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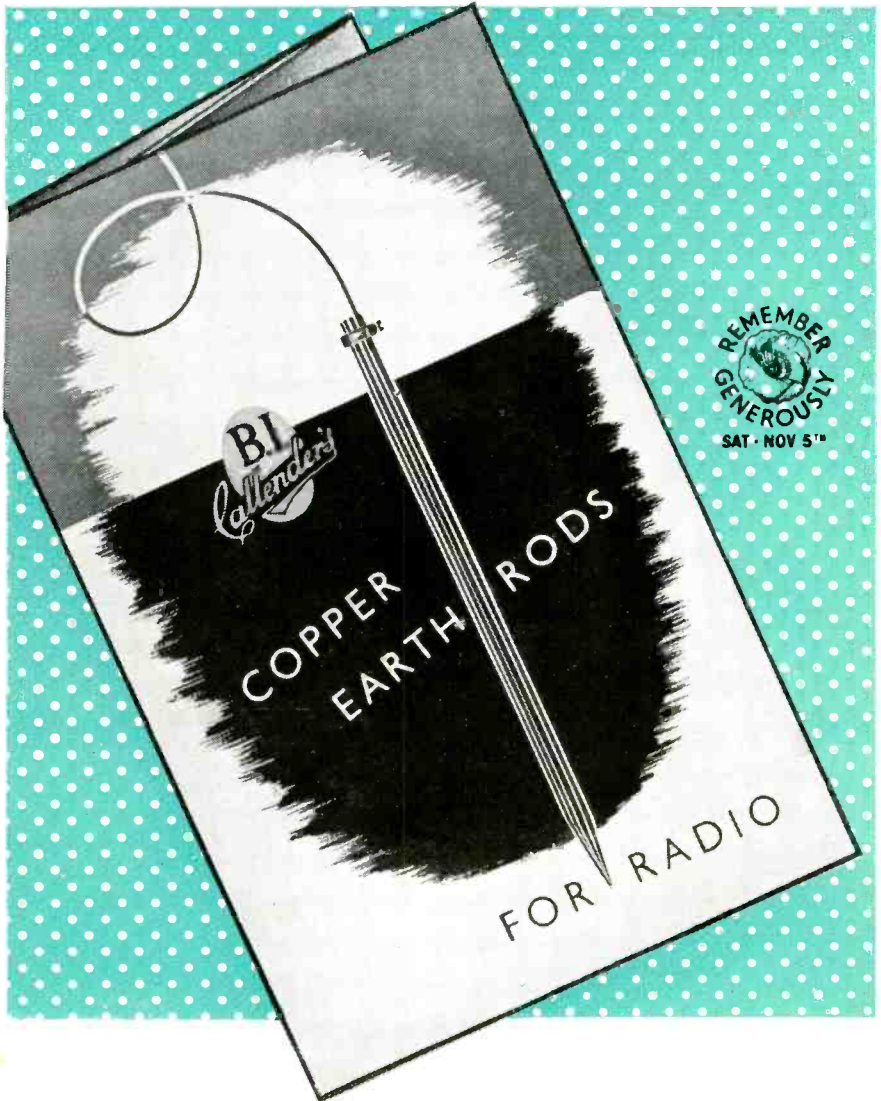
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SHORT WAVE LISTENER



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SHORT WAVE RECEPTION

NOVEMBER 1949
VOLUME 3 • NUMBER 12



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THE **SHORT WAVE** LISTENER

A MONTHLY MAGAZINE FOR THE LISTENING AMATEUR

VOLUME 3

NOVEMBER 1949

NUMBER 36

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interest.

EDITORIAL

Milestone

Once again, the opportunity comes round for a brief survey of the activities of the *Short Wave Listener* and some comment on our intentions for the future—for this issue is No. 12 of Vol. III.

As to the past, we feel that the *Short Wave Listener* has in the last three years consolidated its position as the only journal of its kind in the world. So far as we are able to judge, it is meeting an ever-increasing need and also doing its full share in widening public interest in short wave radio. These have always been important objectives, only to be attained by holding the various phases and aspects of our hobby in the right focus and in proper perspective.

As to the future, while the intention is to keep the general coverage of the *Short Wave Listener* much as it is at present, we hope to be able to introduce further improvements and to widen its scope. In this connection, an important announcement will appear in our next issue—fittingly, the first of a new volume. It is a case of “watch this space !”

No comment on these themes would be complete without an acknowledgment of our grateful thanks to a wide circle of staunch supporters, readers and trade. The *Short Wave Listener* was admittedly an experiment, born in the inspiration of the moment, and this time three years ago we were not at all sure that our experiment would succeed.

That it has is entirely due to the continuing inspiration we derive from the enthusiasm of our readers—new and old, young and not-so-young.

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A COMPANION PUBLICATION TO “THE SHORT WAVE MAGAZINE”—
THE JOURNAL FOR THE RADIO EXPERIMENTER AND TRANSMITTING AMATEUR

Aerials For DX Reception

Some Practical Considerations

PART I

by **THE OLD TIMER**

(The old chap gets down to this matter of aerials and makes it quite clear that "any odd length of wire" just will not do. His reasoning is that since the signal comes in at the front end of the receiver and not on the audio side, the first consideration must be to make the aerial as good as it can be—a simple truth so often forgotten.—Ed.)

IT is rather a platitude to describe the receiving aerial as the most neglected link in the SWL's chain, because many listeners, by force of circumstances, have to be content with an indoor length of wire which may be far from the kind of aerial they would like to have.

Nevertheless, even if one works under difficulties (including lodgings and landladies) one may as well get the best out of what one has, and so I propose to discuss receiving aerials without assuming that it is possible to erect two outdoor wires 200 ft. long and running in different directions!

The Requirements

Let us never lose sight of the fact that the short wave listener wants an aerial which will give him the best signal-to-noise ratio, *not* the strongest signal. Do everything you can to reduce that background noise, and if you have any sort of signal left, you can amplify it—that's easy enough.

Maybe it is possible to use a certain amount of directional effect as well; if it is, that's fine. But this will, in most cases, only be feasible on the 28 mc band, where dipoles are still a reasonable size.

So let us forget the latter for the time being and concentrate on signal-to-noise ratio.

That "Piece of Wire"

I think more SWL's have been led astray by this one factor than by any other—that by stringing up a "piece of wire" they can get results which seem to them quite good. Having got thus far they start playing with the receiver, and the piece of wire becomes forgotten.

The modern receiver—including, I hope, the home-built one—does not require a great length of wire. Its sensitivity is such that it picks up plenty of signals with very little aerial. But a short piece of wire picks up a certain amount of noise and a certain amount of signal; why not discriminate in favour of the signal by *tuning* that piece of wire properly? The most obvious thing to do is to cut it to the right length for the band you are most interested in. Make a dipole of it, if you can, and feed in to the receiver through low-impedance flat-twin or co-axial cable.

This will give you a huge improvement on two counts; first, the dipole will be resonant on the band and will be picking up maximum signals, as compared with noise. Secondly, the fact that it is horizontal, fairly high up (we hope) and equipped with a *balanced* vertical feeder will remove yet more noise.

Lots of local noise is vertically polarised and will be much more strongly received on a vertical piece of wire than a horizontal length. "Horizontalising" the aerial therefore helps a lot, and after that the further up in the air you can get it, the further it is from the source of noise. The balanced feeder, whether flat-twin or co-ax, should pick up very little noise indeed *if it is balanced*.

Matching the Receiver Input

Now there is not the slightest point in using a carefully cut dipole with a balanced feeder system if you are going to hitch one side of it to a terminal marked "Aerial" and the other to one marked "Earth" at the back of the receiver. Most communications receivers have provision for a balanced input, each end of the aerial coupling coil being brought out to a terminal) generally known as A1 and A2). If your home-made job is not so equipped, it is an easy matter to alter it and put it right.

If you have a commercial receiver which does not make provision for balanced input, there is no cause for despair. Neither is there any need to start ripping coils to pieces—always a risky and thankless procedure. Just make yourself an extra set of coils and use an extra tuned circuit on each band. I was going to advise this, in any case, for those listeners who have to use aerials of no particular length. You can't match such

aerials into a receiver, but if you use an external tuned circuit coupled in to the receiver, you *can* match any aerial to that.

The diagram (Fig. 1) shows suitable arrangements for such cases, both for use with a dipole and with an odd length.

Many communications receivers are designed for an input impedance of about 200 or 300 ohms. This does not match very well into the 72 or 80-ohm line necessary for an ordinary dipole, but if you can erect a *folded dipole* and use 300-ohm flat line you can feed it straight in. A folded dipole, for receiving purposes, can be made simply of two similar wires laid side by side, connected together at the ends, and taped in a few places to keep them together. They must be insulated, needless to say. Then one of them is broken in the exact centre and the 300-ohm feeder attached to the two ends

Don't confuse a "folded dipole" with a "bent dipole." The former term always denotes a dipole consisting of two or more parallel wires, only one of which is broken for the feed. It is a misleading term, because the dipole is not folded at all! Folding, because of lack of space, is another matter. We will call it *bending* (Fig. 2).

If you haven't room in your attic or loft for a straight 14 mc dipole (33 ft. 6 in.

long)—and you probably haven't!—put up as much straight wire as you can and bend the ends downwards, arranging matters so that the whole thing is symmetrical. For instance, use a 20-ft. top and let each end drop down 6 ft. 9 in., or something of the sort. It's the centre part of a dipole that matters, and there will be very little loss of efficiency, or even of directional properties, through letting the ends droop—provided that they are not brushing against that water cistern or a length of electric conduit!

Outdoor Aerials

Of course, if you have the space and the facilities for putting up a nice outdoor aerial, then for goodness' sake do. It is always worth while. But even in such cases a properly selected length of wire, properly tuned, will be much better than merely the longest stretch you can run to. Don't be afraid of putting up a dipole on the grounds of its directional properties. Remember that the polar diagram of a single dipole is just a "doughnut" and that it will give you practically all-round coverage. Signals from places off the ends will be the poorest, naturally, but don't imagine that a dipole has two sharp lobes in the directions broadside to its plane, because it certainly hasn't.

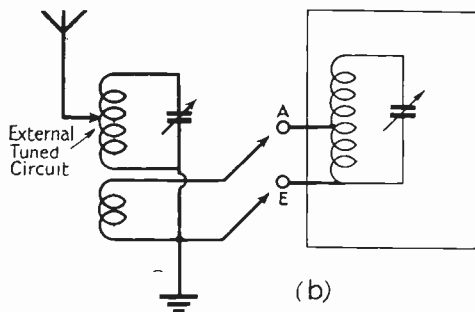
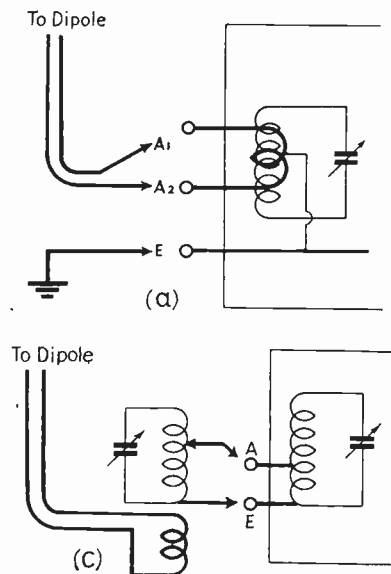


Fig. 1. Electrical layout of the circuits discussed in the text. (a) Receiver with balanced input. (b) Rx with unbalanced input. (c) Receiver in (b) with dipole connection.

In a later instalment I will discuss ways and means of sharpening up the lobes in the particular directions you want, but these are only of interest to those with plenty of space.

Another point—don't look on the

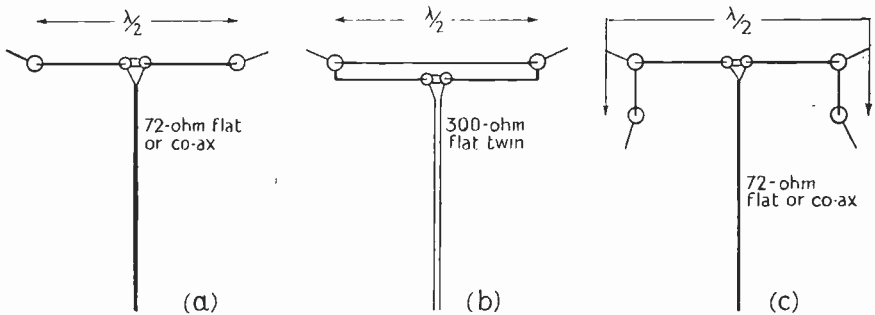


Fig. 2. Aerial arrangements on the dipole theme. (a) Plain dipole. (b) Folded dipole. (c) Bent dipole. The article explains the applications of each.

dipole, for receiving purposes, as being terribly frequency-conscious. You will find quite a lot of latitude, and the folded dipole is better in this respect than the single wire. In fact you can carry matters further and put up a dipole with a whole bundle of wires—joined at the ends, but only one of them fed at the centre—which will work over a frequency-range as great as 4 : 1. But this, too, is another story.

So what we have arrived at so far is this: Get your aerial up in the clear if possible. A loft is *much* better than a picture-rail. Make your aerial horizontal if you can, and use a balanced feeder so that the noise picked up by the vertical

sections cancels out. Match it into the receiver as well as you can, using an extra tuned circuit if necessary. And, if you specialise in one particular band, try and cut your aerial for that band.

Always keep in front of you the requirement of tuning your aerial system to give the best signal on the band you are using, and the signal-to-noise ratio will improve accordingly. Even if certain arrangements seem to give you *weaker* signals than before, you will probably find that the noise has diminished in a still greater proportion, so that you have really gained on the deal.

(To be continued)

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GOOD COMBINATION

Our issue for February last described a modern version of the 1-V-1 TRF receiver, and in the June *Short Wave Listener* appeared a design for a 10-metre converter. Though the latter can be used with any receiver tuning to 10 mc, these two units together make an extremely efficient 28 mc receiving installation—as several readers who have built them both have already discovered.

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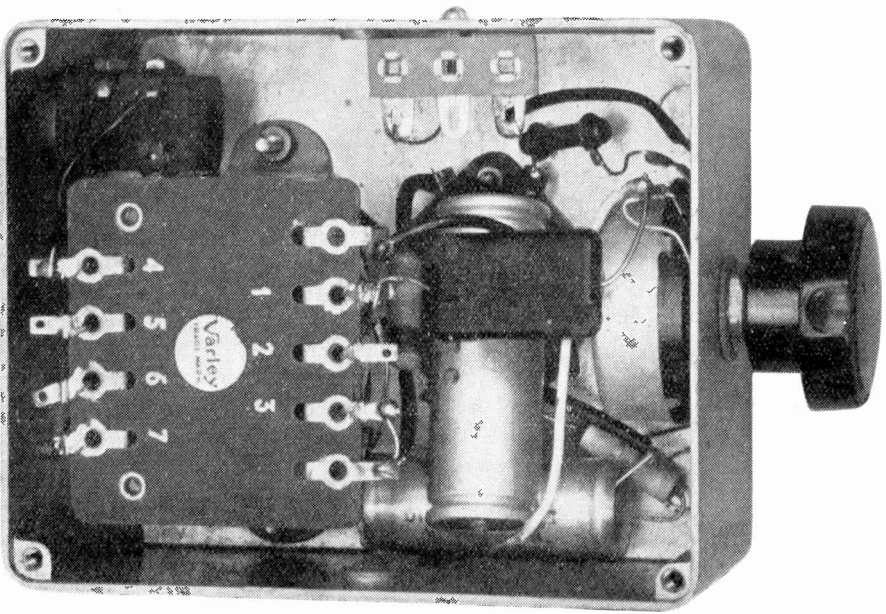
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More Audio for the TRF Receiver

A Simple 6V6 Amplifier

by J. N. WALKER (G5JU)

(The TRF 1-V-1 Receiver, full constructional and operating details for which appeared in our issue of February last, has found high favour with many readers. For those who want more audio output, here is the author's design for a 3-watt LF amplifier which will match the 1-V-1 as originally described by him.—Ed.)

MANY readers, having constructed the M1-V-1 TRF receiver described in the February, 1949, issue of the *Short Wave Listener* (and incidentally found it capable of excellent results), have asked about adding an additional audio stage, to enable the set to be operated with a large speaker and to increase the volume obtained from the weaker stations.

The small unit shown in the photograph is the outcome. As can be seen, it is extremely compact and takes up but little room alongside the receiver.

Construction

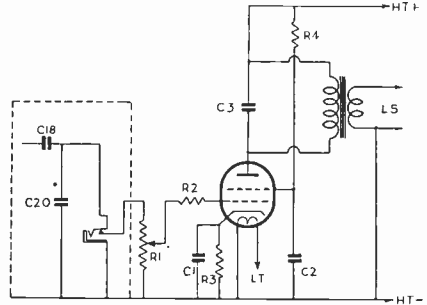
The unit is built into an Eddystone diecast box (Cat. No. 650), the only exterior parts being the valve and the volume control knob. The volume control is fitted centrally in one wall of the box and a $1\frac{1}{2}$ in. hole for the valve holder made $1\frac{3}{4}$ in. from the wall which holds the volume control. The transformer is a Varley universal type, of substantial construction and giving a minimum of transformation loss. Some of the top tags are blank and are used as holding points for connections to HT positive and LT. A two-way tag strip is provided for the input and from it a screened lead is taken to the receiver.

