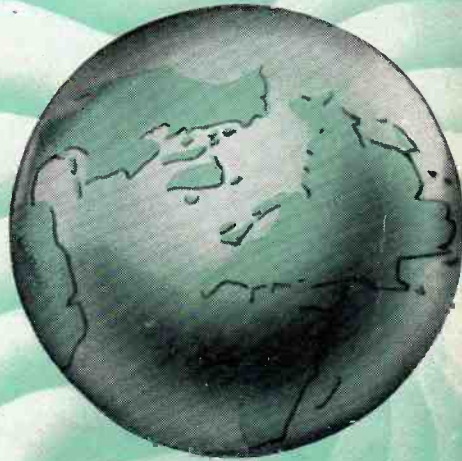


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# SHORT WAVE LISTENER AND TELEVISION REVIEW



DEVOTED TO  
SHORT WAVE RADIO RECEPTION  
AND AMATEUR TELEVISION

JUNE 1951  
VOLUME 5 • NUMBER 6

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# THE SHORT WAVE LISTENER AND TELEVISION REVIEW

VOLUME 5

JUNE 1951

NUMBER 54

Conducted by the Staff of  
*The Short Wave Magazine.*

Published on the third Thursday  
in each month by the Short  
Wave Magazine, Ltd., 53 Vic-  
toria Street, London, S.W.1.  
(ABBey 2384).

Single copy, 1s. 6d. Annual  
Subscription (12 issues) 16s.  
post free.

The British Short Wave League  
is associated with the *Short  
Wave Listener & Television  
Review*. Inclusive BSWL mem-  
bership 17s. 6d. (Half-year 9s.)

All editorial and advertising  
matter should be addressed to  
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Television Review*, 53 Victoria  
Street, London, S.W.1.

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## EDITORIAL

## Outdoors

We have, in "another place," discussed amateur portable working—and previously in these pages have drawn attention to the interesting experiences to be derived from portable operation.

"Going portable." means different things to different people. But to the SWL it can only mean the design and construction of a small, light and compact receiver, battery-powered, which, with a pair of phones and a loose length of insulated wire for aerial, can be set up whenever and wherever opportunity offers or the mood to listen comes upon him.

Nowadays, miniaturised components and low consumption valves capable of giving high gain with battery units small enough to be carried in one's pocket are common-place and easily obtainable. The construction of a good short-wave receiver to make the most of these items calls for some ingenuity, but will itself be a fascinating occupation well worth the time and attention involved.

We hope during this coming outdoor season to hear of readers' results, and attempts, with portable equipment, and to give space in our pages to discussion of the subject.

# Grid Dip Oscillator for TV Bands

DESIGN & CONSTRUCTION OF AN ESSENTIAL TEST INSTRUMENT

by J. N. WALKER (G5JU)

*(The grid dip oscillator (GDO) is now widely recognised as one of those devices which is so useful that it very soon becomes essential. Suitable GDO designs for the amateur HF and VHF bands have already been described in SHORT WAVE MAGAZINE. Here is an instrument specially produced as an aid for the TV experimenter, with notes on its uses and application.—Editor).*

**I**N the May 1951 issue of *Short Wave Magazine* appears details of a grid dip oscillator intended for general experimental work in the VHF range and giving a coverage of 31 mc to 164 mc, obtained with four small plug-in coils. For those interested purely in television receivers, such a wide range is not necessary, and this article deals with a modified version which dispenses with plug-in coils.

The main feature of the VHF oscillator referred to above is the inclusion of a form of the DC amplifier which adds considerably to the overall sensitivity and has the added advantage of giving indication by an upward deflection of the meter needle from zero—a much more satisfactory method than watching closely for a slight dip in the meter reading. This principle is, of course, retained in the present instrument.

## Circuit

The circuit of the GDO is given in Fig. 1, and reference to the article mentioned above will show that the present circuit is almost identical with the other one, the only difference being the addition of two small decoupling condensers.

## Construction

A small diecast metal box holds all the components, including the coil. For convenience and to save space, the valve is of the miniature double triode type.

If the instrument is going to be put to frequent use, it will be desirable to fit an indicating meter in the face of the box, as was done in the HF version of this instrument, described in the April 1951 *Short Wave Magazine*. There is

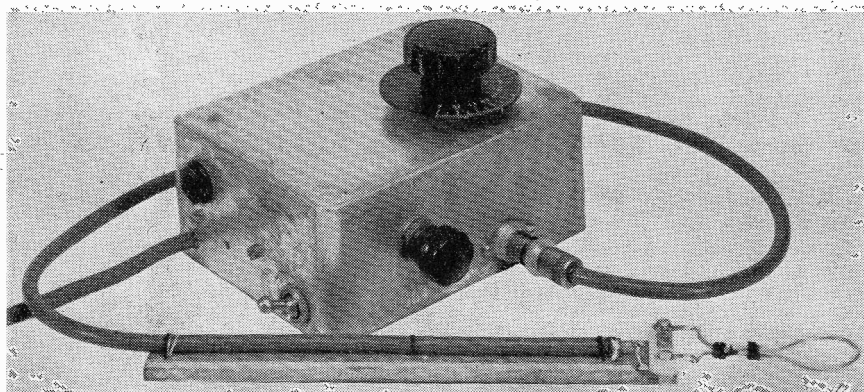
ample room for a flush-type meter, 2-in. diameter, and it is not difficult to obtain one with a full-scale deflection of 0.5 mA (500 microamperes) or 1 mA—the values given for the resistors will suit either. A slight physical rearrangement of some minor components may be necessary when a meter is fitted.

In the present instance, it was not considered justifiable to include the meter, and in its place is fitted an insulated jack, into which a 1 mA instrument is plugged when the GDO is in use.

The wiring of the oscillator circuit should be followed closely—it is important to keep all leads very short, as otherwise the frequency range will be affected to a noticeable degree. The photograph of the interior of the box indicates the position occupied by the various components. Fig. 2 gives details of the connections to be made to the valve-holder *before* it is bolted in position, the wiring being of 20 SWG tinned copper wire, except, of course, where a resistor or condenser is provided with its own wire. The valve-holder is held away from the side of the box by means of  $\frac{1}{2}$ -in. mounting pillars having a 6BA clearance hole.

## Coils

The variation in capacity by C1 is only 11  $\mu\mu\text{F}$ , and the coil must be wound carefully and fitted as shown in the under-chassis photograph if the desired frequency coverage is to be obtained. With the tuning condenser specified, a single coil will not cover the whole of the television band (roughly 40 mc to 70 mc), and the constructor must decide which of the two available ranges will best suit his own particular location. Changing C1 for an Eddystone 584 condenser (34 x 34  $\mu\mu\text{F}$ ) would undoubtedly enable the whole range to be covered, but as only fifty divisions on the dial would be used for a full sweep of the condenser, the scale would become rather cramped. Constructing the instrument as shown does give a good open scale and makes it possible to work to a fraction of a megacycle,



General appearance of the completed Grid Dip Oscillator for TV frequencies, as described in the text. The probe enables coupling to the circuit under test to be made very conveniently.

once calibration has been finished.

The coil is wound on a threaded former, starting from one end and following the grooves, except that double spacing is employed—that is, the wire is made to cross one groove on each turn so that the turns are separated by the full width of a groove. Where the coil ends, a small hole is drilled and passed through the inside of the former to the other soldering tag. The wire used is 20 SWG tinned copper; 8 turns result in a coverage of 47 mc to 70 mc, which includes all television frequencies except Alexandra Palace (and later Northern Ireland). Ten turns gives a coverage of 40.5 mc to 64 mc and omits only the frequencies to be used by the station at Wenvoe (in South Wales and covering the Bristol Channel area) and later Newcastle-upon-Tyne, which will use the same frequencies as Wenvoe. The exact calibrations obtained in the instrument illustrated are shown in the panel.

