

The

6^D

SHORT-WAVE MAGAZINE

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AUGUST
1939

—
Volume III
Number 6

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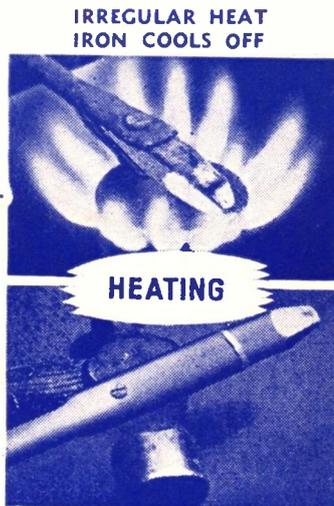
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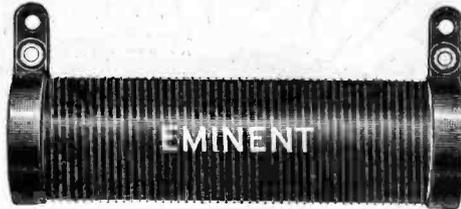


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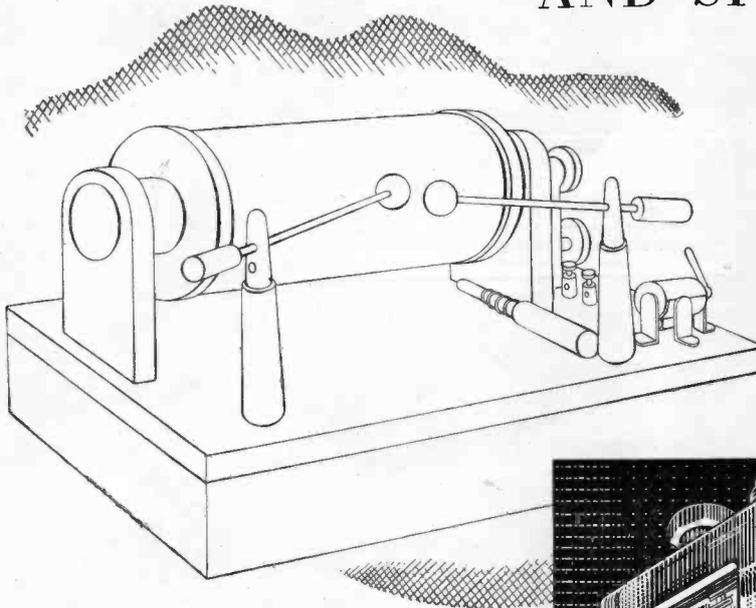
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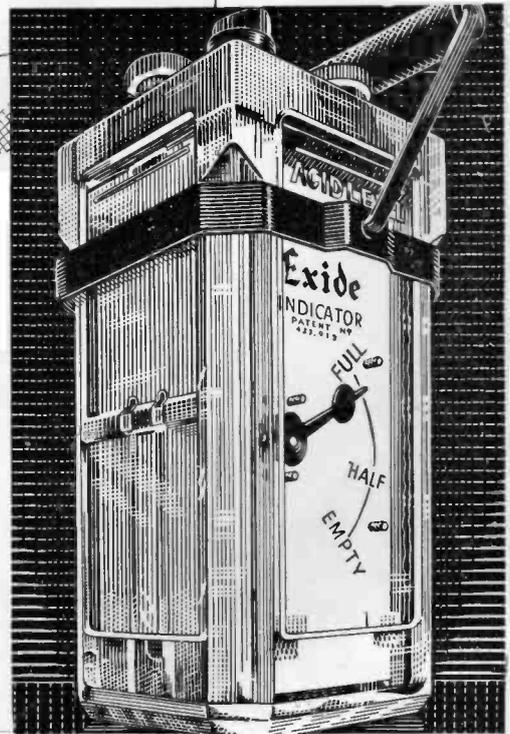
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The
Short-Wave Magazine

No. 6, Vol. III.

AUGUST, 1939

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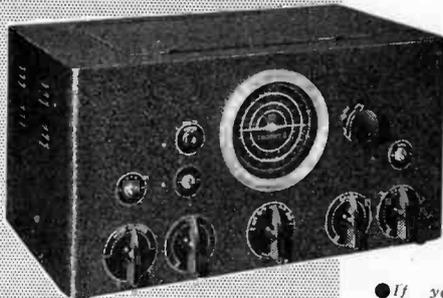
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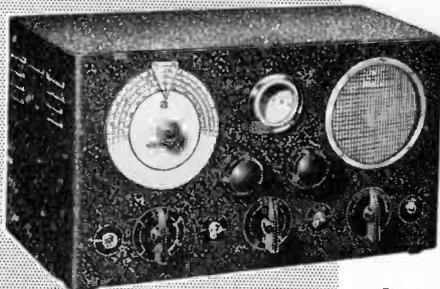
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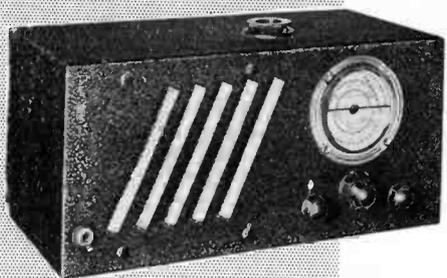
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Show Time

Editorial

THOUGH IN THE MAIN the Radio Exhibition at Olympia is not a great attraction for the majority of readers of this MAGAZINE—as we said last year at the same season—nevertheless a number of firms are taking stands whose products will be of definite interest in the world of Amateur Radio.

This is not the place to mention names and, therefore, we do not propose to catalogue them, more particularly as elsewhere we give brief details of a privately sponsored radio exhibition which is to be of wholly Amateur Radio interest.

Rather, we would suggest that the Radio Manufacturers' Association looks into the matter of developing among its members a more positive attitude towards the needs of the transmitting amateur and short-wave experimenter. We have more than once before used this space to draw attention to other aspects of the same matter, with the happy result that more and more apparatus of British origin and design is becoming available for our requirements.

But the fact remains that there is a great deal of ground yet to be covered, and the scope now offered in this country for specialised short-wave equipment—apart altogether from Government and Service orders generally—is on a scale not lightly to be disregarded. At the lowest estimate, it is a worth-while consideration for those manufacturers who are looking for a new retail market.

There are a number of old-established firms, well-known in the component trade, who could quite easily offer good equipment at reasonable prices and who should be able to produce the more specialised types of apparatus without great difficulty. The plea that the market is not worth while shows, in our view, that its possibilities have never been accurately surveyed. The other contention—"we are full up with Government work"—is often put forward as an argument against entering the Amateur Radio field, but here again, such an attitude is not justified in that there may come a day—we all hope very soon—when every possible retail outlet will have to be carefully nursed in order to do any business at all.

*Austin Foster
C.F.O.*

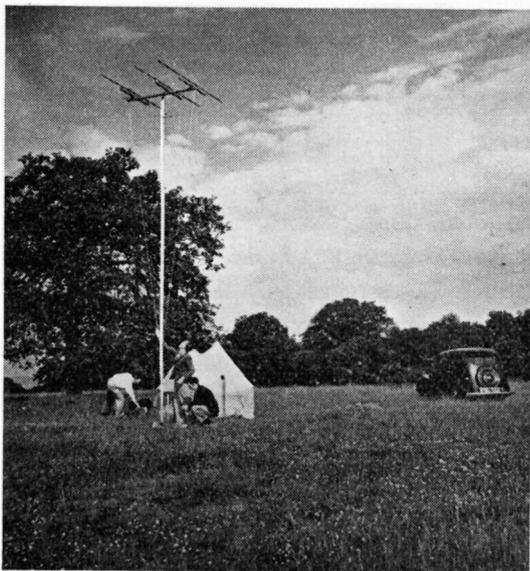
56 Mc Notes

By
A. J. Devon

Snowdon Story — More DX Reported— Nottingham Again—Activity still Increasing

SNOWDON—from David Mitchell, GW6AA, comes a story which can only be described in the best scare headline style as "epic." Not so much for the results achieved as for the heart-breaking difficulties with which they had to contend and which to some extent they were able to overcome.

No trains up Snowdon mountain railway available on the Wednesday, due to bad weather. . . A special provided after inevitable delay. . . Wind too strong for raising masts. . . Thick cloud all day with torrents of rain. . . Still stronger winds on the Thursday, and much colder; impossible to go out of the hut till late in the afternoon. . . Aerials raised that evening, but filling stay-sacks with rock in torrential rain, hands frozen in a 40 m.p.h. gale,



G2QY, portable 56 Mc, near Elstree, Herts. on July 9.
The very fine aerial is a close-spaced rotary beam with trombone end-sections for accurate tuning.

painful work. . . Station operated on schedule all day on Friday, but that evening the wind rose to hurricane force, shrieking round the hut and in the stays and feeder lines. . . Masts pulling their anchors. . . Wind so strong outside that David Mitchell and his helpers had to tie on their glasses. . . . By Friday at 2130 BST, the summit of Snowdon could only be reached by crawling on hands and knees. . . Hut door blown in. . . Saturday morning; most of the tackle carried away, only two masts up of the six erected. . . After four days on Snow-

don, the only transmitting aerials available for GW6AAP were a $\frac{1}{2}$ -wave vertical and a $\frac{1}{2}$ -wave horizontal, with 200-ft. of tuned feeder line. . . Kept at it with this till the end of the schedule.

To us, this effort of GW6AA's is a wonderful example of the dogged persistence, tenacity and resource of the true amateur. Remember, they had been preparing for this Snowdon Test over a period of months; they had all their plans laid; first-class equipment capable of giving the utmost on 56 Mc; schedules made all over the country; they were ready to go to any lengths to get results. And in the end, they encountered weather of a severity unknown in living memory, which reduced practically all their expectations to nothing.

● Results

The GW6AA log shows that 25 5-metre fixed or portable stations were worked, the best being G6CW (Nottingham) at 137 miles, with G2MFP and EI8L next at just over 100 miles. Nine stations were heard, of whom GI8TSP and EI2J were a little more than a hundred miles away, and G8JV (the other half of the formidable Nottingham 56 Mc contingent) at 137 miles. Good CC signals predominated, but there was a certain amount of "squish" in evidence from operators who were evidently out for the day and not regular workers on the band. As David Mitchell points out, had there been widespread reliance on uncontrolled transmitters and super-regenerative receivers, only 40 per cent. of the stations actually heard or worked could have been logged; he mentions five stations in particular whose transmissions were really bad, and even suggests we blacklist them!

Another important conclusion drawn from the results, as far as they went, was that receiver technique is still behind in comparison with the type of transmitter most people are now using. We said exactly the same thing about this time last year, when reporting the September Snowdon Tests.

Apart from all this, general conditions over the period were not good and only "extended ground-wave" signals were in evidence. Had it been possible for them to have erected the projected beam arrays for GW6AAP, something more exciting might have happened.

Anyway, hats off for a fine effort, more particularly as David Mitchell's report ends with a remark to the effect that "I hope for better luck next year!"

● European DX

G8ML, Cheltenham, logged a signal signing F?? at 2130 BST on July 13, and on July 9 G2QV, Hurst Green, Sussex, heard SM5SM on automatic CW at 1445 BST. G6YL and G8NM have between them heard SNB (Polish commercial) quite frequently,

while R. J. Lee, Heathfield, received F8AA, F8NW and ON4DJ on July 9; he is of course within no great distance of them, comparatively speaking, as his QRA is quite near the South Coast. G6YL has had confirmation of the reception reported last month from F8VC—who says he heard a GM 'phone at 1800 GMT on June 18—also from I1IRA; he says that I1SS and I1FA do not read the code! An interesting harmonic heard by G6YL was CTH, 1723 GMT on July 8.

G5MQ of Liverpool keeps up the good work—he contacted I1ZU at 1310 BST on July 9, hearing harmonic IEM during the month. Another amateur was heard CQ'ing under GW6AAP on July 9, but the call was not readable.

But one of the most exciting bits of news we have to report is not European but extra-European DX; on July 15 G6IH of Malvern found a station with heavy QSB signing SUIR? It is known that SUIRD has recently become active with CC and reasonable power and that he is frequently on—so confirmation is eagerly awaited in several quarters!

CS3VA, Lisbon, on schedule with G6YL, was heard by her, G3YY, G6DH and 2BIL on July 24 at different times between 1745 and 1820 BST, though 2BIL—on his bedside 0-v-1—was getting the carrier until 2030. The strength reported by the stations concerned was R9 *plus* down to zero. We anticipate that by the time these Notes appear CS3VA will have been worked by someone. (2AZV, Liverpool heard "G6YL de CS3VA" and, with others, asks for information. The foregoing note, arriving late in the month, is all we can say at the moment.) In addition, G5UI reports reception of F8AA at 2150 on July 23.

● Inter-G DX

At this stage, we might remark that with some 50 reports on the clip for the present article, we cannot in the space available do more than give a brief outline of most of them. However, our "56 Mc Calls Heard" section again contains a great deal of extremely useful and interesting information and so we must keep the other material as succinct as possible.

G6CW, Nottingham, once more undoubtedly deserves a special word, for between July 7 and 13 he worked fifteen stations over 100 miles distant and not only continues to hold the inter-G DX record, but also the title (if there is one) for consistency and coverage. But John Curnow has a complaint about all this—he is a very early riser, so that continuous late-night work is becoming too exhausting altogether, more particularly as he has not been well and has had to operate with the gear *beside his bed!* Another example of the eternal keenness of the true amateur.

Denis Heightman, G6DH, brings up the question of weather effects on 56 Mc, and says that (*vide* last month's Notes) his remarks were meant to apply to extended ground-wave work only as far as weather is concerned. As regards relative skip effects on 5 metres compared with other bands, he also corrects our statement to the effect that 56 Mc behaves differently from, say, 28 Mc; the intention here was to differentiate between summer and winter conditions as applied to the E and F layers.

Sorry, G6DH, it was our fault; we read a wrong meaning into your comments on these points. It is worth adding here that he checks up on 56 Mc con-

ditions four times daily by listening up in frequency till the limiting frequency is reached. A graphical record is kept which is ultimately an accurate indication of the state of the band for any day.

G3YY turns in a very useful report on his 56 Mc activity, being located at Ditchling Beacon; they heard or worked about twenty stations, of which the most exciting was F8AA.

● North

We are glad to have comprehensive reports of local results and working from G3DA, Manchester, who is using MAGAZINE-designed equipment practically throughout, on 57504 kc. He says that in his neighbourhood G2OI, G3BY, G3LF, G5HF, G6LC and G6TL are interested in 56 Mc.

2AZV is another new correspondent, with some notes on the local stations, and G5AX, Leyland, Lancs., will be on the air as soon as the 5-metre permit is through. At the moment, he is QRX only.

Up in Southport, G5ZI is temporarily inactive, but will shortly be equipped with CC, MCW and automatic sending on 5 metres. For G8KZ, Sheffield



G3YY looking for it in his J-type 56 Mc aerial, occasion being the July 9 Test, and location Ditchling Beacon, Sussex.

is full of dirty harmonics from 7 and 14 Mc, which he thinks should be and could be suppressed.

● Other Notes

G6IH says his new receiver is so sensitive that it brings in numerous 14 Mc harmonics from comparatively long distances, and so the band appears alive with signals. He cites this as a case where a receiver which is too clever on 5 metres is a nuisance. G5BY is on again after a long absence, working G6CW, while G5UI has the latter as his best DX, though SNB has been heard. G6XM found conditions poor for the field-day test and only worked two new, and comparatively nearby, stations. R. J. Lee suggests that we drop the "under 50-mile" limitation in connection with "Calls Heard"; we agree that it will be more useful to carry on for the time being with all calls as received or worked.

(Continued at foot of next page.)

56 Mc Calls Heard and Worked

G2QV, T. Shanks, Four Hedges, Hurst Green, Sussex, July 8-16. Phone and CW 0-v-1 and 1852/618 converter to RME69. 20-metre rhombic 75° E of N, 33-ft. high and 134-ft. bent Hertz, 45-ft. high, SW-NE.

C53VA, F8AA, NW, ON4DJ, SM6SM, C2AO, DP, DPP, MV, NH, UJ, XC, ZV, ZVP, 3OO, YY, 5MA, MP, MPP, RO, TX, 8DH, I,K, XM, XMP.

G2QYP, at Woodcock Hill, nr. Elstree, Herts, 9.7.39. Close-spaced beam (see photograph p. 8).

QSOs—G2ZYP(54), 5MAP(52), TX(83). Reports from—G2XC(70), 6CW(100), 8DM(76), 2AAH(60), 2BIL(52).

G2XC, E. J. Williams, 34, London Road, Witley, Portsmouth, July 5-10.

G2MV(52)*, QYP(65), ZVP(21)*, 3SU(22)*, YY(40), 5MAP(32)*, OJ(36)*, TX(13)*, UI(11)*, XY(4)*, 6GS(38), I,K(35)*, WL(65), XM(34), 8DM(14)*.

G3JY, C. T. Fairchild, 1a, Dover Road, Brighton, 6. Phone and CW.

G2MV, XC*, ZV*, 5CM*, JZ, UI, TX*, XY, 6LK*, XM, 8OS*.

Harmonics—G2RV, 3WR, 4HS, 6RM, 8AC.

From Portable at Ditchling Beacon, Sussex.—F8AA, G2AO*, MV*, QY, RD, RDP, WSP, ZVP, 3OO, 5CMP, MP, OJ*, KD*, 6GR, GS, XMP, 8IZ, KZ.

G5AX, H. B. Sumner, 35, Moss Lane, Leyland, Preston, Lancs. July 9. 0-v(D210SW)-1. 50-ft. bent wire and indoor 1/4-wave horiz. Window.

G2HWP(local), OJ(24), 3DA(24), TN(local), VX(local), 5MO(25), 6DPP(28), LC(22), 8AAP(?), UBP(50), CW2NF(50), 6AAP(74).

G5MA, N. H. R. Munday, Crystaldene, Broadhurst, Ashtead, Surrey, Working portable May 21 and Jun 4.

G2AW* DP*, DPP*, NHP*, MR*, MV*, RDP*, 3OO*, 5AA*, CD*, CM*, OXP*, RD*, TX*, 6OH*, 8SK*. (Best contact C5RD, 56 miles).

From home QRA—G2XC(48)*, 6CW(130)*, DH(72)*, QZ(115), 8KD(160).

C5MQ, 38, Linkston Road, Woolton, Liverpool. Home-built superbet. Two 1/2-waves in phase, vert. During July. 11ZU* (July 9), G2IF*, OA*, OI*, VG*, WQ*, 3BYP*, LF, 5FB, HF*, 6SQ*, TW, SUP*, WB*, 8AU*, JVP*, UBP*. CW2NF*, PH*, 5FU*, 6AAP*, OK*.

CW6AA, David S. Mitchell, The Flagstaff, Colwyn Bay, N. Wales. Stations worked from Snowdon (see story on p. 8).

E12J(100), 8LP(103), G18TSP(112), G2HQP(87), HWP(60), MFP(107), NV, OI(82), VG(78), 3BYP(85?), DA(82), QO(90), TN(76), 4CF(60), 5MQ(51), WH(90), 6CW(124), DPP(59), LC(66), TL(90), TW(68), USP(45), WH(84), 8AAP(50), AU(51), JV(124), JVP(90), UBP(100), CW2NF(22), PH(32), 3KY(29), 5FU(32), TC(19), 6OKP(22).

G6CW, John Curnow, St. Anns, Bramcote Lane, Wollaton, Notts. All QSOs, July 7 to 17.

G2MC(100), MFP(40), MV(120), QY1(109), ZV(158), 5BJ(48), BY(120), CD(110), NF(130), 6DH(140), DL(48), LK(142), QZ(107), VX(123), XM(130), 8JVP(46), KD(38), OS(148), SK(110), VC(48). CW6AAP(137).

G6DH, D. W. Heightman, 234, Burrs Road, Clacton, Essex. June 22 to July 20.

ON4DJ, G2AO*, DN, MV*, QY, 5MA, 6CW*, I,W, PG*, QZ*, VX*, WI., XM, 8MU*.

G6IH, I. H. Mansell, Woodfield, Madresfield Road, Malvern, July 9.

G2NV*, VG, WD, 3OO*, 5BM*, WH*, 6CW, GO, USP, 8JVP*, MI.P*.

G6XM, W. James, 36, Elm Grove Road, Farnborough, Hants. July 4 to 12. QSOs not noted.

G2DN, MV, NHP, QYP, ZVP, 3CU, RN, SU, 5MAP, OX, TX, 6CTS, CW(120), NA, OUI, 8IX, LYP.

2AAH, W. F. Miller, 60, Spitalfield Lane, Chichester, Sussex.

G2QYP(58), XC(14), ZV(11), ZVP(10), 3OO(60), SU(11), YY(28), 5CM(25), MAP(16), OJ(25), TX(23), UI(20), XY(9), 6I,K(26), OUI(23), 8DM(30), OS(20).

2BIL, G. F. Keen, 51, Tisbury Road, Hove, Sussex, July 9 at Devil's Dyke, nr. Brighton, 1100-2000 BST. 0-v-Pen, 16 1/2-wave, end-on and 1/2-wave dipole and reflector, horiz. and rotatable. CW—F8AA(80), NW(100). G2AO(22), DPP, GH, MC(50), MV(30), NHP, QYP(51), RDP, WSP(28), XC(36), ZVP(16), 3CUP(30), GP, SU, YYP(5), 5AA(30), CDP(57), CV(40), MAP(12), OJ(22), TX(48), 6CW(157), GS(29), LK(29), NA(29), OH(53), WL(50), XMI(38), YP(45), 8DM(54), IX(33), LYP(46).

Phone—G2MV(30), NHP, RDP, ZVP(16), 3CUP(30), OO(50), 5AA(57) CMP(21), MAP(12), OJ(22), 6I,K(29), 8IX(33), KZ(42). Mod. CW—G2MC(50), 5CMP(21).

W. E. FOWLER, 97, Prince Street, Leek, Staffs. 0-v-0 (LP230, self-quench), 600-ft. a.s.l. July 9. CW and Phone. 56 Mc 1/2-wave doublet.

G5MQ, **CW6AAP**. Portable, 4 miles east of Leek, 1,300-ft. a.s.l., 1100-1300 BST.

G2MFP(24), VG(113), 3OO(36), 5MQ(52), WH(36), 6IH(69), TL(30), TW(23), USP(54), 8JVP(4).

Portable, July 16. —G2VG(12), 6USP(54).

R. HOLMES, Camp Bungalow, Cheltenham Road, Painswick, Glos. June 16 to July 9.

Phone—1TKM, G2MV, 3OO, 5WH. CW—G3KA, 6FD, XM.

H. OWEN, 2, Campion Avenue, Basford Park, Newcastle, Staffs. 2-valve quench. 45-ft. end-on, ENE-WSW, 25-ft. high.

Phone—G2HQP, VG, 5WH, 8JVP.