The circuit is given in the diagram, the section enclosed in dotted lines relating to the TRF receiver. If a short circuiting type of jack is fitted to the receiver, the screened lead can be wired in directly and the appropriate connections are shown. Alternatively, the lead from the output unit can be terminated in a plug and the latter inserted into the receiver jack. The various leads (input, output

LIST OF VALUES AND PARTS

6V6 Output Stage for the TRF Receiver

- 1 Valve type 6V6G Brimar
- 1 Metal Box, Cat. No. 650 Eddystone
- 1 Octal Valveholder, VH85 Bulgin
- 1 Output Transformer, Multi-ratio Varley
- 1 Volume Control (R1), 250,000 ohms Erie
- 1 Electrolytic Condenser (C1), 50 μ F 25V T.C.C.
- 1 Tubular Paper Condenser (C2), .5 μ F, type CP47N T.C.C.
- 1 Mica Condenser (C3), .0005 μ F, type MWN T.C.C.
- 1 Knob, Cat. No. 592 Eddystone
- 1 Resistor (R2), 10,000 ohms, $\frac{1}{2}$ -watt Erie
- 1 Resistor (R3), 270 ohms, $\frac{1}{2}$ -watt Erie
- 1 Resistor (R4), 10,000 ohms, $\frac{1}{2}$ -watt Erie



Circuit of the 6V6 audio amplifier for the TRF 1-V-1 receiver, originally described in our issue for February last. This LF unit will enable that Rx, to which it is matched, to operate a large speaker.

and power) are taken out through holes of suitable size in the sides of the box.

When a different output transformer is employed, it should have a ratio of approximately 50-to-1 and be of a size to give clearance to the lid of the containing box.

The power supplies for the output unit can well be derived from the same source as is used with the receiver, provided it is capable of delivering the additional

0.45 ampere LT and 30-40 mA HT. The maximum output of the unit is in the region of 3 watts (with 200 volts or more HT) but generally much less than this will be ample.

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50 mA	0-50	2"	M/C D.C.	10/6
50 mA	0-50	1 1/2"	M/I D.C.	12/6
50 mA	0-50	2"	M/C D.C.	8/6
100 mA	0-100	1 1/2"	M/I D.C.	12/6
150 mA	0-150	2"	M/C D.C.	8/6
200 mA	0-200	2 1/2"	M/C D.C.	8/6
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25 Amp	0-25	2 1/2"	M/I D.C.	2/11
40 Amp	0-40	2"	M/C D.C.	7/6
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PLUNGING boldly into the main theme this month, I may as well say that conditions have been terrific; that 28 mc has produced nearly as much DX as 14 mc; that both SLP'S were extremely successful; and that the volume of Calls Heard was colossal. From which you will gather that DX continues as a very flourishing activity.

After last month's blitz about Calls Heard I am glad to be able to report that the average standard was much higher than before, and that relatively few lists were dropped out simply because of non-compliance with the regulations. Quite a lot had to be dropped, unfortunately, because there were enough for roughly seven pages instead of the three allowed. If you sent a list, or lists, and have not been rewarded this time, it is just bad luck. Those who sent in multiple lists for different bands have been represented,

**Have
you
heard
?**

VO, VP1, VP4, VP7, VP9, VQ2, VU, YN, YV, ZB1, ZB2, ZD1, ZC6, ZL, ZS, 3V and 4X—a total of 42. So if you heard 30 you can pat yourself on the back.

TOP BAND

The Counties Heard list does not swell much at this time of year, but the next month or two should see a huge spurt. For two good reasons: November 12-20 sees the *Magazine Club Contest* in action every evening from 1700 until midnight, and the night of November 5-6 is the RSGB Top Band Contest. In the former all stations have to exchange their QTH, and in the latter they exchange numbers which refer to their county. So by December I expect to see some notable additions to the Counties Heard listing.

FOUR BAND TABLE

This goes on and on, but I have a query to pose on this subject. Shall we, next year, continue this Four Band Table, as now, on a post-war basis, or shall we start clean from January 1 and make it a 1950 table? In this I will

AMATEUR BAND COMMENTARY *by the DX Scribe*

as far as possible, by a single list; others have been squeezed out altogether. But those that *do* appear represent a very good cross-section of the lists received.

SET LISTENING PERIODS

Both appeared to be very lively, without producing anything really startling in the way of DX. Here is a summary: On 28 mc the DX countries heard were AR8, CX, EK, EL, FF, FQ, HC, HK, HP, KP4, KZ5, LU, MI3, OA, OQ, PY, VP4, VQ4, VQ5, VS7, VS9, YS, YV, ZC6, ZD2, ZE, ZS and 4X—a total of 28 countries. So if you heard 20 you may consider yourself to have done pretty well.

On 14 mc the list looks like this: CN, CO, CR5, CR6, CT2, CX, EA8, EA9, EK, FA, HI, HK, KC4, KG6, KP4, KS4, LU, MI3, OQ, OX, PY, SV, TA, TI, VK,

THE DX TABLES

The spirit of competition is still abroad, and all three tables have increased in size, in spite of a certain amount of pruning of "old wood"—to wit, the removal of those who have not reported for three months.

The September Zones Heard list is once again headed by D. W. Bruce (Eltham), who scored a natural with his 40 Zones and 113 Countries—a fine performance indeed. R. W. Thomas (London, E.5) also scored a creditable 40. The Phone Only section falls again to D. S. Kendall (Potters Bar) with 37Z and 130C. This performance is just as praiseworthy when you come to think of the extreme scarcity of phone stations in at least four Zones. The top three in the phone section remain unchanged from last month.

be guided solely by the wishes of the majority. So please state clearly, with your Four-Band listing for next month, "Post-war favoured" or "1950 favoured." It matters not to me—which do *you* want?

THE 28 mc BAND

And so to the DX of the month, starting with 28 mc. My own observations have been that practically everything has come through, but not all the time. On some mornings it has started quite early with VK, ZL and VU, merging into KG6, KR6 and other interesting Far Eastern stations—mostly on phone. There *have* been some JA's on CW, and often a VU or two, in among the VK's and ZL's. The best VK on CW has been 4AP, with ZL1AX always the best ZL on CW and ZL4HP the best on phone. In the afternoons, either the



GW4CZ, down in the Rhondda Valley of South Wales, has a very nice station and is WBE on 14 mc 'phone.

whole thing suddenly goes over to U.S.A. and Canada, or else the usual medley of African and South American phones is to be heard.

That's my little piece; now let's see what correspondents say! A. Bannister (Manchester) remarks that the best of the month for him have been DU1VVS, PK2ZEF and ZS9F—all phone. F. K. Earp (S.W.11) found the band good in patches, his best being KG6DA, KL7RM, VU2CQ, YS2AD, ZP2AA and ZP5BL—all phone. J. Neal (Birmingham) offers JA2AF, 2AZ, 2BO, 2CL, YS2AG and VK5AE. Concerning the latter, note that VK5AE, 5AS and 5CV are all in Darwin and therefore in Zone 29. They all work on both phone and CW, and they are the *only* active ones in Darwin.

O. A. Good (Oswestry) found CR9AG, KG6SF, ZS9F and the VK5's; D. Powell (Wilton) had one or two surprises, such as VS7PS (S8 at 1805, all in among ZS's, W7's and VE7's) and ZL4HP (S7 at 1950). K. M.

Parry (Sandwich) heard HH2ES, OA4PI, VP4TZ, VS7PS and ZS3D; R. J. Line (Birmingham) collected FF3CN, DU1VVS, CR9AG and TI7HA.

A. T. Cheesley (London, E.10) sends in ET3AB, KG6EF, ZP5BL, YS2AG and FF8CN, while B. J. Vincent (Beckenham) mentions JA2AF, VP3CW, ZE2KH and ZP5BL. H. M. Graham (Harefield) has logged stations from CX, HC, HK, HP, KP4, KZ5, MI3, SV, TI, VP4, VQ4, YS, ZC6 and ZE—a nice mixed bag.

D. L. McLean (Yeovil) weighs in with FF8CN, 8FP, HP1CF, 1EA, HZ1AB, 1KE, PK4DA, 4KS, YS3AG, ZD2S, ZP5BL and 9FA—all on phone, as, indeed, is almost everything mentioned hitherto. J. M. Graham (Glasgow) says he has not found 28 mc very good; I wonder whether there is a big difference between conditions North and South? I have suspected it for some time. But he has heard ZS9F, 9J, EL6A and HC1OY.

From A. W. Robertson (Cranford) comes an account of the changes on the band during its progressive opening throughout the month of September. He noticed the "hiss phenomenon," denoting intense solar activity, on September 25, on which day it went up to S7.

J. A. S. Watson (Rickmansworth) says he has been using SX28's in the Services—but these receivers serve up DX on a plate and he has gone back to an 0-V-1 so as to get some real kick out of things again. On this he has logged HC, HK, KZ5, OQ, ST, VK5, VP4, VQ4, ZC6, ZB2, ZD2, ZD4, ZE, ZL, ZP and others, so he's not missing a terrible lot! He also mentions American Police FM stations on 30-33 mc, roaring in between 1400 and 2200; as he says, these fellows use neither high power nor beams, and in a way this is more startling QRP DX than a lot of the amateur stuff.

A. Levi (Belfast) suggests that FF8CN also calls himself FF3CN when on 28 cm;

FOUR-BAND DX					
Listener	28 mc	14 mc	7 mc	3.5 mc	Total
J. H. I. Austin (Coventry)	21	54	39	7	56
A. Bannister (Manchester)	129	150	22	21	166 (P)
R. L. Bastin (Coventry)	58	97	18	20	109 (P)
J. C. Beal (Wembley)	49	146	34	18	147
N. S. Beckett (Lowestoft)	60	155	64	27	162
D. W. Bruce (Eltham)	151	205	69	34	213
P. Butler (Portsmouth)	85	130	38	19	142
P. Bysh (London, N.8)	67	88	18	14	102 (P)
A. T. Cheesley (London, E.10)	77	108	13	9	120 (P)
P. E. Chinn (London, S.E.22)	136	124	11	11	146 (P)
T. W. W. Dearlove (Frimley Green)	102	92	17	11	133
F. K. Earp (London, S.W.11)	105	143	31	27	158 (P)
F. Finn (Coventry)	21	24	19	7	30
R. A. Fowler (Cranwell)	83	140	27	21	151
C. J. Goddard (Coventry)	3	111	26	14	111
O. A. Good (Oswestry)	110	153	7	4	159 (P)
H. M. Graham (Harefield)	58	120	18	19	127 (P)
J. M. Graham (Glasgow)	130	136	24	24	145 (P)
J. L. Hall (Croydon)	7	202	127	56	205
K. G. Harland (Westcliff)	40	68	10	16	87 (P)
M. Harrison (Darlington)	5	160	76	30	162
R. A. Hawley (Goostrey)	132	155	29	19	186
F. A. Herridge (London, S.W.12)	127	86	37	16	153
A. L. Higgins (Aberkenfig)	63	101	13	15	113
T. W. Jones (Birmingham)	54	183	63	22	184
D. S. Kendall (Potters Bar)	130	140	26	29	160 (P)
A. Levi (Belfast)	108	123	10	18	150 (P)
R. J. Line (Birmingham)	66	96	11	8	115 (P)
P. G. Lucy (East Barnet)	96	107	21	23	129 (P)
D. G. Martin (Cheltenham)	85	113	15	17	137 (P)
O. R. F. Mason (Prittlewell)	3	74	16	11	75 (P)
D. McLean (Yeovil)	143	146	19	18	167 (P)
G. Musk (Blackpool)	16	95	12	14	99 (P)
C. A. Naylor (Appley Bridge)	92	64	15	12	107 (P)
A. M. Norden (London, N.W.11)	3	118	18	15	119 (P)
E. A. Parkinson (Leeds)	107	121	13	15	138 (P)
K. M. Parry (Sandwich)	68	95	12	6	110 (P)
K. Parvin (Thornton Heath)	114	147	23	28	154 (P)
W. J. C. Pinnell (Sidcup)	125	175	76	29	188
C. S. Poole (Ipswich)	70	98	21	24	116 (P)
D. Powell (Wilton)	81	127	61	28	140
A. W. Robertson (Cranford)	94	144	22	20	157
D. Shallcross (Derby)	84	105	19	20	124
K. Smeeton (Barnton)	93	129	22	22	141 (P)
A. Studley (Harrow)	51	131	60	37	140
L. Tombs (Swindon)	117	110	17	21	137 (P)
D. W. Waddell (Hitchin)	54	176	61	27	177
J. P. Warren (Croydon)	47	115	12	8	121 (P)
M. G. Whitaker (Hallfax)	91	123	22	27	140 (P)

(P) Signifies 'Phone Only

D. W. Waddell (now at Hitchin) had never been on 28 mc before, and in his first 13 days of listening logged 54 countries. T. W. W. Dearlove (Frimley Green) (although he is now G3FMN) came back and did a couple of SLP's for the sheer pleasure of listening! He found 28 mc very variable during its period, and was troubled by QRM from a tractor and a beacon. He also remarks on the number of Spanish-speaking stations not working G's and giving their calls too fast to be interpreted.

R. A. Hawley (Goostrey), still chasing MM's, followed W3KIF/MM from Walvis Bay right up to mid-Atlantic, and also heard W3NKS/HZ, probably operating from a ship in dock. W5AXI/MM was heard while in the Suez Canal. R.A.H. also gives PK4KS, VK5AE and VK5AS honourable mention. J. P. Warren (Croydon) liked KZ5CS, ZP5BL, VP4TZ, VP9G, ST2AM and VS9AH.

A. H. Edgar (Newcastle) says the first 16 days of September were the worst he has ever known on 28 mc, and wasn't impressed with it even after that. He is beginning to think there is something unfavourable about his location, as far as Ten is concerned.

D. S. Kendall (Potters Bar) doesn't exactly rave about the band, but mentions EA8CO, FF3CN, KH6KA, KR6BV, UI8AA, VS6BC, YN4SDA, ZD2S and ZS9F, which seem to me to constitute a very nice assorted bag. He has also listened on 27 mc, on which he is now "HAC" with EA, CN, TA, OA, VP6 and KH6.

J. C. Beal (Wembley) logged VU2CP, KP4KE, FF8CN, TI2RC, CO7DQ and "all the usual." M. G. Whitaker (Halifax) collected 21 ZS's, eight VK's, seven ZB1's and six KZ5's, as well as ZS9F and FF3CN. K. Parvin (Thornton Heath) mentions

KL7FT, OX3GG (both rarities), LX1BG, FF3CN, HH2ES, HR1RL, KR6BV, YN1HB and 4SDA.

W. J. C. Pinnell (Sidcup) collected ZS9F and 9J on the same afternoon, never having heard a ZS9 before. Others on ten-metre phone were CR5UP, EA8DD, FF3CN, FN8FK and MF2AA. F. A. Herridge (London, S.W.12) specialises in 28 mc reception and has heard 34Z and 127C on the band, using an R.103a with an RF26 unit. In the eight days before writing he logged 42 countries.

To sum up all this activity, it seems to me that really good receiver-cum-operator combinations are still much rarer on 28 mc than on 14 mc. The same few people seem to hear the really outstanding DX every time; others are very pleased with what they hear, although they miss the best specimens. Very strong signals are just as easy to cope with on 28 mc as on any other band; the DX that only produces weak ones seems to slip by in seven cases out of ten. Is that fair comment?

THE 14 mc BAND

And so to "everybody's band," where nearly everybody hears nearly everything. But, let it be added, even on this band the crafty few manage to wrinkle out nice little signals that the rest don't hear. R. W. Finch (Ilford) mentions KH6VP, KP6AH, VQ2DT and UAØKFD (Zone 19), all on CW. Best from A. Bannister were CR5UP, HS1SS, KP6AA, KP6AH, VK1ADS, VP8AK and VQ3AA (all phone). F. K. Earp mentions CR5UP, KP6AA, KH6's, KL7's and VK1ADS. J. Neal has gone in for CW, which has yielded CR7AF, KH6IJ, KM6AO, UAØKFD and W6BKV/KW6. KH6USA was also heard four mornings in succession.

O. A. Good singles these out as worthy of mention:

CR5UP, HS1SS, VK1ADS, VP7NU, F9QU/FM8, HI6EC, sundry HP's, YN4CB and YS1MS (all phone) and HS1SS, VP8AK, CE7AA and ZD9AA on CW. M. H. Dunn (Felixstowe) logged CR5UP, KP4QZ and some XE's and VK's.

D. Powell (Wilton) collected VS6AX, KV4AA and CR6AW, all on CW; K. M. Parry comes up with ET3AE, KG6ET, VS6BE and lots of KH6's—all on phone. K. Smeeton (Barnton) found CR5UP, ZP5BL, ZS3P and 3Z, XZ2SY, VK1ADS, M1D, KL7CE and KH6IJ. Best catch of the month for T. W. Jones (Birmingham) was VQ8AX (14190 at 1715); also logged: VK1ADS, JA2BQ, VP8AK, XZ2FK, VP8AP, KP6AH, KR6BY, CR5UP, KG6FY.