#### External Coupling

Coupling to the circuit under test is provided through the medium of a single turn link, connected to the instrument *via* a convenient length of  $\frac{1}{4}$ -in. diam. low impedance coaxial cable.

The coil is provided with a single-turn winding, placed as far away as possible from the main winding. The ends of this turn are taken through small holes drilled in the former, and the wire, suitable insulated with polythene sleeving, run direct to the coaxial socket. Incidentally, any

sleeving used for RF insulation at television frequencies should be of the polythene variety, which has much lower losses than PVC or other kinds of sleeving.

The construction of the testing loop can be gathered from the photograph.

### GDO FOR TV

#### DIAL READINGS OF PROTOTYPE INSTRUMENT

Dial Reading	Freq. in mc 8 turn coil	Freq. in mc 10 turn coil
0	47	40.5
10	48	42
20	49.5	43.5
30	51.5	45
40	54.5	47
50	56	49
60	58.5	51
70	62	54
80	64	57
90	67.5	61
100	70	64

The calibration obtained with the TV GDO as built and illustrated in the accompanying article. Individual instruments will probably vary somewhat from this calibration, which can be adjusted by reference to known frequencies (S.C. and A.P. sound and vision) within the tuning range.

which shows the exterior of the instrument. The cable is bound to a piece of wood, finished to suit individual taste, and terminates at soldering tags on a small ceramic insulating bar. The loop, of 18-gauge wire sleeved in polythene, is soldered to tags fitted to the same bolts which hold the ends of the coaxial cable.

**Power Supplies**

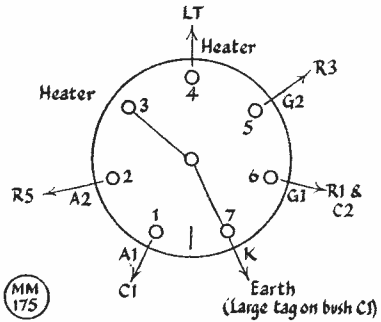
The requirements are 6.3 volts 0.45 ampere LT and 150 volts, 4 to 5mA HT. A small power unit built to match the GDO is desirable, but a suitable mains transformer is difficult to come by. The power supplies are therefore fed in *via* a three-core cable from any convenient source. It is an advantage if the HT voltage is stabilised at 150 volts, *e.g.*, using a VR 150/30 valve and, in any case, it should not exceed 200 volts.

**Calibration**

The dial is fixed to read zero when the capacity of the tuning condenser is at maximum, so that the dial reading *increases* directly with frequency.

It is appreciated that, in most cases, calibration will present something of a problem. If an S27 or similar receiver is available, the signal emitted by the GDO can be picked up and direct readings taken. Failing this, an absorption meter will provide indications of resonance.

A television receiver will itself enable spot frequency readings to be obtained. With the instrument placed not far from the receiver, one particular posi-



**Fig. 2.** Valve base connections for the ECC91, to be made before the valve-holder is fixed into position.

tion of the GDO dial will give rise to a heterodyne whistle on the sound input (providing, of course, that transmission is taking place). At another spot, the picture will be distorted or, perhaps, thrown out of synchronisation, and the user will then, at least, have calibrations for one particular station. These figures will provide a check on those shown in the panel. If care has been taken to duplicate as exactly as possible the construction of the instrument itself and of the coil, good agreement should be found.

**Points of Interest**

Originally, condensers C5 and C6 were not fitted, but it was found that con-

**GDO FOR TV**

**LIST OF COMPONENTS**

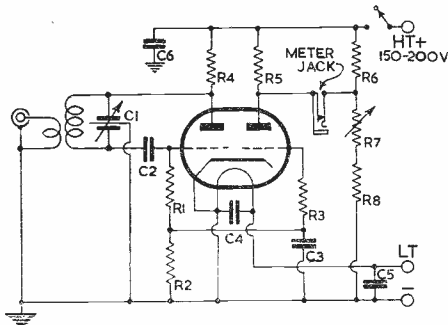
- 1 Diecast Metal Box *Cat. No. 650 Eddystone*
- 1 Microdenser (C1) 25 x 25  $\mu\mu\text{F}$  *Cat. No. 583 Eddystone*
- 1 Direct Drive Dial *Cat. No. 595 Eddystone*
- 1 Coil Former *Cat. No. 648 Eddystone*
- 1 Knob *Cat. No. 593 Eddystone*
- 1 Ceramic Mounting Strip *Cat. No. 749 Eddystone*
- 1 Valve type ECC91 *Mullard*
- 1 Valveholder type XM7/U *McMurdo*
- 1 Jack P72 *Igranic*
- 1 Switch SP on/off
- 1 Potentiometer 50,000 ohms (R7)
- 2 Tag Strips
- 1 Coaxial Plug and Socket L604 *Belling-Lee*
- 3 feet Coaxial Cable  $\frac{1}{4}$  in. dia.

**Fixed Condensers**

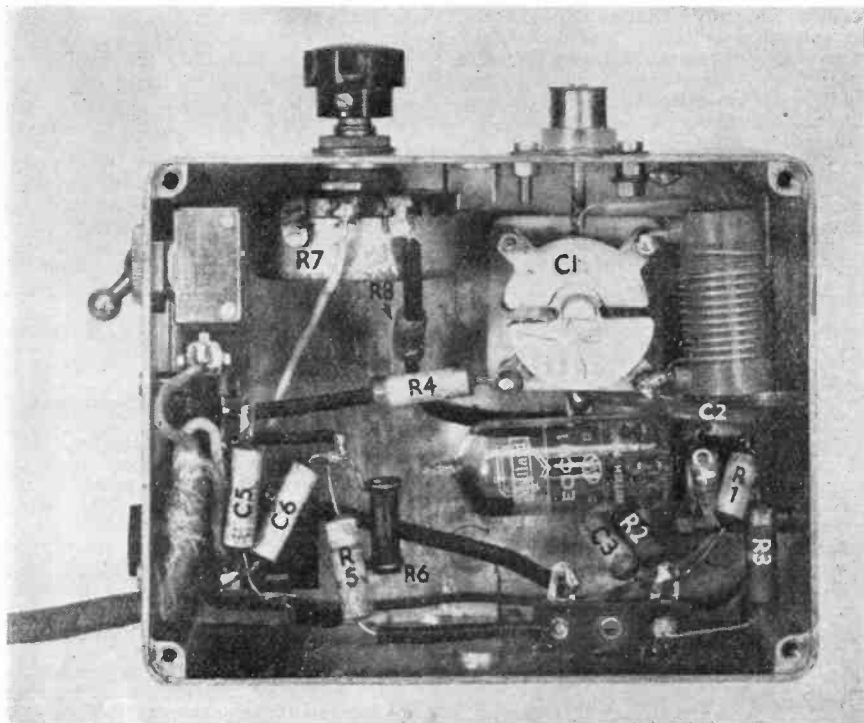
- C2 50  $\mu\mu\text{F}$  Silvered Mica
- C3, C4, C5, C6 100  $\mu\mu\text{F}$  Ceramic

**Resistors**

- R1 4,700 ohms  $\frac{1}{4}$  watt
- R2 10,000 ohms  $\frac{1}{2}$  watt
- R3 100,000 ohms  $\frac{1}{2}$  watt
- R4, R5, R6 47,000 ohms  $\frac{1}{2}$  watt
- R8 20,000 ohms  $\frac{1}{4}$  watt



**Fig. 1.** Circuit diagram of the Grid Dip Oscillator for TV frequencies, using a double-triode (ECC91) as oscillator-amplifier. This is a specially developed circuit, giving much better sensitivity and sharper indications than obtained with the usual GDO arrangement.



