road, Dagenham.

Romford : J. H. Davey, 18 Hamilton Drive, Harold Wood.

A warm welcome is extended to new members and a letter to the secretary will bring forth full details of future meetings. What say, OM's. ?

Birmingham (Sec.: G. Pennington, 114 Birmingham Road, Rowley Regis.

The new election resulted in the following officers : S. Edmunds (Chairman), G. Pennington (Secretary) and R. G. Needham (Treasurer).

A talk on Aerials and Interference is scheduled for the near future and visits are arranged. Listening periods and so on continue to be held and receive good support. New members will always be made welcome. Write to the secretary for details.

South London (Sec.: W. A. Martin, 21 Brixton Hill, S.W.2).

The highlight of recent activities was the Field Day (a photo of which is reproduced in "*Ham Bands*"). The transmitter gave 3½ watts to a KT2 and the receivers were 0-v-1's. Though nobody tracked down the hidden transmitter it was unanimous that a good time was had by all.

At the Annual General Meeting general satisfaction was expressed at the Chapter's progress. John Lambert took his Oscilloscope along one evening to everyone's interest, a Junk and Auction Sale has been held and in general it appears that the Brixton Hill contingent is very active.

South Manchester (Sec.: M. I. Wilks, 57 Longley Lane, Northenden).

This is another Chapter that has made exceedingly good progress in a short time—the membership now standing at 39, including twelve licensed members. The name of the Chapter has been modified to South Manchester Radio Club.

It is hoped to have a club transmitter on the air very soon. An Advice Bureau and an Exchange and Mart Section are two of the new facilities offered to members. A sub-committee entitled the Programme Planning Sub-committee has been formed to ensure that interesting items are always on the agenda. New members please drop a card to Maurice for details of future meetings.

West London (Sec.: J. Hedges, 6 Littlejohn Road, Hanwell, W.7.)

Prior to a removal to a new clubroom the Chapter is at present in a state of suspended animation! As soon as details for occupying the new shack have been completed every member in the West London area will be notified by circular letter.

"SUPPORT NEEDED" DEPARTMENT

Nantwich: Walter Davies (The Bungalow, Kingsley Fields, Nantwich), is struggling to get a Chapter organised in the district. Volunteers, please!

Wrexham: Denis Rickers (97 Ruabon Road, Wrexham), who is forming a Chapter and has located a club room, would like to hear from local members not yet in contact with him.

Manchester: R. Giles and N. Pearce, are attempting to get together a Chapter as a supplement to the South Manchester club to cater for those unable to attend the latter's meetings. We issue an S.O.S. to any member in East Manchester to contact Mr. Giles so that an assessment of possible support may be obtained. Districts affected would include Mossley, Droylsden, Stalybridge, Hyde, Dukinfield, Ashton and Audenshaw. The QRA is R. Giles, 1,560 Ashton Old Road, Manchester.

EXPERIMENTERS' SECTION

Sec.: J. Thomson, 15 Chambers Street, Innerleithen, Peeblesshire.

Some preliminary rules for this section have now been formed. Other conditions will be defined as they become necessary.

(1) Circuits other than commercial and of an experimental nature are handled by this section.

(2) Theoretical circuits submitted should be accompanied by as much information as possible.

(3) Persons requiring copies of circuits should enclose SAE of appropriate size for reply. Addresses of all members co-operating will be enclosed.

(4) Receivers, designed for operation on any frequency, test gear or any similar apparatus will be acceptable.

(5) A panel of "specialists" is being planned and volunteers would be appreciated.

(6) Further details may be obtained from the Secretary.

BOOK REVIEW

Denco Technical Bulletin 3 Coil Turret C.T.4. 3/-. Issued by Denco (Clacton) Ltd. 355/9 Old Road, Clacton-on-Sea, Essex.

The quality of Denco products is well known to our readers and one which has stimulated much interest has been their Coil Turret. This has developed through several stages, the C.T.4 representing the latest progress in this direction. It is a complete, all wave, tuning unit, intended primarily for use in communication receivers having an RF stage, mixer and separate oscillator. The range is 125 kcs. to 36 Mcs.—covered in six ranges, with an I.F. of 1.6 Mcs. The well-known Denco turret assembly arrangement is used with coils wound on low loss Polystyrene formers with iron dust cores.

D.T.B.3 deals very comprehensively with the design of this turret both from the theoretical and practical aspects. Constructors will greatly appreciate the section in the Bulletin devoted to recommended circuits, excellent circuit diagrams and block line diagrams giving the Constructor all the information required to build a first-class communication receiver around this turret.