An unusual visitor in A. T. Cheesley's list is VP2GG; the others are VS2BX and 7BR, VK1ADS, CR5UP, XZ2KN and F9QU/FM8. D. W. Bruce (Eltham) logged three new ones—FN8AD and F18AK on CW and CR5UP on phone. He has been surprised by the terrific phone activity from KH6, KL7, KG6, VE8, XZ, VU, VK6 and UAØ. In a single afternoon on CW he heard AC4YN, F18AK, CR9, VS1, UAØ, KH6, KL7, VE8, VU and JA1! (Does that make some of you phone-fiends want to learn the code?)

B. J. Vincent contributes an unusual one in the shape of FY8AC, and also mentions CR5UP and KH6IJ—all phone. H. M. Graham offers CR5UP, UN1AB (unusual), VE8's, CT2PA, HP, YS1PS and ZD1BD—all phone. D. L. McLean's 14 mc contribution includes CR5UP, HP1GL (14200 at 0710), KP6AH (14300 at 0900), UG6AB, YK1AC and VK1ADS—all phone. J. M. Graham chimes in with CR5UP, VK1ADS, CP5EZ,

ZONES HEARD (SEPTEMBER)

Listener	Zones	Countries
'PHONE and CW		
D. W. Bruce (Eltham)	40	139
R. W. Thomas (London, E.5)	40	113
L. N. Davis (Cranwell)	39	120
A. H. Edgar (Newcastle)	38	126
T. W. Jones (Birmingham)	38	93
O. A. Good (Oswestry)	37	121
J. C. Beal (Wembley)	37	116
R. A. Hawley (Goostrey)	36	111
D. W. Waddell (Hitchin)	34	83
M. G. Whitaker (Halifax)	32	91
C. J. Goddard (Coventry)	31	64
D. Powell (Wilton)	30	75
J. Neal (Birmingham)	29	72
'PHONE ONLY		
D. S. Kendall (Potters Bar)	37	130
R. G. Poppi (Beckenham)	37	112
K. Parvin (Thornton Heath)	36	117
D. W. Bruce (Eltham)	36	112
W. E. Bachell (Prittlewell)	36	106
J. St. Leger (Blythburgh)	36	91
A. W. Tideswell (Stoke)	36	83
A. Bannister (Manchester)	35	109
R. A. Hawley (Goostrey)	35	107
O. A. Good (Oswestry)	35	101
B. Davies (Beckenham)	35	94
F. K. Earp (London, S.W.11)	34	102
A. W. Robertson (Cranford)	33	81
A. L. Wright (Bishops Stortford)	32	92
A. Levi (Belfast)	32	90
D. Vincent (Beckenham)	32	76
M. G. Whitaker (Halifax)	31	90
P. G. Lucy (Barnett)	31	88
A. T. Cheesley (London, E.10)	31	87
T. E. Botham (Walsall)	31	72
R. J. Line (Birmingham)	31	72
J. C. Beal (Wembley)	30	82
J. P. Warren (Croydon)	30	75
R. G. Goulding (Wrexham)	27	57
L. Tombs (Swindon)	27	54
K. Smeeton (Barnton)	26	72
B. W. Sutton (Liverpool)	26	63
A. L. Higgins (Aberkenfig)	26	62
G. Hardwick (Knaresborough)	26	44
A. G. Scott (Liverpool)	24	65
H. M. Graham (Harefield)	23	64
P. Bysh (London, N.8)	19	34
K. G. Harland (Westcliff)	16	28
D. Dadswell (Steyning)	15	46
O. R. F. Mason (Prittlewell)	10	16

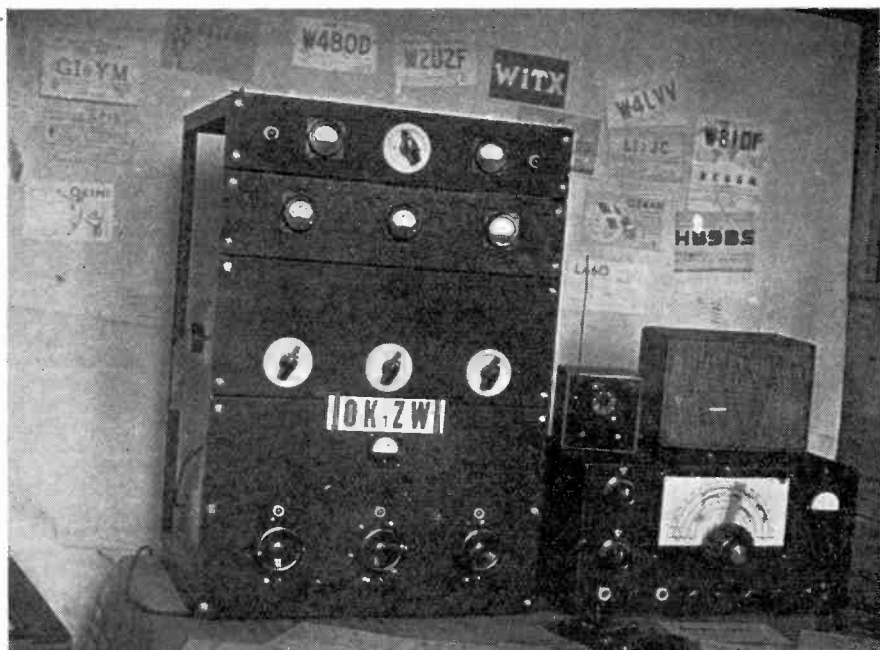
MID, EA8BC and HP1LL (all phone again).

C. J. Goddard (Coventry) says his best were XE1AC UN1AD, XZ2SY and ZL4HP (all phone); A. Levi singles out VP7NU, F9QU/FM8, VK1ADS and CR5UP (those last two must be getting embarrassed by now!) T. W. W. Dearlove kept his hand in with CO7GM, EL5A, EL5B, XE3L, YS1RR, VU2LU and CR5UP, all just after the SLP. R. G. Goulding (Wrexham) was another one who found FY8AC (0315), giving his QTH as Cayenne, French Guiana. He only spoke English for one QSO.

J. P. Warren's best were CR5UP, KP6AA, UA9KCA, VP7NU, VS6BE and five KH6's—all phone. L. N. Davis (Cranwell) was surprised to find KL7NI at 1815 one evening, and one Sunday afternoon he heard ZM3HG and KC4AC, both on CW. The ZM sounds phoney (he should be a "6") and KC4 *should* be in Antarctica, which seems improbable at that time.

A. H. Edgar, who didn't like 28 mc up in Newcastle, describes 14 mc as "terrific," with DX at all times of day. His best have been YJ1AA, VK1VU, VK9NR, VP8AK and 8BJ, FL8ES, FE8OX, KP6AH, C3KB, VR3VU, HS1SS, KH6BV and KR6TX—all on CW. Phone gave him M1B, CX1VD and SV0AJ. D. S. Kendall agrees that 14 has been the real DX band, and he collected CR5UP, CR6AI, DU1AL, KG6FI, KP6AA, VK1ADS, VQ3AA, VP7NU and XZ2SY, all on phone, together with UA9KCA in Zone 18.

J. C. Beal (Wembley) comes up with ZE2KF, KP6AA, LZ6AB (?), ZD9AA, ZA3B (?), F9QU/FM8, HB1EO/HE, CR5UP, EA6EG and VK1ADS. M. G. Whitaker found four new ones—UN1AB, CT3AB, LZ1BD and



The outfit at OK1ZW, Prague, who operates on 80-metre CW with a home-built VFO-FD-PA transmitter.

CR5UP. K. Parvin heard CR5UP, F9QU/FM8, FM8AD, FY8AC, KP6AA, UA9KCA and VS6BE. W. J. C. Pinnell winkled out VP8AP on CW and heard CR5UP on phone. He also heard VK2VA, S9 at 1740, saying that he imagined that was the peak time for G/VK working, but VK's had to sleep sometimes!

And that's the bulk of the 14 mc news, from which it is pretty obvious that CR5UP has been the main sensation, with VK1ADS continuing to provide a nice signal; FY8AC was only found out by the fortunate few. We are running into our old trouble of a season that is really *too* good for DX—who knows what to log and what not to, with conditions like that? But I don't think we have even mentioned a W, VE, LU or PY throughout this Commentary, so we're getting on! (Why, I remember when they were DX.)

QUERY DEPARTMENT

Some of last month's queries answered, together with a formidable bag of new ones... The various stations with calls like AE3US, AE4US, AF3US, AJ3H and AIR, not to mention WAR, are definitely American military stations. They are working just a few kilocycles *outside* the 28 and 14 mc bands. AIR and WAR are, I believe, in Washington. The others bear a suspicious resemblance to TA3FAS, SVØWI, MI3SC, MF2AC and other amateur stations in the Mediterranean area.

Any clues on the following, please? FL8SV (14150 at 1820); SP5AA and SP5AC (are they genuine?); VE8MB (full QTH); ON4CL/MM; EA8BC (full QTH); AH3GB; UK3KAA, ZC2W.

Now some previous queries answered (or just made more confusing!): EC3AM, men-

tioned last month, was most probably ET3AM. ZB1BB, queried by me, really was ZB1BB—quite distinct from ZD1BD, who was on at the same time. CS7VP might well have been VS7VP, and ZC8AC was probably ZP8AC.

I was wrong about the UA9's, as many readers point out. Those in Sverdlovsk City are in Zone 17, not 18. VK7RK, listed by a few last month, should probably have been PK7RK, which will make some of them sorry!

Various people list, and query, stations like K1FT, K1FY, K4NR, K6AB, and so on. "K" is simply the second prefix for the U.S.A. Stations like K4NR, K4NRA and so on are Naval Reserve stations; those with an F in are connected with the Air Force; those that obviously start a new series, like K6AB, just mean that they have run out of W's and are starting again with K's and a two-letter call-

sign. Nice to be K6AA rather than W6ZZZ!

YO is the new prefix for Roumania, and stations are now believed to be licensed, so maybe some QSL's will materialise one day. OE1, 2, 3 and 5 are all Austria. VK4's—they are now all in Queensland. Papua used to use VK4, but is now all VK9. VK1VU is on Heard Island, VK1ADS on Macquarie Island, VK9NR on Norfolk Island—all counting as separate countries.

Calls from Greece beginning with SVØA are held by British personnel, SVØW by Americans.

Now, to ask a few more, does anyone happen to know the Zones of UAØUB and UA3DH/Ø? Or the genuineness of UR2RF, LZ6AB, YO2BU, HZICK, UC2AIA or ZA3AR. G. Hardwick (Knarlesboro) asks whether any "U" stations QSL? He also wants to know whether the Ukraine and all the rest

count as separate countries. They certainly do—roughly 18 of them. G.H. would also like some light on M4JR/A and M4JW/A; sounds as if he has been listening out of the bands.

Various people who asked whether any QSL's have ever come out of Iceland will be cheered to hear that R. W. Finch has received two—from TF3AB and TF3EA.

THE OTHER BANDS; 7 mc

Reports on "Forty" are pretty scarce, but there has come out of Iceland will be cheered to hear that R. W. Finch has received two—from TF3AB and TF3EA.

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KS6HM and says the hours 0500-0630 are very interesting.

3.5 mc

Despite the fact that LU, PY, ZS and VK can be found on this band in the late evenings, few listeners seem to try. ZL's have also been heard once more in the early mornings—on CW. D. Powell logged W1, 2, 3, 4 between 0620 and 0640 one morning; M. G. Whitaker remarks that the W's and VE's are usually there by 2330; but otherwise there isn't much interest. People don't seem to agree with the theory that W9 or PY on 80 is just as good DX as KG6 or CR5 on 20.

THE TOP BAND

Again, few adherents, but those who do adopt this band seem to stick like glue. M. G. Whitaker says "DX" has been plentiful there; L. M. Singletary (Bicester) has now heard 10 countries, including DL1 and HB9, the latter being RST 569 at 2020 GMT. W. Iball (Wigan) asks for a "Top Band Commentary," but the comparatively small amount of interest shown doesn't justify it. Always glad to comment on his, or anyone else's remarks, though. He asks whether the Counties Heard list is confined to English counties or whether GM, GW, GC and the rest also count. They certainly do! He mentions G3BSR, on the Isle of Bute, and a card from G3EKP, who was using 2 watts to a portable. The 1.7 mc Counties Heard Table will reappear next month.

MISCELLANY

R. W. Finch reminds me that I promised an SLP for the "QRP receivers," and he has an 0-V-1 ready. He also comments on a weakness in the Zone scheme, since one person hearing Zone 36 may have logged an OQ5 and another the far more difficult ZD8; one getting Zone 37 may have had a VQ4, another

DX QTH's

CR5UP	Lionel Pierce, St. Thomas Island, Portuguese West Africa.
EA8BC	Box 8, Laguna, Tenerife, Canary Islands.
FF3CN	Box 566, Dakar.
FF8GP	c/o P.A.A., Box 583, Dakar.
FK8AC	Box 104, Noumea, New Caledonia.
FN8AD	D. S. Deal, Hathola, Dyerdhar, Chandernagore, French India.
HP1BR	A. R. Rowley, Apartado 883, Panama.
JA2CK	Box 27, A.P.O. 994, c/o PM, San Francisco.
KG6SF	426 E. 18 Street, National City, Calif (Station on Saipan).
KR6BV	A.P.O. 239, c/o PM, San Francisco.
SP5AC	Box 320, Warsaw, Poland.
VK5AE VK5AS VK5CV	} Box 119, Darwin, North Australia.
VQ3AD	
VQ4AQ	Box 171, Nairobi, Kenya.
VQ8AX	Box 155, Port Louis, Mauritius.
VU2DX	126 Palace Road, Mylapore, Madras 4.
YO3GK	Box 95, Bucharest, Roumania.
ZA3B*	Radio Marine Station, Durazzo, Albania.
ZD2P	D. C. Piccirillo, Radlo Officer, Posts and Telegraphs, Port Harcourt, Nigeria.
ZP9FA	C. S. Martin, Box 716, Asuncion, Paraguay.

a ZD6—and so on. It's quite true, of course; the Zones don't mean everything, but that's where the number of countries shows up the score for what it's worth.

A. Bannister listened to PK4DA on 14 mc working AC4YN, and scratched around vigorously without finding the coveted prize! AC4YN and AC4RF are both addicted to using 10 watts or less, which accounts for their inaccessibility to most searchers. F. K. Earp suggests limiting lists of Calls Heard to one continent only, changing it each month—what do you think?

On the subject of far-fetched phonetics, B. Donders (Harrow) quotes W9ARK—"America's Rottenest Kilowatt." D. S. Kendall adds to this "Mad Dog and 2 Alley Cats," "Henry Has 1 Hot Biscuit," "W4 Kissing Lovely Ladies," "W3 Lazy Tired and Useless" and still more. Work them out for yourself; some people think they're clever!

A few listeners send in their total of hours' listening during the month, but not enough to add a third column to the Zones Heard table. Most of them, like H. M. Graham, consider that one cannot segregate the hours spent "just listening" from those spent specifically looking for new DX.

On the subject of hours of listening, A. H. Edgar did some calculations and found that during September he heard 100 countries in 13 days (50 hours), 38 Zones in 17 days (70 hours), and 126

countries in 21 days (85 hours). One-day DX is mentioned by D. S. Kendall, who heard 23Z and 51C on September 4, and 32Z and 82C on September 18—all phone. Nice going!

A. W. White (Leigh-on-Sea) is an Old Timer among SWL's, and dates back to the days of KDKA on 100 metres, when it was a problem to get down to that short wavelength. He first listened in 1921 on a home-made one-valver. So stand back you youngsters—you don't really know what the thrill of DX is!

M. Milne (London, E.18) says that DL4USA will be the call of the station at the DL4 Convention to be held shortly. The station will be active on all bands.

MANNERS!

G. Moses (Crewe) suggests that if good manners were included in the syllabus of the R.A.E., we should have a thinner Call Book. He cites the case of three Italians who queued up to work VKIADS, and then, having had the usual rubber-stamp QSO's with him, proceeded to have a three-way on his frequency for the next ten minutes, to the exclusion of everyone else.

Many other letters have been received, and if I have not acknowledged them it is probably because the points brought up have already been mentioned by others. There were, however, a few long letters with Calls Heard all mixed up with the text (on both sides of the paper!), a

number of "vertical" Calls Heard lists looking like balance sheets and various documents which I just couldn't make much of. Please keep your letters concise and sub-divided under the headings of the various bands, Queries, Miscellaneous Gen., and so on, and then there's a chance of sorting them all out at this end in time for the Editor's deadline.

Calls Heard lists are getting too long again; please confine all General Lists to your *Twenty-five Best*. It makes it easier for you, for me, and so much more interesting for everyone.

SET LISTENING PERIODS

October 29, 2200-2300 GMT—14 mc phone (no U.S.A.).

October 30, 1600-1700 GMT—28 mc phone (no U.S.A.).

November 26, 1800-1900 GMT—14 mc CW and Phone.

November 27, 1100-1200 GMT—28 mc CW and Phone.

Note that the October periods both come within the stretch of the CQ DX Contest (Phone Section); there should be heaps of DX phone from all parts on all bands. I expect some record lists for these periods.