R. J. LEE, 9, Theobalds Green, Heathfield, Sussex. During June. 0-v-1, 66-ft. Window.

F8AA(60), NW, 1TK, G2AO(12), G6(76), MC(50), MV(30), MX(30), NH(32), QY(50), UJ(14), WS(32), XC(60), 3YV(20), 5CM(30), IB(45), MA(32), OJ(35), OX, RD(56), TX(70), UK(45), WI(64), 1CW(152), DH(70), FO(140), IH(48), I,K(35), OT(40), VX, WI(45), XM(48), 8OS(30), SK(50).

Harmonics—G4GW, HP, 5AQ, JZ, PR, 8CP.

(*—QSO; mileage in brackets)

56 Mc NOTES—(continued from previous page).

2AAH of Chichester always reports fully, and his log is summarised in "Calls Heard." He has schedules running with three SU stations 1RD, 1SG and 1WM, who are calling G for five minutes every quarter-hour between 1700 and 1800 BST. This is worth going for, particularly as it's a daily schedule. R. H. Holmes, Painswick, reports G2BI at 27 miles as the loudest signal he hears on the band, and C. F. Burt of Oxford has proved that it is no dead spot for 56 Mc by bringing in G6CW at 80 miles. He hopes this will encourage local activity—so do we.

G3HW, Teignmouth, has heard G6GA, Leeds, which is excellent work; it took place on June 25, but could not be confirmed sooner owing to some difficulty over the call.

● August 56 Mc Test Period

August 18-22 inclusive, 2000-2230 nightly; Saturdays 1400-1600; Sundays 1100-1300, 1430-1600 and 1830-1930, all times BST.

ASKED—AND ANSWERED

Question Time, House of Commons, July 24, 1939.

Mr. Bartlett (Ind., Bridgwater) asked the Postmaster-General what steps were being taken to use the services of amateur wireless operators in time of war and if he was aware that, with little expenditure, a 24-hour service could be maintained even in the event of a main breakdown of the grid electricity supply.

Major Tryon:—"It has been decided, after consultation with the Government departments concerned, that it will be essential in time of war to close down wireless telegraphy stations used by experimenters. I understand that steps have been taken by the Admiralty and Air Force to enrol a number of suitable wireless experimenters for special wireless duties in emergency. They have been given the opportunity of joining the Royal Naval wireless reserve and the R.A.F. civilian wireless reserve so that their skill shall not be wasted."

So now we know!

The Other Man's Station

G3VD

STATION G3VD first came into existence last October, when Bernard Pettit of The Laurels, Worrin Road, Shenfield, was granted this call after eighteen months as 2CRJ.

Bernard Pettit is the present secretary of the Brentwood and District Radio Society, a very active young club of about twenty-five members, whose activities are often mentioned in "Club Notes" in this MAGAZINE.

The first rig at G3VD consisted of a 6L6G CO followed by a LS5B as PA and operation was confined to 7 Mc CW. The station has undergone a progressive development since the start and the transmitter shown in the accompanying photograph has come into being. As can be seen, rack-and-panel construction is used; the whole outfit is lacquered grey and with black meters and tuning knobs, presents a very pleasing appearance.

The circuit in use at present is 47-46-015/400, the two power packs for which are housed in the base of the rack. One, a 300-volt 150 mA supply from a U14 rectifier, runs the CO and FD stages, whilst the other, 500 volts at 250 mA from an 83 rectifier, supplies the PA stage.

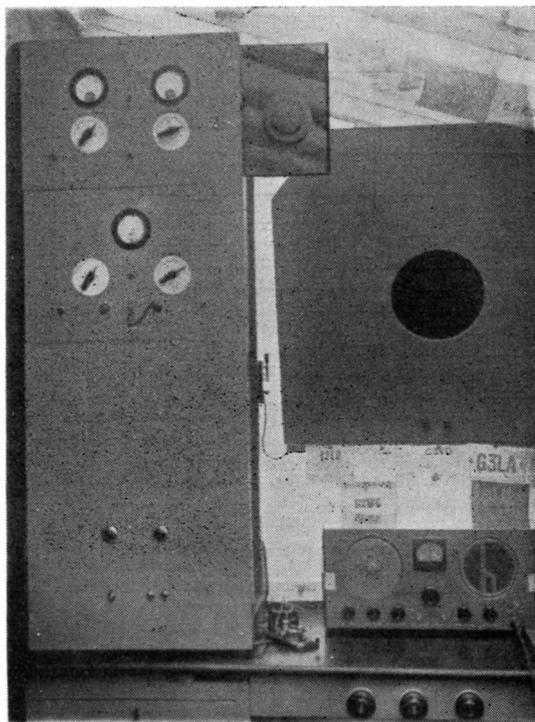
The panel and chassis immediately above the power pack is at present empty. It is reserved for the speech unit which is in course of construction, and is to be 6L6 amplifier into a 6L6 as modulator.

The third rack carries the CO and FD stages, capacity coupled via a .0001 mF fixed condenser, and they are built on to the same chassis. The dials and tuning knobs for these two stages, with a meter and two jacks in the plate leads to the 47 and 46, can be seen on the panel. Above this stage is the PA, which is link-coupled to the FD. Two meters are permanently wired in circuit, one in the grid and the other in the plate.

Fitted to the side of this stage is the aerial tuning unit, which is link-coupled to the PA tank coil. G3VD is at present using a "W3EDP aerial," which readers will remember consists of an 84-ft. roof and a 17-ft. counterpoise, with a coil-condenser tuning circuit between the two parts. At this station a .00025 mF variable tuning condenser with a nine-turn coil is found to make the aerial a very useful one.

Various receivers have been tried out at different times, from the MAGAZINE "Class B" to the Sky Champion shown in the photograph. Prior to the advent of the latter, a Tobe was in use and gave good results.

In response to the suggestion for more activity on 160 metres made during recent months by the MAGAZINE, G3VD has lately been active on it, using a 6L6 CO modulated by another 6L6. Quite good results have been obtained and G3VD is looking forward to still greater activity on this band in the near future with a complete 1.7 Mc CO-PA.



Book Review

In the series "Monographs on Electrical Engineering" being made available by Chapman & Hall, 11 Henrietta Street, London, W.C.2, now appears Vol. VII, which is "Theory and Design of Valve Oscillators," by H. A. Thomas, D.Sc., M.I.E.E.

Dealing first with types of oscillators and their efficiency by very complete mathematical treatment, succeeding chapters go on to discuss the maintenance of frequency, frequency drift and changes brought about by variations in capacity and inductance; this leads to the design of compensated coils and condensers and methods of frequency stabilisation by choice of circuit values.

From the practical point of view, the chapters on Frequency Control and Stabilisation by Monitoring are of particular interest, since they cover several extremely stable types of master-oscillator and also describe monitor circuits which are designed to hold an SEO steady on frequency within very narrow limits. It may be asked why, when crystal control is so easily applied and so widely understood, it should be necessary to take more than an academic interest in self-excited driver arrangements. Of course, as the author points out, the answer is that though CC gives a high degree of stability it does not allow of frequency selection at will, whereas in communication engineering, whether Service or commercial, there are a great many instances where a smooth and rapid change of frequency, usually over a wide range, is very essential.

Well illustrated with line drawings and of some 270 pages, with four pages in the index, "Theory and Design of Valve Oscillators" is 18s. net.

LETTERS TO THE EDITOR

Radio in Emergency

By publishing the R.M.A. letter last month you again draw attention to the lack of vision shown by the authorities. While none of us who returned from the last war is normal, we can at least sanely say we learnt something. Instead of profiting by such costly lessons, the head of the official ostrich is still buried in the sands of 1913. Through this wilful ignorance of modern conditions the entire A.R.P. system may collapse because of the reliance being placed upon Telephone and Runner lines as the sole means of emergency communication.

The vulnerability of exchanges and lines may leave only a few circuits available for the authorities to commandeer and over-burden; the runner, owing to the speed of the competing bomber, may arrive too late for his reports to have any value; subscribers may wait in vain for "wireless over the telephone" announcements; listeners may find the BBC broadcasts blanketed by continuous jamming and the idea of equipping the police with A.R.P. radio may never reach beyond a few towns.

When the authorities eventually realise that USW communication is the only means of signalling not affected by high-explosive or jamming, they will also find that their square-peg-round-hole policy has scattered beyond recall the ex-commercial telegraphists, ex-Service operators, ex-Marconi men, and the licensed amateur transmitters who could have operated an emergency A.R.P. radio link to assist the dislocated main system.—N. P. SPOONER, G2NS, White Cottage, Rowena Road, Southbourne, Bournemouth.

[We are satisfied that these views are not exaggerated, particularly in regard to the official attitude towards A.R.P. radio. It is most regrettable that all the evidence points unerringly to the fact that the responsible authorities are completely ignorant of the possible applications of USW radio in connection with Civil Defence.]

Several other letters to the same effect have also been received and one correspondent asks, pertinently enough, why an official statement is not forthcoming to counter these criticisms. While we hesitate to say "write to your M.P.," it seems to us that the matter could well be the subject of a useful question in the House.—ED.]

Six Months' Probation

I can stand it no longer and I take up my pen heartily to endorse your Editorial in the July issue of the MAGAZINE. As an engineer with a good many years' experience, the rubbish that is talked on the amateur bands is enough to give one a pain for weeks. I'm sure most of them think modulation is just a noise, and the "technical terms" are enough to make one shiver. Furthermore, though some amateurs are first-class operators, the majority are held in very low esteem by commercial telegraphists.

I am in entire agreement with the idea of six months' probation and I further suggest that when an amateur has passed his test he should take a

stipulated number of CWR exercises before being given his call. As an AA myself, I'm perfectly willing to go through all this!

Another thing that would help to clean up the bands is honesty in reporting. How often does one hear "Your quality and modulation very FB," when what he should really say is "You are too near the microphone and your breath rasps." SWLs are too often guilty of exaggerated reports, with R9's to KA's whose calls they only just catch at R2. Then there are the talkers, the foreign YL operators who run fan-mail, the amateur who works a local on 14 Mc 'phone and discusses the growing of asparagus, and the fellow who . . . [Yes, we know! —ED.]

As for the use of commercial equipment and the contention that though we are given experimental licences, there is no more experimental work to be done, the answer is that if patents can still be taken out on broadcast receiver design, surely there must be some scope for the same in short-wave transmission.—FRANK J. FORBES, 2BFC, 78 West Hill, East Grinstead, Sussex.

* * * *

I have been most struck by your outspoken comments about amateur operating in MAGAZINE Editorials, and your remarks in the July issue echo my feelings exactly. At present, anyone with but the slightest interest in Amateur Radio who wants to have some fun on the air or chat to his Uncle Sam in U.S.A. can obtain a licence with the greatest of ease, getting through his Morse with a little help from another amateur; after this, I should say that 60 per cent. of them forget that the code ever existed and come on to make fools of themselves and give Amateur Radio a bad name.

It is not too much to say that on the popular bands it is quite impossible to carry out any of the experiments for which licences are granted, if only for the curse of 'phone stations running greatly over their allowed inputs. My estimate is that about 3 per cent. of amateurs keep to their licensed power, and I doubt if it is always possible for anyone to keep entirely to the terms of the licence.

Your campaign for better operating and better conditions should have the support of all interested in Amateur Radio, though I must say that up to now I have considered it a waste of time to expect much in this direction.—PHILIP MALVERN, G8DA, 10 Selkirk Street, Cheltenham.

[We do not print these letters either to criticise the authorities or to suggest that all amateurs are guilty of the sins attributed to them. But while they do not gain our support on every point, we do feel that our correspondents have between them laid a finger on many aspects of Amateur Radio which need the urgent attention of the right-minded.—ED.]

More Support

In sending in my QRP Test log I should like to take the opportunity of expressing my approval of your policy with regard to 7 Mc telephony and the use of excessive power on this very overcrowded band. You also have the warmest support of myself and several amateur friends in your campaign against "senseless chatter" and selfish operating on 7 Mc, which is giving Amateur Radio a bad name.—ALAN P. MORGAN, G8DV, 19 Temple Fortune Hill, Golders Green, London, N.W.11.

On the Amateur Bands

For the Newcomer to 14 Mc. - OLD TIMER

LAST MONTH we gave a brief outline of the development of our popular 14 Mc band. And it is evident that operating technique must of necessity change to meet the ever-fluctuating state of this channel. If you have been off the air for a year or more and return to DX, you will feel at sea unless you have some idea of present-day conditions. None of the other five bands has varied so much since 1928, when the rulings of the Washington International Radio Conference became law.

Many newcomers have plunged into the deep end of 14 Mc without knowing their way about and, after experiencing the inevitable disappointment, have returned to the lower frequencies; we therefore propose to set out a plan which, if adopted, will enable all to obtain the best possible results on "Twenty."

In the first place, we advocate that initial tests should be on CW only, as a much more rapid check on the radiation pattern of the aerial will be obtained, apart from the fact that unnecessary QRM is caused when calling on 'phone.

● Choice of Aerial

Obviously, the first question asked by those who have not previously tried 14 Mc is "What is the best aerial to use?" Briefly, it is not possible for one aerial to cover the whole world (unless it is a rotating beam), and we are not going to discuss this type now. Therefore a fixed aerial is wanted which will cover as much of the land area of the world as possible. If the direction of the proposed wire is due N-S try a full-wave, 67 feet in length, fed quarter-way along with a low-impedance line. This will give strong lobes into W and VE, S. America, East Africa and part of Asia. A similar type of aerial should be used for a due E-W site, although three half-waves (100 feet), fed 16-ft. 8-ins. from one end, will be more efficient as it will cover greater useful land area.

If you can possibly manage a NE-SW direction, you have the finest possible chance of working most of the DX available; a simple half-wave doublet will bring N. America, Africa and most of Europe into the log, while two half-waves end to end, with feeders of equal length arranged for in- and out-of-phase working, will cover the whole world. In the in-phase position you increase your signal, compared with one half-wave, by about 6 dB at right angles to the wire, and in the out-of-phase position the radiation is off the ends.

The most unfortunate direction of all is NW-SE which points end-on to N. America and Africa. A half-wave will produce QSOs with South America (due broadside) and a small part of Asia, XU, J and U9; therefore it would be useless to waste time calling W's. To our mind, the best aerial for NW-SE would be 134 feet long, and fed by any of the usual methods.

If a full-wave, three half-wave, or double-wave aerial has been chosen, it is frequently possible to

raise that part of the world end on to the wire by tilting up to 30° with the horizontal*.

● Choice of Frequency

Having determined the aerial for test, a frequency must be chosen where QRM is likely to be such that there is a fair chance of getting out. We have already suggested that the extreme HF portion of the band should be avoided unless high power is used, and this means 14350 to 14400 kc. Our experience shows that the best frequency for CW working lies around 14300; hence, if a spot is picked between 14275 and 14325 kc one is fairly safe, for outside these limits one has to fight QRM from both 'phone and CW. A crystal on the LF side of 14 Mc is very useful for CW operation; it is true that only a limited number of stations operate on code here, but they are that much easier to raise.

After all this, it may be found that the aerial lobes do not conform to theory. This may be due to nearby trees, gutters or steel aerial masts, but careful plotting on a great circle map over six months operation will give a fairly good idea of the actual radiation pattern.

● Modus Operandi

Having chosen a frequency, it will be found that it pays handsomely to call stations operating on, or very near to, one's own. This tendency is growing and is the only thing that will conquer the "edge band calling" menace. Many DX stations in rare localities find it impossible to maintain reliable contact by listening from the edges owing to the large number of high-power stations operating on top of each other. It will be noted that we have recommended the calling of stations rather than indiscriminate "Testing." This is a most important point. If you could transport yourself 1,000 miles from England and listen over the 14 Mc band on a Sunday, you would hear about 100 G's calling "Test" at the same time—need we say more?

● Telephony Operation

Before using telephony exclusively, it is better to raise DX on CW first and then switch on the modulator to see if the 'phone is going over. Having obtained a series of reports from many directions, one is then in a position to judge (by conditions) whether it is worth going on 'phone or not, and also whether there is a good chance of being heard, knowing that the aerial is radiating satisfactorily in the direction of the call.

We hope, anyway, that you do not belong to the "exclusive 'phone" class, as these stations do not justify themselves on 14 Mc with the rapidly changing conditions on that band.

*(Listeners should note that these aerial suggestions are just as effective for reception—Ed.)

HAVE YOU HEARD . . . ?

I AM AFRAID the present review of short-wave reception during the past few weeks has suffered somewhat from the effects of the summery weather—or would it be more correct to write “the static prevalent this time of the year”?—the accompanying noise level and the chaotic condition of the low-frequency bands, made worse by the deliberate “jamming” of propaganda-mongers, and which, unfortunately, is not confined to a definite frequency but spreads its tentacles over neighbouring channels.

Happily, the original “death-ray” (as it was popularly called) ceased its assaults on the 40 and 31 m bands with the conclusion of the Spanish “etheric” war and the demise of the remarkable German “Freiheit Sender,” the one-time secret Communist station famed for its anti-Nazi pirates and sensational evasion of discovery by the authorities for over a year. Since then, however, deliberate jamming has been intensified, while the mysterious station with the one-record repertoire and no announcements has resumed its attentions to the 25 m Moscow channel, ostensibly for obliterating the latter but, stangely as it may seem, invariably missing its mark by a fair margin of kilocycles!

It would be delightful indeed if we could remove these offenders with their worthless pollution of the ether, the lying news bulletins together with the ruthless discordancy of their political adversaries, and simultaneously suppress all the ignition and other electrical interference that does so much to distract from the manifold pleasures of short-wave reception. Legislation may eventually remove much of the latter but only a much saner universe is ever likely to eliminate the vileness of the former. But it is my duty to write news, not to yield to my feelings at the passing of every noisy bus and car, or to curse bitterly at every utterance of the propagandist.

● HNF and YI5KG

In February last I reported reception of YI5KG and later HNF, eventually receiving a letter-verification for the former but no reply in answer to my carefully detailed report on HNF. Now, however, the following letter, together with a beautiful QSL for YI5KG, have just been received from the former Technical Supervisor and announcer. I. Hassan:—“Your kind report on HNF and YI5KG dated 12/2/1939 was highly appreciated and agrees with our log-book. We have not been able to verify same in time, unfortunately due to the untimely death of His Late Majesty King Ghazi I in a car accident on 3/4/1939 evening. The YI5KG and HNF transmitters were merely as a hobby to his late Majesty, who was a keen and first ham in the middle-east. After the tragedy, of his late Majesty, the whole of YI5KG and HNF transmitters which count seven transmitters were abandoned and transmission suspended from the commercial and amateur bands, all are of American make such as the All-Star, Utah, Eimac and Hallierafter.

“The above transmitters which were erected at the Royal Palace will in due course be under govern-

mental control and shall continue to radiate on certain frequencies, and likely in wider process. This brief information will, I hope, give you an idea as to why you have not been able to hear YI5KG stations and may help in spreading the fact among hams in your district.” The writer concludes by pointing out that the inscription on the YI5KG QSL should now read as “H.M. King Faisal II.”

● Treasure Island at Last!

Scepticism, coupled with an almost abhorrence of late hours (very different from a year ago!), has only just permitted me to look for the much publicised W6XBE, 19.56 m, 15,330 kc, but to my astonishment it has been heard extremely well in the vicinity of 0200. Programmes are derived from Los Angeles, Hollywood’s Radio City and the International Exposition itself. Announcements, generally in the form of “This is the National Broadcasting Company,” followed by the familiar three chimes and “You are tuned to W6XBE on Treasure Island in San Francisco Bay,” or “W6XBE located at Treasure Island,” are repeated in Spanish, the programme being directed to Latin America. The schedule is 0030-0400 BST daily and the 9,530 kc session extended to 0600-0900 and 1300-1600, this as a result of the thousands of letters received from South America, Asia, New Zealand and Australia, requesting more programmes from the stations.

The carrier output of the station is 20 kW and it is estimated that the effective power is increased to 200 kW by the use of a highly directive aerial system. Reception reports may be addressed to “Station W6XBE, Golden Gate International Exposition, San Francisco, Calif., U.S.A.”

● Other American Items

U.S.A. W1XAL, Boston, will close down until about August 25 to enable engineers to instal additional equipment and a new beam aerial which should give improved reception in many parts of the world. Announcements will be mailed to the station’s Listeners’ League members of special test programmes as soon as the new equipment has been put in. W8XAL, Cincinnati, 49.5 m, 6,060 kc, operates Sundays 1300-0030; Tuesdays, Wednesdays and Fridays 1045-0030 and 0400-0430 on each of these days; Mondays and Thursdays 1045-0500; Saturdays 1045-0400, and daily except Saturdays 0600-0700, according to M. F. Williams (Newark, N.J.).

In co-operation with the B.B.C., W2XAD, 15,330 kc, recently inaugurated a new International talks featuring, continuing on the same day and hour for six successive weeks (1805-1820 each Sunday), with the title “Letter from America,” a series which should prove of considerable interest.

On Saturday, August 5, a talk that promises to be interesting, with the title “The XVIth Great German Radio and Television Exhibition in Berlin,” will be broadcast at 1830 over DJL, DJX, DJD and DJC, of which the latter should provide the best reception in Gt. Britain. On the 12th, at 1830, a talk in English entitled “A Bus trip through the Alps” is to be given over the same stations, and at 1900 a programme called “Non-stop around the

World," a musical sequence with the Hohenberger Band, the experienced traveller Tina Eilers and radio operator Werner Bergold.

● From South and Central America

Colombia. HJ4DAX, Medellin, 4,795 kc, a newcomer, heard relaying HJ4ABA at 0400 (Roger Legge, New York).

Cuba. COCQ, Havana, relay of CMQ, on 33 m, 8,830 kc, now operates weekdays 1200-0700 and Sundays 1255-0630 (Monday). COCO, Havana, relay of CMCK, has moved to 34.4 m, 8,700 kc; schedule 1350-1800 and 1830-0600.

Dominican Republic. HI1J, San Pedro de Macoris, has moved to 5,920 kc, where it was recently heard closing with the National Anthem at 0210. Reports are verified with a neat card.

Nicaragua. YN3DG, Leon, 7,660 kc, operates daily at 0730 and on 13,900 kc Sundays at 0400 (Roger Legge). Will not verify unless 10 c. in coin is sent (M. F. Williams).

Unknown. An unidentified station has been heard testing in the vicinity of 6,250 kc around 2330 and 0014, with all announcements in English and rather poor quality. The call appears to be PAX and mention is made of a regular Sunday broadcast from 2130 to 2230, but, unfortunately, I am seldom able to listen at that time. Reports would be appreciated.