Under the TV GDO. The visible parts are identified, and keyed with the circuit diagram and table of values.

siderable radiation was taking place off the power cable—an absorption meter held near this cable gave substantial readings! The addition of C5 and C6 reduced this radiation but did not quite eliminate it—readings could still be obtained when the absorption meter was held very close to the leads, but only of comparatively low value. Further steps in this direction were not attempted, as it would be an extremely difficult matter entirely to prevent all leakage. Some takes place *via* the coaxial cable—or, if this is not plugged in, from the coaxial output socket. As a matter of fact, small readings could be obtained anywhere in the vicinity of the box, despite the fact that the close-fitting lid was screwed in place, which just goes to show that screening at frequencies in the VHF range must be extremely complete to be fully effective.

#### Uses

The test loop is placed in inductive

relation with the circuit under test, and the dial on the GDO rotated, the meter needle having previously been brought to zero by adjustment of R7. At resonance, a definite upward reading will be seen, but whether or not the needle movement is sharp depends on the amount of damping present across the test circuit. If the latter possesses a high "Q," as it will if unloaded by resistor or valve, the GDO will give a very sharp indication and probably the coupling will have to be made fairly loose. On the other hand, if the test circuit is resistance-loaded to give a wide bandwidth, the needle movement will be slow, but still quite definite. A rough idea of the bandwidth can be obtained as follows: Set the GDO for maximum reading and adjust the coupling link until a convenient value is shown—as an example, two major divisions representing 200 microamperes on a 500  $\mu A$  meter. Then slowly move the GDO dial in one direction until the

reading is reduced by half—in the example above, to one major division. After noting the dial reading, rotate the dial in the other direction until the needle again drops to half the maximum obtained. The difference in the two readings represents the bandwidth.

An interesting test to make, and one which gives an insight into the way a valve can load a circuit at these frequencies, is first to take a measurement with the valve cold (remove any

loading resistor temporarily). In all probability, the needle in the GDO will rise sharply—if it does not, all is not well and unwarranted losses are occurring in some part of the circuit. Then let the valve warm up, with normal potentials applied, and again take a measurement. This time, the needle movement will be slower to a degree, depending on the equivalent resistance of the valve, a quality which varies widely in different types, and is well worth investigating.

## Book Review

### "SHORT WAVE RADIO AND THE IONOSPHERE"

Many readers will already know T. W. Bennington's *Radio Waves and the Ionosphere*, first published in 1943. The author has now entirely re-written this work, and under its new title of *Short Wave Radio and the Ionosphere* it is much more than just a revised edition. The earlier book had 6 chapters and 81 pages, while the new production runs to 10 chapters and 138 much larger pages; some 56 new illustrations have been included.

Among the new chapters is one devoted to amateur transmission. The acknowledgment by the author of the important contributions made by amateurs, often as a result of working on unorthodox frequencies, is noted with pleasure as recognition long overdue. The useful data in this chapter include a series of graphs showing the MUF's which might be expected for certain circuits from this country at various times of the year during sunspot minimum and maximum periods. There is

also an account of the effect of sporadic-E ionisation at amateur frequencies and a brief explanation of tropospheric refraction on VHF transmissions. (There appears, however, to be no mention of the auroral reflection type of propagation which has interested amateur VHF workers for some years now).

Other chapters in a useful book give details of the technique of measuring ionospheric characteristics, the variations in the ionosphere and their effect on short-wave transmission, the possibilities and methods of forecasting conditions, the causes and effects of ionospheric disturbances and radio noise. On all these topics the author is an acknowledged expert, and the information given can be taken as authentic and up-to-date. *Short Wave Radio and the Ionosphere*, published by Iliffe & Sons, Ltd., Books Dept., Dorset House, Stamford Street, London, S.E.1, price 10s. 6d.

E.J.W.

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# Amateur Television Transmission

B.A.T.C. NEWS

By M. BARLOW (G3CVO)

*(With transmission of amateur TV a practical possibility, the potentialities of the allotted frequencies are now being actively investigated by members of the British Amateur Television Club, and some very good work is being done. There are many problems to be overcome, and the Club asks for the support of all those having an active interest in amateur TV. G3CVO, who contributes the notes below, is honorary secretary of the B.A.T.C., and his address is: Cheyne Cottage, Dukess Wood Drive, Gerrards Cross, Bucks.—Editor.)*

**F**URTHER details of the TV licence are now coming to light, although the actual licences are only being issued on a temporary basis. In order to obtain a TV licence, it will be necessary to hold both a current sound transmitting licence, and, in addition, a normal TV receiving licence. The method of transmission must be such that signals can be resolved on the normal BBC TV receiving system. This looks like being rather expensive, and putting the hope of obtaining an Iconoscope even further out of reach.

The accompanying sound transmissions are covered by the normal "ticket," and may be sent on any amateur band—including the TV bands—either independently or on the same channel as the vision signals. The use of the 70 cm (430 mc) band is under discussion, but it is expected to be some time before any decisions are reached, owing to the possibility of interference with radio altimeters on this band.

## Members' Activities

Whilst waiting for the licences, there is plenty of constructional work to be done; a supply of very cheap scanning

tubes, highly suited to the needs of telecine and telestill cameras, has cheered the scene immensely; a simple still picture camera is now within the reach of even the most underpaid SWL—or should it be SWV? For the more solvent members of the club, a lead has been given by new member G. G. Short, who is the owner of a complete studio layout, comprising iconoscope camera with lens turret (operated by servos!), telecine unit, and monitoring facilities. Add to this the fact that the knobs apparently match each other, and this is obviously the answer to your contributor's dreams!

Nothing has been heard from G5ZT since the last report, when he had a large part of his camera built; he and SWL Peter Parkin are hoping to build up two duplicate rigs to show the West Country what can be done. G2DUS, having overhauled his gear for Festival year, has been having a rest from amateur TV by building an electronic organ; he says that it will do double duty as a sound test signal!

## Exploratory Tests

Although the frequency allocations for amateur TV work are not as convenient as they might be, those members of the club who have radar experience are thoroughly enjoying themselves in the surplus markets. Tony Sale and G3CVO have been trying out CV67 Klystrons mounted in various sizes of cocoa tins, with very encouraging results; for what it is worth, signals are 5 and 9 + 20 dB at a range of 6 feet on 2300 mc! This is on sound only, and whether AM or FM was in use was rather in doubt. At the time of writing, it has not been possible to organise a test over a longer range, but we still have plenty of leeway to make up before we overtake the European DX record for the band (24.4 miles). Nevertheless, it seems that the actual plumbing necessary to get TV on the air is quite within the means of the kitchen-table-only brigade. The receiver used an exactly similar CV67 unit as the local oscillator, and a valve screening can as the mixer cavity; output at 45 mc was fed into a Pye strip. Some 150 milliwatts of RF are available, but a 2ft. by 1ft. 70-degree corner reflector gives about 15 dB gain, equivalent to roughly 2 watts into a dipole—easily sufficient for optical range working, especially when a similar aerial is in use at the receiving end. The club is especially interested to contact SWL's

who have gear, or just the urge, for the microwave bands.

Several more demonstrations are planned for the current year, and it is hoped to hold a TV Convention on Saturday, June 23, in London. Our

neighbours from Holland and Sweden are expected to arrive, and we hope to demonstrate as much equipment as we can, although it will probably not be possible to show the radio links in action.

## The Enquiring Friend

WHO WANTS TO KNOW

By R. LAMBLE (BSWL-3852)

THE writer's shack is situated in a Nissen hut which is used to house workshops for various societies. Consequently, there are always a few spectators when he is there. "I say, Lamb! Is it true that you talk to people all over the world on that radio and that they send you coloured cards?"