This booklet is nicely produced and printed on art paper and should most certainly be obtained by all those interested in the construction of a high-grade communication receiver.

A.C.G.

B.O.A.C. "Mileage Millionaire" Radio Officers

A B.O.A.C. Radio Officer at work in a Speedbird. (Official B.O.A.C. photo)

FORTY-TWO B.O.A.C. Radio Officers have now each flown more than one million miles and thus have earned the unofficial title of "Mileage Millionaire."

Two of them, Radio Officers H. H. D. G. Dangerfield, of Gloucester, and A. J. Coster, of Twickenham, have each flown two million miles. Both of these men—in their middle-forties—joined civil aviation some 15 years ago and, in common with many of their colleagues, had previously served in the Merchant Marine. Their air duties have taken them over most of the air routes of the world from the Atlantic to the Pacific. Before the war Mr. Dangerfield took part in the first British civil experimental Atlantic flights, and in 1942 was the Radio Officer aboard R.M.A. Berwick when Mr. Churchill returned from North America by that aircraft.

Among the other "Mileage Millionaire" Radio Officers, some have served with the Royal Navy, with the R.A.F., or as civilian wireless technicians.

In the recent war B.O.A.C. Radio Officers played an important part in helping Captains and Navigators to fly unarmed civil aircraft through the war zones to maintain vital Commonwealth air communications and others took part in the air evacuation of Crete, Singapore, and the Andaman Islands.

In the early days of flying, in open cockpits, wireless operators were "maids of all work." They thought as little of changing a plug in scorching desert heat as of tapping their keys in the cold of a North European winter.

Nowadays conditions in the modern B.O.A.C. airliner are highly comfortable by comparison, but although the Radio Officers' responsibilities are confined to radio these duties are much greater than in the days of flying "contact" and map reading from place to place.

The airliner Captain of to-day relies upon his Radio Officer to be the ears and to some extent the eyes of the aircraft.

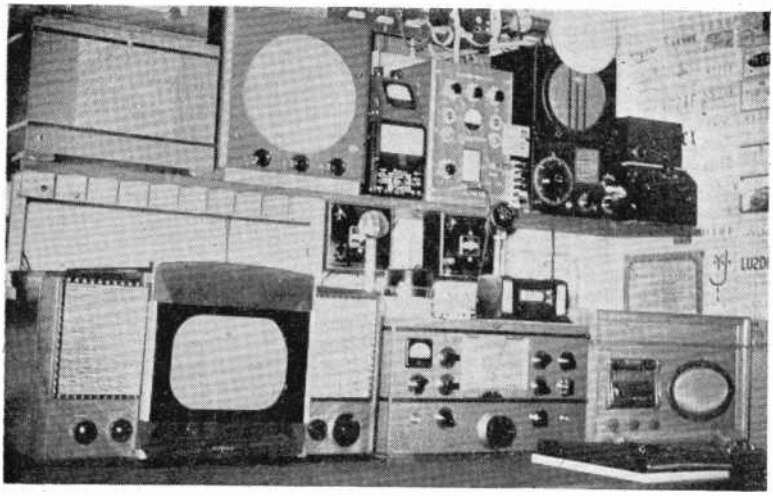
When it is flying out of sight of land, this officer obtains bearings which enable its position to be determined and the aircraft to be navigated; he obtains from the ground and from other aircraft reports of the weather ahead, so assisting the Captain to take advantage of the most favourable conditions; and he studies the indications on the radar apparatus, the "magic eye" which in "blind" flying enables the ground to be "seen" and bearings from ground radar beacons to be taken.

Such radio aids to navigation as the S.C.S.51, the radio range and other apparatus—indicating correct courses to steer and to descend safely through cloud, by "dots and dashes" in the headphones or visual indications on the instrument panel—are the responsibility in flight of the Radio Officer.

From the beginning of the flight until its end, indeed, he is one of the busiest members of the crew, receiving and transmitting information, passing important messages to and from Air Traffic Control on the ground and recording details in his log book, until at the end of another flight the time comes for the Radio Officer to transmit · — ·— · Ack R, "Closing Down."

NEW AMATEUR BANDS

The G.P.O. states that, as from January 1st, 1949, a number of new bands will become available to British amateurs. All present bands, with the exception of the 60 Mcs. band, will continue to be allocated. The new bands are 1,215-1,300 Mcs., 5,650-5,850 Mcs. and 10,000-10,500 Mcs. The remainder of the 145 Mcs. band will also be released, making the total band 144-146.