Deadline for the December issue is first post on November 2. Address it all to DX Scribe, *Short Wave Listener*, 49 Victoria Street, London, S.W.1. Good luck and good listening!

D/F FIELD DAY

On September 25 last, the Radio Section of the Ernest Turner Social Club (High Wycombe, Bucks), organised a D/F Contest with the transmitter on 1854 kc. Using call G8VZ, and concealed in a punt on the Thames near Cookham, signals were radiated every 10-15 minutes from 2.0 p.m. The start point was at Beaconsfield, where over 50 operators and "followers" had gathered. First to unearth G8VZ was J. Walley of Slade Radio Society, Birmingham, who arrived at 3.24 p.m. K. Finch of the local group was next, 18 minutes later, followed by G3BJQ of the B.T.H. Radio

Society, Rugby, only one minute after him. G6JK (High Wycombe) was fourth, and at 4.25 p.m. G3B5T of Southend Radio Society got home fifth on a solo motor-cycle. Ten other parties also competed, and some were very near G8VZ at the stop-time of 4.30 p.m. This highly successful affair, due entirely to the initiative of the High Wycombe group (of which the moving spirit is G4ND), terminated with tea and a get-together at a riverside hotel, and has certainly whetted appetites for further events along the same lines, which will be organised as opportunity arises.

CALLS HEARD

Please note the following simple rules for sending in lists of Calls Heard :

28 and 14 mc : No Europeans, No USA except W6 & W7
No VE except VE5, 6, 7 & 8.

7 mc : No Europeans.

Arrange logs in the form given here, with (a) prefixes in alphabetical order, but not repeated; (b) numbers in numerical order and repeated as part of the call-sign; (c) call-signs in alphabetical order. For example :—VK2GW 3CP, 4UL, VP1AA, 6CDY, VQ3HJP, 4EJT, W6ENV, 7VY. Please underline each prefix, keep each list to one band, and, in short, make your lists exactly like those below, except that the more space you leave, the better.

SET LISTENING PERIODS

28 mc

Sept. 25, 1500-1600 GMT

D. Vincent, 22 Upper Elms End Road, Beckenham, Kent.

'PHONE: AR8AB, FQ8SN, KP4BA, LU4CD, PY1MK, 2ABP, W3NKS/MM (Arabian Sea), ZC6UNJ, ZS1FC, 6RB, 4X4ES.

R. A. Hawley, Torviev, Brookfield Crescent, Goostrey, Cheshire.

'PHONE: EL2A, FF8FB, FQ8SN, LU4CD, M13BC, OA4BV, OQ5CQ, 5DQ, PY1MK, 6AO, VS9AH, W3NE/MM, ZC6UNJ, ZD2S, ZE2JL, ZS1FD, 6AJ, 6CY, 6IG, 6JF, 6RA, 9F, 4X4ES. (Rx : AR-88 and S.504.)

R. G. Poppi, 214 Kent House Road, Beckenham.

'PHONE: AR8AB, FF8CN, OQ5CL, KP4BA, VS7AH, W3NKS/MM, ZC6UNJ, ZS1Q, 6JF, 6JS, 6AJ, 4X4ES. (Rx : S.640.)

Davies, 73 Eden Road, Beckenham

'PHONE: AR8AB, FF8CN, KP4BA, LU4CA, VS9AH, W3NKS/MM, ZC6UNJ, ZS1Q, 6JF, 6JS, 6SC, 4X4ES. (Rx : S.640.)

F. L. Copping, 25 Newfield Road, Marlow, Bucks.

'PHONE: FQ8SN, HC2OT, LU4DA, OQ5CL, 5CQ, PY1MK, 4RJ, 6AO, VQ4SG, VS9AH, W3NKS/MM, ZC6UNJ, ZD2S, ZS2FE, 5A, 6CY, 6JF, 6RA, 4X4ES.

R. Stewart, 1 Prospect Place, Fagley, Bradford.

'PHONE: EK1AD, EL2A, 5B, LU4CD, M13BP, OA4AN, OQ5LL,

PY2JU, 7QP, VP4TZ, 4X4ES, ZS1B, 6AJ. (Rx : 1116A and RF.26.)

E. Lund, 68 Carleton Street, Morecambe, Lancs.

VS9AM, W5OF/MM, ZC6UNJ, ZS1FD. (Rx : S. 670. Marine.)

E. G. Dommatt, 38 Yonder Street, Ottery St. Mary, Devon.

'PHONE: AR8BM, EL2A, FF3CN, HC2JR, HK4DF, LU4CD, OA4BV, OQ5CQ, 5HL, PY2ABP, 2CK, 2QB, 4RC, 6AO, 7QT, VQ4SGC, VS9AH, ZD2S, ZE2JL, ZS1FD, 1P, 4BL, 6AJ, 6JF, 9F. (Rx : HRO.)

D. W. Waddell, 53 Orchard, Hitchin, Herts.

'PHONE: HC2JR, LU4CN, M13BP, OQ5CL, 5CQ, PY4RJ, VS9AH, ZD2S, ZS4BL, 6JF, 6Q. CW : ZS6VR. (Rx : S.640.)

J. F. Roebuck, High Croft, Eaton Hill, Baslow, Derbyshire.

EK1AD, EL2A, PY2ABP, 2CK, 2JU, 4RD, 7GI, 7QT, VP4TZ, VS9AH. (Rx : 2-stage preselector and S.640.)

A. W. Robertson, 149 Firs Drive, Cranford, Middx.

'PHONE: AR8ML, EL2A, FF8CN, FQ8SN, HC2JR, HK4DF, LU4AK, 4KD, OQ5CL, 5DQ, PY1MK, VQ4RF, VS9AH, W3NKS/MM, 5OFO/MM, ZC6UNJ, ZE2KL, ZS2DY, 5A, 6JF, 4X4ES. (Rx : Mod. RF24 in^o 6v. superhet.)

D. E. Tomkinson, 3 Montpelier Terrace, Brighton, Sussex.

'PHONE: HK4DF, HP1WF, KZ5PD, LU6CKN, PY1FR, VE5CI, 7ABD, VP4TZ, VS9AH, W5AX1/MM, 5OFO/MM, 7MBX, YS2AG, ZS2CI, 2FJ. (Rx : AR88.)

E. H. Williams, Tara, Rowland Avenue, Poole, Dorset.

'PHONE: EL4LA, HC2JR, 2KJ, HK3GL, 4AR, 4DF, OA4BV, VS9XY, YV5AO, ZC6UNJ,

ZD2S, ZS6JF, 4X4ES. (Rx : AR88.)

W. J. C. Pinnell, 40 Melville Road, Sidcup, Kent.

'PHONE: AR8AB, 8MR, EL2A, FF3CN, HC2KJ, LU1CC, 4CD, OQ5CL, 5CQ, 5DQ, PY7VB, VQ4SGC, VS9AH, ZC6UNJ, ZD2S, ZS4BL, 6AJ, 6DY, 6H, 6JF, 6Q, 6RA, 6JH.

CW : ZD2LMF, ZS6VR. (Rx V55R with converter.)

D. S. Kendall, 40 Aberdale Gardens, Potters Bar, Middlesex.

'PHONE: CX4CS, EL2A, HK1OY, KP4DU, KZ5CS, LU4CD, M13BP, OQ5DJ, 5LH, 5LL, 5NK, 5VD, PY2CK, 6AG, 7GR, VQ5PBD, VS9AH, W5AX1/MM, ZS6BW, 6FN, 6JV, 6Q. (Rx : 14 valve superhet.)

G. Moses, 65 Raiton Avenue, Crewe, Cheshire.

'PHONE: AR8MV, FF3CN, 8FP, FQ8SN, LU4CN, M13BP, PY1MK, VQ4RF, VS9AH, YV4AA, ZC6UNJ, ZD2S, ZS6JF, 6SC. (Rx : S.640.)

R. G. Goulding, 10 Earle Street, Wrexham, Denbighshire.

'PHONE: FF8FB, FQ8FM, PY1MK, 6AO, VS9AH, YV4AN, ZB2S, ZC6UNJ, ZE2JL, ZS1FD 2FE, 4BL, 5A, 6AJ, 6CY, 6IJ, 6JF, 6JP, 6Q, 6RA. (Rx : Doubt Superhet and RF26 converter.)

T. W. W. Dearlove, Lattices, 135 Coleford Bridge Road, Frimley Green, Surrey.

'PHONE: AR8AB, EL2A, FF3CN, HC2JR, LU4CD, PY4RJ, VS9AH, W5AX1/MM, ZC6UNJ, ZD2S. (Rx : CR.100.)

A. M. Levi, 33 Old Cavehill Road, Belfast.

'PHONE: AR8MR, FF8CN, FQ8SN, LU4CD, M13BP, OQ5CL, 5CQ, 5DQ, VS9AH, ZC6UNJ, ZD2S, ZS1BK, 1FD, 1P, 4BL, 6AJ, 6JF, 6QJ, 6SC, 4X4ES. (Rx : S.504.)

W. J. Wills, 24 Watermead House, Homerton, London, E.9.

'PHONE: LU4BG, OQ5CQ, VQ4CRE, VS9AH, ZC6UNJ. (Rx : S.504.)

K. L. B. Dalby, Marshlea, Green Lane, Lea, Gainsborough.

'PHONE: LU4CD, M12BP, OQ5CQ, PY6AO, VQ4CIE, 4RF, VS9AH, W5AX1/MM, 5OFO/MM, YV4AM, ZC6UNJ, ZS1FD, 4BL, 6AS, 6CY, 6JF, 4X4ES. (Rx : S.640.)

D. Garrard, Ceaque, 17 Hill House Road, Ipswich, Suffolk.

'PHONE: HC2JR, LU4CD, OQ5CH 5CQ, PY2CC, VS9AH, ZC6IJ, ZD2S, ZS1FD, 1P, 5A,

6AJ, 6CY, 6JF, 6JH, 6JP, 6RA, 6SC, 9F. (Rx: *Commander*)

D. W. Bruce, 39 Dunkery Road, Eltham, London, S.E.9.

PHONE: CN8MR, FF3CN, HC2JR, 2KJ, 2OT, HK3GL, 4DF, KP4DU, 4HN, 4IQ, 4JO, KZSCS, LU1CC, 4CD, OA4BV, PYIAHL, 2ABP, 4RJ, 6AO, VP3HL, W2LDH/MM, 3NKS/MM, 4PQB/MM, ZC6UNJ, ZD2S, ZS6JF.

CW: VP2GK. (Rx: 15-valve Double S.H.)

14 mc 'Phone

Sept. 24, 2100-2200 GMT

R. A. Hawley, Torview, Brookfield Crescent, Gostrey, Cheshire.

FA9WU, H18WF, KP4JF, LU2BS, 4CN, 6AJ, OX3BD, PY4RJ, 4XI, 6CO, SV0AJ, VK4VD, VU2LU, 4X4CZ. (Rx: AR-88 and S.504.)

D. W. Waddell, 53 Orchard, Hitchin, Herts.

CO2FH, CX2AF, 2CL, KP4JF, LU5EC, 6AJ, PY1DC, 4RJ, 4XI, 6CO, SV0AJ, ZB2G. (Rx: S.640.)

B. W. Sutton, 117 Utting Avenue East, Liverpool.

OX3MC, UA1BE, 4X4CZ. (Rx: 0-V-1)

G. Hardwick, 11 Carmires Avenue, Knaresborough, Yorkshire.

CX1VD, M13US, OX3BG, PY4RJ, 4XI, VK4VD, V06X. (Rx: *Battery 0-V-1*.)

H. M. Graham, 28 Park Lane, Harefield, Middlesex.

CN8AB, CO2FH, CR5UP, CX2AF, H16EC, HK1GE, LU2BS, 4DE, 6AJ, 7BO, OX3BD, PY3CF, 4RJ, 6CO, SV0AJ, YV1AI, 1BE, 4AM, ZB2G. (Rx: 1-V-1 *Mains*.)

R. G. Poppi, 274 Kent House Road, Beckenham, Kent.

CN8BM, CO2FH, 5PL, CR5UP, CX1VD, 2CL, EK1EA, H16EC, LU2BS, 4CO, 4CM, 6AJ, OX3BD, PY2AL, 4RG, 4XI, 4AR, 7VA, SV0AJ, YV1AI, VK3AWN, 3LA, ZB2G. (Rx: 640.)

R. Stewart, 1 Prospect Place, Fagley, Bradford, Yorkshire.

EA8TM, CX1VD, LU6AJ, PY2CK, VK2ACX, -20Q, 3AWN, 3LA, 3WB, 3WU, 4VD, VU2LU. (Rx: 1116.4.)

B. G. Vincent, 140 Westbrooke Road, Welling, Kent.

CR5UP, CX1VD, EK1EA, LU6AJ, PY4RJ, VK4VD, ZB2G. (Rx: *Mod R.F.U. 24 into 1224A*.)

B. Davies, 73 Eden Road, Elmers End, Beckenham, Kent.

CR5UP, CX2CL, LU4AE, 6AJ, OX3BD, PY1DC, 4XI, SV0AJ, VU2LU, 4X4CZ. (Rx: 640.)

W. E. Bachell, 24 Hill Road, Prittlewell, Essex.

CR5UP, CX2CL, EK1EA, H16EC, KP4JF, LU2BS, OX3BD, PY1GF, SV0AJ, ZB2G, 4X4CZ. (Rx: *Hambander*.)

W. J. C. Pinnell, 40 Melville Road, Sidcup, Kent.

CN8BM, CR5UP, 6AI, CX2CL, 3CN, EK1EA, KP4JF, LU2BS, 4CN, 4MM, 5EZ, 6AJ, 7BH, PY2AH, 3CF, 3CR, 4RJ, 4XI, YV1AI, 4X4CZ. (Rx: *V55R and converter*.)

D. E. Tomkinson, 3 Montpelier Terrace, Brighton, Sussex.

PHONE: CR6AI, CT2PA, CX1AG, 2CO, EA9AI, EK1AD, FA9WU, LU4MG, 5AE, OQ5DZ, PY2CK, TA3FAS, VK3NF, 4HF, VP4TZ, 9RR, VQ2WP, W71YA, YN4CB, ZB2A, ZD1BD, ZL3FV, ZS1BK, 3D, 6DY, 4X4CZ. (Rx: AR.88.)

D. S. Kendall, 40 Aberdale Gardens, Potters Bar, Middlesex.

FA3GZ, 9K1, 9KJ, 9WD, KG6FI, OX3MC, SV0AJ, UA1AV, VE8MB, VK2XG, VQ2J, 6X, VP7NU, ZB1BB, ZC6UNJ, ZL4HP, 3V8AD, 4X4CZ. (Rx: *Modified R1155A*.)

583537 A/A Fowler, R.A., "A" Flt., "C" Sqn., Apps' Wing, No. 1 Radio School, R.A.F. Cranwell, nr. Sleaford, Lincs.

CN8BQ, 8MK, CR5UP, 6AI, CX1VD, 1AF, FA9WU, HK1DI, LU2BS, 4DE, 4GL, 6AJ, OX3BC, 3BD, PY2BM, 4RJ, 4XI, VKSSA, VP1BB, 5JL, VQ2MI, 4X4BZ. (Rx: AR88LF.)

G. Moses, 65 Raiton Avenue, Crewe, Cheshire.

CR5UP, CX1VD, H16EC, KP4JF, LU2BS, 6AJ, M13US, OX3BD, PY4RJ, 4XI, VU2GR. (Rx: S.640.)

R. G. Goulding, 10 Earle Street, Wrexham, Denbighshire.

CR5UP, H16EC, LU2BS, PY4XI, 7VA, VK2ACX, VU2LU, 4X4CZ. (Rx: *Double superhet*.)

D. W. Bruce, 39 Dunkery Road, Eltham, London, S.E.9.

PHONE: CO2FH, 2PA, CR5UP, CX2CL, 3CN, H16EC, HK3FJ, HP1TS, KP4JF, LU2BS, 4DE, 6AJ, 7BO, OX3BD, PY3CF, 4RJ, 4XI, 6CO, 7VA, SV0AJ, T12JV, VK3AWN, 4VD, VU2LU, YV1AI, 4AM, ZB2G, 4X4CZ. (Rx: 12-valve S.H.)

T. W. W. Dearlove, Lattices, 138 Coleford Bridge Road, Frimley Green, Surrey.

CR5UP, CX2CN, H16EC, LU2BS, 3BAC, 6AJ, PY4RJ, 4XI, SV0AJ, VU2LU, ZB2G. (Rx: CR100.)

E. H. Williams, Tara, Rowland Avenue, Poole, Dorset.

SV0AJ, VP1KR, W6AJ, YN4NW. (Rx: AR88.)

J. D. Boatwright, 37 Grant Street, Norwich, Norfolk.

CR5UP, 6AI, CX1VD, EA8PM, H16EC, KC4JF, KS4AI, LU6AJ, M13US, PY4RJ, 6AG, T11AYK, VK3LA, 3AWN, VP7NU, VU2LU, 4X4CZ. (Rx: AR.88.D.)

D. E. Streatfield, 2 Palmerston Road, Wimbleton, S.W.19.

CN8AI, CR5UP, KP4JF, LU6AJ, PY4RG, 4XI, 4X4CZ. (Rx: S.640.)