Normally I say "No" abruptly and continue searching for watery DX. However, sometimes, when the band is busy, my uninvited audience takes the opportunity of finding out more about the hobby that keeps my ear to my speaker at all sorts of times of day. I am sure that many SWL's must have had at least one of these awful conversations with the uninitiated about the absorbing hobby of Amateur Radio. I always try to do what the editorials of the various radio magazines tell me to regarding "ham spirit" and "goodwill to all men" and so attempt to stand up to the strain of my visitor's barrage of questions:

"What are you listening to now?"

"Oh, just a Wt; that's an American chap."

"Why don't you talk to him?"

"Well, first, it is bad manners to talk while the other chap transmits, since he doesn't hear you; and secondly, I have no transmitter."

"Why don't you buy one and talk to America?"

"You have to pass an exam. before you can get a licence to transmit."

"Ugh! what a hobby—with exams.

in it; just like school work. Is it true that you can hear your father's broadcasting station on this set?"

"Yes, sometimes, when the band is not too noisy, but I don't suppose he'll be on now."

"Why not? Has your father got a technical hitch owing to circumstances, or whatever it is the BBC say?"

"No. You see, he is an amateur and only transmits for fun."

(There is a pause while I reflect on the prevalent conditions and then appreciate why amateurs are very part-time.)

"Would you like to hear an amateur in a very distant land?" I usually ask, since my guests show no signs of going away. This is, of course, a great mistake (described by someone as the biggest mistake I ever made since I decided to take up radio as a hobby.) I advise all SWL's who have not yet been so foolish as to say this to a visitor—*never* to do so. The bands will certainly fold us as quickly as they do on a contest day.

After about ten painful minutes, in which I search feverishly up and down the band for a DX call, I begin to say: "Isn't it a pity that conditions should spoil your first glimpse at Amateur Radio?" Or, more wickedly, "Ah, here's an SM. That's New Zealand, you know" (trusting that they don't). Even the latter doesn't seem to thrill them, and then the questions start again.

"Does that queer radio of yours get the BBC?" I tune the receiver sadly to the broadcast band and endure the inevitable programme of requested records for ten minutes or so, until I gladly switch off and hurry the crowd away.

I have now discovered that one achieves a certain glory for actually producing sounds that the layman can recognise from a radio that looks like mine. It is not, however, advisable to show members of your family, mess or school that the BBC can be received on your own short wave radio, otherwise all your time will be spent with the Home Service request programmes.

# Time Base and Tube Circuits

MORE ABOUT THE  
INDICATOR TYPE 6A

## PART II

By W. N. STEVENS (G3AKA)

AT this point it may be as well to comment on the base connections for the VCR97. They are: 1, signal grid; 2, cathode; 3/4, heater; 5, anode 1; 6, anode 2; 7, graphite coating; 8, Y<sub>2</sub> plate; 9, X<sub>2</sub> plate; 10, anode 3; 11, X<sub>1</sub> plate; 12, Y<sub>1</sub> plate. The graphite coating (pin 7) should be connected to anodes 1 and 3.

Constructionally, there is little to do except for ordinary wiring up. However, it is more convenient to mount the tube in the direction opposite to which it is mounted originally. This enables the pre-set controls to be brought out to the back of the 6A unit, which is more practical than having them all on the front panel, as they need only to be re-adjusted periodically.

The unit can first be stripped of all components, with the exception of the valve bases, the tier of three potentiometers mounted on flexible couplings, the geared assembly connected to two potentiometers (all five spindles are brought out to the rear—originally the front—of the chassis) and the resistor panel below chassis in the centre adjacent to the two potentiometers fixed to the geared drives.

With the tube mounting reversed, the next step is to bolt on a panel of paxolin or similar material across the rear of the unit. On this panel are fitted the frame and line amplitude (height and width) controls VR<sub>4</sub> and VR<sub>2</sub>. Holes should be provided for the five spindles already fitted, and the panel will then be complete, housing the seven pre-set controls shown in Fig. 5.

Referring to Figs 3 and 4 (which will enable the components and assemblies previously mentioned to be located easily), the position of the five valves comprising the section will be seen. The

stages are then wired up according to the circuit diagrams. There are, however, a few points which should be mentioned in this connection.

The choke L<sub>1</sub> in the anode feed circuit of V<sub>4</sub> will already be on hand if a converted R3084 is being used. It will be remembered that amongst the parts discarded from the receiver unit were two small iron-cored chokes, originally located below chassis adjacent to the large block condenser. One of these chokes has a red spot marked on it, and this component will be perfectly suitable for L<sub>1</sub>. If this choke is not available, a substitute can be made by using almost

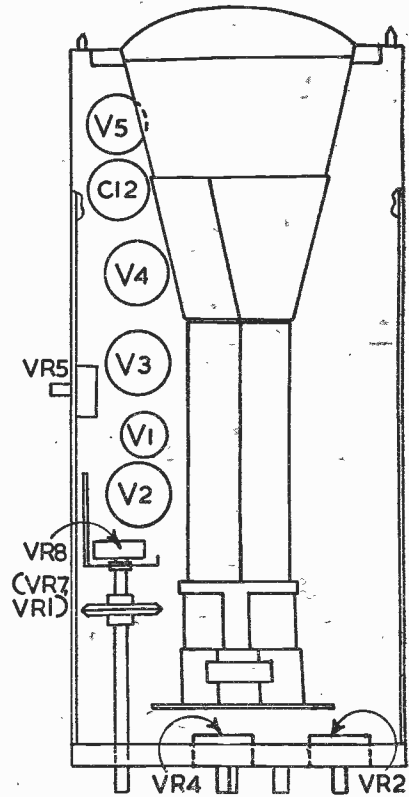


Fig. 3. Above-chassis layout showing valve positions and placing of pre-set controls. VR<sub>5</sub> is mounted on the cross-arm bracket and VR<sub>4</sub>/VR<sub>2</sub> on the panel fitted to the rear framework. Potentiometer VR<sub>8</sub> is the top component in the three-tier assembly, of which VR<sub>7</sub> and VRI are the remaining two.

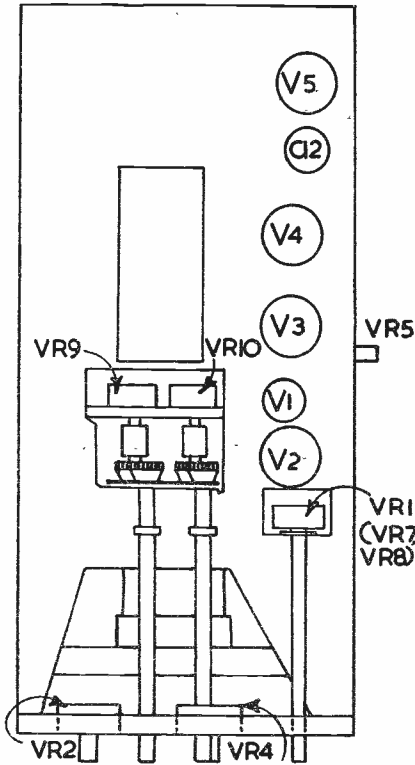


Fig. 4. Below-chassis layout showing the geared drive assembly for fitting VR9 and VR10. Also to be seen is the component mounting panel and the housing of VR1.

any choke which has an inductance of around 4 Henry.