● Asia and Africa

China. XGOX, Chungking, may be heard at 0900 broadcasting to the Pacific in the 16 m band, and XGRV (11.4 Mc) and XPSA, Kweichow, (7 Mc) give news in English at 0330, the QRA of the former being Box 90, Hankow. Reported by VU2EU. "Radio Saigon," using high power, broadcasts daily 0045-0115 with news in native tongue and French; 0545 with local entertainment and 0600-1330 music and drama and English at 1500, the frequencies being 11,991 kc, 25.2 m, and 6,122 kc, 49 m, simultaneously. The address is

Causerie of Short-Wave Broadcast News for the Listener - - By F. A. Beane

Panama. HP5K, Colon, 49.96 m, well heard with news in English at 0050, followed by three chime signals, announcements and advertisements in English, etc.

Venezuela. YV1RT, Maracaibo, 4.77 Mc, is a newcomer audible about 0300, while YV1RJ, 4.97 Mc, may be heard at the same time (Roger Legge). Apparently all Venezuelan stations have followed the example of the Colombians by moving into the 62 m band and the following is a list of these stations together with approximate frequencies:—

Mc	
*5.04	YV5RN (ex-YV5RC), Caracas, "Radio Caracas."
*5.02	YV4RQ Puerto Cabello, "Radio Puerto Cabello."
*5.01	YV5RM (ex-YV5RD), Caracas, "Radiodifusora Venezuela."
5.00	YV5RK, Caracas, Government Station.
*4.99	YV3RX (ex-YV3RB), Barquisimeto, "La Voz de Lara."
*4.96	YV5RS (ex-YV5RP), Caracas, "La Voz de la Philco."
*4.95	YV4RO (ex-YV4RB), Valencia, "La Voz de Carabobo."
4.94	YV5RO, Caracas, "La Voz de Venezuela."
*4.93	YV4RP (ex-YV4RH), Valencia, "Radio Valencia."
*4.92	YV5RU (ex-YV5RR), Caracas, "Estudios Universo."
*4.91	YV1RY (ex-YV1RI), Coro, "Radio Coro."
4.91	YV1BJ, Falcon, "Radio Falcon."
*4.90	YV6RT (ex-YV6RC), Bolivar, "Radio Bolivar."
*4.89	YV1RX (ex-YV1RH), Maracaibo, "Ondas del Lago."
*4.88	YV6RU (ex-YV6RB), Bolivar, "Ecos del Orinico."
*4.87	YV2RN (ex-YV2RA), San Cristobal, "Le Voz de Tachira."
*4.86	YV1RL, Maracaibo, "Radio Popular."
*4.84	YV4RX (ex-YV4RD), Maracay, "La Voz de Aragua"
*4.83	YV5RH Caracas, "Ondas Populares."
*4.82	YV3RN (ex-YV3RD), Barquisimeto, "Radio Barquisimeto."
*4.81	YV1RU (ex-YV1RE), Maracaibo, "Radiodifusora Maracaibo."
*4.80	YV1RV, Maracaibo, "Ecos del Zulia."
*4.79	YV5RY (ex-YV5RJ), Caracas, "La Voz de Esfera."

Stations marked with an asterisk are known to verify reception reports by QSL cards.

"Societe Indo-Chinoise de Radiodiffusion, Saigon, French Indo China" (Desmond R. Hill).

Taiwan. JIE, 7,295 kc, and JIE2, 9,695 kc, both 10 kW, at Tyureki, transmit 1505-1620 for China and the South Seas (Roger Legge).

South Africa. The South African Broadcasting Corporation has published the following amended schedule:—

ZRG—31.5 m, 9,523 kc; weekdays 1100-1300; Sundays 1130-1300.
ZRH—49.94 m, 6,007 kc; weekdays 0545-0650, 1530-2130 (Sat, until 2245); Sundays 1440-1800 and 1815-2115.
ZRL—31.23 m, 9,606 kc; weekdays 0545-0650, 0920-1320, and 1500-1745; Sundays 0930-1030 (or 1000-1100), 1130-1300 and 1500-1745.
ZRK—49.2 m, 6,097 kc; weekdays 1800-2200; Sundays 1800-2120.
ZRJ—49.2 m, 6,097 kc; weekdays 0545-0650, 0915-1300 and 1400-1630 (Sat, 1330-1630); Sundays 0930-1030 (or 1000-1100), 1130-1300 and 1440-1730.
ZTD—61.5 m, 4,878 kc; weekdays 0545-0650, 0930-1330, 1500-1715, 1620-2145.
ZRD—48.8 m, 6,147 kc; as above except Saturdays, which is 1720-2200.
ZRO—30.75, 9,755 kc; Sundays only 1130-1300, 1500-1715 and 1720-2120.
ZTD—operates from 1720 to close down from May 1 to October 31.
ZRD—operates from 1720 to close down from November 1 to April 30.
ZRD—operates from 0545-1715 to close down from May 1 to October 31.
ZRO—operates from 0545-1715 to close down from November 1 to April 30.

Reception reports should be addressed via P.O. Box 4559, Johannesburg.

Unknown. Unidentified station heard one Tuesday at 2230 on 11,740 kc, with gramophone records, NBC-type chimes and female announcer. Was this CR6RC, Loanda?

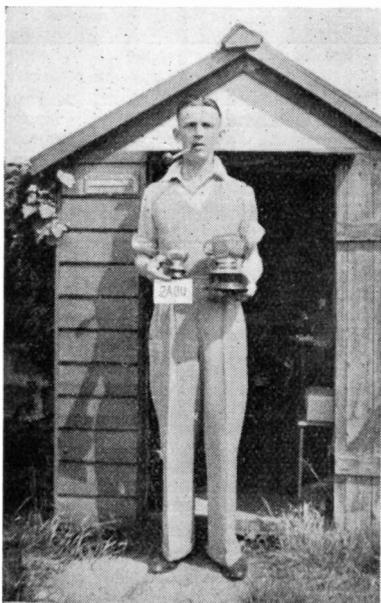
DX

Commentary on Calls Heard, Worked and QSL'd

By The DX Scribe

FOLLOWING THE PUBLICATION of our Country List in the May issue, several people have queried Antigua, St. Lucia, St. Vincent, etc. We explained last month that the Leeward and Windward Groups were purposely listed as two countries and not more, because splitting the Leeward Is. into five separate prefixes, and the Windward Is. into three makes "country counting" ridiculous, even though the Call Book does show them individually. One correspondent has rightly pointed out that such islands as Antigua issue their own stamps; agreed, and so do the Leeward Is., but they can be used in Antigua as well.

We are sorry if you don't like this ruling, but it is relevant to quote the fact that the ARRL agree and only permit the two groups to count for the DX Century Club. Why, therefore, should listeners



This is Martin G. Bourke, of Jersey, C. I. He won the BERU Receiving Contest and the VK/ZL Contest in 1938 and is shown holding the "pots" of his endeavours.

have one yard-stick and transmitters another? The trouble is of course, that some of you want to make it too easy to reach "a hundred heard!" It should perhaps be explained that all these matters were agreed upon and settled years ago by the International Amateur Radio Union—the world federation of transmitter societies—and any listener organisation that seeks to set up a separate ruling is only confusing the situation and doing the new generation of amateurs a disservice. Our own efforts in these matters are directed towards uniformity consistent with what is generally accepted.

Several readers ask if the Isle of Man can be counted as separate in view of our remarks last

month. Yes, if a card can be obtained to prove it! P. F. Clifton, 99 Nowell Road, Barnes, London, S.W.13 had one from G5CZ, but we always thought the transmitter was actually on his steam yacht and *not* on land. If our belief is correct, then G6IA is still the only amateur in I. of Man, as G3QF left a year ago for London.

● Morse Practice

P. F. Clifton wishes to thank G4AU through this column for the excellent slow Morse practices radiated every Wednesday from 2230 to 2300 BST on 1.7 Mc. He believes that such practices are the only thing for SWLs who want to learn the code without other assistance. We agree with this, and will give full publicity to any reliable amateur operator who wishes it known that he is putting out slow Morse transmissions for the benefit of listeners.

● 28 Mc in Summer

L. Blanchard, Montcalm, 122 St. Andrews Road, Coulsdon, Surrey, sends a short log for 28 Mc reception between June 19 and July 12 which shows that it is still possible to find things of interest during the "off season." He has now heard 72 countries on this frequency. Martin Bourke, whose photograph is here, is another 10-metre expert. It is a mistake to believe that 28 Mc is absolutely dead in the summer. Read about the recent results on 56 Mc, which indicate that signals on "ten" should be coming through from distances of 2,000 to 3,000 miles.

● QSLs Received

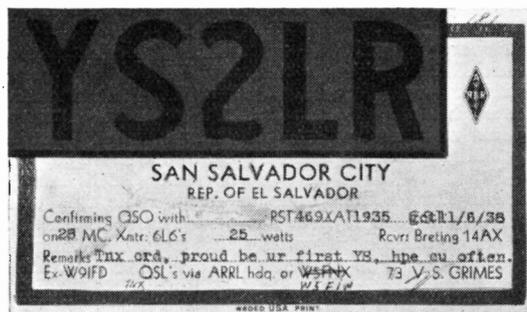
J. Douglas Kay, 24a Watcombe Road, Bournemouth, from VP6YB, CT2AB, VU2FA, CO2WM, VS2AK, PY2BN, KA1LB, VU2JG, VK3DG; Roger Legge, 20 Beethoven Street, Binghampton, N.Y., U.S.A., from KA1CS, CX1CO, VP2DA, ZS2AL, 5Q, 3F, YN1IP, PY5BL, OZ5BW, SM6WE, HK4DC; Eddy Trowell, 27 Unity Street, Sheerness, Kent, from VS7RA, VQ3HJP, YV5ACE, VE3XQ, PK4FS and W9ACU for 3.5 Mc. A. B. Robertson (BSWL 1173) 5 York Road, Southport, Lancs., from CO2WL, 8JK, J2NQ, YN1IP, VS6AB, YM4AZ, and W6QVY in Utah (who *wants* SWL reports). Norman Stevens (BSWL 1039), 59 College Road, London, N.W.10 from ('phone)—VP1WB, VU2LJ, (CW)—ZL2LB, VK6AF, LU8EN, CX1BU, LY1AD, FM8AA, ZC6JW, CR6AI. Bob Everard from VE1NA (1.7 Mc), W1, 2, 4, 8, 9, (3.5 Mc), J2NF, W6USA, VP1WB, ZS1T, 6BY, KA1FH, XE2IK; Leslie Morgan, 45 Parkwood Road, Bournemouth, Hants, from VK5RN, VU2FS, ('phone) YM4AM, D4QET (who is *ex-EZ4SAX* in the Saar), W7GTU (CW); Con Tilley of Bristol from CO8RQ, W7EGQ, LY1S, ZL4GM, CX1AG, VK4PF, LU3HA, ZE1JH, PK1EG, KA2OV, HK3CL, ZC6HS, KA4LH, LU3HK, CE1AS, YV5ACE; Donald Higginbottom, The Dorolds, Boundary Road, West Kirby, Ches., from EK1AA, TF5C, VE5AAD and VK3PG.

● **Fifty-in-a-Day**

Two readers were successful in hearing 50 countries in a day—R. Hall, Sidros, Station Avenue, New Waltham, Lincs, logged 52 on 'phone between midday on May 27 and midday on May 28 during an actual listening time of 6 hours, three only being heard on 7 Mc—CE, CN, CO, CT1, CT2, CX, EA, EI, EK, ES, F, FA, FN, FT, G, GM, GW, HA, HB, HH, HK, I, K4, KA, LA, LU, LX, LY, OH, ON, OZ, PA, PK1, PK4, PY, SM, SP, SU, TI, TG, U3, VE, VK, VP4, VP6, VP7, VP9, VS2, VU, W, YV, ZS. The other fortunate SWL was J. S. Wheatley, 49 Prospect Mount Road, Scarborough, Yorks who heard 50 on June 18 during a total listening period of twelve hours with CE, CN, CO, CR6, CT1, CX, EI, EK, F, FA, G, GI, GM, GW, HA, HB, HC, HH, HK, HP, I, KA, K4, LU, LX, LY, LZ, NY, ON, OZ, PA, PK1, PK4, PY, SM, SP, SU, SV, TI, U2, U3, VP2, VP6, VP9, VQ2, VQ4, W, XE, YV, ZB2 using only a home-built o-v-1. This has now brought his country total to 82.

● **Points Cleared Up**

We mentioned that "VQ4JWW" sometimes sent his call as VQ4JRW; this should be reversed and the correct address of VQ4JRW is J. R. Wilkinson, Naivasha, Kenya. He QSLs, too, and we are grateful to, among others, John Tyzack, 197 S. Eldon Street, S. Shields, Co. Durham, for this information. The power used is 50 watts. ZC6JW's address should be Box 309, Haifa, not as we gave last month—this was a printer's error; A. Hamilton, BSWL24, 165 Cambridge Road, Kilburn, London, N.W.6 points it out, and we can confirm as your Scribe also has his card. FE3Q queried by Mr. Hamilton gives the following address—13 Av. Foch, Dakar, Fr. West Africa, but we have no proof of his authenticity. Norman Stevens of London, N.W.10 asks if PK4FS counts as a separate country as he is on Singkep I. off Sumatra; the answer is No! Incidentally, several "YY" calls are in evidence coincident with the fact that YR's have ceased to be heard. It is now believed that all YR stations closed down a short while ago; anyway they were all unofficial, but some are now active again.



Nothing is known of LZ1C or LZ1AP and the only confirmed LZ is IID. W. W. Pollard, BSWL 1117, Devonia, London Road, Datchet, Bucks, heard OK3DK in Bratislava, Slovakia, on CW, sent him a card to the address in the Call Book and received a QSL back by return with a different QRA, presumably due to the fact that street names have undergone considerable changes since Slovakia became involved with the Reich. It counts as a separate country, but not separate from the old Czecho-Slovakia which it replaces. Mr. Pollard has now heard 99 countries and wishes to correspond with overseas SWLs.

We have just found that the CP1AA whose card appeared last month seems to have been replaced by another operator, and so CP1AA on 'phone should be QSL'd to Father P. Descotes, Observatorio Seismologico, La Paz. The old operator, Henry Smith (ex-CT2) used CW only and had nothing to do with the Observatory. Eddy Trowell of Sheerness won a pound of coffee in a DX contest staged by TGWA and kindly sent the Scribe a sample; he asks if we have the correct address of VS5AC in Sarawak, as the Call Book lists it wrongly. Sorry, we haven't. D. W. H. Ffennell, c/o R. T. Assheton, Eton College, Windsor, Berks, is a very enthusiastic SWL with a good knowledge of the code; he heard HR4CX during the SLP last month. Cards for this station should be sent via W4DHG and for HR4AF (7 Mc CW) via the ARRL. All Honduras stations are very unlicensed and no mention of call sign should appear on envelopes when trying to send direct; anyway, be on the safe side and do not send direct. This reminds us of YS2LR, whose card we print this month. He was the only active Salvador station till a few months ago, and though he repeatedly requested QSLs to be forwarded via W stations, some amateurs (mostly in USA) tried to post direct and YS2LR was caught, fined, and is now QRT. Never QSL blind.

H. Chadwick, 3, Hill Street, Burslem, Stoke-on-Trent, Staffs, is anxious to obtain the QRA of EA7BA. We know it is correct in old call books which listed the Spaniards, but we have thrown all ours away, so possibly someone can help? R. H. Greenland, of Barnsley, Yorks, sends some news of interest—J3HT was heard on 'phone at 2240 BST on June 5 at S7/8, while PK1OG gives his QRA as Malabar Radio Station, Java. On June 26 at 0630 BST he heard YV4AE say he was also radiating portable with YVAA9, using 8 watts on 14008 kc. Whereas YV4AE was S9, AA9 was S5/6—remarkably good reception. Mr. Greenland wants to know if KA7EF on Negros I. is at the same location as the KAI's—No, Manila is on Luzon I. It is an in-

DX FORECAST FOR AUGUST, 1939

North America (All times GMT)	14 Mc.
Eastern States of U.S.A., VE1, 2, 3, VO, K4 and West Indies	2100-0800
Western States of U.S.A., K7, VE4, 5, XE	1700-1800 0400-0700
South America.	
All	2100-0800
Africa.	
ZS, CR7, VQ8, FR	1700-1900
VQ2, 3, 4, 5, OO, ZE, ZD, FB, CR4	1700-2100
FA, FT, CN, SU, ST, tc.	All Day
Asia.	
J, XU, MX, VS1, 2, 3, 6, 7, FI, etc.	1500-2200
VI, ZC6, VU (North), U8, 9	1200-2300 (or later)
Oceania.	
VK2, 3, 4, 5, 7	0300-0900 1900-2000
VK6, 9, VK4 (Papua)	0600-0700 1400-2000
ZL, VR, and Pacific Is.	0400-0700 1700-1900
PK, KA, KB6, etc.	1500-2200

Note.—Signals may only be heard from South and Central America on some evenings with U.S.A. entirely absent.

interesting fact that over 2,000 small islands comprise the Philippines.

Robert Mason, 66 James Road, Kidderminster, heard I7B "cheerfully" announce himself as a pirate. W2FTT (portable) would be genuine. Ken Bunston, although complaining of QRM from cricket, tennis, exams and receiver trouble, has sent in a bumper log and reports VQ2MI at 0645 and CR7AC at 0610 in June. We have always imagined that S. African signals should sometimes be received at this time, but in the past reports have been rare. Ken is to be congratulated on getting CW from J9CA in Formosa (Taiwan) on 14 Mc and he also sends in a 28 Mc log of great interest. During June, PY2AC, 4CT, ZE1JR, CE2BX, 3AG, TG5JG and F3WC were heard on 'phone, while PY2AC, D, F, CT, and HA were received on CW.

● 1.7 Mc Appreciation

Cecil Martin, of Bursledon, Southampton, has been contributing some very comprehensive 1.7 Mc logs to "Calls Heard." Let us quote him: "I get a great deal of pleasure from the letters I receive from amateurs after each issue comes out. They ask for reports and co-operation, or say it is the first intimation they have had that their signals have been received in the South, while many listeners are interested in my 1(regen)-v-1 receiver." He continues by suggesting that a small high impedance triode valve be used in the LF side of a receiver instead of the usual pentode, when static level is high, as the QRN is then considerably reduced compared with the signal.

Now here's some news of that well known Australian 'phone VK2AGU. Vic Collins, River Green, Thorpe St. Andrew, Norwich, informs us that he has worked over 100 British Isles stations and is no longer interested in SWL reports from this country. VO1Y is testing his Collins transmitter on 3979 kc from 1900 to 1930 GMT every day and requires reports, but we imagine he will have to wait until the winter to be heard.

Harold Owen, of Newcastle, Staffs, sends a couple of "Poisonalities" which are worth repeating: "The visitor who asks why anyone uses Morse as it is so much quicker to talk," and "The clever SWL who doesn't bother to log anything unless it's a new country." We might add—"The amateur transmitter who doesn't call anything unless it *would* be a new country"—this one should make a few of the DX Century Club boys sit up! Harold reports OK3NZ on 14 Mc, LB7A on 7 Mc, and OZ2IC on 1.7 Mc. You know, of course, that LB is the portable prefix for Norway.

By the way, our sympathies are with old friend Bob Everard, who is temporarily *hors de combat* owing to a serious dental operation. Readers will want to join with us in wishing him a speedy recovery.

● Land and Ship Calls

We were asked for details of ONC last month and offered the thought that it might be a pirate call from a Belgian ship with a Belgian amateur operating. At least, that is what we meant to say. The Editor "footnoted" that all three-letter calls are for land stations, which we knew anyway* And another

* (Yes, we thought you would, but does everyone else!—Ed.)

suggestion comes from Bill Forsyth, BSWL1056, Bank of Scotland Buildings, Avoch, Ross-shire, who says that ONC is the official call of Banana Radio, Belgium, a coastal station. Bill is willing to supply the calls of any ship, as he has the official list; write him direct for details, but do not ask for the name if you only hear the call, as his list gives ships' names alphabetically. We have also heard that ONC working in the 14 Mc amateur band originates from Belgian Congo.

Leslie Morgan, 45, Parkwood Road, Bourne-mouth, has mounted to 105 heard with PJ3CO and CR4HT, and 44 States with W8HHH (W.Va) and W3DUK (Del.).

Len Wright, 6 Hugheshead Grove, Liverpool, 19, reports W2USA and W6USA, representing the Eastern and Western Fairs in America, and 'phone from VE5AHU in the N.W.T., also VP51S (c/o Cables & Wireless, Kingston), HR5C and HH5PA. J2FL was heard at 1754 GMT on February 2, but is not given in the Call Book, while VO5BA claimed to be "portable in N. Atlantic." Conrad Tilly, of Bristol, brings us the news that HR5C was fined 100 dollars at the end of May and had his crystal taken away. He has got another crystal and should be on again by now! TG9AA will no longer answer SWL reports, but 9BA and 5JG will uphold the finest principles for Guatemala. HV1A, heard on 'phone, was claiming to be in the "Citia Vaticano" and EK1AD appears to be a new one in Tangier (although reported by no-one else) on about 14,240 kc. NY4AB is the official call of the U.S. Submarine Base in Guantanamo Bay, Cuba, VP9Q is to be found in Hamilton (Box 201), and KF6DHW has now left Canton I., but KF6PMO has replaced him.

Nigel I. Neame, 2AUB; 39 College Place, Brighton, 7, says he heard VE5AHU telling someone that he was 1,400 miles from the nearest town at the Eldorado Radium Mines, N.W.T. Fourteen hundred miles—what happens when the accumulators run down? Frank Jones, 6 Sutherland Street, Fenton, Stoke-on-Trent, logged all USA districts on both 'phone and CW during the SLP3 on 14 Mc, and has now HAS with W6PFL (Ariz.), W6FUO (Nev.) and finally W6KWO (Utah CW). KC5C, on, in, or near the Black Sea, is still active (QSL via W8CLN). P. Sawyer, 100a North End, Croydon, also heard some queer calls with XXX, a ship reported by several listeners, and XX2JA, another ship with a British operator sailing in Eastern waters. SU5AAP was working portable in June, while MX3C is quite genuine in Manchukuo, his lengthy address being in the latest Call Book with all the new MX's. GX7AX is a British ship near Singapore, heard by D. N. Higginbottom of West Kirby, Ches., and by G8RI of Liverpool, on 14280 kc—all these extraordinary calls are on CW, by the way—while HI6Q is also a rare one and can be QSLd: Capt. E. N. Francisco Yanes, Ciudad Trujillo. Although W2USA is now operating at the New York World's Fair, L. A. White, Arran House, Kings Road, Sale, Ches., received a nice card from W2DKJ/2, which was presumably the temporary call used before W2USA was issued. Frank W. Parkhurst, BSWL226, 56, Cromwell Road, Yeovil, Som., sends an excellent photograph which we hope to publish in an early issue. J. S. Wheatley (see "50 in a Day") wants details of VQ9DA, which sounds horribly suspicious to us. VS9BC giving Box 275, Aden, has been on, but we have grave doubts here, too.