J. C. Beal, 24 Woodfield Avenue, North Wembley.

CR5UP, CX1VD, H16EC, LU6AJ, M13US, PY4RJ, SV0AJ, VK3WU, 4VD, V06X, ZB2G, 4X4CZ. (Rx: BC-224-B.)

N. S. Beckett, 48 Beaconsfield Road, Lowestoft.

CN8AI, CX1VD, 2CL, H16EC, LU2BS, 6AJ, OX3BD, PY2AM, 4RJ, 4XI, ZB2B. (Rx: 0-V-0.)

C. J. Goddard, Handcross Grove, Green Lane, Coventry.

CX1VD, FA9WU, LU3BAC, 6AJ, PY4RJ, ZS4RB, 4X4CZ. (Rx: *Decca, AW12/AM*.)

GENERAL

7 mc

N. S. Beckett, 48 Beaconsfield Road, Lowestoft.

CW: EA8CT, HK5HN, KZ5BE, PY2AJ, VE3GP, W5AC, 5PRZ, 9BEM, 9LVR, YV1AX. (Rx: 0-V-0. *September 24 and 28. 0300-0400.*)

14 mc

J. Bartlam, Slaidburn, Windlehurst Road, High Lane, nr. Stockport, Cheshire.

PHONE: CO2FH, FA9HS, HH2X, HP1LO, OX3BD, 3MC, 3XE, T12QH, VE8MJ, V06B, VP3NCB, YS1MS. (Rx: 1155 *Modified*.)

B. L. Stedman, Gun Green, Hawkhurst, Kent.

PHONE: CN8BA, EA9AI, EK1AD, FA3DC, HK3AP, HP4LA,

KL7PE, OX3GG, PY2BN, SV0AJ, VE1LU/P, 7SB, 7TN, 8SF, VK2AGW, 3ES, 5RN, VP5RS, W6GAL, 71YA, XE1AC, YN4NW, YV5PJ, ZB2E, ZL4HP. (Rx: B.2 Modified. September 3-16.)

A. H. Edgar, 15 Dene Terrace, South Gosforth, Newcastle-on-Tyne, 3.

CW: C3KB, 7KL, FE8OX, FL8ES, HS1SS, KG6DX, KH6BV, KL7ZL, KP6AH, KR6TX, SU3AU, UA9KCC, ØKFD, ØUA, UF6PA, UG6KAA, UL7IW, VK1VU, 9NR, VP8AK, VR3VU, VS7XY, 8BJ, YJ1AA, YS2RY, ZL4PG, ZP1AJ. (Rx: S.640.)

O. A. Good, 1 Western Drive, Oswestry, Shropshire.

'PHONE: CR5UP, 6AI, FM8AD, F9QU/FM8, HI6EC, HPICN, 1CS, 1EA, 1LO, H31SS, OQ5DZ (Ruanda-Utundi), PY8GD, VE8AW, VK1ADS, 6AP, 7AJ, 7NC, VP3JMX/MM, 5AZ, 7NU, W5LGS (New Mexico), Y27SY, YN1SP, 4CB, 4NW, YS1MS, ZS5II, 5IQ.

CW: C30O, DU7AHS, KV4AA, UL7AB, 7KAA, VP8AK (S. Shetlands), XZ2FK, ZD9AA. (Rx: S.640.)

F. W. T. Atkin, 63 Morshead Mansions, W.9.

'PHONE: EK1AD, 1DL, FA9WU, FN3GZ, HC1HG, KP6AA, OX3BG, TA3FAS, XZ2SY, VK2AGW, 2NS, 3HG, 3FD, W6E2T, 6ODZ, 6SA, ZL4HP. (Rx: RF.24 and RU.19. August 20-September 5.)

A. W. White, 38 Cliffsea Grove, Leigh-on-Sea, Essex.

'PHONE: CO2VW, CX1VD, HC1FG, HH2ES, HI6EC, KG6ET, KH6CT, LU9CR, MD2AC, OX3XT, PY7XC, TA3FAS, TI2HC, VE7SB, 8MB, VK2AGW, VO1L, VP4TB, W6UYX, 7LVQ, XE1WU, ZD1BD, ZL4HP, ZS6DY, 4X4CR. (Rx: Denco DR.21, with 2-stage preselector.)

H. Froggatt, 9 Knoll Street, New Mills, nr. Stockport, Cheshire.

'PHONE: OX3GE, 3MC, W6PWR, 6ZTD, W7HIA, VK3AWN, 3LA, XE1CQ, XZ2KN, YS1MS, YV1AU, ZL4HP.

CW: CN8BK, FA8DK, FT4AN, JA5AF, KX1AL, OX3MC, PY2CK, 1NT, SV1F, UA9CC, VK2PX, 2JX, 2VA, 2XU, 3DQ, 3FH, 3MM, 3OP, 3VF, 5AF, 5FL, 5FH, 5RX, VO6EP, 6X, VQ4AR, VS1DE, W7BGG, ZL4BR, ZS5YF, 6KY, 6VR. (Rx: R.11554.)

K. Twibell, 20 Gildingwells Road, Woodsetts, Workson, Notts.

'PHONE: CX1CG, FA3FB, 3GZ, 8ZZ, HZICK, KA1AI, KG6AD, MID, MD2B, MT2E, OX3BD, UA1BE, 4HB, 4QA, VP6IS,

VQ4NSH, VS6BE, XZ2KN, YK1AC, ZB1BB, 2A, ZD1BD, 4X4BL, 4CF, 4CR. (Rx: R.107.)

J. St. Leger, Chancel End, Blythburgh, Suffolk.

CW: AP2N, CR6AQ, 7AY, FE8AB, HP1BR, JA9AD, KG4AC, 6EF, 6FY, MD4GC, P35FN, UAØKFD, UI8AE, UJ8AF, VK6DX, 7NC, VP8AK, VQ8AB, VS6AX, VU2LK, ZD2RGY, 3D. (Rx: O-V-1.)

D. S. Kendall, 40 Aberdale Gardens, Potters Bar, Middlesex.

'PHONE: CR5UP, 6AI, DU1AL, EL7A, F9QU/FM8, HC2GR, HH2ES, HI6EC, HPIEP, KG6FI, KH6GF, KL7AAB, KP6AA, MD7HV, UA1CT, 9KCA, UB5BV, VK1ADS, VP2KM, 7NU, VQ3AA, XZ2KN, 2SY, YK1AC, YNØCB, 4NW, ZD1PW. (Rx: R.11554.)

T. E. Botham, 4 Victoria Terrace, Walsall, Staffs.

'PHONE: CP1AD, CR5UP, EL5A, KH6BA, 6CT, 6J, KL7TS, MID, M13CD, UG6AB, VE8MB, VP2DB, 3MCB, 4TAR, 7MU, VQ2WP, VS6BE, VU2ET, 2MA, XE2DG, YN4MW, ZC1AL, ZS1GG, 1GU, 3D, 6DY, 6Q. (Rx: 5-valve Super.)

28 mc

H. M. Graham, 28 Park Lane, Harefield, Middlesex.

'PHONE: CX4CS, HC1FG, HK3BJ, 4AR, HP1WM, KP4HZ, 4KE, KZ5AB, 5CS, LU4CD, M13ZZ, PY4SU, SVØWI, TI2AFC, VP4TZ, VQ4CJG, W5AXI/MM (Red Sea), YS2AG, ZB1AK, 2E, ZC6UNJ, ZE2JV. (Rx: 1-1-1 (mains).)

S. G. Beard, 8 Whitethorn Avenue, Coudsdon, Surrey.

CO7GM, MD2B, MT2BFC, PY2CK, 4RB, VE7AZ, VK3AOL, VP6CDI, 9F, VQ4CJG, 4CRE, 4RF, VS9AH, ZC6UNJ, ZL2AD, 4HP, ZS5A, 6JF, 6RA. (Rx: RF26 unit and B.C.348.)

P. Bysh, 118 Campbourne Road, Hornsey, London, N.8.

CN8EI, M13BP, 3SC, 3US, MT2MFC, PY2CK, 2JU, TA3GVU VP4TZ, VP4JC, YN4SDA, 26DY. (Rx: SX24.)

J. E. Honey, Redhill Cottages, Four Elms, nr. Edenbridge, Kent.

'PHONE: AR8AB, CESBH, CX3BL, 4CS, EL2A, ET3AF, FF84F, FQ8SN, HC1OY, HH2ES, HK4AR, JA2AZ, 2CK, 2CA, KG6DF, KP4AZ, 4DU, KZ5DW, 5WP, M13US, MT2BFC, 2E, PJ5KO, ST2AM, SVØWB, TA3FAS, 3GVU, VE7ADB, 7AGC, 7AIA, 7LV, VK2EK, 2EQ, 3AOL, 5AE, 5ZR, 6CF, 6FL, 6FW, 6HL, 6LL, 6MB, 6WU, VP4TZ, 6SD, 9G,

VS9AH, YN4SDA, YS2AG, ZC6UNJ, ZL3DS, 4AK, 4HP, ZS9F, 4X4AD, 4CD. (Rx: S.640.)

F. A. Herridge, 95 Ramsden Road, Balham, London, S.W.12.

'PHONE: JA2AK, 2AZ, 2BO, 2CL, 7AD, KG6FX, KR6BV, PK4DA, VK2AFE, 2EW, 2KQ, 3AOL, 5AE, 6CF, 6FW, 6SC, ZL1KG.

CW: CX1FB, FE8AB, PY2ATG, VK5AE, 6WT, VP2GK, VU2MD, 4X4AD, 4RE. (Rx: RF26 into R.103A.)

D. L. McLean, 9 Cedar Grove, Yeovil, Somerset.

'PHONE: FFC3N, 8FP, HP1CP, 1EA, JA2AF, 2AK, 2AZ, 2CA, 2CL, 2KK, 7AC, 7AD, 7AF, KG6AD, 6DF, 6ED, 6EZ, 6FB, 6FL, 6FX, 6GA, 6SF, KR6BV, PK4DA, 4KS, UB5BG, 5BV, VS1DZ, YS3AG, ZP5BL, 9FA. (Rx: AR88.LF.)

A. W. Robertson, 149 Firs Drive, Cranford, Middlesex.

'PHONE: CE5BH, CM9AC, ET3AF, FQ8SN, HC1OY, HK3BJ, HP1WM, JA2CA, KG6ET, KH6DF, KL7EO, PK4DA, TI2EV, VQ5PBD, VS1AZ, 7PS, 9AH, VU2CO, XE2W, YS2EG, ZC1AZ, ZD2S, ZP5BL, ZS3D, 9F. (Rx: 6-valve superhet with RF.24.)

P. G. Lucy, 11 Hereford Avenue, East Barnet, Herts.

'PHONE: FFC3N, FQ8SN, JA2AF, 2AK, 2AZ, 2BR, 2CA, 2OK, 2MY, KG6DF, 6ET, 6FM, 6SF, KR6BV, PK4DA, 4KS, VS1DZ, 1DZ, 7PS, 7PW, 7RF, VU2CQ, 2GB, ZD2S, 4FH, ZP5BL, 8AB, 9FA. (Rx: R.11554. RFU.24.)

G. Moses, 65 Raiton Avenue, Crewe, Cheshire.

'PHONE: HK3EO, 4AR, KG4AA, 6DF, KV4AL, KZ3CS, 5NM, M13SC, VS1DZ, ZC1AZ, 6UNJ, ZD4AH. (Rx: S.640.)

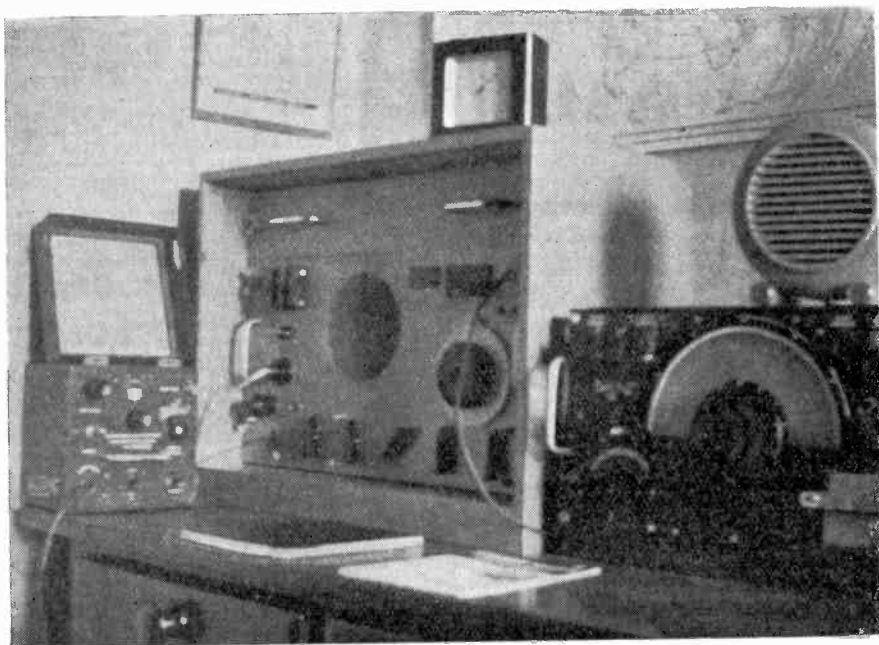
K. Parvin, 98 Winterbourne Road, Thornton Heath, Surrey.

'PHONE: ET3AF, FFC3N, HH2ES, HR1RL, JA2AF, 2AZ, 2CA, 2CL, 2MY, KG6DF, 6EB, KL7FT, KR6BV, OA1D, 4AN, OX3GG, PK4DA, 4KS, PZ1OY, VS1DZ, VU2CQ, XE1FU, 1OH, 2KW, 2OG, YN1HB, 4SDA. (Rx: S.640.)

L. N. Davis, A Flt., C Sqn., Apps Wing, R.A.F., Cranwell.

'PHONE: DU1AH, ET3AF, FF8LA, JA4FA, HI6EC, PK4DA, ST2AF, 2AM, 2KR, VK6HI, 6HL, 6MB, 6NL, 6WB, VP1OD, VS1CZ, 6CH, 7PS, ZP4BL, 6AJ, 9SL.

CW: FE8AB, VQ9AL, VS1CW, 1DC, 1DZ, 6CH. (Rx: AR88.)



SWL STATIONS

No. 26

THIS time we feature the equipment operated by one of our GM readers—J. McCrindle, 120 Bonnyton Road, Kilmarnock, Ayrshire—who first became active as an SWL just before the war.

Resuming in 1947, he has built up a station consisting (as J.McC. remarks) "mainly of ex-Service equipment." The gear includes an R.208, R.1155A and a Class-D Wavemeter; these receivers are operated with two aerials—one a N/S 33-ft. inverted-L, and the other a 66-footer running E/W; it is intended to add a 28 mc dipole for better results on ten metres with the R.208.

Operating interest is centred round the amateur phone bands, with particular reference to Ten, on which band J.McC. hopes to increase his scores very con-

siderably. When the G's had five metres, the R.208 gave him six countries heard and confirmed in the last few months' activity. As opportunity offers, it is intended to turn to the VHF bands once again with a two-metre converter.

With only limited time available for SWL activities, J.McC. has not as yet obtained a great number of QSL cards. He also is one of those who has no present intention of going for a transmitting licence, as he feels that his energies can be more usefully applied to the SWL side—especially on the VHF bands. Well, as we have always said, there is much good work to be done on all bands in the "receiving only" category, and Amateur Radio needs its keen SWL's just as much as its active transmitting operators.

*Please mention the Short Wave Listener
when writing to Advertisers*

PSE QSL

The operators listed below have informed us that they would like SWL reports on their transmissions, in accordance with the details given. All correct reports will be confirmed by QSL card. To maintain the usefulness of this section please make your report as comprehensive as possible.