Extreme care should be taken in wiring components carrying EHT, and it should be remembered that the line output circuit operates at a very high potential, due to the peak pulses present. Therefore, the feed leads from the anode of V<sub>4</sub> to the X<sub>i</sub> plate should be carefully insulated in heavy sleeving. In general, all leads must be kept to a minimum, but the line and frame hold components allow some relaxation in this direction. The controls, VR<sub>6</sub> and VR<sub>3</sub>, are not shown in the layout diagrams. They could, of course, be mounted on the rear panel, together with the other pre-set controls, but it would be more convenient if they were brought out to

the front of the unit, since they may require day-to-day adjustment. They can be mounted on stand-off brackets on the chassis or fixed to such front panel arrangements as may be provided. The only remaining potentiometer is VR<sub>5</sub> (line linearity). As this will not need re-setting after the initial lining up, it can be mounted on the chassis; actually a convenient spot is in the diagonal cross-arm which runs from the rear framework to the chassis deck.

### Setting Up

Most readers will be familiar with the functions of the controls; in any case, their effect on the raster is self-explanatory. The picture is locked horizontally by VR<sub>6</sub> and vertically by VR<sub>3</sub>. The shift controls VR<sub>7</sub> and VR<sub>8</sub> respectively centre the raster vertically and horizontally. The picture can then be focussed by adjustment of VR<sub>9</sub>, and set to appropriate illumination by VR<sub>10</sub>.

Line linearity is adjusted by VR<sub>5</sub>, after which the width and height controls can be set so that the picture fills the screen correctly. It should be mentioned that certain controls are, to some extent, inter-dependent and are complementary. The action of the sync control VR<sub>1</sub> has already been discussed.

A word on switching on and off: always turn the brilliance control down when switching off. If the illumination is high, the time bases will cease oscillating when the HT is stopped, but the EHT voltage may not fall quickly enough to prevent a bright undeflected spot remaining on the screen for a short time. This will lead to burning of the

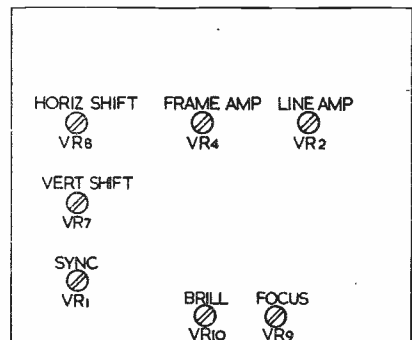


Fig. 5. Suggested arrangement of controls on the rear panel. Five of the fittings are already mounted but VR<sub>4</sub> and VR<sub>2</sub> should be placed directly on the panel.

tube phosphor, and if repeatedly allowed will ruin the tube face. The on/off switch could be ganged with the brilliance control to eliminate such possibilities.

It is advisable to fit fuses to protect the equipment in the event of breakdown. These can be wired in series with the mains supply leads and can be of 1.5 amp rating.

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# Have you heard?

LAST month's prediction was just about right, and the improvement in the weather brought about a change in DX conditions. For a while they were very good indeed, until a bunch of sun-spots came along and spoiled the picture again. After that they recovered, and the end of April saw typical Spring conditions in force—making due allowances for the ten-metre band, which won't be really good for another couple of years or so.

Those who followed the 14 mc SLP on April 21 were mostly rewarded with a new country. Our old friend CM9AA spent his vacation in Guadeloupe to some purpose, and FG7XA was active on all bands with both phone and CW. FG7XB (operated by CM9AA's wife) was also heard by a number of the keen types. The SLP was not remarkable in any other way; best reception seems to have been from Central and South America, some of the better stations being KG4AO, HH2RP and FG7XA on phone, with PJ5RE and 5TR on CW.

The 28 mc SLP was as near a flop as makes no matter. The few short lists speak for themselves. And yet the band has been quite lively at various times during the month. So we will start off with a summary of the doings thereon.

## The Ten-Metre News

A quick analysis of the Calls Heard lists for this band shows that some 39 prefixes were logged, as compared with 41 last month. The better ones among them—all heard on phone—were CP, FG, HC, KG6, PK<sub>3</sub>, TI, VT<sub>1</sub>, XE, ZP, ZS7 and ZS9. Quite a lot of listeners who have neglected the band must have missed a chance of filling up some blank spots with certain of those countries.

A. R. Daniel (Bristol) writes just one sad paragraph about the band: "It knows no shades of quality; it is either good or bad, mainly the latter. When

it is good, some character is bound to run an electric motor all day."

J. P. Warren (West Croydon) says it has had some good spells, and he quotes CP4DG, CR6AJ and 6AN, VT<sub>1</sub>AB, VU2JU and ZS7B. He also mentions VQ2C and VQ2H, both using phone on Ten—these single-letter calls are a new fashion for VQ2 but quite in order. Incidentally, I must apologise to J.P.W. for calling him "J. P. Francis" in the last two issues; this was because I know a J. P. Francis, and J. P. Warren lives in Francis Road—most confusing, but perhaps pardonable in the circumstances!

K. Parvin (Thornton Heath) logged CE7ZN (Antarctica), but, on the whole, didn't hear as much as last month. Two others of interest were F9AL/AR8 and ZS7B, and he heard a G station say that, he had logged KL7's coming in over the South Pole—so things are quite interesting at times. M. G. Whitaker (Ouston) finds the band good for ZS and PY and mentions the fine phone signals from ZS7C on occasions.

R. A. Hawley (Goostrey) thought Ten quite good, singling out for mention CP4DG, PK3WH, two VS9's and ZS5IW/Marine Portable, although he doesn't know where the latter was. B. W. Sutton (Liverpool) stuck to the band most of the month and came through with CR6AJ, FF8PG, KG6HG, TI2EV, VT<sub>1</sub>AB, XE2AN, ZS7C and ZS9F—plus "all the usual stuff." He says the most consistent station is MI3NA, S9 +, every afternoon.

J. W. Cave (Parkstone) sends another of his three-monthly diagrams, this one comparing band conditions with those of the same period in 1950. North America and Oceania, of course, bear no comparison at all; but the curves for Central and South America, Africa and Asia have managed to come up quite close to those of 1950 on many occa-

sions. Averaging out for the past two years, J.W.C. says the best times for DX on the band are likely to be between 1800 and 2100 GMT. He, too, has heard CE7ZN.

E. J. Logan (Hertford) heard ZS7B, on April 22, saying that it was his last QSO from Swaziland. Twice during the month E.J.L. found the band open as late as 2300 GMT, and he always finds DX best on Sundays—doubtless only because of greater activity.

H. M. Graham (Harefield) says he has only listened a few times, and has always found CX, KP4, LU, MI, OQ and PY, but not much else. I. S. Davies (London, N.13) says the band has had "a few brilliant flashes," producing PK3WH at S9 as well as AP, CE, CR6, VS9, ZDr and the like. Also the inevitable CP4DG and CE7ZN.

From D. G. Martin (Cheltenham) we hear much the same story, but he also logged PZ1W. D. L. McLean (Yeovil) mentions the late opening with LU and PY coming across, and thinks the band has been in fairly good shape. In many ways, as he says, it is still the band for DX.

**Twenty-Metre DX**

With the gradual deterioration of the LF bands and the unreliability of Ten, everything and everybody squeezes into the usual maid-of-all-work band, and

so we have more DX logged on Twenty than anywhere else. And there has been some really good stuff. At the time of writing, the indications are that Pacific conditions are improving, so we may expect to log the exotic prefixes of VR1, VR2, VR5, ZK1, ZK2 and ZM6 a little more often. (VR2BU, on CW with 20 watts, was a beautiful signal this very morning). The time for their peak is a little late to be much good except at week-ends, though—it seems to be around 0830 GMT.

K. R. R. Bowden (Letchworth) heard KB6's, KL7's and VR5GA—all on phone. D. S. Kendall (Potters Bar) chased "those elusive islands" to some purpose and logged FO8AB, VR5GA and ZM6AA—all on phone. Others being called (but not heard) were several VR2's, ZK2AA and ZC3AA.