● Logs

Don't forget to keep 'phone and CW calls *separate* in every list you send. Logs for each band should be on one side of the paper with the sender's name and address on each sheet.

● Set Listening Periods

SLP1 August 12 2230—2400 BST 1.7 Mc.
SLP2 August 20 0600—0800 BST 14 Mc.
SLP3 August 27 2100—2300 BST 14 Mc.

We suggest that those listeners who are interested in receiving 50 countries in a day set aside August 20 for this purpose. But don't give up if you manage just 50—try for more and we will publish all entries. Don't cheat yourselves—be absolutely sure you have the call or prefix correctly. It would also be interesting to see if anyone can hear 100 countries during the month of August.



Transmitters' Section

The main purpose of this column is to enable transmitters to air their results on any band (except 56 Mc) for the interest of everybody. G5LP reports with some unusual stuff. He worked PJ5EE, who was outside the HF edge, and QSLs were requested *via* the ARRL or NVIR—he is quite genuine in Curacao. A card has been received from KB6ILT in Guam and HP1X was heard, but we have learnt from G2ZQ that a card has also come from the HP direct, so if you work him it would be better to await his QSL before sending yours, unless you use the ARRL—anyway, it is quite useless to send it through HP1A. We agree with G5LP when he says that U9ML promises to QSL each time he is worked, but never does; two U9's who do confirm are 9AL and 9AY. ST6KR in Sudan was also raised and is the only station now left in this country, while HV1PP was heard on June 14 giving his QRA as Vatican to several stations, but we have our doubts. G5LP reminds us of the fun that can be had from "multi-continent hook-ups"—he had a useful three-way with VP5PZ/ZL2FA at 2130 BST; the former used to be keen on trying to bring in one station from the British Empire in each continent, and managed it on several occasions. It is interesting to note that ZC6RL complained rather bitterly of the fact that he cannot touch his key without dozens of G's and W's replying to him. G5LP rightly explained that *any* G would be very pleased to change places with him!

VQ8AS of the Chagos Islands has left and taken out another call—VQ8AD in Mauritius. No reports have so far been received of the other Chagos station, VQ8AT, so it rather looks as if this country is going to be very rare!

The Public Schools Exploring Society is undertaking another expedition to Silver Mountain, Newfoundland. The calls will be G8XY and G8XZ, and CW will be used nightly between August 8 and September 5, from 1830 to 0230 GMT, on 1.7, 3.5, 7 and 14 Mc. Full information about the expedition can be obtained from Major C. Curkett James, Littleshaw, Woldingham, Surrey. Thanks are due to G2YY for this information.

Besides W6CW, W6FUO on 'phone and W6QQJ on CW, we now learn from G2DF that W6KEV

will be working portable from Nevada for five days from August 15 on 14130 and 14370 kc, signing W6KEV/NEV with 300 watts.

● Horse Sense

Let G3LP speak for himself. "I am trying to increase activity on 1.7 Mc so that inter-G contacts can take place, thereby leaving 7 Mc free for the DX which I believe is coming in 1941/42. I am not particularly interested in DX myself, but I wish we could move these local contacts (up to 200 miles so so) to a band more suitable for such QSOs and open 7 Mc for long-distance working."

This is a most laudable object and worthy of widespread support; G3LP further remarks that the static level, normally bad in the summer evenings, is low in the early mornings, so he intends to run a regular schedule on 1865 kc every day, except Sundays, between 0700-0800 and from 1900-2130 BST, 'phone and CW. All reports will be acknowledged, and he is anxious to get some regulars active at these times when occupancy is at its lowest. The schedule starts on August 1.

G3RY, see "New Amateur Calls" this issue, also wants 1.7 Mc co-operation and will QSL; he is on at week-ends from 2200-0200, 'phone and CW.

THE MAGAZINE QRP TEST

The entries for this Test, announced in our June issue to take place in July, show not only a real interest in ultra-low-power transmission, but also what can be done with a 120-volt HT supply. As logs are still coming in at the time of writing and have not yet been checked, it would not be fair to divulge scores or comment on individual results. Suffice it now to say that the entry proves a widespread demand for experimental Tests of this kind and that the whole story will be told in the September issue.

G3YH, Bristol, is likewise testing between 0700-0745 BST on 1735 kc, crystal control and ECO; he asks for schedules and reports over a period. G5BH, London, wants reports on his 7057 kc CW, as he is working with QRP.

The policy of the MAGAZINE is to support and encourage 1.7 Mc working by every possible means, partly for the reasons outlined by G3LP but also because 160 metres is of considerable value for experimental telephony work and short-range communication in connection with 56 Mc tests, for which purposes it is already used by many amateurs. Apart from this, there is great interest in its potentialities as a medium-DX band. Incidentally, when applying for a radiating licence, remember to ask the Post Office for permission to use 1.7 Mc, and do not forget to quote a fundamental crystal frequency, preferably one suitable for doubling into other bands.

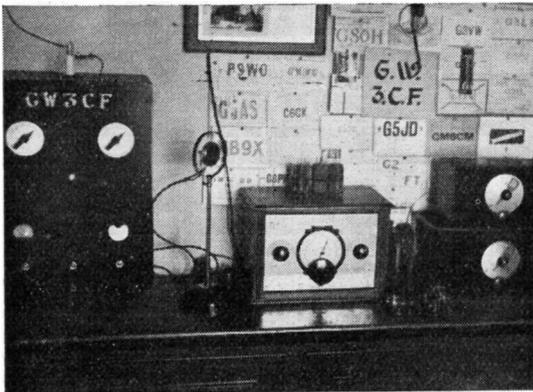
M. F. Williams of Newark, New Jersey, USA, reports hearing 200-watt YVAB8 (14095 kc) operated by a private expedition to the Caroni River in Southern Venezuela. Mr. Williams logged G2PU, 2ZP, 4SA, 5HK, 8MX and GW5PH on 14 Mc during June.

● From West Africa

ZD2H sends some interesting news from his part of the world, which, as he says, consists of rare countries! No amateurs are known in ZD1 (Sierra Leone) or ZD3 (Gambia). 14 Mc has improved, but Europeans have been weak and difficult to copy above the high background noise. The East, however, has shown some remarkably strong signals with VU2FO outstanding, closely followed by PK1MF, VU2JG and ZC6RL.

Cards from OQ5AQ are prepared by ON4FQ who runs a regular schedule and takes extracts from 5AQ's log for this purpose. Angola is represented by CR6AI, J. Chaves, Box 62, Mossamedes (who used to be CR9AB in Macao) and CR6AF—both QSL, too. ZD4AB who has been busy installing commercial gear at Takoradi, Gold Coast, but is on leave until November. A Harvey UHX10 and single-wire aerial has netted ZD4AB much DX during his year's stay in the Colony. The other ZD4, who has only worked a few stations on 14 Mc 'phone—ZD4AA at Accra—is active on 7050 kc exclusively with 10 watts input, *re-diffusing broadcast programmes* in connection with the Gold Coast relay system!

In Nigeria, ZD2G and ZD2KM are QRT; the army operator of the latter (genuine) station is home on leave and was worked by ZD2H for a new country! Cards should be sent via ZD2H, who is still temporarily isolated without power at Buea, Camerouns. An active SWL, D. W. Watson, BERS440 of Gudi, Nigeria, has just notified his intention of applying for a full ticket.



We show here the station of GW3CF, Rhyl, who uses a 6L6 regenerative CO with 350 volts at 9 watts; the aerial is a 66-ft. end-on Hertz running NE-SW, the ideal direction. GW3CF operates CW exclusively on 7 Mc (how novel these days!) and has been licensed just 16 months from the age of 18.

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Notes and News from the East

Conscription in England is having an effect in some of the most unexpected quarters; VU2FX is becoming drill instructor to the Militia and it is expected that two or three more VU stations will be closed down and their operators assigned to special duties.

● Conditions

June has been a hopeless month for most of us out here as the static has made it impossible to hear anything but exceptionally strong signals. SP and SM stations are usually the first Europeans to put in an appearance daily, generally followed by G's at about 1700 GMT; the 14 Mc band goes dead soon after 2000 GMT but sometimes 7 Mc signals can be heard at this hour trying to break through the QRN. The high power Continental broadcast station on 7280 kc is causing consternation among the few 7 Mc enthusiasts in the Far East as it is impossible to work on that band in competition with QRO broadcasters. News has just been received that HAAQ2 in Hungary will be opening up on 7220 kc shortly and would welcome reports. He will most probably get some very unwelcome ones from 7 Mc amateur stations!

Mr. C. R. Emary is to be congratulated on being awarded the O.B.E. for his work while attached to H.M. Consulate at Valencia during the Spanish Civil War. Now G5GH, he is perhaps better known as VS6AX and was then at Hong Kong.

● Far East "Phoneys"

"YA2UR," who says he is Peter Henin, Post Box 22, Kabul, may be genuine but it is more likely that he is bogus, as two amateurs who live within a few miles of that city, namely VU2EU and VU2HU, have never heard a station signing YA2UR. "YA5XX" is on again but is a pirate, because the real YA5XX returned to the U.S.A. some months ago. There is also some humorist in the States operating 'phone with the call "YA2EU"; this is confirmed by the large batch of SWL reports from America received by VU2EU. It should be pointed out that the only time the latter uses telephony is when operating from 2HU's station and then the fact is made known by mention of the two calls, viz., VU2HU/EU.

AC4YN is having a considerable amount of trouble from "AC4YR," who says he is a great friend of Reg. Fox, AC4YN, and asks for QSL's to be sent *via* that station. "AC4YR" bit off rather more than he could chew when he worked VU2FO and gave him this story, as VU2FO is responsible for the official radio communication with Lhasa!

A new station on the air with both 'phone and CW is VU2BM who can be QSL'd to Sigm. H. Baker, Dett. "A" Corps Signals, Mir Ali, Waziristan, or *via* VU2EU. Reports will be very acceptable and all will be confirmed. Frequencies are 14000 and 14304 kc.

W. H. G. METCALFE, VU2EU.

Read "The Short-Wave Magazine" regularly and keep in touch with Amateur Radio

RADIOLYMPIA

*August 23rd—September 2nd
1939*

Special Attractions *for the techni-fan*

This year's Radiolympia will have considerably more interest for the technically minded amateur and professional.

Model Factory

The model factory, working under actual practical conditions, will show almost every process of radio manufacture—from coil winding to bakelite moulding. Experts will be in attendance to explain these processes, and to deal with any difficulties, such as interference, "fading," etc. to the serious-minded amateur.

Technical Conventions

Technical conventions will be held in the Convention Hall on the four days August 28th to August 31st. The following subjects will be discussed by experts, and the meetings will be open for general discussion.

- (a) Short-wave technique.
- (b) High quality reproduction.
- (c) Television.
- (d) General technical topics.

Many distinguished visitors will attend.

Special facilities for organised technical parties

Please apply to Secretary for particulars of reduced price tickets for parties, Convention tickets, etc.

Radio Manufacturers' Association

59, Russell Square, London, W.C.1

Telegrams: OI DARION, Westcent, London

Phone.: MUSEum 4031

CALLS HEARD SECTION

SET LISTENING PERIOD 1, 1.7 Mc June 10, 2230-2300 BST.

H. OWEN, 2, Campion Ave., Basford Park, Newcastle, Staffs. "All World Two," 45-ft. end-on, ENE-WSW.

*Phone—G2KH, 4CW, 5UQ, ZQ, 6AB, 8ML.

CW—G2DM, YY, 3JU, SB, 4DZ, 5DY, RI, RY, GM5UT, G6KR, GM6RI, 8TT.

C. T. H. MARTIN, "Lynton," Pound Road, Bursledon, Southampton. 1(regen)-v-1; 50-ft. end-on, NE-SW. *Phone—G2HF, KT, 3SB, HL, 5ZQ, 6YU.

CW—G2QM, 3SB, SD, JU, 5RI, RY, QY, 6CI, KR, 8PR, GM8TT.

J. N. THORPE, Cross Roads Garage, Cross Heath, Newcastle, Staffs. "All World Two," 120-ft. inverted "L," 30-ft. high, N-S.

*Phone—G2HM (?), 6AB, 8ML. CW—G2DM, 3JU, SB, 4GA, 5DY, RI, QY, 6KR, GM6RI, 8TT.

G4LA, 20, Hallgates, Hexham, Northumberland. 1-v-2 battery; 66-ft. Marconi N-S.

*Phone—G2KT, 3UB. CW—G2QM, YY, 3SB, ZY, 4KZ, 5RI, QY, 6KR, GM5UT.

G3SB, Beaconwood Hotel, Minehead, Som. "Super Skyriider, Sx16." 132-ft. 10 watts. CW—G2QM*, 3SO, XR*, 5RY, 6CR, GO, YU, 8SG, GM8TT.

*Indicates QSO.

K. HASWELL, 132, Lancelot Road, Wembley, Middx. "All World Two," 33-ft. end-on, E-W.

CW—G2QM, DM, 3SB, 4KZ, 5DY, RI, 6CI, KR.

*Phone—G2HL, 4CW, 6YU.

SET LISTENING PERIOD 2, 14 Mc June 13, 1800-2000 BST.

K. BUNSTON, "Gable Cottage," Broad Hinton, Wilts. 0-v-1.

CW—CT1U, QE, QF, SX, D4CQA, YTU, FA3RY, HA2Q, HB9CE, 11R, LY1X, OH2NF, 5NF, ON4PW, OZ5P, 7SN, PA0BE, PK1OG, 3AJ, MP, 4KS, PY1EX, SM7YA, SP2BA, SU1AS, GT, TM, U2NE, UK3AQ, 5KJ, VE1EA, VO1O, 2C, 3P, VP5PZ, VU2FO, W1APT, BG, CBJ, IOZ, RR, 2FD, LND, 3CVK, EDZ FDO, HUU, 4EO, 8LEC, NJP, OIR, 7, 9HLF, KZZ, XOH2YR, YM4BD, ZB1X, ZE1JH.

*Phone—CN8MA, CT1RT, EK1AF, F3BO, WT, LY1S, ON4US, PA0BE, PK1OG, 3AA, SU1RD, 5BO, VE1CI, CR, VQ2CM, W1HKK, JFG, 2DFW, KHK, 3BRY, FGR, 8UY.

D. W. H. FFENNEL, c/o R. T. Assheton, Esq., Eton College, Windsor, Berks. 0-v-1, 30-ft. indoor.

CW—CT1CO, ET, IT, JU, PC, QF, SX, ZZ, F3AG, FA3RY, HA2Q, 7P, HB9CC, CE, 11R, LY1AT, OZ5P, PK4KS, SM7YA, SP1MX, WI, 2BA, SU1AS, U2NE, UK3AQ, 5KJ, VE3AXE, VO3P, W1CLE, IOZ, LBO, 2BEK, EGI, FD, KUD, LNB, 3BTR, CEU, DQU, FUN, HLX, HYM, HZH, 8CFR, CXX, FND, ICS, LEC, NJP, 9EXW, ZB1X.

BSW1319, Conrad G. Tilly, Bristol, 6.

*Phone—CN8AV, MA, MB, MZ, BB, CT1PK, QN, RT, EK1AF, F3BO, HB,

HV, 8XP, XT, HB9DO, K, 11GAS, LW, PA0WF, PY4BK, SU1RD, RH, 5BO, VP6MR, VQ2CM, W1HKK, JFG, 2AZ, BBI, FMP, GDU, JT, KHK, 3BIW, FHU, FII, 8DBC.

SET LISTENING PERIOD 3, 14 Mc June 25, 0600-0800 BST.

L. J. J. MORGAN, 45, Parkwood Road, Bournemouth, Hants. Hallicrafters S14, 20-metre doublet, NW-SE.

CW—D3FZI, 4CJ, VBV, F3AG, LE, 8FW, NR, FA3RY, HA2J, 3Q, 8T, LY1AT, LZ1C (1), ON4EF, FU, SL, PA0BE, SM7PY, YE, U2NE, VE3AL, OD, VK2IC, W1KLY, KTG, MBP, SSX, 2FD, JPV, LRD, LTN, 3BKH, EPV, FIB, HIL, 4EFB, EHZ, FKG, 5CPI, 5HAH, MEK, OSU, QMD, 7EJG, 8HHH.

*Phone—CO2AM, 8JK, CT2BP, F8LX, NP, TU, VP, XP, G5SO, ON4BO, OB, US, SP1AT, VE3AJ, VP5IS, W1ADM, BES, 4BMR, DQT, ECF, 8EIN.

K. BUNSTON (as SLP 2).

CW—D3BCF, 4VBV, F3LE, I.H, 8NR, FA3RY, WW, FT4AE, HA2T, 3Q, 6V, 7N, H16Q, HK4DC, HR4CX, 11ZK, K5AD, LU8EN, ON4EF, OZ3U, PA0BE, WF, SM7PY, U2NE, VE5GI, VK2AJX, 3LP, RC, XS, W1EUG, KLY, 2AJR, HNR, JAE, LRD, 3EPV, HIL, HXA, FUF, 4CYC, EHZ, FFU, 5BSY, CTW, FCD, FYZ, FRL, GCV, KC, PJ, 6DXK, ENV, FQP, FSJ, LJD, MCG, PCW, SN, 7BLK, BQX, EJJ, FHN, GPR, HBL, 8AYF, DF, EXI, GBF, ISI, MEH, MTC, 9EKC, LAK, NT, RUW, YTB, ZB1X.

*Phone—CO2AM, RH, CN8BB, MI, CT1QN, 2BP, F8NT, PK, VP, XT, G5SO, HK3CO, OA4K, LX1SL, ON4OU, PA0WF, SP1SD, T12PA, VE1CN, 3GK, VP1WB, 5IS, W1ADM, FH, 2IKV, JQX, 4DLH, ECF, 5DAE, EYZ, 8DBI, JNU, 9ARA, ELK, MM, XE1CO, ZB2B.

D. W. H. FFENNEL (as SLP 2).

*Phone—W1ADM, BES.

CW—D3CDK, FZI, 4CJ, VBV, F3LE, LH, 8NP, NR, FA3RY, FT4AE, G2MI, ZQ, 6WN, HA2J, Q, T, HR4CX, PA0BE, OL, SM7PY, SP1EF, U2NE, VK3IG, W1GNE, IJP, JTY, KLY, 2AJR, AOA, BEK, BGV, HAY, HQA, JGR, LRD, 3EPV, FIB, HIL, 4ANN, EFB, EHZ, DWB, FDI, FNS, FPM, IO, WX, 5CPI, CTW, DYT, EVI, FRL, HTP, KC, 6GPB, HAH, KVJ, MCG, MEK, MOL, QLA, USA, 7BLK, BQX, GJY, HBL, 8ADY, BOS, CXC, EXI, GBF, ISI, LEC, MEH, MJF, MKI, PTD, QXM, 9EKC, TJV, UAZ, YU7XU, ZB1R, ZL4GS.

GENERAL LOGS

1.7 Mc

C. T. H. MARTIN (see SLP 1). 7.6.39 to 7.7.39.

CW—OZ2PX, GM3VJ, 5UT, 6RI, 8CN, TT, GW2BG, 3AJ, WY, 4FW, 5FI, 8CT, NP, G2IX, DM, QM, UJ, MF, OU, HW, YY, IT, MN, IF, GG, 3UB, SB, JU, SD, NC, OA, HC, GH, VB, VG, FL, RO, HS, TP, LP, ON, LY, JO, PI, BF, MI, YA, JW, KF, MV, 4FH, CW, GA, GJ, AK, HH, AU, CF, BY, LV, LA, 5RX, RY, ZQ, QY, RI, IU, OB, UQ, RP, AO, LO, BW, HS, DO, DY, XB, NO, 6KR, CI, ZR, SS, II, KU, MK, HB, GL, YJ,

ZQ, PA, VD, 8HM, PX, PR, LZ, PD, PM, SG, IJ, CG, JM, DX, GI, BA.

*Phone—E18J, GW2BG, 5KJ, G2IX, HF, KT, JM, KC, NMP, IT, WA, DO, GG, XQ, 3SB, HL, PF, GW, PH, GH, LZ, QJ, TP, LP, 4CW, GJ, AU, DD, CG, 5ZQ, IU, QI, RD, OB, UQ, DO, QG, 6GO, LL, YU, ST, SS, YI, II, MN, AS, AB, 8ML, DM, LZ, CV, FU, DT, JM, GQ, SR.

P. F. CLIFTON, 99, Nowell Road, Barnes, S.W.13. 0-v-1 battery, single wire 30-ft. long, end tap, 18-ft. high, N-S, 17.6.39 to 3.7.39.

CW—G2MN, XC, 3LY, MI, GV, IO, GM3VS, 4GA, AU, KZ, 5RI, ZQ, 8LZ, PD, NF, CN.

*Phone—G2WA, KH, MI, 3CQ, BF, 4CG, 6KV, 8ID, PD, SC.

J. E. FRITH, 113, Worple Road, S.W.20. 17.6.39 to 13.7.39.

CW—G2CD, DQ, KP, PX, SB, WA, 3BF, CO, MI, MV, VG, 4CG, DD, DT, HG, KFP, 5IU, MM, QI, 6KD, MC, MN, NU, 8JM, PD, PI, SC, GW2BG, GM2MQ, E18J.

28 Mc

L. C. B. BLANCHARD, Montcalm, 122, St. Andrews Road, Coulsdon, Surrey. 0-v-pen(battery), indoor "V" (not beam). 19.6.39 to 12.7.39.

*Phone and CW—F3LE, LU7AZ, F8QD, FA3JY, OZ2LX, D4XJF.

BRITISH CALLS HEARD OVERSEAS

14 Mc

ROGER LEGGE, 20, Beethoven Street, Binghampton, N.Y., U.S.A. RME-70, DB20. 27.5.39 to 25.6.39.

*Phone—G2TR, UT, MQ, IW, CG, FB, FC, BB, PU, WZ, XO, HK, LX, AV, DV, 3CP, BM, YJ, RU, RI, YZ, JG, QK, DY, AD, DO, BL, QO, YK, UH, XI, HZ, FO, QR, FA, 4IH, IJ, FL, FS, AC, AS, BH, 5TH, LU, ZG, ZI, LJ, DT, BJ, BD, FW, DM, RV, IV, BQ, TO, IE, FB, YV, WF, VM, VO, GS, VT, 6HG, WY, ZI, XR, JL, LK, MB, ML, DL, FR, JB, UX, BC, BY, WX, FS, OU, PC, VQ, 8WS, LP, QK, CV, MA, MX, SB, HN, JQ, GP, FK, IL, DM, AX, IG, NY, TX, BX, G15ZY, 8UW, 2CC, GM2UO, JYS, OL, 6WD, 8RJ, MN, 6RG, GW3JI, CR, KY, 5ZL, TJ, PH, 8JW.

ZD2H, Posts and Telegraphs, Buea-Camerouns, West Africa.

G2K6, LB, ZQ, 3BS, IJ, JR, RK, RR, WA, 4FR, 6CJ, CL, WY, 8DD.