AROUND THE SHACKS

No. 23: HAROLD VOORHIS

THOSE who have amateur transmitting stations will be interested in the accompanying photos of the station of Harold V. B. Voorhis, 132 Bergen Place, Red Bank, New Jersey, U.S.A.—because many have, no doubt, received his card showing his "layouts" in 1908, 1912 and 1922, or a recording of the reception of their signals.

Mr. Voorhis is an "old timer" in the radio field. He started in 1906 at the age of twelve years and has been "radioing" ever since.

The station consists of a 50-watt Harvey-Wells transmitter on all bands from two to eighty meters (for use of friends who are licensed), and the following receiving and other apparatus: National 1-10A H.F. receiver; National 240 D communication receiver; National HFS receiver-converter, for 300 to 1500 Mgs. (not shown in photo); Wilcox Gay-Record player, cutter, P.A. system and Broadcast Radio; Webster Wire Recorder; Bogan record turntable; Cardwell 8-watt amplifier-speaker; Communications equipment FM tuner; RCA 10-inch television receiver; Various meters, testers and power packs; Specially made plug-in board for changing aerials (All 300 Ohm. tape type lead-ins).

The aerials are as follows:—

Long wire 75 meter V; Folded dipole—20 meter; Folded dipole—10 meter; Wide spaced—3-element 10 meter rotary; Wide spaced—5-element 2 meter rotary; Rawlins 360 degree FM basket; Stacked 8-element reflector-type television, 50-90 Mcs.; Stacked 8-element reflector-type television, 180-230 Mcs.; Folded dipole, with director and mesh reflector-television for channel 7. (To overcome a null for the locality.)

There seems little use in giving any data covering the antennae or "gear" as it is self-explanatory. Various receiving aerials have been a hobby of Mr. Voorhis for several years. It is not unusual for him to make two or three in a week.

Mr. Albert Teeter, whose remarkable station has been described in these columns, is a neighbour (three miles away), in Rumson, N.J. He also is an antenna experimenter.

Aside from radio, Mr. Voorhis is Secretary and Treasurer of Bull and Roberts, Inc.—Consulting Chemists in New York City; Vice-president of the Macoy Publishing and Masonic Supply Company, a company which will be a hundred years old in 1949. He is a collector of Christmas seals, cigarette package covers, and various other items; has a unique fraternal record, having presided in twenty-nine Masonic bodies; the author of several books, and grows chrysanthemums as a hobby, having several thousand bushes. He is a member of the I.S.W.L.; Monmouth County Amateur Radio Association and Secretary of the Monmouth County Two Meter Emergency Radio net.

(*Continued on page* 319)

The QSL Bureau

Report on recent activities

BUSINESS has been brisk of late and many interesting cards have been received. From the Outgoing Section, handled by John Hedges and M. Beresford, we hear of many instances where call signs have obviously been wrongly given. Most of them appear to be due to careless listening, and we would like to stress the importance of making sure you have the call sign right before sending a report. If not sure, then DON'T send a report! Also, we get many SWL cards for G and W stations. These ARE NOT acceptable, due to reasons stated on the ISWL Information Sheet, so please OM's no more W or G reports.

Frank Baldwin, ably assisted by his XYL (also a staunch ISWL member), looks after the Incoming Section. Frank says that many do not put their ISWL Number prominently on the top left hand corner of their SAE's. If you do not put your number on, it may result in your not receiving cards due to you since we keep SAE's for listeners who are not members of the League and a SAE with no ISWL number on it is filed in that section.

It would be impossible to list all the cards received since our last review, but here are some of them for readers interested in sending reports:

AP2M, AR1RJ, AR8AB, C1KF, CN8BA, BF, MZ, AB, AU; CR6AI, CT1FL, NT, QI, SQ, TX; D2GI, 4AYC, 5AA; EA1D, 3AE, DF, TA, 9AI; F8SI, 9AO, AQ, DN, DV, EY, FA3FB, HA2C, HC2KJ, HK3FD, I1BI, CF, CE, EC, II, JA, KZ, QW, UE, RZ, XB, XV, WN, YJ, AIV, ASO, AGR, AAL, FLF; IS1EH, AEW, AHK, AYN; K2UN, LA7K, LU3DH, 8EP; LX1CD, MB9BG, MD5HJ, OA4AT, 4AV; OH2RY, 6NS; ON4BG, CD, CY, VI; OK1DE, 1OP, 2DO, 3ID, 3RR, 3ZL; OX3BE, OY3IGO, OZ4P, 6KB, 7CH, 7EH, 7KC, 7PH, 9TI; PAØDW, DX, GV, MZ, PU, JQ, RU, CJH, MDW; PY1IK, 1ACQ, 2AC, 2ADK, 5AQ, 6CO; UA1AA, 3AW, 3DA, 9DP, ØKGA, UB5KBA, VE1DQ, 3ACI; VK2VA, 3LN, 5AE; VP6HR, VQ4DFF, W6DI, 7HTB, 5AXI, 4AHF, ØHX; YV5ABT, 8AG; ZB1KQ, ZB2A, ZD4AB, ZL2GX, ZS1CN.

These are a representative selection, bearing in mind the DX value and the attractiveness of the cards. We also hold over one hundred cards for members who have not claimed them. It is imperative that we clear these cards, so would the following members please send envelopes for their QSL's, Thanks!!

IS YOUR NUMBER HERE?

170, 173, 217, 244, 274, 292, 329, 347, 395, 415, 475, 501, 515, 555, 638, 647, 654, 707, 710, 713, 760, 786, 787, 804, 814, 815, 835, 847, 858, 861, 893, 950, 1019, 1034, 1036, 1038, 1043, 1217, 1296, 1329, 1396, 1435, 1459, 1474, 1501, 1504, 1547, 1552, 1584, 1585, 1716, 1734, 1811, 1832, 1896, 1984, 2119.

MULLARD'S NEW VOLTAGE REFERENCE TUBE

The rapid development of electronic devices during recent years has increased the need for a compact and stable source of voltage reference for direct use in electronic circuits. Such a need is fully met in the voltage reference tube 85A1 recently introduced by Mullard Electronic Products, Ltd. Working in a self-regulated, constant current circuit, this tube provides a voltage of extremely high stability such that it may, in the majority of applications, be used to replace a standard cell as a built-in source of voltage reference. It should thus prove of particular interest to designers of communications, scientific and industrial electronic instruments.

In construction, this new tube resembles a normal neon gas discharge tube. However, the high stability is achieved as a result of an entirely new manufacturing process. This process also ensures a high consistency in characteristics from tube to tube, so that tubes may be replaced without difficulty. Furthermore, a temperature co-efficient of less than minus 3.5 mV/°C. eliminates the necessity of temperature compensation in the vast majority of applications. The tube is of all-glass construction and is built up on a loctal-type base which enables it to be firmly located into its socket. Long life, small size and reliable performance are other important features.

The ignition voltage of the tube is 125V. and the normal operating voltage is 85V. After an initial ageing period, the short-term stability (100 hours max.) is better than 0.1 per cent., whilst the stability over a period of 1000 hours is better than 0.2 per cent. This high degree of stability is maintained even under intermittent switching conditions. The tube operates as a regulator over a current range of 1-8 mA, but for optimum performance as a source of voltage reference it is recommended to operate the tube at 4.5 mA.

In addition to its use as a built-in source of reference voltage in electronic equipments, the tube may be used effectively as a reference against which to compare or fix the level of almost any physical quantity convertible into an e.m.f. It should thus prove of great value in position control systems, temperature control devices, etc., and for general use in laboratories. Another important use of the tube is to provide a standard potential for the mass-production calibration of electrical instruments.

As a regulating stabiliser, the tube is particularly recommended for those applications where abnormally high stability is required or special freedom from flicker is particularly demanded.

The maximum dimensions of the tube are as follows:—

Overall height, 80 mm; seated height 65 mm.;
Overall diameter 32 mm.

The list price is £1 15s.