- CO2VW Calle 22, No. 2, Vedado, Habana, Cuba 14 and 28 mc 'phone, 9300-0700 GMT.
- CO7JR San Fernando 167, Camaguey, Cuba. 7, 14 and 28 mc 'phone and CW, operating at 1000, 2200 and 2300 GMT, respectively.
- CO7PM Pedro Maury de La Cruz, Central Baragua, Ciego de Avila, Camaguey, Cuba. 14 mc 'phone, operating 2300-0300 GMT.
- DL2PD F. Chandler, 1 Wireless Regt., R. Signals, B.A.O.R. 3. QRP 7025 kc CW, 0800-2000 GMT.
- DL3AH Weissenburgweg, 22, Ulm/Donau, Germany. 3-5, 14 and 28 mc 'phone, after 1700 GMT.
- DL3AU Rosental 9, Detmold/Lippe, Germany. 3-5 mc 'phone and CW, at 0600 and 2200-2359 GMT.
- EA4SB P.O. Box 220, Madrid, Spain. VFO-controlled 14250 kc 'phone, 2030-0100 GMT.
- F8IW 19 Rue General de Gaulle, Vizille, Isere, France. 14 and 28 mc 'phone and CW.
- G2BHN 15 Hill Grove Avenue, Yeovil, Somerset. Reports required on all transmissions.
- G2BYI Harrowby, Farcet, Peterborough, Northants. 1-8, 3-5, 7, 14, 28 and 144 mc 'phone and CW.
- GM3BL 17 Robson Street, Glasgow, S.2, Scotland. 1-8-1-9 mc 'phone and CW, 2000-2300 GMT.
- G3EQM 66 Neltarde Road, Catford, London. Operating 3520 kc CW, up till 1700 GMT.
- G3ERU 22 Edgehill House, Loughborough Road, London, S.W.9. QRP 14102 kc CW, most evenings and weekends.
- G3EVT 157 Evesham Street, Redditch, Worcs. VFO controlled 3-5 and 7 mc CW.
- G3FHN 14 Chester Avenue, Bethersden, Ashford, Kent. QRP 1965, 3516 and 7014 kc CW. Details of tone and of stations heard calling G3FHN.
- G3FNZ 28 Canadian Avenue, Catford, London, S.E.6. 3546 kc CW, operating weekends.
- G6CP 28 Sherwood Street, Scarborough, Yorks. QRP 7250-7300 kc 'phone, weekends 0800-1000 GMT
- G6LB Meadow Brook, Vicarage Lane, Great Baddow, Chelmsford, Essex. Reports over 150 miles on 1720-1900 kc 'phone.
- KG6EZ Box 100, Agaña, Guam, Marlana Islands. Operating 28624 kc 'phone, 0930-0230 GMT.
- MD4GC Posts and Telegraphs Dept., Mogadishu, Somalia. QRP 14118 kc CW, 1700-2000 GMT.
- OK1ZW Delnicka 1431/42, Prague VII, Czechoslovakia. 3-5, 7 and 14 mc CW at 0500-0700 and 2100-2359 GMT. 50, 146, 224 and 420 mc 'phone and CW at 1500-2000 GMT.
- OK2SO 1823 Pod Rozhlednou, Gottwaldov-Zlín, Czechoslovakia. Operating 'phone on approx. 52000 kc, at 1500-2000 GMT weekends.
- ON4UD Naamse Vest 140, Louvain, Belgium. 3-5 and 7 mc CW, 1300 1500 and 2100-2300 GMT.
- PY1LY Canaveiras 740, apt. 202, Rio de Janeiro, Brazil. 'Phone and CW all bands, VFO.
- PY1SA R. Tereza 1174, Petropolis, E. do Rio, Brazil. 28116 and 28126 kc 'phone, 1400-2359 GMT.
- PY2WB Av. Anhanguera 63, Goiania, Golas, Brazil. 14 mc CW, 1900-2100 and 2359-0200 GMT.
- PY5AO P.O. Box 1124, Curitiba, Parana, Brazil. 7141, 14172 and 28330 kc 'phone and CW, at 1100, 1600 and 2200 GMT.
- PZ1OY Box 547, Paramaribo, Surinam. 7002, 14004 and 28008 kc 'phone and CW, 0930-2030 GMT and weekends. Details of modulation.
- SMSABB Centralvagen 8, Flysta, Sweden. 3700-3900 kc 'phone, 1900-2300 GMT.
- VE1FC 310 Union Street, St. John, N.B., Canada. 14080, 14116, 14120 kc CW, 14181 and 14200 kc 'phone, 0001-0500 GMT, weekends 1700 GMT.
- VE2VT 42 St. Jerome Avenue, Matane, Quebec, Canada. Reports from London and Manchester on 14-1 mc CW, 28-2 mc 'phone, 1630-1715 GMT.
- VE2ZF 5410 Trans Island Avenue, Montreal, Quebec, Canada. 14 and 28 mc 'phone and CW, weekends 1500-2359 GMT. Compare FM with AM.
- VE3BEJ 19 Colborne Street, W. Lindsay, Ontario, Canada. 7010, 7080, 14020 and 14030 kc CW, 0001-0430 GMT, Wed. and Sunday 1900-2200 GMT.
- VE3JH 1141 Cassells Street, North Bay, Ontario, Canada. 14 mc 'phone quality, 1900-0400 GMT.
- VK3AMF Halfway House, Ferntree Gully Road, Wheelers Hill, Victoria, Australia. 7000-7050 and 14000-14050 kc CW, 0300-0800 GMT.
- VK4RC 30 Prospect Terrace, Kelvin Grove, W.1, Brisbane Australia. 7 and 28 mc CW, VFO.
- VK4ZB H. M. Brown, Gracemere Via Rockhampton, Queensland, Australia. Comparative reports on 28240 kc 'phone, operating 0900-1200, 1330-1430 and 2000-2200 GMT.
- VP2GG R. A. Smith, Young Street, St. Georges, Grenada, B.W.I. 7, 14 and 28 mc 'phone.
- VS1AX P.O. Box 164, Singapore, Malaya. 14320 and 28160 kc 'phone, 1030-1630 MGT.
- VS2BS 8 Perak Lane, Penang, Malaya. VFO-controlled 'phone, operating 1500-1800 GMT.
- W1JNV 26 Gulliver, Milton, Mass., U.S.A. and W1WK 35 Acton Street, Wollaston, Mass., U.S.A. 30 mc 'phone and CW, 0500-1200 GMT. Comparative reports with other WI-stations.
- W2EAF 21 N. 7th Avenue, Mt. Vernon, N.Y., U.S.A. 14 mc CW and quality of VFO-controlled 14200-14250 kc FM 'phone, 1600-1800 and 0630-0730 GMT.
- W2ORS 201 Pavillon Avenue, Riverside, N.J., U.S.A. 7 and 14 mc CW, 0500 GMT onwards.
- W4PBD 211 Central Drive, Fayetteville, N.C., U.S.A. 28 mc 'phone, evenings and weekends.
- W5OFO/MM 215 South Cortez Street, New Orleans, La., U.S.A. Operating 28-6-29 mc 'phone.
- W6KQY 4615 Lemons Avenue, Sherman Oaks, Calif., U.S.A. VFO-controlled 14 mc 'phone, 0300-0330 and 1500-1800 GMT. Comparative reports.
- W6PDB 4951 Glacier Drive, Eagle Rock, Calif., U.S.A. 14 and 28 mc 'phone and CW operation.
- W7AOL Box 445, Baker, Oregon, U.S.A. 7, 14 and 28 mc CW, 0300-0700 and 1400-1530 GMT.
- W7DP P.O., Box 382, Colfax, Washington, U.S.A. 14 mc 'phone and CW, operating 0530-0800 GMT.
- W7GBW 1023-C E. 80th Avenue, Vancouver, Wash., U.S.A. 7 and 14 mc CW, 0500-0700 and 1500-1700 GMT.
- W8UUS 2238 Stevens Ave., Kalamazoo, Mich., U.S.A. 14 mc 'phone and CW, around midnight GMT.
- W8YGR 457 S. Wheeling Street, Toledo, Ohio, U.S.A. 7 and 14 mc CW, 1200-1400 and 2200-0700 GMT.
- W8ZYU 170 S. 3rd Street, Apt. 20, Columbus, Ohio, U.S.A. 7014, 14080, 28700 kc 'phone and CW.
- W9ANX 319 Market Street, Effingham, Ill., U.S.A. 28 mc 'phone, operating 0900-1400 GMT.
- XZ2SY P.O. Box 833, Rangoon, Burma. Modulation of 14330-14350 kc 'phone, 1400-2100 GMT.
- ZS1JE Frome, Bakoven, Cape Town, S. Africa. Stability of 14 mc CW, VFO, 1800 GMT onwards.
- ZS6NM 37 du Plooy St., Potchefstroom, S. Africa. 28, 51 and 144-1 mc 'phone, 1700-1800 GMT.
- 3V8AS 45 Rue de Barcelone, Bizarte, Tunisia. 3-5, 7, 14, 28, 144 mc 'phone, 1700-2300 GMT.
- 4X4CJ 4 Nachlat-Benjamin St., Tel-Aviv, Israel. 14005-14100 and 28005-28200 kc CW, 0400-0500, 1000-1200 and 1500-2100 GMT. Enclose IRC.
- 4X4ES P.O. Box 163, Haifa, Israel. 28240 kc 'phone operating 1600-1830 GMT.

The VHF End

Conditions—The Zone Scheme—

Contest Note—

Reports and Comments—

by **A. A. MAWSE**

WITH the summer continuing well into October, and with a tendency to foggy nights and mornings, Two Metres has continued to reward the VHF listener. At the moment of writing, the French stations have been making the headline news—F3DC, F8LO, F8OL and others being reported heard in the South of England, including the London area, and as far north as Cambridge. F8OL (Meudon, near Paris), by the way, calls CQ every night at 1930 GMT and is on 145 mc exactly. In the South-East of England there have been few evenings when some northern GDX has not filtered through. Most consistent signals have probably been G2IQ (Sheffield), G2OI (Eccles), G2XS (King's Lynn) and G5BD (Mablethorpe) but many others have been logged, and the introduction of the Zone Plan (see *Short Wave Listener*, October 1949, page 344) has made the logging of these signals appreciably easier. Among those noted by your conductor as having shifted frequency in accordance with the

plan are the following stations:

Zone C, G2IQ, G2OI, G3CUJ, G5GX.

Zone E, G2BQC, G3ABA, G3APY, G3DMU, G3DRG, G4RK, G5BD.

Zone G, G2CPL, G2XS, G3AKU, G3VM, G5UD.

Zone I, G2BMZ, G5BY, G6WT.

In addition, of course, most of the London area stations were already in their correct Zone, while the same applied to a large number of the Zone H stations. By and large, this has meant a more rational occupancy of the band, and a lessening of QRM generally. If now the remaining few can be persuaded to line up with the majority, listening on Two will become a real delight compared with the noises of the DX bands.

The Contest

Details of the forthcoming Two Metre Receiving Contest are given herewith. It has been suggested by one reader that the requirements of Rule 4 (a) are too severe and that listeners whose Morse is not too good are thereby discouraged. This may be so, but in framing the rules an attempt has been made to make the winning of the Contest a worthwhile achievement—and at the same time to safeguard all competitors against frivolous claims. In addition, the event becomes good practice for the man learning the code and a test for the receiver, as it is necessary to hold those weak DX signals long enough to obtain all the required data. The personal

VHF CALLS HEARD

Two Metres

A. E. Wright, 92 Druid Street, Hinckley, Leics.

G2ATK, 2IQ, 3ABA, 3BKQ, 3BLP, 3DJQ, 4RK, 5ML, 5JU, 6SN, 6XY, 8DD, 8MZ, 8QX, 8QY. (Rx: Mod. RF27 into AR88, 3-element beam).

P. J. Towgood, 6 Guildhill Road, Southbourne, Bournemouth, Hants.

PHONE and CW: 25-50 miles: G2DSW, 2NM, 2XC, 3EJL, 3RI.

50-100 miles: G2BMZ, 3AUS, 3BLP, 3CCP, 3CVO, 3CWW, 3FD, 3NR, 4DC, 4RO, 5BM, 5BY, 5IB, 5LI, 5MI, 5TP, 5WP, 6NB, 6PG, 6UH, 6VX, 6WT, 8KZ, 8WV.

100-150 miles: G2AJ, 2AJO, 2BFT, 2CWH, 2HCQ, 2JZ, 2XV, 3AKU, 3DAH, 3DJQ, 3DUP,

3FIJ, 3WW, 4MW, 4RK, 5JU, 5ML, 5UD, 8SY, GWSSA.

150-200 miles: G2BQC, 2IO, 2XS, 3AHT, 3APY, 3CXD, 3VM, 5CP, GW2ADZ.

200-250 miles: G3COJ, 3DMU, 5BD, 6YO. (Rx: *6J6 RF, 6J6 Mixer, 2 by 6C4 Osc., into Xtal-controlled 9 mc converter, into 1.6 mc IF/AF amp. Aerial: 4-ele. c.s. beam, 22 ft. high, fed by co-ax. All stations heard September 8 to October 2.*)

G. E. Magrow, Sherwood, Exeter Road, Dawlish, Devon.

PHONE and CW: 2AJ, 2BMZ, 2DSW, 2NH, 2NM, 2XC, 3ABH, 3AGA, 3ARL, 3AUS, 3AVF, 3BLP, 3BM, 3CFR, 3CQ, 3DAH, 3EJL, 3FP, 3LV, 3RI, 3TN, 4OZ, 4RK, 5BY, 5LI, 5MA, 5QA, 5TP, 5WP, 5ZT, 6DT, 6NB, 6WT, 8IL, 8IP, 8KZ, GW2ADZ. (Rx: 6AK5 Preselector to Eddystone conv. to

BC342N. Aerial: 4-over-4-over-4 Yagi.)

A. W. Blandford, 1 Biggin Avenue Mitcham, Surrey.

PHONE: 2ABN, 2AFB, 2AHP, 2ANT, 2BMZ, 2BN, 2AJ, 2CIU, 2DGO, 2DPD, 2DWP, 2FMF, 2FPP, 2IQ, 2MR, 2MV, 2NH, 2PU, 2WJ, 2XC, 2XS, 2XV, 3ABH, 3ADT, 3AEX, 3AUA, 3BKQ, 3BLP, 3BOB, 3BUZ, 3BXN, 3CQ, 3CGQ, 3CVO, 3CWW, 3CIW, 3DAH, 3DCC, 3FD, 3FP, 3GM, 3SP, 3QK, 3VM, 3WW, 4AU, 4CG, 4CI, 4DC, 4HT, 4IG, 4KD, 4OO, 4MU, 4MW, 4QL, 4RO, 4ZU, 5AA, 5AS, 5BC, 5BD, 5DT, 5KH, 5MA, 5MI, 5NR, 5OO, 5PB, 5TP, 5WP, 5XA, 5XV, 5YM, 6CB, 6HC, 6HG, 6JK, 6JK/P, 6LR, 6NB, 6NB/P, 6NF, 6OG, 6OH, 6UH, 6VX, 6WT, 6XM, 6YP, 6GX, 6KZ, 6TB, 6TP, 6IP, 6SK, 6SM, 6SY, 6UZ, PAØIK. (Rx: Mod. RF27 into 1155, 4-element c.s. beam.)

THE SHORT WAVE LISTENER TWO-METRE RECEIVING CONTEST

INFORMATION

This Contest is being run in conjunction with the Two-Metre Transmitting Contest organised by the *Short Wave Magazine*. Entrants in the transmitting contest are required to exchange RST, reference number and QTH. Each contestant allots himself a 3-figure reference number which remains unchanged during the period of the Contest. This reference number (say 342) is sent *before* the RST or RS report, in the following manner: 342RST569, or 342R5S6 in the case of a phone report.

RULES

SWL SECTION

- (1) The period of the Contest will be Saturday, November 12, 1200 GMT, to Sunday, November 13, 2359 GMT.
- (2) Points will be claimed for reception of either British or Continental stations using the 144-146 mc band.
- (3) Stations may be logged on either 'phone or CW.
- (4) (a) For full points, SWL's must log correctly call sign of station heard; and RST, reference number and QTH given by the station for which points are being claimed. RST's given by the SWL receiving are *not* required.

(b) If this full information is received from both ends of one QSO, full points may be claimed on both stations.

Full points will be as follows:—

Stations up to 25 miles	1 point
25 to 50 miles	2 points
50 to 75 miles	3 points
75 to 100 miles	5 points
100 to 150 miles	8 points
150 to 200 miles	12 points
200 miles and over	20 points

plus five points for each additional ten miles of distance; proportions of these additional 10-mile distances will not count for points in proportion.

- (5) Reduced points may be scored for the reception of stations *more than 50 miles distant* heard calling CQ, or from whom the complete information required by Rule 4 is not received. These reduced points will be as follows:

50 to 100 miles	1 point
100 to 150 miles	2 points
150 to 200 miles	4 points
Over 200 miles	6 points

Note: All distances are to be reckoned as between SWL receiving location and station logged, not between transmitting stations working each other.

(6) Stations may be logged *once* only for points.

(7) Point-to-point distances will be taken from the Ordnance Survey "Ten-Mile" Map of Great Britain, or calculated from latitude and longitude in the case of Continental stations.

(8) Results should reach A. A. Mawse, *Short Wave Listener*, 49 Victoria Street, London, S.W.1, by November 21, 1949, latest, set out as follows:—

- (a) Log for period of Contest, showing only calls claimed to count, with time of reception, reference number, RST and QTH given by transmitting station, call of station being worked, distance and points claimed. The total score must be shown at the end of the log.
- (b) A short description of equipment used and general notes on impressions and experiences of the Contest.

Results of the SWL Section of the Contest will be reported in the January, 1950, issue of the *Short Wave Listener*, due out on December 15.

feeling of A.A.M. is that the whole thing would be reduced to a farce if for the purpose of the Contest call signs only needed to be logged.

Much of the pleasure of a contest comes in competing with one's rivals, and it is therefore hoped that *all* readers who are equipped for 144 mc reception will send in entries. No one need worry about his place in the list, for it is an achievement to be in the list at all. So please do not

hesitate about sending in what you may think is a small score.