ACKNOWLEDGMENT

BSWL139, Churwell, Leeds; BSWL657, Bristol, 7; G6PJ, Sheffield, 8; J. Clark, Jr., Angus; A. W. Gall, Edinburgh, 3; R. H. Greenland, B.Sc., Barnsley; R. Hall, New Waltham; T. E. Harding, Newport, Mon.; J. C. Harvey, London, N.W.3; H. F. Jennings, London, S.E.20; F. Jones, Fenton; R. Mason, Kidderminster; L. J. Miller, Billingshurst; F. H. Pickard, Leeds, 6; P. Sawyer, Croydon; J. N. Thorpe, Newcastle; G. P. Watts, Norwich; E. H. Walker, London, W.4; L. Wright, Liverpool, 19; G. Zedy, Maidenhead.

... HERE AND THERE ...

CALLED UP

A note for those of our readers who are liable for military service under the new Act. If you arrange for the MAGAZINE to be reserved for you by a local newsagent, it will help you to get in touch with amateurs and SWLs in the neighbourhood, as several clubs are within reach of training establishments. This suggestion is inspired by a request from Gunner Kitteringham, Topsham Barracks, Exeter, who will be there from August 15 to November 15; he is an SWL who wants to make contact with Exeter readers.

THE "Q" CODE

As is well known, the "Q" code used by amateurs is based on, and taken very largely from, the official list of three-letter abbreviations employed by the marine and aeronautical commercial services. For the price of 1s. net, a booklet issued by the Air Ministry and entitled "The 'Q' Code" is obtainable from H.M. Stationery Office, York House, Kingsway, W.C.2 (with sales branches in Belfast, Cardiff, Edinburgh and Manchester) or through any bookseller. Local H.M.S.O. addresses will be found in the telephone directory. Incidentally, a free list, "Publications of the Department of Scientific and Industrial Research," is worth having because it gives the titles and prices of a number of interesting papers issued by the Radio Research Board.

MAGAZINE TESTS

The support for and success achieved in the various Tests we have organised during the last twelve months—1.7 Mc Trans-Atlantic, 56 Mc and QRP—makes it practically certain that, all being well, we shall stage similar events between October this year and May next. These Tests will be tests, i.e., primarily experimental and not so much competitive, though it may possibly be that we shall offer prizes where point-scoring is involved. Practically every entrant for the QRP Test has suggested this, but we feel that the real inducement to take part should remain the experimental value and interest of the event.

HEARD ON 160

"I am rather unfortunately placed for working on the other bands just at present, because when I applied for my licence I gave the Post Office a 1.7 Mc crystal frequency which doubles outside the HF bands; so they only licensed me for 160 metres." *Verb. sap.*

AMATEUR RADIO EXHIBITION

For the three days Sept. 21-23, there will be an exhibition in London of entirely Amateur Radio interest. Organised by the Radio Society of Great Britain—who are to be congratulated on their initiative and enterprise in this matter—it will be held in conjunction with the R.S.G.B.'s 1939 Convention and is to take place at the Royal Hotel, Woburn

Place, Russell Square, W.C.1. The exhibition and meetings are open to members only, and further information can be obtained from the Secretary, 53 Victoria Street, S.W.1.

CORRESPONDENCE NOTE

Again, we must ask readers to use separate sheets, each with a name and address, when writing to the MAGAZINE on matters affecting different departments or contributors. These are Business, Editorial, Advertisement and Technical Query, with the DX Scribe, F. A. Beane, A. J. Devon and Old Timer as regular feature contributors. Letters for all other contributors should be sent c/o The Editor, and the DX Scribe has certain rules of his own—mentioned from time to time in his pages—in connection with the very large volume of correspondence reaching him. If readers will keep these points in mind, we shall not get, as we so often do, a request for two back numbers, a technical query, several elusive QRAs, a note on some BC DX heard and a sixpenny advertisement all on the same sheet!

THE CODE KING

Just for practice, the other evening we tuned ourselves in to a nice snappy commercial knocking out what we quite thought was about 40 w.p.m., and proceeded to get it all down; though subsequent calculation showed the speed to be nearer 25's, we still felt we had done pretty well. The next morning a letter came in from Webbs Radio of Oxford Street mentioning, *inter alia*, that McElroy, their American buyer—yes, you've guessed it!—had taken perfect copy for 15 minutes at 75 w.p.m., thus retaining his world code speed title for another year—we should say so. G2NO of Webbs says they hope to get him over here to find out exactly how he does it. That's what we want to know, too. It should be added that this annual American contest is conducted by the Federal Radio Commission, using sealed tapes on an automatic sender, McElroy and other competitors having to copy on typewriters.

TELEVISION SERVICE AREA MAP

Recently issued by the R.M.A. is a map which will be useful both to readers interested in television reception and dealers concerned in selling it. This map, which is not contoured but shows places names and county boundaries within approximately 50 miles of Alexandra Palace, is intended to indicate the proved effective range of the television transmissions; this can apparently be safely quoted as 40 miles, though it is emphasised that it is impossible to lay down a hard-and-fast dividing line, since local conditions outside the 25-mile "guaranteed"—speaking figuratively—service area may affect reception for better or worse.

The map is on good paper, unmounted, and printed in three colours. It costs 2s. 6d. post free from the Radio Manufacturers' Association, 59 Russell Square, London, W.C.1.

Modulated RF Drive on A Neutralised Amplifier

By H. C. Edwards, G8NR

A Practical Circuit

[Though we have more than once had occasion to say that we are not in favour of modulating on drive circuits, the article below is of experimental interest and should enable good results to be obtained by an experienced operator.—ED.]

HAVING WORKED on the amateur bands for a number of years the writer was surprised to notice few other transmitters using a modulated oscillator and was thereby moved to experiment and investigate the possibilities of this interesting subject.

The preliminary tests were carried out on the normal rig used at the station. The oscillator is of the conventional triode CO type but it will be noticed from the diagram that the valve is rather unusual for this type of pentode oscillator. In practice it was found that the HF type pentode gave better results than when using the more usual LF pentode, due probably to the higher g-a capacity.

The audio side of the rig is a 1-stage speech amplifier using a medium impedance triode transformer-coupled to a receiving type output triode which is fed into the anode of the CO pentode via a Ferranti OPM3C output transformer. This transformer gives an excellent match when using the valve suggested.

On 7 Mc 'phone the results obtained have more than justified the time taken in the initial experimental work involved in finding suitable valves, etc.

The difficulties that were experienced during the earlier experiments were mainly in arriving at a satisfactory method of modulation. The first one tried was the normal Heising choke system but trouble was encountered with frequency modulation; also it was difficult to obtain more than 50 per cent. control without distortion. The transformer method was then substituted and we were agreeably surprised at the results.

With 32 mA at 250 volts on the oscillator plate, giving an input of 8 watts only, 100 per cent. QSO's have been carried out with 164 'phone stations, which include France, Belgium, Holland, Switzerland and Portugal—in no case did we receive a report less than Q5 R6.

● The PA Side

Satisfactory as these results have proved, the feasibility of adding an amplifier arose and a conventional neutralised PA stage was constructed (see diagram) consisting of an LS6A capacity coupled to the driver. This was fed at 500 volts and arranged to draw inputs varying from 10-30 watts. This rig was first tried out on CW in view of the fact that at the higher inputs the LS6 was being overrun. On the key contact was established with VU (569), FB8 (569), VQ (459) and CN8 (579) and maintained for 100 per cent. QSO's, reports

being RST as indicated by the bracketed figures after the respective countries.

These indications that the CO-PA as a whole was working well prompted the trial of the new modulation system. It was noted that with the same modulation percentage as was obtained on the CO stage alone, the PA mA fluctuated only the merest trifle, which led us to think that neither over-modulation nor frequency-modulation were taking place. The output valve was biased to a value of -120 volts for inputs of 10-15 watts; this gives a standing plate current of 8-10 mA, rising to 25 or 30 mA under drive.

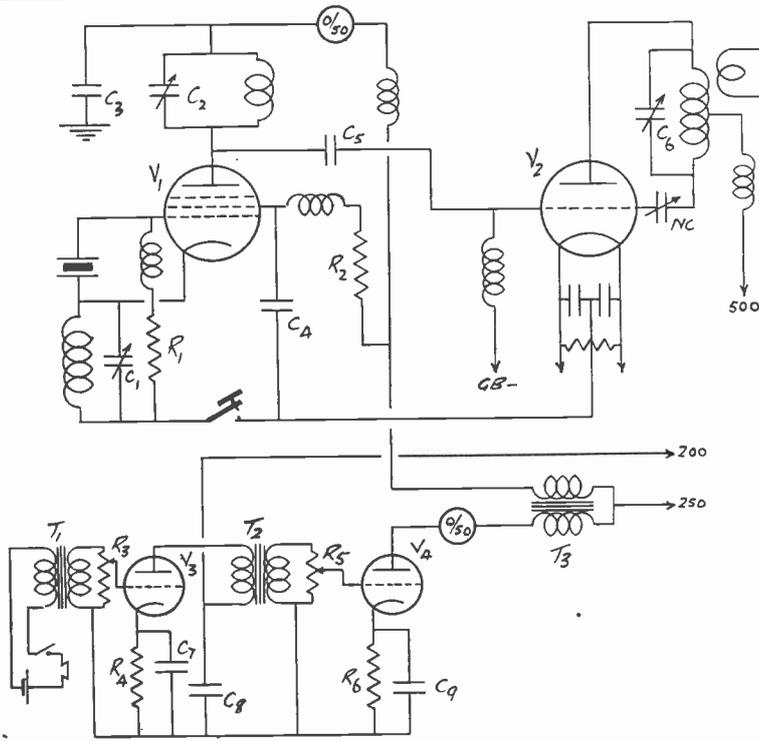
On the monitor, the signal sounded quite as it should and the transmitter was accordingly put on the air. The contacts established with the CO were in the main repeated with the COPA with, in most cases, an improved report; final confirmation of the success of the experiments came with that given by G5SP, checking up on the signal with an oscilloscope. His report was that the carrier was fully linear, 90 per cent. modulated! His full report was QSA5, R8 to 9, excellent speech quality. Since that date, i.e., July 26, 1938, this transmitter has been in use as the home station rig and has proved to be reliable and trouble free, while contact has been established with W1-4, 7, VE1-2, LA and SM. The aerial was at first a half-wave Zepp (40 metres) centre-fed with quarter-wave feeders, which for a part of the time were untuned, the aerial drawing satisfactorily without it; these were later tuned to secure greater efficiency.

These experiments, while simple and conducted comparatively QRP, have occasioned so much comment amongst amateurs when mentioned, that their general interest was felt to be worthy of this article. It is hoped that others will try this system on QRP outfits and the writer will be only too pleased to give any further information.

The diagram on the next page is self-explanatory, all values being shown below.

● List of Parts

C1—.0003; C2—.00015; C3—.01 (Mica); C4—.01 (Mica); C5—.0001; C6—.0002; C7—25 (Elect.); C8—2 (T.C.C.); C9—25 (Elect.); R1—20,000, 2 watt; R2—50,000; R3—.25 meg. Variable; R4—750 ohm, 2 watt; R5—.25 meg. Variable; R6—750 ohm, 2 watt; T1—Microphone Transformer, 25:1; T2—Varley "Nicore" (2); T3 Ferranti OPM3C Output Transformer; V1—Osram MSP4; V2—Osram LS6A; V3—Osram MH4; V4—Mullard TT4.



The circuit used by G8NR. Note that low-impedance triodes similar to the LS6A could be substituted at V2; its filament by-pass and centre-tapping values can be .01 mF each condenser and a 50-ohm resistor.

Conditions—The Month's Survey—Severe Ionosphere Storm

ONE SEVERE ionosphere disturbance occurred between June 15 and July 15, but apart from that the period was one of generally good short-wave conditions.

Until June 20 conditions were uniformly good, but at 0100 GMT on that day a minor ionosphere disturbance started, and this continued till 2300 GMT on June 21. It was apparently caused by a small sunspot group which crossed the central meridian on June 19, and its effect on short-wave reception was to cause poor propagation of frequencies above 11 Mc.

There were periods of erratic conditions between June 27 and June 30, but, on the whole, reception up to the latter date was good on all frequencies. It continued so until July 4, when a severe disturbance occurred.

The sunspot group which appears to have been responsible for this crossed the central meridian on June 30, and its area on June 29 was 590 millionths of the visible disc. Thus a rather longer interval than usual occurred between the CMP and the start of the fade out. A magnetic disturbance started at 1400 GMT on July 4 and continued until midnight on July 5, maximum ranges in the magnetic elements being recorded about 1700 GMT on July 4. The ionosphere disturbance became intense during the evening of July 4, and amounted to an almost complete fade-out of signals on the frequencies above 11 Mc. However, certain South American stations on 14 Mc still came in late on this day, no doubt owing to the fact that the transmission path in this case did not extend far into the disturbance region.

● 26 Mc Reception

It was not until the afternoon of July 6 that conditions returned to normal. They remained so until July 13.

July 9 was a particularly good day for high frequency reception.* Incidentally, the 26 Mc American broadcasters were heard on one or two occasions around this date, at about 1900 GMT. Their signals must have reached us *via* highly ionised "clouds" in the E layer, since the maximum usable frequency for the F layer was much below 26 Mc. It is known, of course, that such "clouds" do form in the E layer, most often around sunset in summer, and they are capable of refracting waves that would normally penetrate the F and E layers.

Some extremely large sunspots crossed the central meridian on July 8 and 9, that on the latter day having an area of 1500 millionths of the disc.

They did not have any effect on conditions, however, at least not for several days. It is possible, though, that the deterioration in reception which started on July 13 may be attributed to them. This took the form of generally weak signals, high noise and severe fading on frequencies above 11 Mc. WIXAL on 11 Mc and South American amateurs on 14 Mc appeared to be unaffected. On July 14 conditions were similar and on July 15 they were even worse.

The "probable" periods for ionosphere disturbances during August are:—

August	9 - 12
"	26 - 29

*(See 56 Mc Notes and compare—Ed.)

Current Trade Items

WE HAD ALWAYS thought it worth while to have incorporated in one's receiver a frequency meter with which to fix the transmission in the band and to check up on or find other stations. Our own receiving equipment has been so fitted since 1929—with the added refinement of a listen-through circuit for monitoring—and some two years ago the first constructional design for a receiver with built-in monitor/frequency-meter appeared in this MAGAZINE.

Hence, we are particularly interested to be reviewing now a communication receiver similarly provided, with the additional advantage that the frequency meter is sufficiently accurate to give readings better than *plus* or *minus* 10 kc on the HF bands. In fact, its accuracy is only limited—from the amateur point of view—by the closeness to which the dial is read and the care that is taken in the local calibration, this being quite easily done by setting the instrument against an edge-band commercial station known to be dead on frequency, such as JNJ, WIK or WIZ.

So much for one of the main features of the Howard 460. It is an 18-control receiver with noise limiter, crystal filter, R meter, and RF and LF gain adjustments in addition to the main, band-spread and frequency meter tuning controls and the other necessary switches, such as BFO pitch, AVC on-off, etc. These remarks are not to fill space but to suggest that, as is so important in such a design, all variables are under control, though of course in operation most have an optimum setting.

It is a ten-valve circuit, with tuned RF through the whole range 43 Mc to 540 kc, selected in four bands, the spreading being over 340° on a reduction-drive 3-gang condenser. Ceramic coil formers are used on the HF ranges, with iron-core IF and crystal coupling transformers, and the R meter is in a special circuit giving high sensitivity and an accurate determination of signal strength.

On the rear sub-panel are headphone jacks, a 5-ohm speaker outlet and connections for doublet or end-on type aerials. The chassis is extremely rigid, heavily copper-plated, and ribbed to give the ultimate in strength. The valves are placed to be accessible through an aperture in the back of the cabinet—normally protected by a perforated metal cover—which is 9½-ins. high by 18½-ins. long by 8½-ins. deep. The illustration gives a very good idea of the general appearance and layout of the tuning dials and controls, while we need scarcely add that the Howard range is being handled in this

country by Radiomart, Ltd., 44 Holloway Head, Birmingham, 1, the price of model 460 being £25 10s. complete with a speaker to match.

Hamrad. The business of Hamrad Wholesale, Ltd. is now under the sole control of C. G. Bradley, G8KZ, and E. P. Appleby, 2FY5, who are reorganising it with the object of giving the utmost in service both to the amateur and the dealer. The firm carries good stocks of a large number of interesting lines, prices are competitive, and a useful Trade connection is being gradually built up with the ultimate intention of having supply points for Hamrad products throughout the country.

McCarthy. We are asked to mention that the sales and service departments of McCarthy, Ltd. have recently been established at Wyndham Works, Oldham Terrace, Acton, London, W.3, where Hartley Turner and McCarthy apparatus can be demonstrated; 'phone Acorn 4639-40.

Record Radio. Lists are now available from Record Radio, Ltd., Eldon Street House, 2-3, Eldon Street, London, E.C.2 ('phone Bishopsgate 1301) of their two ranges of valves—"Record" for British sets and "Yale" in American types. The folder gives the characteristics of 96 in the former category and is also a comparison and replacement chart, while of American valves no less than 127 are listed.

Mazda. The Edison Swan Electric Co., Ltd., 155 Charing Cross Road, London, W.C.2, now issues a comprehensive Valve Manual, extremely well-produced which, divided into eight sections, covers the whole range of "Mazda" valves in the priced types. Not only are applications and characteristic curves given, but also base details. The price of 3s. 6d. includes the supply of new sheets as issued from time to time, since the manual is made up in loose-leaf form.

Taylor. A wide range of service and test equipment is offered by Taylor Electrical Instruments, Ltd., 45 Fouberts Place, Regent Street, London, W.1, of which we might mention the model 90 32-range instrument at 7 guineas, a 17-range DC only meter at £5 15s. 0d. and three different types of valve tester, priced from 8½ to 13½ guineas. Then there are two oscilloscopes, their well-known signal generator, and the three universal test instruments models 80A, 80B and 80C, the second of which was reviewed on p. 17 of our June issue.



The Howard 460 Receiver and its Loudspeaker to match, mentioned in column 1.

Some Notes on UHF Propagation

Explaining accepted Theory as applied to 56 Mc.

THE OPINION IS HELD in some quarters that there is a fundamental difference between wave propagation on 56 Mc and that on the lower frequencies. Reception on 56 Mc does not, at times, appear to correlate at all with that obtainable on other bands, and this is particularly the case in summer. Let us therefore endeavour to tidy up our ideas on this matter by considering briefly the mechanism of short wave propagation and the factors involved in it.

We will neglect the ground-wave and consider only that part of the radiated wave which is propagated by the ionosphere. This is justifiable, because the ground-wave is completely attenuated, and is not likely to provide reception at any great distance from the transmitter, particularly on 56 Mc. Another justifiable assumption is that weather conditions play no part in the propagation of short waves, since most of the ionosphere layers are many miles beyond that part of the atmosphere which is affected by weather.

It may be taken that short waves are usually refracted by the F layer. With a given degree of ionisation prevailing in this layer waves up to a certain frequency are refracted back to earth. Raising the degree of ionisation of the layer increases the highest frequency which is refracted.

● Critical Frequency

The highest frequency which the layer will refract for a wave sent vertically upwards is known as the *critical frequency*, and is a measure of the ionisation prevailing in the layer. If a wave is sent out at a small elevation angle (angle to the horizontal) it will strike the layer at an angle. This latter is the *angle of incidence*, and is measured from the normal to the layer boundary. Under these conditions the layer can refract a much higher frequency than the critical frequency. Thus the greater the angle of incidence, the higher the frequency that can be refracted. Owing to the curvature of the layer round the earth there is a limit to the angle of incidence that can be obtained, and the highest frequency that the layer can refract at the greatest angle of incidence is the *maximum usable frequency*.

● Ionosphere Variations

As is well known, the ionisation of the layer—and hence the value of the critical and maximum usable frequencies—undergoes diurnal, seasonal and long period changes. At the sunspot maximum the ionising radiation reaching the layer is greatest; thus its ionisation is greatest. During the winter, the air in the layer is densest; consequently it is capable of absorbing more radiation and its ionisation is therefore higher than in summer. Also during the day when sun is operative on the layer, the ionisation is obviously greater than at night.

Thus the ionisation is greatest during daylight, in winter and at periods of high sunspot activity, and lowest during night, in summer and for periods of low sunspot activity. We will consider only periods of high sunspot activity—like the present—and take it for granted that the highest daytime ionisation occurs rather nearer the equinoxes than in mid-winter.

If we examine curves which show the hourly critical frequency for all seasons of the year, we shall see that it is quite commonly in the region of 14 Mc in February, March, October and November. The maximum *usable* frequency at such periods is therefore often as high as 43 Mc. Frequencies of this value are, therefore, well refracted at these times of year—for waves radiated at low elevation angles—and so are all frequencies below this, until a point is reached where attenuation becomes severe. This may be as much as 30 Mc below the maximum usable frequency.

● Deduction

It therefore seems that in February, March, October and November frequencies from about 13 Mc to 43 Mc are well propagated by normal F layer refraction. The ionisation of the layer is not, however, by any means constant, and it is quite feasible that it may rise so high as to take the maximum usable frequency up to 56 Mc. In fact, as the seasons mentioned are known to produce good results on this frequency, it seems strongly indicated that 56 Mc propagation at such times is by normal F layer refraction.

The case is altered in the summer months. The critical frequency of the F layer is then highest just before sunset, and lies in the region of 8 Mc. The maximum usable frequency is only about 22 Mc, and it is *very* improbable that the ionisation is ever high enough to refract a wave of 56 Mc frequency.

● The Sporadic E

There is another phenomenon which may account for this, however. The ionisation of the normal E layer is much below that of the F and is never high enough to refract a frequency of this order. In the summer, however, the E layer (and the region just above it) is often in a very disturbed state. This is such that ionised “clouds” are formed—patches of ionised air which exhibit markedly different characteristics from the normal layer. These may cover very large areas and may persist for quite a long time. They are particularly prevalent near sunset in summer and are known as *sporadic E*.

The ionisation prevailing in the sporadic E may be much greater than that in the normal F layer, and furthermore, as it lies at a lower virtual height, a much more useful angle of refraction will occur for a given elevation angle than could be produced by the F. Thus the sporadic E is capable of refracting much higher frequencies than the F layer.

The indications are, therefore, that summer communication on 56 Mc is by way of the sporadic E. The reception is erratic, which is what one would expect from the nature of the refracting medium, and the early evening appears to yield the best results. Furthermore, the contacts on this frequency which were made early in June (as reported in this MAGAZINE) were made at a time when sporadic E of high ionisation level was often recorded in this country.

It is realised, however, that there remains a lot to be proven in this matter, and 56 Mc experimenters certainly have plenty of useful work to do.