C. R. Burchell (Walsall) went out for Asia and succeeded with DU1AL, KR6FA, VS6BE, VT1AB and 1AF. He also mentions HC1FG, CE7ZN and four TI's. He adds that two local amateurs worked FG7XA, VR2, VR5 and ZM6 all on the same morning.

A. R. Daniel collected DU1AL, ZM6AA and "the Hawaiians who litter up the band every morning." He wants to know whether any VQ8, or VQ9 stations operate at present, and whether there are any active stations in Zone 23.

**"ZONES HEARD" LISTING  
(POST-WAR)**

Listener	Zones	Coun-tries	Listener	Zones	Coun-tries
<b>PHONE and CW</b>			<b>PHONE ONLY (cont'd)</b>		
A. H. Edgar (Newcastle) ...	40	223	F. K. Earp (London, S.W.11) ...	39	163
R. S. Stott (Upminster) ...	40	222	R. A. Hawley (Goostrey) ...	38	188
E. Trebilcock (Australia) ...	40	218	D. Kendall (Potters Bar) ...	38	170
R. A. Hawley (Goostrey) ...	40	202	M. G. Whitaker (Ouston) ...	38	156
W. J. C. Pinnell (Sidcup) ...	40	198	K. M. Parry (Sandwich) ...	38	154
R. W. Thomas (London, E.5) ...	40	197	D. Vincent (Beckenham) ...	38	148
D. W. Waddell (Hitchin) ...	40	194	D. L. McLean (Yeovil) ...	37	185
B. Davies (Beckenham) ...	40	177	J. P. Warren (W. Croydon) ...	37	173
M. G. Whitaker (Ouston) ...	40	177	P. H. Strudwick (Lon. N.W.11) ...	37	168
N. S. Beckett (Lowestoft) ...	39	194	A. Levi (Belfast) ...	37	160
F. A. Herridge (Lon. S.W.12) ...	37	157	A. M. Norden (Lon. N.W.11) ...	37	156
W. Neal (Birmingham) ...	37	155	R. J. Line (Reading) ...	37	156
M. J. Marlow (Guildford) ...	37	138	B. W. Sutton (Liverpool) ...	37	136
R. W. Finch (Ilford) ...	35	133	D. G. Martin (Cheltenham) ...	36	154
A. O. Frearson (Birmingham) ...	34	122	C. S. Pollington (Chichester) ...	36	151
<b>PHONE ONLY</b>			N. Roberts (Launceston) ...	36	140
E. J. Logan (Hertford) ...	40	202	D. C. Stace (New Zealand) ...	36	128
K. Parvin (Thornton Heath) ...	39	177	H. M. Graham (Harefield) ...	35	148
R. G. Poppi (Beckenham) ...	39	167	A. L. Higgins (Aberkenfig) ...	35	138
			J. H. Lloyd (Enfield) ...	34	105

I'm afraid the answer to the latter query is very negative; I don't know about the others.

B. Monks (Dublin) and others suggest that the time has come when CN8's, EA8's and FA's should not be shown in Calls Heard lists. I heartily agree; PLEASE NOTE the new panel of instructions at the head of the first Calls Heard page. This month several lists were far too long and had to be ruthlessly pruned.

J. H. Lloyd (Enfield) collected some nice ones in the form of FO8AB, FP8AW, VK1RB and VR5GA. He would like the QTH's of FP8AW and ZC4ND. J. P. Warren says "twenty-metre phone has been terrific this month," and he collected four new countries with EA0AC, FG7XA, FO8AB and ZM6AA. He also heard seven KM6 phones in fifteen minutes on one morning.

G. C. Allen (Thornton Heath) has spent more time on the band; around 1600 he comments on KR6DT and 6FA, JA2KW, UH8KAA and UJ8KAA. At 1800—AR8AB, FP8AW and ZS3X (CW) with SU1MR, VS7RF and VT1AB

(phone). Around 1900—CR5 and 6, KL7, VQ, ZE, ZS and FG7XA.

J. Richardson (Wednesfield) writes for the first time and says he will have to learn Spanish, "so as to make up a list long enough to fill one of your pages." R. E. G. Sivyver (Henley) reports hearing "UJ8I"—but as they all have at least two call letters over there, I don't know who, or what, this could have been. His best were CX2CO, LU6AJ, PY2CK, TA3XOX, VQ4RF and VP3MCB (phone) with CE7ZB and 7ZQ, CX1BZ, KP4KD and EA0AB (CW).

Best for A. Levi (Belfast) were CP5EP, EA0AC and FG7XA for three new ones; also VP3HAG, 5AO and 6SD plus "TDRK," Guatemala City, in the 20-metre band. K. Parvin throws in a number of good ones, such as CP3CB, CP6FF, FG7XA, FP8AW, HH2RP, I5ZC and the VT1's. Others mentioned as being called are FE8AA, KJ6AQ, ZK1BA and ZM6AA. K.P. adds the news that the Guayaquil Radio Club is about to become mobile again—this time with T19GRC from the Cocos Is.

N. S. Beckett (Lowestoft) says "not too good, but not exactly poor," and hands in FP8BX and FR7ZA (CW) plus KG4AT (phone). He also logged FB8ZZ on phone. M. G. Whitaker says the band is open for worthwhile DX 18 hours a day. He mentions FU8HS on phone for a new one (and is the only listener to do so), and adds that afternoons are excellent for the Far-East.

R. A. Hawley cashed in on FP8 (CW) and ZM6 (phone) for two new ones, and finds BST a help in the mornings. FB8XX and CE7ZQ, both on CW, were also logged. B. W. Sutton collected DU1AL, EQ3FM, FG7XA, HP1GD, UA0KKB, VQ5PH, VR2C and YS1ZG—all on phone.

K. B. Ranger (Rochester) wonders whether ZP0WS could be genuine? He also logged CO, CX, KG4, VP3, YV and ZC1—all phone—and agrees that EA8's are now neither DX nor even scarce.

### Activity in Korea ?

T. E. Botham (Walsall) logged HL1AW a couple of months ago and thought it rather doubtful; now recently he has heard a KH6 calling an HL1, and wonders whether there actually are some Americans operating from Korea at present. Can anyone tell him?

E. Hall (Bolton) has found the few minutes round about 0715 very profitable, with no QRM from EA's and I's; but he has a grouse about DX stations

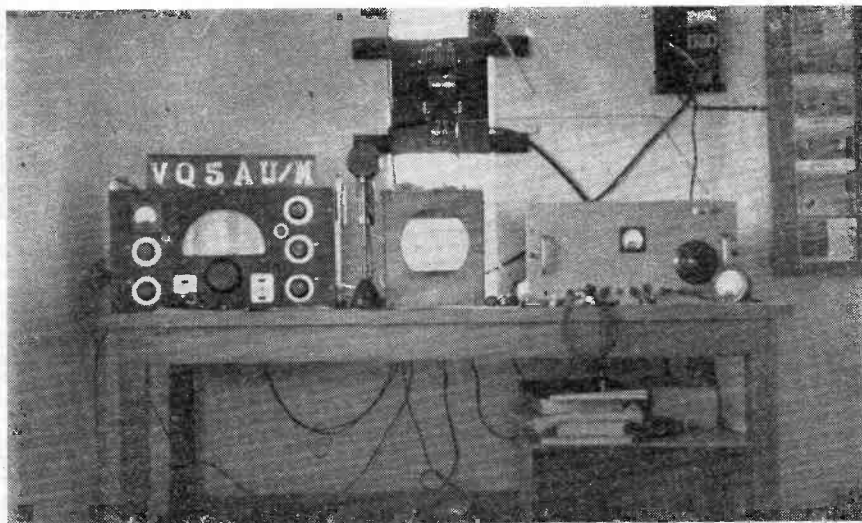
## TOP BAND MARATHON

Feb. 1 to Apr. 30

Scores as on April 24

Listener	Countries	Countries	Total
F. A. Herridge (London, S.W.12)	20	51	71
M. G. Whitaker (Ouston)	16	54	70
R. A. Hawley (Goostrey)	9	51	60
H. J. Hill (Whitley Bay)	7	47	54
N. S. Beckett (Lowestoft)	11	42	53
K. R. R. Bowden (Letchworth)	8	42	50
W. J. C. Pinnell (Sidcup)	10	38	48
N. S. Roberts (Launceston)	5	41	46
E. Cheese (Croydon)	5	39	44
J. P. Colwill (Launceston)	5	37	42
H. Watson (Grimsby)	7	32	39
H. M. Graham (Harefield)	4	25	29
W. G. Gore (Yatesbury)	3	17	20





This is the station of VQ5AU, Kampala, Uganda, who also holds VQ4AU and is a member of our BSWL. Previously a ZC6, he has been on the air under the present call since January, and has worked a nice bag of DX. The receiver is an Eddystone 358X and the Tx runs a single 807, CW and phone.

who gabble their call-signs—particularly some of the W's exiled in fairly exciting spots.