Receivers

P. J. Towgood (Bournemouth) has built a 6J6 converter and is well pleased with it, but he adds that it does not put the old RF27 completely in the shade. The decrease in noise is sufficient to make what was previously just unreadable now completely readable, which means, in fact,

that the noise factor of the 6J6 job is just a few dB better. Converters such as this will probably show no difference on signals which are already well above noise level on a 6AK5 or EF54 type converter. It is on the very weak signals that they show their great advantage. A. W. Blandford (Mitcham) is another who has built a 6J6 receiver, but so far he has not had it on the air.

Aerials

Readers will be interested to know that the 4-element wide-spaced Yagi type beam described in this column in September, has been tried out by G3EHY (Banwell), who has found it to give results very comparable with his normal 5-element on reception; when he has used it on transmission reports have been nothing but excellent. He adds, "It is one of the simplest of all beams to rig up, and provides a good standby for when the six-element stacked array gets the full force of the Atlantic gales some night and decides to come to earth."

Several other transmitters have also tried this same design with good results, but A. E. Wright (Hinckley) has not had much success with it, finding the front-to-side ratio to be very poor. This is most surprising, for one of the most noticeable properties of the prototype was an extremely large front-to-side ratio, exceeding 60 dB. A close check on element lengths might be worth while, A.E.W., as well as an inspection of all joints to ensure there are no breaks in the feeder. At one station where this beam was installed, using coaxial cable for the feed, the directional properties of the beam were found to be very unusual, and it was finally discovered that there was a break in the inner conductor of the co-ax! G2XC (Portsmouth) is now operating with two of these beams, stacked vertically a half-wave apart, and fed in phase. London listeners seem to think the output of the beam satisfactory, to judge by their comments on G2XC's signals.

While on the subject of aerials, P. J. Towgood adds a timely reminder to those who use co-ax. See that the upper end is properly sealed or one day there will be a pool of water in the converter, and it does not do the co-ax any good either. Yes, P.J.T. has learned from experience—and so did your conductor many years ago!

Other News

A. W. Blandford has just completed his 100 stations heard on 'phone, the best being PA0JK on September 27.

Two Metres

Counties Heard

Starting Figure, 10

P. J. Towgood (Bournemouth)	33
D. T. Bradford (Denham)	24
R. Rew (Birmingham)	24
W. H. Pierce (Reigate)	22
G. E. Magrow (Dawlish)	22
A. L. Mynett (Wembley)	17
A. W. Blandford (Mitcham)	16
R. M. James (Chatham)	12

This is very good going and puts A.W.B. well up the line on SWL activities. P. J. Towgood has found the Cambridge stations very consistent in Bournemouth. He heard G3AKU (Huntingdon) at 0830 on September 11. G. E. Magrow says conditions have been generally poor in the South-West. This is in marked contrast to what most South-East listeners have found.

VHF Listeners' Club

Members who have not written for the past few months are reminded that the membership list is being revised and names of those who appear to be no longer interested will be deleted. G2XC mentions that the Fiveband Club (the VHF Tx men's Club) is holding a Dinner in London on Friday, November 25, to which members of the VHF Listeners' Club are invited. As the number of tickets available is strictly limited applications should be made immediately, marked "VHF Dinner", enclosing remittance for 10s. 6d. (inclusive charge) and addressed to G6VX, c/o *The Short Wave Listener*. He is London Area representative of the Fiveband Club and is organising the event.

In Conclusion

Do not forget the Two-Metre Contest and let's have a record entry. Latest date for next month's reports is November 4, and the address, A. A. Mawse, *The Short Wave Listener*, 49 Victoria Street, London, S.W.1. With you again on November 17.

AMATEUR RADIO EXHIBITION

The Radio Society of Great Britain's Third Annual Amateur Radio Exhibition will take place during the period November 23-26 inclusive, at the Royal Hotel, Woburn Place, London, W.C.1. Some 25 firms will be exhibiting and, as in previous years, the *Short Wave Magazine, Ltd.*, will have a stand. Once again, we hope to meet many of our readers. Admission to the Exhibition is by catalogue, price 1s. at the door.

Monthly Comment by R. H. GREENLAND, B.Sc.

DX broadcast

On September 27, the Short Wave Division of Radio New Zealand celebrated one year of broadcasting with a short speech at 0800, in which the announcer remarked: "May we say a sincere thank you for your listening and for your letters," and continued with a preview of coming events, with a special mention of the Empire Games to be held in Auckland in February next.

In the realm of sport, rugby football has had first place in Radio New Zealand's outside broadcasts. On September 14, the Australians were playing a combined North Otago and Canterbury team, and at 0350, over ZL3, 11780 kc, the commentator excelled himself with the words: "He might score here—Ooh!—Gee whiz!—In she goes!—Allen has scored a try!" On September 24 there were two commentaries; in the final Rugby Test at Stephen Park, Auckland, between the Australians and New Zealand, heard at 0320 over ZL4, 15280 kc, the visitors won by 16 points to 9; at Christchurch, in a Rugby League encounter, Australia defeated South Island by 38-8.

Yet another rugby commentary was heard from Dunedin at 0430 on September 28, when Otago met a visiting Auckland team.

All times given in this article are GMT except where stated

WORLD WIDE RECEPTION OF SHORT WAVE PROGRAMMES

"New Zealand, Pacific Playground" can now be heard both on Sundays at 0730 and on Wednesdays at 0915. On September 25, a visitor from Queensland said of Wellington: "I like your harbour surrounded by green hills, the clear air and the misty background," and during the programme we heard a pleasing carillon from the city's War Memorial. C. Costello, who hails from Wellington, writes: "ZL3 and ZL4 relay 2YA (Wellington Metropolitan National station, 60 kW on 570 kc) from 1800 to 0630; relay 2YC (Wellington National Alternative station, 5 kW on 650 kc) while 2YA takes the BBC News at 0630, and this continues until 0655 when tuning is started for Radio New Zealand. Here, only one beam is at present operating, this being directed to New South Wales, the Pacific Islands being serviced by the backwash. At the conclusion of the Radio New Zealand 24-hour session, ZL3 and ZL4 again relay 2YA until closing at 1120, and on Sundays (NZT) relay 2ZB (Wellington Commercial), as this station is not then carrying advertising. ZL3 moves to 11810 kc at 0930 in order to avoid Saigon and returns to 11780 kc at 1100."

J. Brooker (Crawley, Sussex) has received from

Radio Australia a host of QSL's covering six transmitters. R. G. York (West Croydon) heard VLC9, 17840 kc, one day in August around 0730; now, this transmitter has been replaced by VLC10, 21680 kc, and in the same band on Saturdays you can hear Radio Australia's Sporting Session over VLB5, 21540 kc. Incidentally, between 1215 and 1245 on October 1, VLA6, 15200 kc, was a massive signal when relaying a wrestling match commentary from the Melbourne Stadium, and it was noted that WLKS, Kure, Japan, 6105 kc, and WLKU were also carrying the same programme.

R. A. Savill (Sevenoaks, Kent) says that VLA8, 11760 kc, is excellent both in the afternoon session at 1515 and in the evening one at 2045. I. S. Callcut (Goldsmith Row, E.2) listens to "Breakfast Time in Australia" over this same station between 2115 and 2130.

AFRICA

J. M. Simpson (Hayes, Middlesex) found ZRK, Cape Town, 5885 kc, with an unusually strong signal at 2050 (S8), but even then it was spoilt by CW interference. He emphasises the strength of VQ7LO's 4855 kc signal, logged on September 11 with

a "Battle of Britain" programme. I. Griffiths (Scarborough) gives the following typical programme: 1730-1800, City of Birmingham Orchestra (Recordings); 1800-1815, Relay of BBC News; 1815-1825, Local News and Weather Forecast; 1825-1830, Songs by Lily Pons; at 1900 comes the announcement: "Cable and Wireless Station, Nairobi. We are closing down until 1 p.m. to-morrow."

E. W. Jordi (South Kensington) has logged CR6RG, Dondo, Angola, 8242 kc, with light operatic music, 1830-1930, then the call before signing off. CR4AA, Praia, Cape Verde Islands, appeared to be on 5960 kc according to J. M. Simpson; our previous notification was 5895 kc.

R. Iball (Langold, Notts) found OTM2, 9380 kc, with light music, followed by the direction "Radio Congo Belge" and News in French at 1840, and he again logged Radio Maroc, 6006 kc, with call at 2100; signal is never above S5. Radio Brazzaville is an easy one, with English News at 0530, 1845 and 2045 and a Mail Bag on Mondays at 1855 over 9440 kc and 11970 kc. F. W. Durham (Harrow, Middlesex) has received OTC's (Leopoldville) verification for 9767 kc; the English transmission, 1930-2030, is entitled: "Belgium calling Great Britain and the British Territories in Africa," and every Wednesday the English programmes are devoted to DX'ers and Radio Amateurs, giving short wave news and information for Radio Clubs. P. R. Wyman (Feltham, Middlesex) has heard Radio Dakar, 11898 kc, with its English transmission at 1900, but deplores the fact that Moscow's jamming just spoils good reception!

Ponta Delgada, 4845 kc, is, according to J. M. Simpson, the most consistent signal in the 60-metre band around 2100; and finally, E. W.

Jordi found Omdurman, Sudan, 9750 kc, with its Friday English broadcast at 1730, also a good signal. We have heard two of these on September 16, they included the reading of some English lyrics in their programme, and a week later there was a talk by the Sudan Minister of Agriculture entitled: "Forestry in the Sudan."

ASIA

C. Costello kindly sends us a supplement to the New Zealand publication, *Tune In* which he edits, in which Ray Amer gives the full schedule of All-India Radio stations. In addition to Delhi, Bombay has VUB2 (10 kW) and VUB3 (250 watts) on 7240 kc, 9550 kc and 4840 kc; Calcutta has VUC2 (10 kW) and VUC3 (250 watts) on 7210 kc, 9530 kc and 4880 kc; and Madras, VUM2 (10 kW) and VUM3 (250 watts) on 7260 kc, 9590 kc and 4920 kc. J. M. Simpson found an Indian on 4840 kc at 1730; this is VUB2, also logged by I. Griffiths, closing down at 1730 with eleven clock chimes for 2300 IST. R. G. York says that Delhi, as usual, has been a good source of entertainment with VUD7, 9630 kc; VUD4, 11760 kc; VUD11, 11850 kc; VUD3, 15170 kc, and, perhaps surprisingly, an S9 signal for the evening transmission on VUD2, 7290 kc. R. A. Savill logged VUD11, 11760 kc, with a musical programme between 1900 and 2000 on August 6.

R. Iball noted Radio Pakistan at S9 at 1900 on August 24 with native music on 11890 kc, and I. Griffiths heard them with News in English on the same channel at 0200 on August 29. We tuned in on their other English News between 1515 and 1530 on September 14; it ended with the words: "This is Radio Pakistan." Their artistic QSL card, dated September 8, states: "We

have great pleasure in confirming your reception report of Radio Pakistan, Dacca, on 15335 kc; the address is: Station Director, Government of Pakistan, Radio Pakistan, Dacca." It seems quite probable that the 11890 kc station is located at Karachi, the capital.

Radio Ceylon, Colombo, 15120 kc, has been heard by J. C. Catch (South Shields) giving the following day's preview prior to the close-down at 1705. On September 4 at 1415 he logged BFEB5, Singapore, 15300 kc, with News in English, and at 1445 BEF7, Chungking, China, 11913 kc, with Western music and QRM from Russian jamming!

J. M. Simpson has heard Singapore simultaneously on 11880 kc, 9690 kc, and 6785 kc, but the last-named channel was weak. He also logged PLF2, Batavia, 19345 kc, around 1700 and DZH2, Manila, 9640 kc, heard for a short period from opening up at 2100 until swamped by an adjacent BBC station which comes on the air at 2110. On September 15, the writer listened to organ music over PLB7, Batavia, 11000 kc, at 1415, and C. Costello logged DZH6, relaying DZAS, the Far East Broadcasting Company, on 6030 kc from 1000 to 1600. Here, French Indo-China, 11780 kc, has been heard with News in English at 1405, followed by the lady announcer making the pronouncement: "This is Saigon calling!"

On September 11, R. G. York found RAD, Tashkent, 6820 kc, very good with its "Tank Day" celebrations; this station now broadcasts in English every Sunday, Monday, Wednesday and Friday from 1700 to 1730, but we doubt if you will get their verification card! R. G. Y. also logged Damascus, 12000 kc, with its English transmission at 1700, and writes: "The News was followed by a musical piece: There's No

TABULATED SCHEDULES

I. Radio Accra, Gold Coast Colony.

Reports to : Senior Programmes Officer, P.O. Box 745, Accra.

Station ZOY : 9615 kc, 1030-1200 (Mondays to Saturdays).

4915 kc, 1528-1755 (Mondays to Saturdays).

Typical Programme (Saturday).

- 1030. The News in English.
- 1040. Rediffusion Local Announcements.
- 1045. Recorded Concert by the B.B.C. Symphony Orchestra.
- 1130. News in Ewe, Twi, Ga and Fanti.
- 1528. Studio Announcements.
- 1530. Studio Concert.
- 1600. News in Ewe, and Music.
- 1615. News in Twi, and Music.
- 1630. News in Ga, and Music.
- 1645. News in Fanti, and Music.
- 1700. Rhapsody and Rhythm.
- 1745. The News in English.
- 1755. Interlude or Rediffusion Local Announcements.
- 1759. National Anthem.

II. Radio New Zealand.

Short-Wave Division of the New Zealand Broadcasting Service, P.O. Box 3045, Wellington, New Zealand. Overseas Service : Daily : 0657-0915.

Typical programmes :

	Saturday	Sunday
0657	Tuning Note.	Tuning Note.
0659	Call of the Tui.	Call of the Tui.
0700	Time Sig. & Announcements.	Time Sig. & Announcements.
0705	Variety Time.	Moment Musicale.
0730	Spot Light Band.	N.Z. Pacific Playground.
0740	Personality Parade.	Maori Songs and Stories.
0800.	Listeners' Digest.	Opera Favourites.
0830.	N.Z. News.	Keyboard Masters.
0840	Variety.	N.Z. Artists.
0900	Sports Review.	At the Console.
0910	Football, Cricket.	Topical Feature.
0910	(Wednesday only) : New Zealand-Pacific Playground.	

III. Radio Australia. English Transmissions to the United Kingdom.

Daily.

0700-0745	VLC10	21680 kc.	1400-1445	VLB4	11850 kc.
0700-0815	VLB4	11850 kc.	1400-1500	VLA6	15200 kc.
	VLA6	15200 kc.		VLG6	15320 kc.
2000-2130	VLA4	11850 kc.	2200-2315	VLG6	15320 kc.
	VLB2	9650 kc.	2210-2315	VLC9	17840 kc.
2000-2155	VLC11	15220 kc.			

IV. Australian Broadcasting Commission. Inland Short Wave Service.

Melbourne.

VLG6	15240 kc.	Sun-Fri : 2000-2200	Sat : 2045-2200
VLR	9540 kc.	Sun-Fri : 2230-0830	Sat : 2230-0715
VLR2	6150 kc.	Sun-Fri : 2000-2215	Sat : 2045-2215
		Mon-Sat : 0845-1300	Sun : 0730-1300
VLH4	11880 kc.	Sun-Fri : 2000-2315	Sat : 2045-2315
VLH5	15230 kc.	Daily : 2330-0815	
VLH3	9580 kc.	Sun-Fri : 0828-1330	0828-1400
Sydney.			
VLJ2	6090 kc.	Sun-Fri : 2000-2245	Sat : 2045-2230
		Sun-Fri : 0830-1330	Sat : 0830-1400
VLJ3	9500 kc.	Sun-Fri : 2300-0815	Sat : 2245-0815

Brisbane.

VLQ3	9500 kc.	Sun-Thurs : 2000-1330	Fri : 2000-1400	Sat : 2045-1330
VLM	4917.5 kc.	Same schedule as VLQ3		
Perth				
VLW3	11830 kc.	Mon-Sat : 0030-1000	Sun : 0030-1030	
VLW5	9610 kc.	Sun-Fri : 2200-0215	Sat : 2245-0215	
		Mon-Fri : 0215-1530	Sat : 0215-1500	
			Sun : 0245-1530	
VLX	4897.5 kc.	Same schedule as VLW5		
VLX3	9610 kc.	Same schedule as VLW3		

Place Like Home—very appropriate, I think, knowing Syria !”

He came across TAQ, Ankara, 15195 kc, with an S9-plus signal for its Sunday Mailbag at 2030; the programme included a competition of Listeners' Jokes ! Commencing October 2, this weekly feature has been put one hour later, *i.e.* at 2130, and it is expected that TAP, 9465 kc, will soon be in use in lieu of TAQ. In the regular Thursday 2030 feature of September 22, we heard an interesting talk about Turkey. Being a peninsula, it has a long coastline with a beautiful summer climate; in the eastern hinterland, however, the winters are cold, and mountaineering, skiing and hunting are the order of the day. Historically, Turkey is ancient; to-day one can find traces of the cultured Hittite civilisation which existed thousands of years before Christ, and fair Helen of Troy, too, came from Asia Minor. That city's most famous edifice is Saint Sofia, once a Byzantine church, later a Mohammedan mosque, and now a museum of antiquities.