Amateur Crystal Production

“Tester”

And a Home-Made Crystal Holder

AT OUR SUGGESTION, a correspondent who wanted to know how to make his own crystals went round the local opticians and optical supply houses to see if they had any of the old pebble lenses, which were made of quartz—sometimes cut from a parent block which was itself piezo-electric. In due course, he wrote in to say he had been successful and asked how to put them to use.

Following is the reply he received from our Technical Query Department:

“We note that you have obtained a number of pebble lenses and wish for information on how to test and select one prior to grinding. This is done by placing the quartz pebble on or near the grid coil of an oscillating valve—conveniently, the detector stage of a straight receiver—and tuning round till clicks or plops are heard, which will indicate that the crystal is active and affected by the local oscillation.

It nearly always happens that quartz pebble lenses resonate somewhere in the medium-wave BC band; hence, they must be ground down after an active specimen has been found. The receiver dial setting will give an approximate resonant frequency for the pebble in its natural or un-ground condition, and it is sometimes possible to double this straight into the 1.7 Mc band (or other amateur frequencies) if the natural frequency falls somewhere near 895 kc, or roughly 335 metres.

Usually, several clicks will be heard as the receiver dial is rotated, owing to the fact that a quartz pebble has more than one mode of oscillation, and all these frequencies will control to a certain extent.

But there is always one point at which control will be the deepest—indicated by the loudest click—and it is from this that doubling can be obtained if it happens to fall in harmonic relation with the amateur frequencies. The usual pentode CO circuit, with a suitable coil and condenser for tuning the medium-wave BC band on the tank side, is quite satisfactory.

● Grinding

However, it is better to grind the crystal into the 1.7 Mc band, or even higher, in order to save doubling stages and also to eliminate as far as possible the other modes of oscillation different from the fundamental, as otherwise the crystal is liable to jump from one frequency to another when in operation, i.e., switching on and off might cause jumping between two frequencies.

Grinding is carried out by obtaining a flat sheet of thick plate-glass, not less than 6-ins. square, the finest possible carborundum powder and light sewing-machine oil. A thick paste is made by mixing the oil and powder and spreading this grinding compound over the glass. The crystal is then rotated through the mixture by light even pressure

of the finger-tips, giving an equal number of motions to both surfaces of the crystal. A circular movement is easiest and most effective.

From time to time, the crystal should be tested in an oscillator to check the progress of the point of resonance, i.e., the grinding process naturally increases the frequency, hence the object is obviously to get the crystal down into the 1.7 Mc band, or higher if desired. Too much grinding may take the crystal beyond the band, thus testing is necessary at fairly frequent intervals.

To do all this reasonably accurately, either a calibrated receiver covering the wave-range 140-400 metres is required, or it is necessary to have an ordinary CO type oscillator and heterodyne frequency meter from which beats can be taken off the receiver; that is, the crystal is put in the CO, tuned to resonance by plate meter indication in the usual way, and then the CO beat-note is picked up on the receiver. Beating the frequency meter against the receiver will then locate the crystal frequency.

It should be noted that the process of grinding will sometimes render the crystal inactive; in other words, it passes through a thickness zone where oscillation cannot be obtained. Further grinding will usually restore the oscillating properties, though this may have put the resonant frequency beyond the band. In such cases, the only thing to do is to grind on into the next band.

● Patience

The main points to watch are to keep the grinding motion steady and even, work each face equally, get the faces as near parallel as possible, and test frequently. After a little experience, the progress being made can be estimated, but the essential thing is patience. The whole job might involve a week's work, if only an odd hour now and again can be devoted to it.

The only other point to mention is that usually the edges of the crystal do not require any attention. However, if several active lenses are available, it is worth experimenting with square and round sections to see how oscillation is affected or whether the output can be improved. Edge-grinding is done quite simply by working the crystal perpendicular to the plate-glass.

The final process is to wash the crystal carefully to remove all traces of grinding compound, and dry with a silk handkerchief.”

If you are interested, it might be as well to see if there are any pebble lenses in some forgotten drawer at the opticians in your locality—if you don't, someone else probably will!—and you should be able to get several for a few pence, or at the most 6d. each. We heard recently of a keen buyer who got a handful, nearly all active, for a shilling.

● Dustproof Crystal Holder

Due to G3XT, the crystal-holder shown in the sketches herewith is easy to make, very inexpensive, and entirely dustproof. As even a single speck of dust or grit between the plates and the quartz is often sufficient to stop the crystal oscillating properly, the value of this last feature is obvious.

In spite of its low cost and simple construction, a crystal-holder made on these lines has been giving entirely satisfactory results at this station for some months past, in a QRP transmitter.

A base from a discarded 4-pin valve can be used as the body of the holder (but any other suitable bakelite or ceramic moulding of similar size and shape would do, if fitted with valve-pins). Two brass discs (of the ordinary commercial stamped-out type) form the plates, and a disc of cellophane secured with a rubber band makes the holder dustproof.

The lower plate in the holder is 1-in. diameter and 3/16-in. thick, to allow of the 4 B.A. hole about 3/32-in. deep being drilled and tapped for the central screw shown in the sectional diagram, Fig. 1. The upper plate is 3/32-in. thick, and can be 1-in. maximum diameter; but there is scope for experiment here, and better results may be obtained with a plate of smaller diameter.

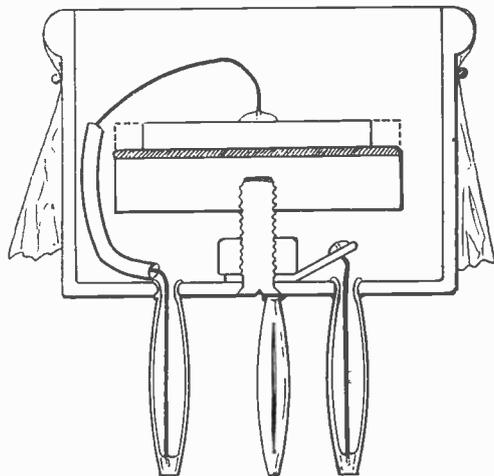


Fig. 1.

Sectional view, showing the neat and simple construction of the crystal holder.

As the plates used are stampings, one side of each has a slightly rounded edge, and the other side a slightly burred edge. The burred face is usually the easier to grind flat. The grinding and polishing certainly calls for a good deal of patience, as it takes an hour or two.

In actual practice, however, the job did not prove to be as difficult or tedious as one might expect; a little grinding-paste was spread on a sheet of glass, and the plates rubbed on it (*with a circular motion* to ensure even grinding to a flat surface all over). A finer grade of paste was substituted towards the end of the grinding process, and after that, metal-polish was used, also on the glass. The final mirror-like polish was produced with a few drops

of metal-polish on cotton wool, gently finishing off with a very soft, clean polishing-cloth.

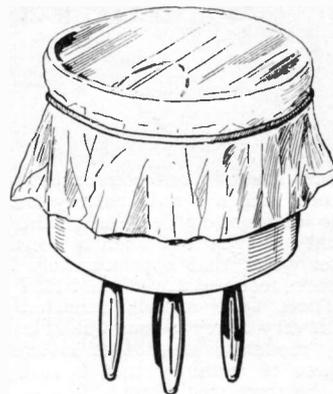


Fig. 2.

The finished holder, dustproofed with cellophane, is intended to plug into a standard 4-pin valveholder. Only two pins however, are actually used for connections.

After the grinding, but before this final polishing, a short length of fine and very pliable wire was soldered to the upper or "rough" side of the upper plate. After polishing the plate this wire (which must of course be flexible enough to allow the upper plate to rest freely and evenly on the crystal) was threaded down through a short piece of insulating tubing and through the hollow centre of one of the valve-pins, to the tip of which it was then soldered. Another wire, which serves as the connection to the lower plate by way of the 4 B.A. screw, was soldered to a tag clamped under a nut securing this screw, and, at its other end, to the tip of another valve-pin, as shown in Fig. 1.

When the lower plate has been screwed down as far as it will go on the 4 B.A. screw, and one has taken care to see that both the plates and the crystal itself are absolutely free from dust, grease, or anything else that will prevent the crystal oscillating, the holder is ready for test.

To render it dustproof, the top is simply covered, as shown in Fig. 2, with a circle of cellophane held in place with a rubber band. Actually, the cellophane discs and rubber bands sold for covering home-made jam will do excellently! If desired, the outer surface of the cellophane can be very slightly moistened before stretching it over the top of the holder; it will contract on drying and so form a taut, transparent, dustproof cover.

Forward, Middlesbro'

G. RALSTON, 18 Bowley Street, wants to get in touch with MAGAZINE readers locally, and also with amateur transmitters in Middlesbro' active on or interested in 56 Mc.

Piracy

J. B. BURTT, G4AB, is being troubled by someone using his call on 1.7 Mc, apparently in the Bristol area, and asks for all information regarding "G4AB's" 160-metre transmissions to be sent to The Weaver's House, Burleigh, Stroud, Glos.

R. A. HOSIE, G8RI, 94 Norway Street, Waterloo, Liverpool, 22, is annoyed to hear of another "G8RI" trying to work DX on 14 Mc.

A One-Watt Battery Transmitter

By W. Oliver, G3XT

"OLD TIMER" has commented on the results obtained with a 1-watt battery transmitter at G3XT. The outstanding feature of this transmitter is its ability to put out such a consistent signal, week after week, that approximately 70 per cent. of the reports received are at least RST 559.

These QRP signals admittedly cannot compete with very heavy 'phone QRM, but they do penetrate any moderate amount of interference, and with a degree of certainty that is really amazing in view of the very small input. In fact, out of 90 QSOs in a typical month on the overcrowded 7 Mc band, only 10 had to be signed off prematurely owing to QRM. The remaining 80 were completed successfully, and of the 90 reports received (from 59 stations in 15 countries) sixty-four were between RST 559 and 589!

The least satisfactory results have been over a short distance—five, ten or twenty miles. These local contacts have sometimes yielded only S3 or S4 reports, whereas at distances of 100-500 miles the reports are almost invariably S6 to S7, under average conditions.

The layout of the transmitter is novel and unconventional. By using valves with top grid-connections, and mounting them horizontally, minimum wiring has been combined with maximum spacing. Nearly all the wires are exceptionally short and direct, yet the components are well separated.

● Chassis and Construction

Stripwood forms the chassis, a metal or wooden panel and wooden cabinet being optional extras. The chassis comprises four strips $1\frac{1}{2}$ -in. wide, 8-in. long and $\frac{3}{8}$ -in. thick, mounted horizontally on the edges of two runners $1\frac{1}{2}$ -in. wide, 15-in. long and $\frac{3}{8}$ -in. thick. The front runner is cut away at the ends to clear a pair of jacks mounted on ebonite or bakelite slips.

A few holes have to be drilled in the chassis, but this can be done quite easily after the strips have been assembled. The neatest way is to joint them as shown in the photograph, but they can be simply glued and nailed or screwed if preferred.

The strips are unequally spaced; 2-in. divides the first pair (under the PA tank coil) and $1\frac{1}{2}$ -in. the other pair (under the CO valve). The location of

the few holes drilled in the chassis can be estimated from the photograph; the exact positions are not very critical. As for the diameters, these in all cases are to clear the feed-through insulators, screws, etc., to be accommodated.

Two pieces of 2 BA studding (1-in. and 2-in. respectively) are substituted for the BA screws on one of the Raymart ceramic pillars. The wire-ends of the PA RF choke are connected to these BA rods; the longer rod is passed through ceramic washers bushing a hole in the chassis and on the underside it carries a connection from the PA keying-jack. The shorter rod (at the top of the pillar) carries connections to the centre tap on the tank coil, and to one tag of the .002 mF ceramic fixed condenser.

A pair of ceramic pillars are mounted 4-in. apart, close to the ends of the tank coil. BA rods are substituted for the top screws. One carries connections from PA tank condenser stator, neutralising condenser rotor and one end of tank coil. The other carries those from tank condenser rotor, anode socket of PA valveholder and the other end of the tank coil.

Plug-and-socket connections for the coils could of course be substituted if desired.

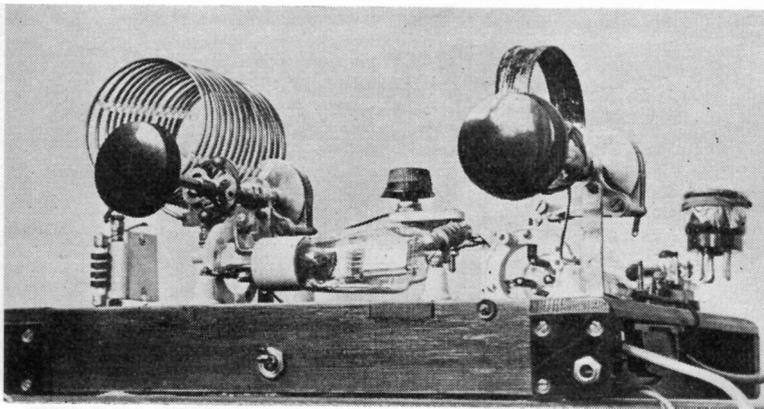
A small Meccano bracket can be bolted to the PA valveholder in place of the unwanted grid socket, to secure the valveholder to the chassis (at right angles). The short rigid connecting wires also help to hold it perfectly firmly in position.

Three feed-through insulators (Premier), near the front of the chassis, carry connections from (1) filament positive socket of PA valve; (2) RF choke in PA grid circuit; and (3) rotor of CO anode condenser. Use only one nut and washer at each end of the insulator, otherwise the screwed rod will not be long enough, owing to the thickness of the chassis-wood.

A ceramic pillar carries connections from the PA valve grid, .0001 mF ceramic coupling condenser, grid end of RF choke, and stator of neutralising condenser. If thick, stiff wire is used for the connections to the neutralising condenser, no other support for it is needed.

The CO valveholder can be mounted either by means of a small bracket clamped under the filament terminal and screwed to the chassis; or by a rod, drilled and tapped at its ends to receive screws passing through the front runner and the frequentite ring of the Eddystone valveholder.

The crystal-holder (a home-made one in the case of G3XT) plugs into two sockets on a slip of trolitul, mounted close to the CO valve grid connector and raised above the baseboard by an insulating sleeve through which the fixing screw passes. A fuseholder (for 60 mA bulb fuse) is mounted close to the crystal-holder, and the grid resistor is connected across them both.



● Tank Circuits

As regards the tuned circuits, the Premier trolitul variable condensers are mounted on home-made metal brackets, to which they are bolted with 6 BA screws passing through two holes that will be found in the trolitul end-piece. By fixing them in this way, instead of using the one-hole fixing bushes, the trolitul serves to insulate the metal brackets from the condenser rotors.

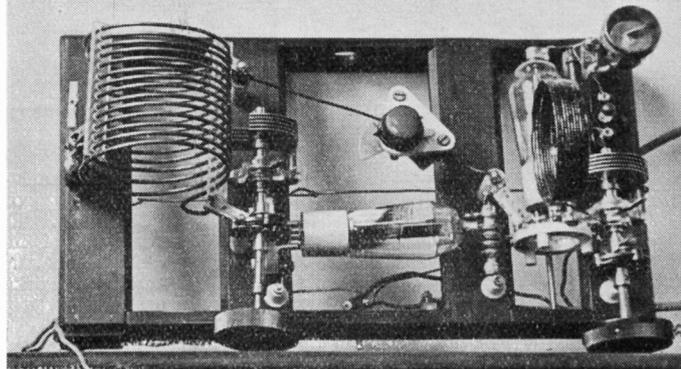
Both the coils are home-made (though, of course, commercial types could be substituted if preferred). The PA tank coil comprises about 14 turns of 16 SWG enamelled copper wire 3-in. diameter. A heavier gauge wire can be used; 12 SWG was tried, and certainly made a more robust, rigid coil, but the results in other respects were no better. The winding is spaced out to an overall length of about 4-in.

The winding is put on (under tension) to any tube 2½-in. diameter. On releasing the ends the winding springs out to about 3-in. and can be slipped off the temporary former. Strips of trolitul 4-in. long by ¼-in. wide by ⅜-in. thick were drilled with sufficient holes to accommodate the turns, and the winding was threaded into these holes by rotating the coil with one hand while holding the strips with the other. But any other suitable low-loss method of fixing up the coil (such as celluloid strips and Durofix) can be used if preferred.

The CO coil is wound with turns touching (not spaced) and can be made on similar lines to that described by A. A. Mawse in the July 1938 issue of the MAGAZINE (p. 28, "Transmission for Beginners" series).

Every part of the transmitter is easily accessible. The only parts under the chassis are the PA grid resistor, CO by-pass condenser and jacks, in addition to battery leads and one or two earth returns. The LT on-off switch can be mounted on the front runner, or on the panel (if one is used).

If the transmitter is properly constructed on the lines indicated, there will be no hand-capacity effects to contend with, and a metal panel is not essential. But flexible couplers and extension rods are desirable in any case to bring the controls out to a convenient position. If a metal panel is used, the flexible couplers must be of first-class quality,



as a poor type of dielectric material here might impair results, seeing that this forms the only insulator between the condenser rotor and the metal panel.

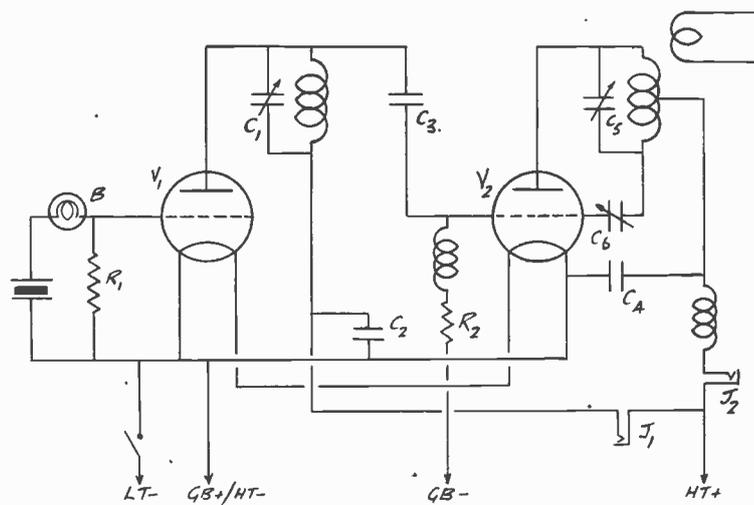
The PA tank condenser must be very accurately tuned to resonance, otherwise there will be a great reduction in signal strength. Accurate tuning is, however, quite easy with the large knobs specified.

● Operation

An HT voltage of 150 was tried at first with this transmitter at G3XT, and an input of 2-3 watts was obtainable. But when it was found that just as good reports were forthcoming with the power reduced to 1 watt, the HT voltage was cut down to 100, and on a comparatively low potential like this the total current taken by the valves can be supplied quite economically by standard-capacity Drydex batteries, provided that the transmissions are on CW only.

If telephony working is contemplated, super-capacity HT batteries will be required (such as Drydex H.1015), as the PA current is then continuous instead of intermittent, and the current taken by the modulator must be added to that required by CO and PA valves.

With a suitable modulator, and the PA input reduced to about half-a-watt (enabling ample depth of modulation to be obtained with quite a modest audio power), this small transmitter has been used successfully at G3XT for telephony, under favourable conditions. On such low power one obviously cannot hope to shout down heavy QRM, but when in the clear, the telephony signals have been reported Q5 R5-6 at distances up to several hundred miles!



Circuit of the transmitter discussed in the text. It is a straightforward battery CO-PA arrangement, capacity coupled.

● 14 Mc Working

Some recent tests with this one-watt transmitter at G3XT have shown that it will put out as good a signal on 14 Mc as it does on the 7 Mc band. The 132-ft. aerial used drew more current on 14 Mc, raising the input to about 1½-watts with the same HT voltage (100 volts). No DX has been worked yet, but RST 579 reports have been received from European stations.

For these 14 Mc tests, the only alteration made was to substitute a 14 Mc coil for the 7 Mc coil in the PA tank circuit. The CO circuit was left exactly as it was, i.e., tuned to 7118 kc, the PA stage then acting as FD to 14256 kc. The 14 Mc coil (home-made) was cut to resonate with the 100 mmF condenser about one-quarter in mesh—that is, with approximately 25 mmF in circuit.

This transmitter has been thoroughly tested over a period of six months and during this time 273 stations have been contacted in 18 countries, using 7 Mc. In addition to those in nearer European countries, stations have been worked in FS, HB, LA, LX, LY, OZ and SM, and the consistency and reliability of the transmitter have been outstanding.

EI4P has removed to 147 Tyrconnell Park, Inchicore, Dublin, Eire.

G4DA has been QRT since March 3, and will be so until the end of this month; and regrets he cannot answer numerous cards reporting transmissions between these dates!

VALUES AND LIST OF PARTS.

C1, C5—100 mmF Premier, Tro. 100.
 C2, C4—.002 mF Raymart ceramic cased.
 C6—.0001 mF Raymart ceramic cased.
 C6—15 mmF Raymart VC15X; or a neutralising type.
 R1—25000 ohm, 1 watt.
 R2—10000 ohm, 1 watt.
 Valves, two Hivac PX230SW.
 Two 4-pin holders, Eddystone 949.
 Two closed-circuit jacks.
 Two plugs (for key and meter).
 QCC crystal, and holder.
 Two flexible couplers, Eddystone 1009. Two ¼-in. diam. spindles. Two large black knobs, Premier. Smaller knob, slotted. Four pillar insulators, Raymart SP. Feed-through bushes, Raymart FTL. Three feed-through insulators, Premier 1831. RF chokes, Premier; Raymart pie-wound. Fuseholder and 60 mA fuse-bulb. On-off switch, Bulgin. Coils and crystal-holder base, Denco. Sockets. Wood for chassis. Screws. 2 BA stud-ding. Two metal brackets (home-made). Two bakelite or ebonite slips for mounting jacks. 16 SWG enamelled copper wire. Flex. Wander-plugs. Spade tags.

The Month's Club News

By S. W. CLARK, 2AMW (Assistant Editor)

WITH THIRTY-ONE clubs (societies, associations, leagues, etc.) reporting this month, once again we have to plead "pressure on space" for much of the terseness; however, we cannot take all the blame as often the member responsible for publicity is sparing with the story, and sometimes the reader interest is insufficient. No names, and if anyone stays out next month the rest can put two and two together!

On the opposite page appears a selection from the large number of field-day photographs which have come in recently; we are always very pleased to have them, but would particularly request the senders clearly to identify each one on the back and give all relevant information, adding that we would like to have further photographs of all outdoor events and portable activity.

● Pinner and Sidcup

There must have been some very keen publicity work in G2KA's locality, as he tells us that the PINNER and District Radio and Television Society has 23 members ready to appear at the first meeting. We hope that these and many more will attend the second on Aug. 8 at 419 Rayners Lane, and every succeeding fortnight. The invitation to attend is open to anyone interested in SW Radio or Television.

Five miles from the new Bromley club SIDCUP and District Radio Society are daring the fates. The meetings here are weekly and other details will soon be forthcoming.