W. J. C. Pinnell (Sidcup) collected a new country (PJ3XA) during the SLP, but seems to have missed out on FG7XA, who was heard by most of the others! D. Tilcock (Mitcham) thinks he must have struck the band every time conditions were extra bad, but he would like to know more about TT4N, more over-modulated than the worst I1's, and speaking with a "comic-opera German-Chinese accent." Now who on earth

...?

H. M. Graham has done all his listening in the evenings and so has collected practically every Central and South American country, right down to that CE7ZN type. I. S. Davies says the band produced "a wealth of DX," and his log includes DU1AL, I5ZC, KH6CD and 6IJ, KJ6AQ, CR5AC and FG7XA. He finds things best in the early mornings and between 1900 and 2100.

R. W. Thomas (London, E.5) had a great time of it, and added seven new countries to his list. Those that did it were FG7XA, FR7ZA, VP1AA, VP7NM, VR2AA, VT1AC and ZS7C. D. G. Martin collected EL6A, EQ3FM, HZ1AB, JA2HP, TI2OE, VT1AB and some other nice ones. Finally, D. L.

McLean's phone list runs like this: KH6EL, 6IJ, 6OR, 6RR, KL7's, VQ3CH, VT1AB, YI3ECU and ZM6AA. He adds that VK9YT on New Ireland and ZK2AA are both reported to be on 14 mc phone.

That deals with the 14 mc news—and pretty encouraging it is, this month. Further small items will crop up in the "Miscellany" section.

### DX on Forty

As one might suppose, the 7 mc band is losing its winter popularity; static and short-skip QRM are on the increase, making it far more difficult to sort the wheat from the chaff. Most of the band's usual devotees remain faithful to it. N. S. Beckett says the ZL's are still there, but VK seems to have vanished; he also logged a "C6KB," who sounded like DX at midnight but is still slightly suspect.

M. G. Whitaker added VQ3CF to his bag, and says he is now giving the band a rest, having increased his country score by over 50 this winter. R. A. Hawley listened round the band during a Russian contest and thinks he must have heard just about every USSR station! H. M. Graham had "a bit of luck" on April 8, collecting HK1KY,

TI2OH and HA5BE for new ones, all soon after midnight.

### The April Contest

Talking of 7 mc, the April Contest was a matter of logging African prefixes<sup>re</sup> on the band. Sad to say, there were only two participants: J. L. Hall (Croydon) and N. S. Beckett. To J. L. Hall go the honours with 8 countries: EA8, CT3, FA, CN, VQ3, ZD4, ZS and FQ. N. S. Beckett is honourable runner-up with 5 of them: CN, FA, FF, VQ3 and ZD4.

R. W. Finch, who proposed the Contest, writes to say he is sorry not to have been able to take part in it!

### Eighty-Metre News

Short query from M. G. Whitaker: "How about PMØNG at midnight on an otherwise dead band?" How, indeed? N. S. Beckett finds summer conditions in force, but was delighted to get his QSL from KL7UL, verifying reception on March 20 at 0630. It was N.S.B.'s first KL7 on the band, and the Alaskan's first DX report.

J. L. Hall<sup>e</sup> has logged KV4AO on phone (3840 kc)—the first KV4 ever to use phone on the band—and says FG7XA has also been up on 80-metre phone, but hasn't worked Europe. Others heard by J.L.H. were FP8AW and 8BX, TI2PZ, PY7WS and a bunch of ZL's—all on CW. And that's all that the customers have to say about 80 metres.

### Top Band Topics

There's still a good deal of activity in the "semi-DX" line on the 160-metre band, but, naturally, no more Trans-Atlantics or real long-distance stuff. R. Iball (Worksop) reports having a really good time in the Trans-Atlantic Tests; since then he has been out for European DX and has logged about twenty OK's as well as OZ7KG, OH5NV, HB9CM and some Russians.

G. C. Allen logged W1AW at 0300 on April 3 (1887 kc)—a surprising one. He thinks M. G. Whitaker's report of ZD4AB up there must have been caused by an "overtone," since he heard him on 3.5 mc at 0327 the same day, and then on 7 mc at 0430. (M.G.W. reports him on Top Band at 0350).

M. G. Whitaker himself awaits a QSL with some anxiety! He has no doubts whatever about YI3ECU, heard the same morning; this station was called by G3PU and EK1AO, who were undoubtedly on the right band. He has

picked out some more new countries, and the competition for the Top Band Marathon table is very hot between himself and F. A. Herridge (London, S.W.12). By the time you read this it will have been settled, but we shan't see the result until next month.

F. A. Herridge, in person, reports another interesting month, during which he heard YO1TW (2238 on April 21) and some UB5's.

Last month D. Robertson (Caithness) summarised his Top-Band achievements as 63 Countries, 20 Countries, 4 Continents, 7 Zones and 10 States. This has brought an immediate challenge from G. C. Allen, whose figures are 70 Countries, 24 Countries, 4 Continents, 8 Zones, 10 States; and from F. A. Herridge, with 59 Countries, 25 Countries, 4 Continents, 7 Zones, 4 States. This Top-Band business is certainly spreading around the world—I wonder what new countries will show up next season?

A strange character signing "X4XAM" (not 4X4AM) has been around the band, giving his QTH as Israel; but his tactics have not been such as to deceive many. N. S. Beckett finally disposed of him when he heard him come back to "W3DEN" and carry on a QSO at some 25 w.p.m. with this doubtless imaginary W! Added to that, he gives his QTH as a prison! Perhaps he has been crystal-gazing.

### General Gossip

H. J. Hill (Whitley Bay) finds general noise-level increasing all round, and Top-Band activity falling off. He has heard most of the DX on 14 mc, including VQ9G (Seychelles). This one, if genuine, is a new country, but at the moment he is a bit suspect. H. J. H. also heard someone calling FK9AGZ and wonders who *he* is.

H. M. Graham suggests another Contest idea—the logging of as many countries as possible in two or three selected Zones. One Zone could be a hard one (but not 23!), one fairly easy and one about middling. We'll try it some time.

E. J. Logan protests at the inordinate length of some of the Calls Heard; as he says, the comparative purpose of the lists is lost if some listeners have to cut theirs right down to 25 and others don't do it. Once more: *note the new panel at the head of the Calls Heard pages.*

J. L. Butcher (Blackpool) is a new reporter, and he agrees with last month's remarks about home-brewed

receivers, saying that there is a unique satisfaction in receiving DX on a rig which has taken shape under one's own hands. He has just completed a 1-V-1 of his own. J.B. mentions a curious QSO he overheard, in which TA3XOX (an American in Turkey) was put in touch with his own mother in the States (over the telephone) by W1MUM—of all the call-signs to strike for the purpose!