I. Griffiths has logged all three of the Sharq-al-Adna transmitters in Cyprus; this at 0355 on September 5 when, after an identification signal played on a native stringed instrument, came the direction: "Mahhattat a Sharq-al-Adna." The frequencies are: ZJM4, 6135 kc; ZJM5, 6170 kc; and ZJM8, 9650 kc. Kol-Yisrael gets mentions from R. Iball, E. W. Jordi and R. A. Savill. The last-named on August 27 found 9000 kc much better than 6835 kc at 1930, when the News in English was broadcast; E. W. J. found the 8170 kc channel obliterated by CW QRM after 1945. R. I. spotted the 9000 kc transmission between 1730 and 1800, when a programme in Spanish and French was heard. We logged Kol-Yisrael on a new channel



Here is a view of the operating console at K2UN, the famous United Nations amateur station at Lake Success. Equipped with two one-kilowatt transmitters for all bands 3-5-28 mc inclusive, operation is on spot frequencies to enable the station to be found easily for its world-wide contacts. Amateurs on the U.N. staff operate K2UN on a rota system. The station is entirely controlled from this console, which also provides full monitoring facilities.

of 15670 kc on September 15 ; they were obviously testing with orchestral recordings and announcements were given only in Hebrew. The address is : Kol-Yisrael, Technical Department, Hakiryra, Israel.

NORTH AMERICA

Station CBNK, Saint Johns, Newfoundland, Canada, 5970 kc, is not usually in the clear until late in the evening, but J. M. Simpson was successful in logging it at 2220 on September 9, when it was giving a local News and weather forecast. We ourselves noted it at 0155 on September 20 with a Bing Crosby number, after which came another News which included details of recent devaluation moves.

R. A. Savill has received from the French-speaking CBLX, 15090 kc, a verification by ordinary mail of a report submitted on August

2, and R. Patrick (Morecambe) says that CHNX, 6130 kc, always welcomes reports—he hears them at 2315 with the Oxydol Show ; the address is : Miss Margaret Forrest, Station CHNX, Broadcasting House, Tobin Street, Halifax, N.S., Canada. The writer logged CHOL, 11720 kc, closing at 0347 at the conclusion of a United Nations re-broadcast from Lake Success. C. Costello has landed a particularly fine one in VED, Edmonton, Alberta, 8255 kc ; it closed at 0702 after relaying the CBC Edmonton programme, and though the signal was weak, C. C. heard the announcer say that they would be returning to the air at "1500 Greenwich."

West Coast United States stations in the news are : KWIX, 11890 kc, and KNB, 11790 kc, logged between 0745 and 0855 by J. M. Simpson,

and KWID, 11900 kc, heard with News in English at 0700 by I. Griffiths. C. Costello gives some further details of KRHK, Hawaii, on 17800 kc ; it opens up at 0900 with the announcement : "This is Honolulu relaying the Voice of America on 17-8 and 15-25 mc in the 16- and 19-metre bands," and it closes at 1415. R. Ratcliffe (Rugby) sends us details of the foreign programmes broadcast by The Voice of America ; when listening to the commencement of the English broadcast at 1600 over WCBN in the 16-metre band he heard this direction : "Stations WCBN and WABC." The latter was said to operate on a frequency of 21570 kc. I. S. Callcut says that WCBN on 15270 kc broadcasts a French programme from 2200 to 2225, after which it closes down ; he considers that WGEO, Schenectady, 15330

kc, is a worth-while station on Sundays at 2130 when it gives a feature entitled: "Town Meeting." R. A. Savill has received WGEX's General Electric card.

Finally, the World Wide Broadcasting Foundation in Boston uses 15350 kc and 17820 kc for its two English broadcasts 2000-2100 and 2300-0000. J. Brooker recommends a really homely programme which he heard over WRUW, 17755 kc, on August 22; it is entitled: "Invitation to Studio A"—it deals with letters received and request items are broadcast.

CENTRAL AMERICA

Mexico has been well to the fore in recent weeks. XEQQ, 9680 kc, was a new station to R. Iball's log-book on September 10, when at 0530 he heard chimes, the slogan: "Ecos de los Mexicos" and the Spanish call-sign. In the News at 0547 it gives a single gong-note before each item, and it closes at 0555 with Ravel's Bolero. J. C. Catch mentions this one and XEBT, 9625 kc, which he hears regularly between 0500 and 0600. XEWW, 9500 kc, can be heard at 0545 with the direction, which is preceded by the descending four notes of the tonic chord, and you will probably find XEHH, 11880 kc, in the early mornings around 0425.

HRA, Tegucigalpa, 5915 kc, was a fine signal at 0355 on September 18 when giving its call: "Hatchay-Erray-Ah." R. Iball logged TG2, 6620 kc, with marimba music at 0330, and on 6660 kc TGZA has been excellent with popular guitar music; the direction is: "Radio Oriental, Zacapa, Guatemala, America Central," and is preceded by a double descending three-note vibraphone effect. R. I. found Nicaraguans plentiful: YNDG, 6765 kc, gave a programme of Viennese waltzes at 0340 and closed at 0400 with the words:

"YNDG, Leon, Nicaragua, now closing down till 5 p.m. to-morrow. Goodnight." YNQ, 6950 kc, is excellent around 0330 and you should not miss its identification: "La Voz de Victoria"; YNZZ, 6460 kc, gave chimes and its slogan: "Radio Mundial" at 0400. We logged YNBH, 6540 kc, with Spanish News at 0358; then gong notes, the slogan: "Radio Panamericana" and a march brought the transmission to a close; YNCNM, 6716 kc, was heard closing with direction and march at 0405.

E. W. Jordi has logged HOB, Panama City, 6200 kc, with Latin-American music and frequently repeated call-sign around 2345; from HOLA, 9505 kc, at 0230, we heard the sponsored programme "Musical Madness"; listeners were asked to dial telephone numbers 496 or 499 with their musical requests, and at 0245 came the direction: "You are listening to Radio Atlantico, Colon, Panama." Both J. M. Simpson and R. G. York report reception of VP4RD, Trinidad, 9625 kc, with a good signal at 2215; R. G. Y. says that the greater part of the programmes are sponsored by the Sunlight Cream Cracker Company.

J. M. Simpson found HI4T, 5970 kc, suffering from interference at 2215; E. W. Jordi logged HI2A, 9682 kc, with the call: "La Voz de Reeleccion en Santiago" at 2301. Cubans, as usual, have been well heard. R. Iball noted COBC, 9360 kc, at 0330; COCY, 11740 kc, at 2200; COHI, 6450 kc, with News at 0555; and COBZ, 9025 kc, with slogan "Radio Salas" at 0330. R. Patrick gives the postal address for COBZ; it is: Radio Salas, San Rafael 108, Apartado 866, Havana; R. G. York heard COHI closing down at 0600. Though the transmitter is located at Santa Clara, the programmes ema-

nate from Havana—hence mention of the capital city in the direction.

SOUTH AMERICA

Several reports are to hand about the International broadcasts from Argentina. R. Patrick has heard Radio El Mundo, LRXI, 6120 kc, at S9 around 2330, and R. G. York gives us LRS2, 11840 kc, with the direction in English: "This is Radio Splendid broadcasting to you from Buenos Aires; the time is 2230 GMT, 1930 hours Argentine time." It is now reported, however, that Radio Belgrano uses 11840 kc and Radio Splendid 11880 kc. P. R. Wyman sends the latest schedule for the Servicio Radiofonico Internacional; he has received Radio Belgrano's verification blue-pennant. I. S. Callcut informs us that there have been some very interesting feature-programmes over LRS2; at 2235 on August 29 he listened to "Tree Cotton Festival in Asuncion." Again, R. Iball has logged LRS, Radio Splendid, 9320 kc, with typical Argentine music at 2210, and LRY1, Radio Belgrano, 9455 kc, which, says R. I., is a favourite with him on account of the excellent tango music it provides.

On August 27, R. I., logged another station on the immediate HF side of LRY1; Viennese waltzes and the British version of "Jealousy" were played, and he seems certain that this was a Latin-American though it closed down at 2100 with a march. CP1, Radio Chuquisaca, Sucre, Bolivia, on 9460 kc, broadcasts continuously from 1400 to 0200, but we suspect that CR6RN, Luanda, Angola, 9475 kc, may have been working off its allotted frequency, for it certainly closes down at 2100 on week-days.

J. M. Simpson heard CEI180, Santiago, Chile, 12000 kc, several evenings with a good signal around 2200,

and CXA19, Montevideo, Uruguay, 11835 kc, with a strong signal and a News bulletin at 2145. J. C. Catch says the latter is logged regularly with English call at 2200 and 2215 and with S7-9 signals. J. C. C. heard PZH5, Paramaribo, 5757 kc, with dance music at 2215 on September 8; his Ecuadorians are: HCIAC, La Voz de la Democracia, Quito, 6210 kc, at 0440—now reported to be on 6190 kc, and HC2AN, Radiodifusora Cenit, Guayaquil, 7351 kc, broadcasting Latin-American music at 0615.

In Brazil, PRA8, 6015 kc, was heard by R. Iball at 2050, when the direction was: "Radio Club do Pernambuco." I. Griffiths says the most consistent Brazilian is ZYC8, Radio Tamoio, Rio, on 9610 kc, which he has heard at S9 at 0015; on September 2 at 0130 he heard ZYK3, Radio Jornal de Comercio, 9565 kc, with a talk about the city of Sao Paulo in an English programme for overseas listeners.

In Venezuela, R. Patrick found YVKO, Radiodifusora Nacional, Caracas, 5020 kc, and YVKR, Radio Caracas, 4920 kc, good signals around 2300; C. Costello says that Radio Continente, Caracas, on short waves is YVKL (5030 kc), and YVKM in the medium-wave band (590 kc). On September 24 at 0300 the writer found YVMG, Radio Popular, Maracaibo, 4810 kc, quite good when announcing its short- and medium-wave call-signs in Spanish. In Colombia, P. E. Woolmer mentions HJCT, 6200 kc, heard closing at 0415 with the National Anthem "Colombiana"; their direction is: "Radio Nacional de Colombia en Bogota." Our final South American item concerns a station with a lady announcer heard on 4980 kc at 0215 with tangos and closing with gongs and direction which appeared

to be "Radio Cuenta," and a march at 0230; we wonder if this is the 4990 kc Radiodifusora Occidental, YVMO, located in Barquisimeto.

EUROPE

A number of our readers report the Forces Broadcasting Station, Middle East, heard on 4782 kc by J. M. Simpson, I. S. Callcut and R. G. York. J. M. S. heard "Battle for Britain" at 2030 (S9 plus) and I. S. C. says they close with the "Good-night Melody" at 2200. R. G. Y. logged them on 11785 kc at 2015 on September 8, and the writer on 4950 kc at 0559 on September 22. The latest information is that the Forces Broadcasting Service, Middle East, is carrying out tests from Malta; it is being operated by the Malta Garrison under the direction of Flt. Lieut. Sanderson. Further tests are likely to be carried out on 4782 kc, 6140 kc, 7220 kc, 7270 kc and 11785 kc, and it seems that reception reports on their signals will be appreciated.

R. Patrick reports Radio Minorca as having moved to 7495 kc; but it had returned to 7545 kc on October 3; he also mentions Radio Vararberg, Austria, 6005 kc, which broadcasts the English feature: "Bringing Christ to the Nation" every Wednesday at 2200. From the Hungarian Legation we learn that as from September 1 the new short-wave two-kilowatt transmitter at Diosd commenced broadcasting bulletins in English, Esperanto and seven other languages over 6247 kc and 9820 kc.

Bucharest, Roumania, 5937 kc, is reported by J. C. Catch to be broadcasting an English News at 2000, and YUC, Belgrade, Yugoslavia, 9505 kc, too, with an English News at 0615. R. Iball heard the latter at this time, and at 0630 the announcement ran: "Radio Belgrade—the next News in English will be at

1615 GMT." I. Griffiths heard ZAA, Tirana, Albania, 7850 kc, with English News at 2020, and Greece with its English broadcast on 15345 kc at 1600. P. E. Woolmer has an Air Mail verification from the "Radio Broadcasting Station of the Armed Forces, Central Greece," in Larissa; the following quotation is significant: "Shortly we will be able to include again an English programme, which, due to technical reasons, had to be interrupted." The frequency used is 6745 kc.

F. W. Durham has received from Rome, 9630 kc, a letter which is eloquent in its thanks and from which it is amply clear that British listening reports are always welcome. The broadcast to the United Kingdom from 2010 to 2050 consists of a lesson in English for those learning Italian, music and a News. From Hilversum he has received PCJ's English schedule, which is: Weekdays—1730-1830 in the 25, 31 and 49-metre bands; J. Brooker quotes other English transmissions, 1000-1100, 1515-1530 and 0230-0330, and adds that their folder gives minute details of the programmes including the titles of the individual pieces of music.

Radio Nacional de Espana on 15625 kc has been heard by P. R. Wyman. From its studios in Neuengasse 28, Berne, the Swiss Shortwave Service daily directs twelve separate short-wave transmissions; by writing to the above address you can obtain free of charge their advance programme schedule: the daily broadcast to Great Britain is: 1845-2030 over HEU3, 9665 kc, and HER5, 11865 kc.

Lastly, news of Scandinavia. F. W. Durham logged LKV, 15170 kc, at 1110, with an announcement in English to the effect that the transmission was from Radio Norway for countrymen over-

SMALL ADVERTISEMENTS

CHARGES : *Readers'*, 2d. per word, minimum charge 3s. **Box Nos.** 1s. 6d. extra. *Trade*, 6d. per word, minimum charge 7s. All advertisements must be of radio interest only. Add 25% extra for Bold Face (heavy type) announcements. Copy date for next issue, November 7, addressed Advertisement Manager, *Short Wave Listener*, 49 Victoria Street, London, S.W.1.

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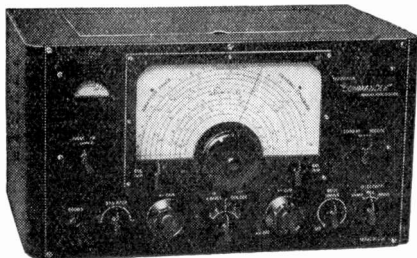
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32 mfd. 350v	1/11
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25 mfd. 50v	1/6
50 mfd. 12v	10d.
10 mfd. 25v	10d.
2 mfd. 450v	1/-
4 mfd. 450v	1/3
8 mfd. 450v	1/11
16 mfd. 450v	2/8
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8 x 16 mfd. 450v	3/4
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SOME QUESTIONS ANSWERED.
QUESTION 1. Is technical knowledge necessary?
ANSWER. You need not know anything about television, but you must be able to work from and understand a theory circuit diagram.

QUESTION 2. What is the total cost?
ANSWER. £15 5s. 0d. if you collect the goods yourself, otherwise £1 extra for the packing cases and carriage. (All items may be bought separately, detailed price list is enclosed with our 7/6 data, or will be sent on request.)

QUESTION 3. Does £15 5s. 0d. include everything?
ANSWER. It includes a new V.C.R.37 Picture tube, 6in. Loud-speaker and everything else which goes into the cabinet, but it doesn't include the cabinet nor the aerial and lead-in. (Aerial kits can be supplied, indoor type 15/-, outdoor type 25/-, lead-in at 3d. per ft.)

QUESTION 4. How much is the data?
ANSWER. Our data contains 26 pages of instructions, wiring diagrams and photographs and was very costly to produce, and for this we charge 7/6 per copy, but this will be credited to you if you buy the bulk of the components and the units, and also this price includes free technical advice.

DEMONSTRATIONS DAILY. Why not call to see our demonstration model, we are open until 6 p.m. weekdays and until 5 p.m. Saturdays, when a made-up receiver can be seen working if a programme is being transmitted. If you can't call, we will send the outfit carefully packed in woollen crates for £1 extra.

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1L4A	7/6	6B7	10/2	6L7	7/8	12A6	6/6	39/44	8/9
1N5	8/6	6B8	6/-	6N7	10/-	12K7	8/8	32	7/6
1R5	6/6	6C5	7/6	6Q7	7/8	12K9	8/6	41	7/6
185	6/6	6C6	8/6	6SA7	7/8	12SH7	7/6	42	10/6
1T4	6/6	6H6	7/6	6R7	6/6	12SK7	8/6	38	7/6
184	6/6	6F5	6/6	6RH7	6/6	12SQ7	8/6	80	10/-
2A3	9/-	6P6	7/6	6SK7	6/6	12Q7	7/6	83	8/-
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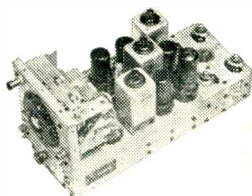
R-23 ARC-5—B.C. 453
The Q Fiver. I.F. 85 kcs. 550-190 kcs. 545-1,850 metres
or

R-26 ARC-5—B.C. 454
I.F. 1415 kcs. 3'0-6'0 mcs. 100-49 metres.
or

R-27 ARC-5—(B.C. 455) a few only.
I.F. 2830. 6'0-9'0 mcs. 49-33 metres.

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125K7 R.F.
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125F7 or
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125R7 Detector and B.F.O.
12A6 Output.



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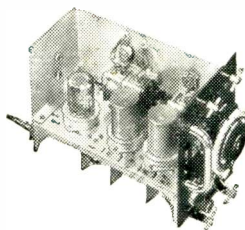
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