● VE, VS, VU

A visitor to the ALDERSHOT Society's July 7 meeting was Mr. Law, of the Toronto SW Club, who described the working of Canadian organisations. G4FR, a most enthusiastic member, is now on his way to India where he will operate under VU2KK, 'phone and CW, with anything from 100 to 200 watts carrier. Three AAs have been received, one to YL 2HJC. The meeting congratulated G6XM upon his 56 Mc efforts, mentioned in the MAGAZINE last month.

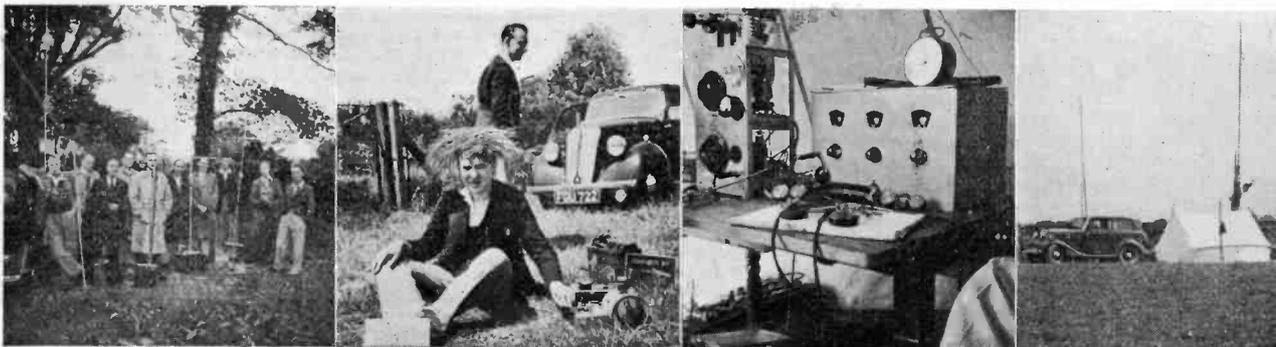
WEST HERTS Amateur Radio Society have heard all about conditions in Hong Kong from a late member, now VS6DG. His transmitter is a happy hunting ground for beetles and "bugs" and constructional work is difficult—tools have to be coated with oil each night to prevent rusting. Individual interest lies in 2FRH's full call, G2MI's "massive" new modulator (why the quoted word?), and G4BS's complete re-build.

● New Headquarters and Calls

Now that ASHTON-UNDER-LYNE Society are comfortably settled at 17a, Oldham Road (near the Free Library) meetings will be held every Wednesday, and when you look round the room at the stove, benches and chairs ask G6DV to tell the story of their collection at bargain prices! An aerial is to be raised to complete immediate plans. G3BY, G3FF, G3PM, G5PX and 2BBV have been elected officers.



Left to right:—(1) General view of G2INP, Marshside, Southport, on 3.5 Mc.; (2) The crew on G2INP, Southport. Unfortunately we have no key by which to name them; (3) The Aldershot outing, with G6XMP and a CO-FD-PA transmitter on 7 and 14 Mc.



Left to right:—(1) Edgware's 56 Mc outing on July 2. G4KD, Chairman E.S.W.S., on extreme right; (2) G6PM, straw on his head to keep the sun off, works G6ZOP at $\frac{1}{2}$ -mile range on a decimal of a watt; (3) Close-up of G6ZOP, Mote Mount Park, Mill Hill. Five continents were worked on 14 Mc with tritet-PA and 0-V-1; (4) The lone camp of G6GMP, Holsworthy, N. Devon (3.5 Mc.)



Left to right:—(1) G8AB, G4BZ, G2CD and G2XP in front of 3.5 Mc portable G8ABP at Tye Green, Essex; (2) Inside G2RCP at Westerham, Kent, on 14 Mc.; (3) A 1.7 portable with G3ZJ and G2JK officiating.

Call G4LR has been allotted to the BLYTH Club, the station being situated at 32, Coomassie Road (see "New QRAs" for QSL'ing).

ROMFORD have a full and portable licence (G4KF). It seems that the additional letter will be in demand, as recent reports show much field activity, the last being a direction-finding event at Welwyn where 2CWF won further laurels. The members congratulate their blind member on attaining AA. The coming Bank Holiday will find the Society assisting at the Red Triangle Fête once again.

● Outdoor Work

A 56 Mc transmitter is to be operated on Rivington Pike, 1192-ft. above sea level, on August 26 by the BOLTON Radio Society. G6PO has applied

for the portable permit, while 2ABT (QRA p. 35) would welcome schedules for the occasion from any 56 Mc transmitters. There will be a variety of receivers scattered round, but the main object will be to try for DX. A very warm welcome awaits those interested in joining the club, as well as for casual visitors to the district, who will find HQ at 1, Moorfield Grove open every Tuesday; a card first will help to make the welcome complete. Licence figures are: 2 Full, 8 AA, 3 transitional.

The Aether Patrol Club of EAST GRINSTEAD, disgusted at the poor response to the offer to report transmissions, are taking themselves off to such places as Ashdown Forest for experiment. They make a full week-end of these outings, sleeping under canvas. The first G is expected shortly.

A fair attendance marked GRAVESEND's 56 Mc field day on a recent Sunday, but results were

apparently rather negative. More members are wanted.

With GM3NK and GM3PB at Glasgow and Kilmarnock respectively, other members provided the outside staff for KILMARNOCK's interesting field experiments. Fifteen visitors from the Glasgow club assisted and considering GM3NK's 1.5 watts used for the occasion results were gratifying. A grand tea finished off the joint meeting.

A 56 Mc field day under the THORNTON HEATH flag proved very successful on July 9, G2DP and G2RD operating transmitters. It is hoped to try direction-finding in the autumn. No meetings will be held during this month, September 12 being the first after the holiday break.

● An Error . . . or was it?

When we gave the news last month that LIVERPOOL now had its first club we little thought the statement would be challenged. However, if the City claims Bootle as an amenity (five miles away, according to our map) then we accept and are consoled by the thought that the next paragraph would not otherwise have materialised, also noting that the best relations exist between the two clubs. Calls are gradually accruing to the Liverpool members; two of the four AA's should by now have joined G4BM, who has been busy re-building a larger rig after a spell on 7 Mc QRP. 2AZV's interest lies in 56 Mc aeriels, to some success.

Now for notes from the North Liverpool fraternity known as The MERSEYSIDE Amateur Transmitting Club, with headquarters at Bootle! We apologise to them for the oversight and hope that the co-operation sought with their neighbours will be of mutual benefit. There are four full calls and seven AAs among the membership, the club rooms being licensed under 2HHP. If any firm would care to demonstrate, lecture or supply literature to the Society the organising secretary, C. E. Cunliffe, would be pleased to make arrangements on receipt of suggestions addressed to 368 Stanley Road, Bootle, Liverpool, 20.

● Mostly Constructional

A Jones "Super Gainer" with pre-selector is being built for general use by members of the PECKHAM Club; 2CKW and 2HBQ are experimenting with battery transmitters and although fair results have been attained better are expected after a clean up. 2FKZ's recording work is being advanced by construction of new amplifiers and power packs. Meantime the secretary has been holidaying down Devon way, when he called on G2CF to see how 400 volts are obtained from a paraffin engine (see June "Other Man's Station").

Useful data on image rejection has been obtained by members of the REDDITCH Transmitting Society during recent weeks, and there is keen individual activity in various fields: 2HHH is making a new receiver and transmitter; 2FWS is testing grid bias modulation; final touches are being put to a 6L6 CO/46 PA by 2FTY; 2BPC, living in the country, has no mains, so is QRP with batteries but, as G3WD says, "no mains—no QRM!"

Since the WOODFORD and District Radio Society's first notes appeared last month numbers have been creeping up with the result that more spacious accommodation is contemplated. It has been decided that their receiver shall be an 0-v-1, which is to be built and coupled to the LF input of a BC

receiver loaned by the president. Morse practice is an important part of the weekly meeting, though with newcomers at each session it is difficult to settle down to even progress. Will applicants for details of membership please send an S.A.E. when writing to the secretary.

● BSWL and ISWC Notes

On Saturday, August 26, a party of British Short-Wave League members are touring Radiolympia, commencing at the Wingrove & Rogers Stand at 2 o'clock, calling back to this point again at 3.30 to pick up any late arrivals. 2CUB will be there to cement friendships that were made through the post, also to greet any reader of the MAGAZINE who cares to join the hikers. The latest scheme of the BSWL, known as "The Country Club," is attracting many applications for the various certificates, ranging from "Denarian" (10 countries verified) to "Nonagenarian" (90). Then there are the VBE and HAC certificates, while among other facilities for members are the Transmitting Section, conducted by G3MI, QSL Bureau and QRA Service.

Although the direction of the International Short-Wave Club is in America members have a live representative in England; Mr. Bear tells us that his organisation exists to assist the SWL to get the best out of short-wave radio by providing him with the latest news of BC stations, answering queries and augmenting these endeavours by meetings at various "Chapters." The latest issue of the ISWC booklet certainly is worth writing for if one is interested in BC listening (a postcard to the QRA on page 35 is sufficient). The London Chapter also caters for the transmitter, a station having been set up at the R.A.C.S. Hall, Cavendish Grove, S.W.8 (near Vauxhall Station).

● 56 Mc Activity

Volume 2 of the EDGWARE SW Society's magazine has commenced with a fine issue, not so much technical as really funny. One of the more serious articles deals with experiences during the DF trial of July 2. Five receiver groups tried unsuccessfully to locate the 56 Mc transmitter; the reason was apparently that signals were so strong that there was no well-defined minimum on the loops. The other conclusion reached was that Edgware will have some more of these field days. A lively crowd, these chaps, and if it was not for hurting the susceptibilities of some of our readers we would quote one of the parodies, part of which reads "Thou shalt love the ham that squalls all over thy frequency even as thou dost over his'n," to say nothing of "Thou shalt not take more than six dots for the letter H."

Those who attended the WATFORD Society's July 17 meeting learned quite a lot about straight v. superhet 56 Mc technique from demonstrations by G3NR and G5RD; the latter, who favours straight reception, also put his portable CC five-metre transmitter through a test. G3NR makes them two-all by giving a C.W.R. talk on Aug 21 at the Carlton Tea Rooms, 77a, Queens Road, at 8 p.m.

The WEYMOUTH Club are asking for reports on their 56 Mc signals. In co-operation with G5XR, members are taking a very active interest in the band and hope for good things. The Admiralty Wireless Station at Portland Bill has been visited, and the next outing will be to Radiolympia.

● Miscellany

With eight inches of space left and W4CYU coming in strong (guess the time) we are sorry to have to condense the following reports. The Bank Holiday clashes with the BRISTOL Club's earlier fixture list, therefore the August date has been altered to the 15th, when field-strength meters and frequency-measuring instruments will be subjects of a talk. G3YT has demonstrated his transmitter to members, whose Librarian, by the way, is keen to accept any books no longer of use to readers.

Valve characteristics, explained by curves, were thoroughly dealt with by S. N. Thorpe, A.M.I.R.E., at a recent EASTBOURNE meeting. Early types showed unusual plottings, and the screen-grid kink was also explained.

Listening periods are still maintained at ENFIELD, taking equal place with Morse practice. The Society sends greetings to their Hon. Life Members who have left the district. 2DVL (secretary) has sent us a photograph of the transmitter that has now come to be regarded as club property; the station is British and, as will be seen next month, is a credit to them.

Among the members of NEWBURY are a fair sprinkling of photographers, for a recent competition drew 22 entries of pictorial records of SW gear, the adjudicator being a professional whose task gave him plenty to think about. Our Set Listening Periods are used by the club for DX competition.

More reports wanted! SCARBOROUGH SW Society (G4BP) operate regularly on 7 and 14 Mc CW and although the countries total is rising still seek home co-operation. G6TG also wants SWL support, but is more optimistic, though readers in the Antipodes may eventually ask for a 56 Mc card!

SLOUGH SW Club are determined to master Morse and with the able help of G3XH and G6PR it looks as if they will shortly succeed; they take the course seriously and have even spent the whole evening receiving. Transmitters of 25 years ago have been explained by G3GZ, who was able to demonstrate some of the early equipment.

A good attendance of members heard the president (G2LM) of SOUTHPORT Amateur Transmitters' Association explain fully the theory of "Q" as applied to tank circuits, with resultant good resolutions. Brief individual notes: G6YR still struggling with that superhet; G2IN has his 28 Mc W8JK on; G5KX is WAC and WBE; G4CF is WAC and will shortly be at sea as an "op"; G4DF has worked PK, VU, W1, 2, 3, 4 and 6, KA with an input of 7 watts. Zepp aeriels are the rage at the moment, with G8DQ (dipole) and G2ZU (134 ft. end-on) watching.

"Construction, Calibration and the Use of Frequency Measuring Apparatus" was the title of an instructive talk and demonstration given by G5GQ at the SURREY Radio Contact Club's July meeting. G3IG's superhet was used to show the accurate checking obtainable. There will be no meeting during this month.

Thanks, WILLESSEN for making your notes snappy, so that we can wind up by being still more brief: August meetings are 2nd, 16th and 30th. G8KZ exhibited Hamrad Wholesale Products on July 5; 2FTD has been visiting hams on holiday at Portsmouth; 2ATV is waiting on the G.P.O. for a full call.

And so, happy holidays all, and good-morning!

Further information regarding any of these societies may be had from the officials concerned, whose addresses appear below.

- ALDERSHOT—Miss G. Bird, 2HJC, or A. E. Redman, Dormans Cottage, Mavins Road, Farnham, Surrey.
 ASHTON-UNDER-LYNE—K. Gooding, G3PM, 7, Broadbent Avenue, Ashton-under-Lyne.
 BLYTH—B. Brown, 29, Single Row, So. Newsham, Blyth.
 BOLTON—N. Moorcroft, 2ABT, 218, Deane Road, Bolton.
 BRISTOL—D. James, 40, Robertson Road, Bristol, 5.
 BRITISH SHORT-WAVE LEAGUE—F. A. Beane, 2CUB, Ridgewell, Halstead, Essex.
 EASTBOURNE—T. G. R. Dowsett, 48 Grove Road, Eastbourne, Sussex.
 EAST GRINSTEAD—E. G. Cooper, "The Alders," Hackendon, East Grinstead, Sussex.
 EDGWARE—F. Bell, G4JU, 118, Colin Crescent, Edgware, Middlesex.
 ENFIELD—N. H. Hyde, 2DVL, 20, Shaw Road, Enfield.
 GRAVESEND—R. S. Martin, G2IZ, 41 Mayfield Road, Gravesend.
 INTERNATIONAL SW CLUB—A. E. Bear, 100, Adams Gardens Estate, London, S.E.16.
 KILMARNOCK—K. Law, 2, Parkerston Terrace, Dunlop, Kilmarnock.
 LIVERPOOL—L. Frank, 2FIO, 4, West Albert Park, Liverpool. Phone: Lark Lane 2874.
 MERSEYSIDE—E. C. Wright, 22, Beech Grove, Liverpool, 10.
 NEWBURY—L. Harden, 44, Chandos Road, Newbury.
 PECKHAM—L. J. Orange, 11 Grenards Road, Peckham, S.E.15.
 PINNER—J. F. A. Lavender, G2KA, 53, Ivy Close, South Harrow.
 REDDITCH—A. J. Ward, G3WD, 90, Other Road, Redditch.
 ROMFORD—R. Beardow, G3FT, 3, Geneva Gardens, Chadwell Heath. Phone Seven Kings 5393.
 SCARBOROUGH—P. B. Briscombe, 48, Fieldside, Scarborough.
 SIDCUP—G. V. Haylock, 2DHV, 28, Longlands Road, Sidcup.
 SLOUGH—K. A. Sly, 16, Buckland Avenue, Slough.
 SOUTHPORT—R. W. Rogers, G6YR, 21, Chester Avenue, Southport.
 SURREY—S. A. Morley, 22, Old Farleigh Road, Selsdon, Surrey.
 THORNTON HEATH—R. E. Dabbs, G2RD, 4, Nutfield Road, Thornton Heath.
 WATFORD—P. C. Spencer, G8MH, 11, Nightingale Road, Bushey, Herts.
 WEST HERTS—A. W. Birt, G3NR, 6, Hempstead Road, Kings Langley, Herts.
 WEYMOUTH—E. Kestin, G3ZL, 55, St. Mary Street, Weymouth.
 WILLESSEN—G. H. Talbot, 2FTD, 46, Snaresbrook Drive, Stanmore, Edgware 3746.
 WOODFORD—R. A. Ledgerton, 2ABC, 64, High Road, Woodford Bridge, Essex.

NEW AMATEUR CALLS

Home and Overseas readers are invited to send in new Calls as issued for inclusion under this heading.

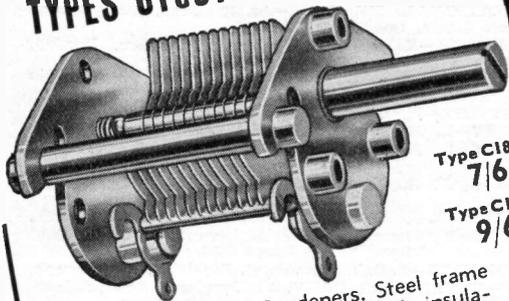
- G3RY—J. E. Thomson, 16, Conistin Road, South Reddish, Stockport, Cheshire.
 G4BM—J. D. Siddall, 93, Allington Street, Liverpool, 17.
 G4GA—Joseph J. Hollington, 1, Templeton Avenue, South Chingford, E.4.
 G4GN—V. Richardson, 25, Devonshire Way, Shirley, Croydon, Surrey.
 G4IJ—E. G. Dyer, 25, Annerley Road, Bournemouth, Hants.
 G4KF—Romford & District Amateur Radio Society, 3, Geneva Gardens, Chadwell Heath, Romford, Essex.
 GW4KP—F. T. Shortridge, 5, York Road, Llandudno, N. Wales.
 G4LQ—H. J. Barlow, 8, Harton Avenue, Gorton, Manchester.
 G4LR—Blyth & District Radio Club; Op.: G. Purvis, 18, Chamberlain Street, Blyth.
 G4LY—W. B. Martin, 58, Sandford Road, Mapperley, Nottingham.
 G4NX—A. W. Ryley, 135, Hollywood Lane, Hollywood, Birmingham.
 GW4NZ—S. Roberts, 29, Chestnut Road, Cimla, Neath, Glam.
 GW4OH—G. D. Gledhill, The Marlborough Hotel, Prince Edward Square, South Parade, Llandudno, N. Wales.
 G5BH (ex-2DT)—Michael H. Coleman, 55, Dafforne Road, London, S.W.17.
 VU2BM—H. Baker, Dett "A" Corps Signals, Mir Ali, Waziristan, N.W. India.

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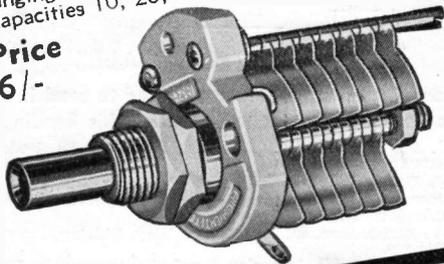
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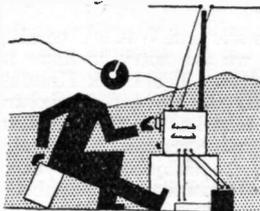
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- Howard 438. 8 tubes, 8-550 metres, crystal filter ... £9 19 6
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THE DENCO 1939/40 range includes several new components, receivers, etc., but at the time of going to Press illustrations were not ready. Readers are therefore invited to write for OUR NEW CATALOGUE, which will give full details (ready end of August, 1939). Enclose 1½d. stamp.

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FREQUENCY



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Telephone: Malden 0331.

CQ Radio Amateurs . .

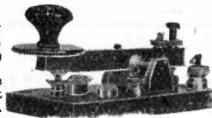
- Ceramic Short Wave Variable Condensers.** 15mmfd 1/4, 40mmfd 1/7, 100mmfd 1/10, 160mmfd 2/3, 250 mmfd 2/6. Heavy Duty transmitting type, 15mmfd 2/9, 40mmfd 3/6.
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- Mains Transformers.** 350-0-350, 5v and 6.3v, 80mA, 8/6, 120mA 12/6; 550-0-550v, 200mA, 6.3v4A, 5v3A, 25/-; 750-0-750v 200mA, tapped 650-0-650v for HY25. T20, RK10's, etc., 25/-; 400-0-400v, 150mA, 6.3v3A C.T., 5v3A, 19/6; 440-0-440v, 200mA, 6.3v3A C.T., 5v3A, 25/-.
- Universal Filament Transformer,** 6.3v 3A, 5v 3A, 2.5v 3A, 15/-.
- Chokes.** 15Hy 250 ohms 60mA 1/11, 20Hy 500 ohms 100mA 4/11, 15Hy 200 ohms 200mA 8/6. Swinging Chokes, 5-15Hy 125 ohms 250mA 12/6.
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R.A.F. Type 7/6.

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First-grade American and British type Valves, all types. Ken-rad, Triotron, Hi-test, etc. Special reduced prices to Amateurs - From 2/6.

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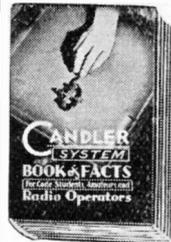
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CHASSIS, PANELS AND CABINETS manufactured to your requirements in any metal and finish. Send for lists.—THE UNIVERSAL PRODUCTIONS, Rigby La., Bromsrove, Worcs.

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AC/DC 10-watt TX complete, valves, key, less Xtal, £3. PC first to 2CUV, Eberly Dairy, Newport, Barnstaple, Devon.

VALVES.—PX25, 5s.; ACO44, 3s. 6d.; 210, 3s.; or 10s. the lot.—G2LT, 2, Harbor Road, Sheffield, 8.

RX PARTS, cheap; also all-wave coil and split-stator condenser. Send card for particulars.—2DFX, 5, N. Parade Terrace, Monmouth, Mon.

"SKYRIDER," Hallicrafters 1937. Xtal gate, good as new, £15 or nearest cash offer.—G3PO, 342, Franklin Road, Birmingham, 30.

LISSEN Hypernik (1:1) or Varley Quip (7:1) Class-B input trans, 2s. 6d.; 24a, 27, 6a7, 45, 210SPT, SG2, 1s. 3d. each.—2BTF, 110 Foresters Dr., Walling'tn, Sy.

SW Receiver (0-v-1), b'spread, Eddy-stone components, valves, 9-94m. coils, AC eliminator, 'phones; ex. cond., 55s. Holt, 140 Shardlow Rd., Alvaston, Derby
POWER Xtal (7 Mc), enclosed holder, 10s. 6d.; DC Avo, 37s. 6d.; PX4, 2s. 6d.; 6A6, 1s. 9d. Stamp for list to E. Hall, nr. P.O. Hawley, Camberley, Surrey.
SW RX Gear.—Stamp for list.—R. F. Cashmore, Ipsley Cottage, Arrowdale, Road, Redditch, Worcs.