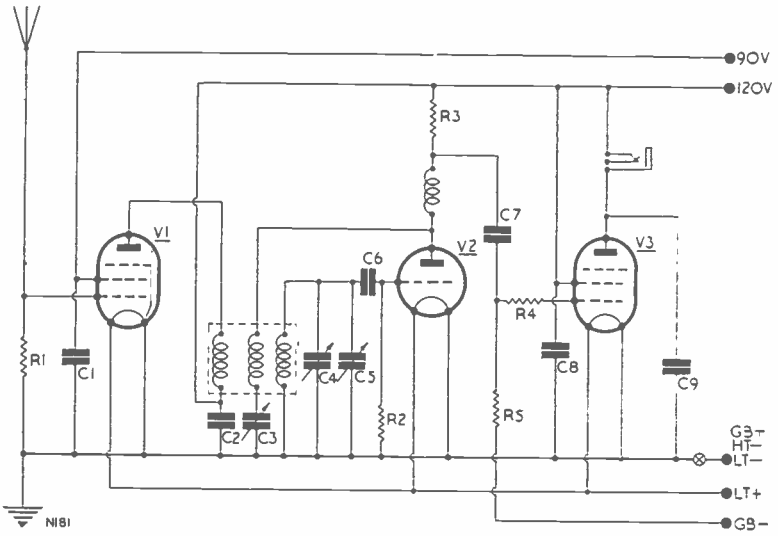
MY FAVOURITE RECEIVER

No. 22: J. A. THEOBALD

THE circuit is a normal buffer RF, detector and output line up—a 1-v-1. It is built on a metal chassis $8\times6\times2\frac{1}{2}$ ins., with a panel of 10 ins. × 8 ins., made of ply-backed aluminium. The valves used are 210 SPT (RF), (Dectector) and KT2 (Output). Coils are standard six-pin plug-in types. The HT voltage used is 120, although with 70 volts good reception is obtained. A crystal and a moving iron pick-up have both been tried when using the set as an amplifier and good results were obtained.

There is little to say about the circuit since it follows orthodox lines and the component values are not too critical, especially the resistors. High resistance phone should be used, although the writer used 60 ohm headpieces with a suitable coupling transformer. Loudspeaker reception is satisfactory for most BC and ham listening.

Should any reader need further details, the writer would be pleased to supply them on application to J. A. Theobald, 66 Nelgarde Road, Catford, London, S.E.6.



COMPONENT VALUES

Capacitors.

C1	0.005 μF
C2	0.005 μF
C3	160 μμF
C4	15 μμF
C5	160 μμF
C6	200 μμF
C7	0.01 μF
C8	2.0 μF
C9	0.002 μF

Resistors.

R1	100,000Ω
R2	2 MΩ
R3	50,000Ω
R4	5,000Ω
R5	500,000Ω

Valves

V1	210 SPT
V2	PM2HL
V3	KT2

(*SHACKS—Continued from page* 317)

He is a veteran of World War I, in which he served in the U.S. Navy on transports plying to England and France.

During the past, almost every communication receiver has found a place in the station started so many years ago by Mr. Voorhis—the list would be legion—but a favourite for many years was a Paragon—made by Paul Godley of Upper Montclair, New Jersey (who is still actively engaged in commercial radio work).

Many English amateurs now correspond with Mr. Voorhis, following the receipt of one of his recordings, which started such a correspondence—such as G6CE—and G3BM, who has visited America and dined with him. He enjoys these contacts and will welcome a visit from any who go to New York.

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FOR SALE : R1224 Battery Superhet. Murphy 5 valve mains, Battery Amplifier, Pick-up, Eliminator. Offers. Box 1040

FOR SALE : R208 Receiver, 10-60 Mcs., Mains-Battery, Good condition. £10, or best offer secures. Pollard, 28 Greentrees Avenue, Tonbridge.

FOR SALE : R1155 with Power Pack for 220V. A.C. One-stage Amplifier 6F6 and Speaker (Celestion), £20 Apply :—Carter, " Hassendene," Blundellsands Road W., Liverpool, 23. Telephone : Gre. 2049.

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EDDYSTONE 504 RX. 30.4 Mcs—550 kcs. continuous coverage. Excellent condition £42 or offers. Eddystone convertor and power pack with coils for 28, 43, 50, 60 Mcs. Can be seen by appointment. £15. E. Coates, G509, 4 Victoria Road, New Barnet, Herts.

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R.1585 WESTERN ELECTRIC U.H.F. MINIATURE RECEIVERS. 234-258 Mcs. 12 valves, 3-6AK5; 7-9001: EBC33; 12A6. Three RF stages with ganged tuner and 12 switched oscillator coils, giving six spot frequencies. 2 IF. BFO amplified AVC, detector and power output. Equipment offered comprises: three units, receiver with 11 valves, rack mounting for receiver with AVC unit and valve, and a remote control unit. Power unit and connecting cables are not available. Receiver size, 11 ins. by 6 ins. by 5 ins. Condition unused and as new in manufacturer's cartons. The three units complete with valves as above, **£4 10s.**, plus 5/- carriage and 10/- deposit on crate (returnable). Circuit diagrams 2/6 each.

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