TUBES.—Types 32, 33, 2s. 6d. each; Callbook (Spring 1938), 3s. 6d.—BRS-3567, "The Dorolds," Boundary Road, West Kirby, Cheshire.

3-VALVE Ferranti Battery receiver (late 1937), complete with 3 pens, MC spkr, cabinet. Ex. condition, 60s.—Holt, 140 Shardlow Rd., Alvaston, Derby
5-VALVE Super, 12-80 metres, complete with valves, £3 10s. PC first to 2CUV, Eberly Dairy, Newport, Barnstaple, Devon.

THREE SW Chassis (2 3-valvers and 1 4-valver), with valves, 10s. each.—J. Longley, 43, Bellfield Avenue, Hull.

WEARITE Triogen coils, pair with switch selector, all-wave, 10s., cost double.—Coates, 5, Park Terrace, Whitby, Yorks.

ROTARY Converter, 6v DC input, 350v 75mA output, perfect condition, bargain 50s.—G4KF, 3, Geneva Gardens, Chadwell Heath.

EDDYSTONE "Homelander," 4-valve SW crackle cabinet, MC spkr, 4 plug-in coils, new batteries, £6 10s.—Fox, G3MB, Market Place, Thirsk.

POWER Pack, 375 or 500v, 150mA, Woden transformers and chokes, rack-and-panel.—SAE full details, 2AAS, Wong, Horncastle.

240B and base (hardly used); PM1HF; Eddy-stone 4-pin G coil; Igranig midget 3:1 trans.—R. C. Steel, Hoogate, Woodbridge, Suffolk.

GRAMOPHONE— or Speech-amplifier, MH4, MH4, PX4, rect; 2 inputs, choke filter output, metal chassis, 27s. 6d.—2BTF, 110 Foresters Dr., Walling'tn, Sy.

PIONEER Gen-e motor, 12v input, 285v 60mA output, £1, cost £3 15s., perfect.—Coates, 5 Park Terrace, Whitby, Yorks.

QUERY COUPON

S.-W.M. 8/39

- 1 Advertisements must be accompanied by 6d. in stamps or P.O. made payable to "The Short-Wave Magazine, Ltd." and crossed.
- 2 A maximum of four lines only will be allowed, including name and address
- 3 Trade and Box Number advertisements cannot be accepted.
- 4 We reserve the right to refuse any advertisement.
- 5 We cannot act as an intermediary for an advertiser in this section.
- 6 We cannot accept responsibility for any errors or omissions in advertisements appearing on this page.
- 7 Advertisements must reach this office not later than the 15th of the month preceding the month of issue.

AC Chassis (3-valve), complete valves, working order, 10s, 2 Plessey 7in. electro-dynamic spkrs, new, 5s. 6d. each.—Holt, 140 Shardlow Rd., Alvaston, Derby
REGENTONE AC mains eliminator, cost 35s. 6d., what offers? Wanted—Call Book.—Hamson, 20, Naseby Street, Liverpool, 4.

WB Midget chassis speaker, type 38M, 12s. 6d.; Ekco eliminator, AC12, 10s.—H. White, 39, Trent Street, Retford, Notts.

B.T.H. Electric 'gram, AC motor with turntable, excellent condition, 12s. 6d. and post.—A. N. Brown, 1, Church Road, Penmaenmawr, N. Wales.

3-valve b'spd. RX, coils, 9-94m, 27s. 6d.; 17 "S.T." Camm prints, 7s.; 2 prs. 'phones, 5s.—T. Dumayne, 65, Gaer Pk. Avenue, Newport, Mon.

114 "Wireless Worlds," Oct. 1936 to Dec. 1938, 25s., good cond.; 30 Yank Radio mags, 7s. 6d.—J. Longley, 43, Bellfield Avenue, Hull.

CARBON Mike (McCarthy), chromium stand, 12s. 6d.; West Elec. cond. mike, pre-amp, 37s. 6d.; ST800, 37s. 6d.—2BTF, 110, Foresters Dr., Wallington, Surrey.

BULGIN 6v Vibrator Unit, complete with smoothing, output 200v 50mA, used 10 hours only, 25s.—G4KF, 3, Geneva Gardens, Chadwell Heath.

FERRANTI moving coil voltmeter, 0-300v, 1000 ohms per volt, BSI, as new, 20s.—F. Cooper, 19, Rectory Avenue, Prestwich, Manchester.

PREMIER 1938 AC/DC SW 3v receiver, b'spd, complete with coils and valves, April 1939, £3 or near offer.—2FWB, The Parsonage, Compton, Berks.

"S-W Mag" Amateur Three, built by Scott-Sessions. All valves and coils (9-190m). Best offer, owner abroad.—BRS3277, "Kilworth," Maresfield, Sussex.

AA going QRT. Modern gear for disposal, no reasonable offer refused. List from 2CJW, 7, Bonnywell Road, Leigh, Lancs.

PETO-SCOTT 4v SW battery receiver, complete coils, cabinet, acc., etc. 6 months old. Accept £4 10s.—Jessop, 18, Queen Street, Seaton, W. Hartlepool.

Q.C.C. £1 power-type Crystal (7170kc), perfect cond., with calibration certificate, 10s.—Stanborough, 6, Morston Avenue, Blackpool.

1939 "Sky Buddy," 2 months old, perfect cond., £7 carriage paid.—F. Cook, 25, Victoria Road, Great Yarmouth.

INVALID nearly QRT still has few SW items on money-back guarantee; RX, etc. Stamp for list.—2DZZ, Fivehead, Taunton.

OSRAM batt. triode-hex type X23, 1 hour's use, 5s.; 2 Hivac VP215 (10 hours) 4s. 6d. ea. (or exch TX gear)—BSWL-1083, 19, Astley Road, Birmingham, 21.

POWER Packs, transformers, chokes, tubes, modulators, etc. Stamp for list.—G4LO, Lancaster Cottages, Northwold, Thetford, Norfolk.

3-VALVE AC/DC, 450-15 metres, 5 bands, with 'phones; new valves and smoothing, 50s., v. gd cond.—J. Longley 43, Bellfield Avenue, Hull.

TX Gear: power packs, meters, amplifiers, transf, coils, valves, etc.—Call or write G2YZ, 11, Hill Crescent, Bexley, Kent.

EXCHANGE

"Q.S.T." and "S-W.M." from Jan. to June, as new; also Hivac Z220, perfect; Kodak Hawkeye camera, Or sell.—A. R. Wood, School Street, Drayton, Daventry.

4-VALVE portadune battery portable, valves, med. and long waves. New first grade 76 tube. Or sell.—Offers to 2DJA, 137, Randall Av., Cricklewood, London.

1 to 4-VALVE Peto-Scott SW kit with eliminator and FB speaker; for broadcast RX, or 30s., or 7.—H. T. B., 3, Hingeston Street, Birmingham, 18.

HALLICRAFTERS "Sky Buddy," hardly used. Consider exch. for car radio or sell for £6 10s.—Woodbine, 10, Westbury Road, Regents Park, Southampton.

LARGE Speaker with rect., wants spider; Pye port; Ekco AC4 and rect; new DPT's, DHD's. TX gear wanted.—Young, Nightingale Gv., Southampton.

B.T.H. 200-250v AC radiogram motor, perfect; for 500v trans. with 6.3 LT's, or sell.—2BKS, 11, Chesham Road, Kingston, Surrey.

No. "S-W.M." & other radio mags; BCL gear; 2 DC, 1 AC elim.; FB transceiver; 3 cabinets. Or sell, offers to Bothwell, Stapleton Place, Dundalk, Eire.

EKCO and Regentone eliminators; 0-1.5 hot-wire ammeter.—Offers to 2DJA, 137, Randall Avenue, Cricklewood, London.

MILNES 120v Unit, perfect. Exchange for 40m Xtal or high-grade m'meter, or offers.—Hollingsworth, Hartshorne Road, Woodville, Burton-on-Trent.

BUG Key & 'phones wanted for Comm. SW Converter (5-100), or Eddystone Pre-selector.—GW3J1, 1, Victoria Street, Llandudno, N. Wales.

WANTED

TRANSV. or carbon mike, transf. stand; 4 Eddystone 1022; 1:1 transf.; 7-pin ceramic VHS; 3 4mF electrolytics.—Bothwell, Stapleton Pl., Dundalk, Eire

CHEAP 7/14 Mc Oscillator or 7 Mc Crystal. For cash or exchange.—Landauer, Oak Farm, Leigh, nr. Reigate, Surrey.

350v 150mA Power Pack with 6.3v LT; also MC Meter, 0-100mils.—Price and particulars to 2FDP, 37, Trumpet Road, Cleator, Cumberland.

10-15 watt commercial TX, state input; also S meter for Sky Champion; aerial meter, R meter.—Robin Hood, Catsfield, Battle, Sussex.

EDDYSTONE 1034 cabinet and J.B. SW Airplane dial.—Holden, 27, Blamires Street, Bradford.

TROPHY 3 AC RX. Must be good cond. Nearest offer to £2 accepted.—D. Hay, 24a, Watcombe Road, Bournemouth.

1939 Callbook, back Nos. "S-WM" up to June, 1939, small DC amplifier (230v.) for cash.—D. Crampton, 35, York Road, Southport.

5-METRE commercial aerial with co-axial or concentric cable.—Robin Hood, Catsfield, Battle, Sussex.

CHEAP Morse Key for practice. Cash.—2CSX, "The Sheiling," Llandegfan, Anglesey.

SHORT-WAVE BROADCASTING STATIONS

Abbreviations: S—Sunday; M—Monday; T—Tuesday; W—Wednesday; Th—Thursday; F—Friday; Sa—Saturday
All times BST, twenty-four hour system

M.	KC.	M.	KC.	M.	KC.	M.	KC.	M.	KC.	
5.00	59890	34.68	8650	HJADAU, Medellin, unknown	48.59	6174	XEXA, Mexico City, 1530-1730, 2130-2330, 0600-0700	49.94	6007	XYZ, Rangoon, afternoons until 1000
5.30	56020	34.97	8580	VNPK, Managua, 1900-2230	48.7	6165	TILS, San Jose, 1800-2000, 0500-0500	49.94	6007	ZRFH, Johannesburg, week-days 0645-0650, 1530-2130, S 1440-1800, 1815-2115
10.00	29990	38.00	7854	HCSJB, Guayaquil, 2345-0245	46.78	6150	H15N, Moca City, 1240-1440, 1640-2040, 2240-0240	49.96	6005	HF5K, Colon, 1300-1500, 1730-1900, 0400-0500
10.71	28010	39.40	7614	C66AA, Lobito, M, W and Sa 2045-2245	45.78	6150	CJO, Winnipeg, S 2100-0400 (M), weekdays 0000-0500	49.96	6005	CFCX, Montreal, 1500-0515
20.83	14395	40.30	7445	FC8AA, "Radio Guadeloupe," Point-a-Pitre, 0000-0115	46.82	6145	HJADAE, Medellin, 1530-1900, 2300-0530	50.00	6000	ZTC, Cape Town, evenings
21.43	14065	40.63	7380	XECK, Mexico City, M 0100-0200	48.86	6140	SH48, Warsaw, 1945-2230	50.00	6000	XERT, Mexico City, 1000-0640
31.25	9000	41.12	7285	7 Mc AMATEUR BAND, with European Broadcasting 7200, 7300 kc.	48.86	6140	W8XK, Pittsburgh, 0500-0700	50.17	5980	CSEWD, Lisbon, evenings
31.36	9565	42.83	7005	7 Mc AMATEUR BAND, with European Broadcasting 7200, 7300 kc.	49.87	6137	CR7AA, Lourenco Marques, 1900-2200	50.25	5970	HJADAD, Medellin, 0200-0530
31.37	9560	44.21	7280	TPBII, Paris-Mondial, 0230-0500, 1615-1845, 1900-2315	48.94	6130	CHNY, Halifax, Sa 1400-0530	50.51	5940	TC2X, Guatemala City, 0200-0400, S 0500-0700
31.38	9560	44.31	6780	H11H, San Pedro de Macoris, 1840-1940, 0040-0240	48.94	6130	CHNY, Halifax, Sa 1400-0530	50.51	5940	TC2X, Guatemala City, 0200-0400, S 0500-0700
31.41	9550	44.61	6720	FMII, Bandung, 1030-1700, S 0330-0730, 1030-1700 or 1730	48.94	6130	COCD, Havana, 1400-0600, S 1300-0000	51.06	5875	HRN, Tegucigalpa, 1930-2015, 0130-0400
31.41	9550	44.84	6680	TIEP, San Jose, 2200-0600	48.94	6130	ZHO, Singapore, weekdays 1040-1540, S 1125-1540	51.46	5880	TIGPIT, San Jose, 1900-2000, 0100-0500
31.48	9535	45.25	6650	H145, W 0315-0515	49.01	6122	HP5H, Panama, 0100-0400	59.52	5040	VY5RN, Caracas, 2200-0430, unknown
31.48	9535	45.25	6650	H145, W 0315-0515	49.02	6120	XEUX, Mexico City, 1500-1900, 0000-0730	59.76	5040	VY4RC, Puerto Cabello, unknown
31.48	9535	45.31	6618	"El Prado," Riobamba, F 0300-0500	49.10	6110	GSL, Daventry, discontinued	60.12	4990	VYERX, Barquisimeto, 1500-0400
31.49	9530	45.39	6610	VNLC, Managua, 1830-2030, 0000-0400	49.18	6100	W3XU, Boundbrook, 0300-0600	60.36	4970	VYERJ, Coro, unknown
31.49	9530	45.70	6565	H15P, Puerto Plata, 2340-0140, 0100-0540	49.20	6097	ZRI, Johannesburg, weekdays 0645-0650, 0915-1300, 1500-1730, S 0500-1030, 1200-1300, 1440-1730	60.48	4960	VY5RS, Caracas, 0200-0500
31.49	9530	45.80	6550	TRCO, San Jose, W, F, S 0000-0100, Trujillo M and Sa 1755-1940, S at 1700, M 0200-0300	49.30	6083	VOTLO, Nairobi, M to S 1130-1200, daily 1715-2015, T and Th 1600-1730	60.61	4950	VY4RO, Valencia, 1630-1930, 2230-0530
31.51	9520	46.30	6480	H11L, Santiago, 2340-0340	49.32	6082	OAX3Z, Lima, 0030-0630	60.98	4920	VUM2, Madrid, 1230-1800, 0100-0300
31.51	9520	46.30	6479	H18A, Trujillo, 1440-1640, 2040-2240, S 0310-0440	49.35	6097	DJM, Zeesen, discontinued	61.22	4900	VY6RT, Bolivar, 1630-1800, 0100-0300
31.55	9510	46.51	6450	H14V, San Francisco de Macoris, 1740-1940, 2300-0240	49.35	6097	DJM, Zeesen, discontinued	61.22	4900	VY6RT, Bolivar, 1630-1800, 0100-0300
31.58	9500	46.73	6420	H11S, Santiago de los Caballeros, 1740-1940, 2340-0140	49.42	6070	CFRN, Toronto, 0200-0600	61.35	4890	VY1RX, Maracaibo, 1700-1930, 2200-0540
31.58	9500	46.80	6410	T11P, San Jose, 1300-1530, 1800-2000, 2200-0530	49.42	6070	VY1RD, Maracaibo, 0100-0500	61.48	4880	VY6RT, Bolivar, 1600-1830, 2230-0530
31.58	9500	46.88	6400	TGCA, Quezaltenango, 0300-0500, S until 0700	49.46	6065	SHO, Motula, 2115-2200	61.48	4880	HJADAI, Medellin, 0000-0500
31.59	9465	47.39	6330	C6CWA, Havana, 1255-0530, S 1555-0400 (M), 1730-2100, 2330-2030, 2200-0500	49.50	6063	W3XAL, Philadelphia, S 0500-0700, W, Th, Sa, 0600-0500, W, T, F, 2300-0015	61.60	4860	VY1R2, Bombay, discontinued
32.15	9390	47.77	6280	H11G, Trujillo, 1300-1500, 2140-0240	49.51	6057	ZHI, Singapore, 1240-1440	61.98	4811	HJ3CAU, Bogota, 1500-2000, 0000-0600
32.26	9390	48.05	6243	H11N, Trujillo, 1740-2040, 2250-0310	49.67	6040	W1XAL, Havana, 1825-2355	61.98	4811	HJ3CAU, Bogota, 1500-2000, 0000-0600
32.61	9200	48.11	6255	HRD, La Ceiba, S 2200-0000, weekdays 0200-0500	49.75	6030	W4XB, Miami, 1800-2100, 0300-0600, S 2200-0000, 0300-0600	62.11	4830	VY5RH, Caracas, 1430-1930, 2300-0430
32.88	9125	48.15	6280	OAX4G, Lima, 2300-0500	49.75	6030	W8XAL, Cincinnati, 1045-0200, 5000-0800, S 1300-0100	62.24	4820	VY3RN, Barquisimeto, 1300-1400, 2200-0530
32.97	9100	48.31	6210	VY1RC, Valera, 2330-0530	49.83	6020	DIC, Zeesen, 1730-2225	62.50	4800	VY1RV, Maracaibo, 1145-1515, 1715-1900, 2215-0400
33.00	9091	48.47	6190	HV1, Vatican City, 2000-2100 TC2, Guatemala City, as TC6A, Havana, 1300-0700, S 1255-0530 (M)	49.83	6015	NEUV, Veracruz, 0000-0700	80.43	3730	3.5 Mc AMATEUR BAND, with American amateur 'phone sub-band 3900-4000 kc.
33.32	9030	48.47	6190	TGWA, also S 0600-0700	49.83	6015	HJ3CAX, Bogota, 1700-2000, 0000-0500	85.56	3565	1.7 Mc AMATEUR BAND, with American amateur 'phone sub-band 1800-2000 kc.
33.50	8955	48.47	6190	TGWA, also S 0600-0700	49.92	6010	CICN, Sydney, 1300-1930, 2200-0230	150.4	1995	1.7 Mc AMATEUR BAND, with American amateur 'phone sub-band 1800-2000 kc.
34.00	8825	48.47	6190	TGWA, also S 0600-0700	49.92	6010	PRAB, Pernambuco, 2200-0300	174.4	1720	with American amateur 'phone sub-band 1800-2000 kc.
34.48	8700									(13-31 m BC Stations were given last month)

THE NEW

Hallicrafter Skyrider **DEFIANT**

with
Frequency
Meter Tuning

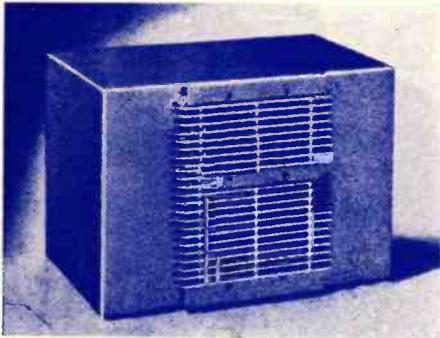
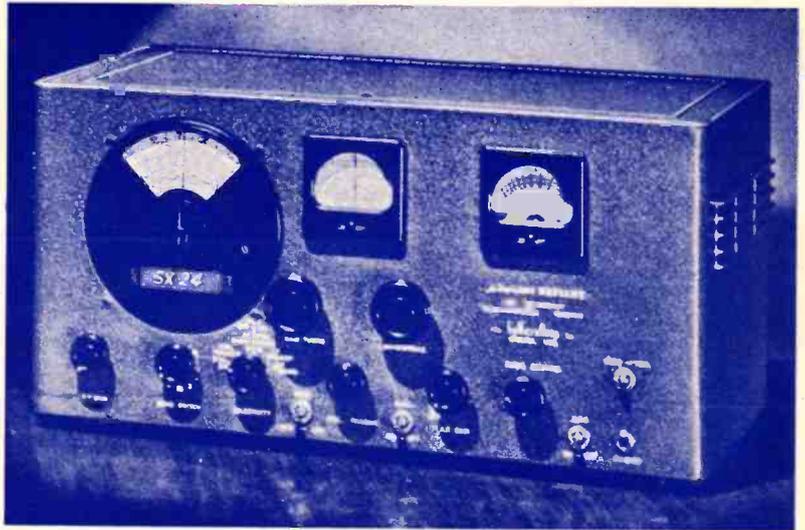
MODEL SX24

£21

Including valves and crystal
but less speaker

110 TO 250 VOLT A.C.
OPERATION

SPEAKER £4



The Skyrider DEFiant offers performance that can be favourably compared to any receiver regardless of price. It has new features, like **BUILT-IN FREQUENCY METER TUNING**, that are absolutely new. And in addition it has all the desirable features and qualities that are needed for outstanding amateur reception.

GENERAL COVERAGE—43.5 to .54 MC (6.8 to 555 m)

4 BAND POSITIONS

Band 1— .54 to 1.73 MC
Band 2—1.7 to 5.1 MC

Band 3— 5.0 to 15.7 MC
Band 4—15.2 to 43.5 MC

BAND SPREAD CALIBRATION

80 Metre Amateur Band
40 Metre Amateur Band

20 Metre Amateur Band
10 Metre Amateur Band

9 VALVES - - - - **5 METER** calibrated in 5 units and DB.

FREQUENCY METER TUNING. The Band Spread Dial is accurately calibrated throughout the amateur bands, and, when once set, maintains a high degree of accuracy throughout the band, bringing in signals on their frequencies as indicated on the dial.

VARIABLE SELECTIVITY. A six position Variable Selectivity Switch is provided, offering a degree of variability suitable to all practical requirements for CW and phone. Selectivity positions are as follows: AVC off—Sharp Crystal, AVC off—Broad Crystal, AVC off—Sharp IF, AVC on—Broad Crystal, AVC on—Sharp IF, AVC on—Broad IF.

FREQUENCY STABILITY. By means of an especially developed circuit, variations in line voltage cause only a barely discernible change in oscillator frequency.

ELECTRICAL BAND SPREAD Directly Calibrated. Translucent Illuminated.

CABINET DIMENSIONS 19½ ins. wide, 9½ ins. high, 10½ ins. deep.

BUILT-IN NOISE LIMITER. The noise-limiting circuit is of recent development, highly efficient in reducing noise level on the ultra high frequencies. All leads are short and close to the noise-limiter valve for greater efficiency.

BREAK-IN RELAY OPERATION. Terminals are provided on the rear panel for stand-by relay operation.

MAIN TUNING DIAL. Directly Calibrated, Translucent Illuminated Dial.

CRYSTAL FILTER. A Bliley Resonator Crystal in a new Hallicrafter low capacity crystal holder with a double balance bridge circuit allows a high degree of rejection of unwanted signal even when interfering signal is closely adjacent.

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(C. WEBB, LTD.)

BIRMINGHAM DEPOT

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