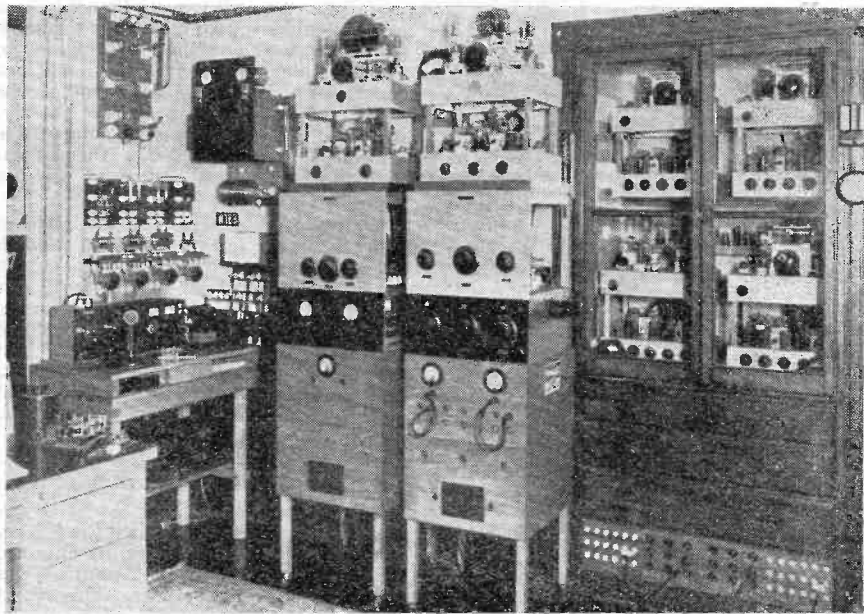
B. W. Sutton asks about this TA3XOX—he seems to be genuine—and also would like notes on OU1FF, 1SS and 1SW. Last month's remarks about YU1AD being possibly the first YU on phone since the war have brought forth a comment from S. Smith (Kenilworth), who had a card back from YU1CAB for a phone report at least a year ago.

T. Spencer (Slimbridge) heard an amateur in Weston-super-Mare working a W station, who came back and said, "I was flying over your QTH last night!" These curious things that one hears are surely more interesting than the mere routine logging of DX—let's have more of them.

A. Jackson (Huddersfield) has been rather puzzled by the "mixed skip" effect we have had so much of this year. He says he thought that short-skip conditions meant that long-skip was out; but he hears PY's and CT's coming through at the same strength. So do we all—not to mention VK's and UB5's in the mornings!

C. R. Burchell suggests that R. E. Siver's query on "TV8BF" last month, probably refers to 3V8BF. I. Mills (Croydon) writes for the first time and reports hearing some nice DX on his R.1155 and converter. He says that SU1MR is on again after some months' QRT.

B. W. Sutton calls our attention to the fact that the ARRL and the other (self-appointed) deciders of "when is a country not a country" have now ruled that the Saar, 9S4, shall count separately. So those of you who haven't counted it can all go up one. But the time is coming when we shall have to take a hand in this country-listing business and make some decisions more



Readers who followed our Top Band Trans-Atlantic Tests this year, on which a full report appears in the May issue of *Short Wave Magazine* will certainly have heard W1BB, Winthrop, Mass. if they were getting any results at all on 1.7 mc. This is a view of the transmitting equipment at his very fine station, operating on all bands 1.7 to 144 mc.

in accordance with historical and geographical facts. M. E. S. Birch (Beverley) has been playing with two 20-metre Windom aerials and finds that, by using one to the earthed chassis of the receiver and the other as aerial, he obtains directional effects which he can't get with just one or the other connected as an aerial. (Next step, M.E.S., should be to use an aerial coupling coil with neither end earthed, connecting the two aerials across it).

J. R. Sergeant (Peterborough) is another newcomer, who runs a home-built o-v-r and sends in his first list of Calls Heard. Likewise G. J. Burgess (Drayton) sends his first report, but we couldn't use his Calls Heard because of the form they were in. (See that first page, again!)

Paul Q. Dodson (Rhuddlan) heard a W4 say to another station, "It's murder boring your way through all that garlic"—and we feel we know what he means. He also heard someone giving his QTH as "Portable, Chagos Islands," but he was swamped out—Hard Luck! R. Williams (Birr, Eire) send his logs for various bands, but, again, we can't use them as Calls Heard.

### Contest Department

- 1- **The Top Band Marathon**: This ended on April 30, and the winners will appear in the panel next month. We will have another "spasm" of three months, probably starting in November or thereabouts.
- 2- **The May Contest**: This was announced last month. It runs from April 22 (midnight) until May 22 (midnight) and consists of logging as many countries as possible, outside Europe, on 14 mc phone only. Send in your results to catch the next issue.
- 3- **The June Contest**: Just to give the 28 mc enthusiasts a chance, a similar one for them. Countries outside Europe (never mind the Zones) heard between May 22 (midnight) and June 22 (midnight) on 28 mc phone only. Conditions may not be helpful at that time of the year, but have a go!

### Set Listening Periods

- May 26, 1800-1900 GMT — 14 mc  
Phone and CW
- May 27, 0700-0800 GMT — 14 mc  
CW Only
- June 23, 1800-1900 GMT — 28 mc  
Phone Only
- June 24, 0700-0800 GMT — 14 mc  
CW and Phone

Note these June dates now, because they come just after publication of the next issue and only just before the deadline. The calendar is going to hurt us once more!

Your closing date for the next issue is **first post on May 30**, and, for the

following one, first post on June 27. Make a note of them both and please do catch the boat. Address all your amateur band news, views and DX reports to DX Scribe, *Short Wave Listener & Television Review*, 53 Victoria Street, London, S.W.1. Until next month, Good Hunting, 73—and read those Calls Heard instructions!

### WHY PRINT THEM?

From time to time, we are accused of "wasting space on Calls Heard." Why, then, do we continue printing Calls Heard, and what is their value? A regular display of numerous lists, pruned to include only what is of real interest for the band concerned and selected so that the whole country is covered, yields a great deal of valuable information to those who care to make use of it. First, a close check can be kept on (a) The listener interest in particular bands, and (b) What is to be heard on those bands. Secondly, it enables readers as individuals to compare their results. Thirdly, it provides useful data on the receiving equipment in use by different SWL's. Fourthly, a reliable guide—up to date, and available for reference at any time—is given as to the occupancy, by amateur stations generally and from what parts of the world, of the different bands. Lastly, it encourages that valuable competitive interest as between SWL's themselves, without which real progress is not possible.

We regularly receive more Calls Heard lists than we can print—even though three pages are allowed for them, which is a fair proportion of the available space. While we are always glad to see these lists, for the reasons outlined above, we would particularly ask that readers (a) Date their general logs, (b) Follow the instructions given about setting them out, and (c) Write their lists in clear block letters.

### TOP BAND TESTS

The May issue of our *Short Wave Magazine* carries a detailed and very interesting report on the results obtained during the 1.7 mc Trans-Atlantic Tests arranged earlier in the year. This report shows that many stations were successful on both sides of the Atlantic, that several new records were set up, and that at one period all six Continents were represented in the Tests.

# CALLS HEARD

## SET LISTENING PERIODS

14 mc

April 21, 2200-2300 GMT

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

PHONE: CE3CZ, CO7PM, SMP, CX1CA, EASAV, 8FR, FG7XA, KG4AO, KP4CP, 4DP, LU3DR, 4CN, 8FV, PY1ATK, 1AVM, 1FF, 2CK, 4ABS, 4AER, 4CT, 6BP, 6QM, TI4JG, VP5MU, 9VV, YV5CE. (Rx: S.504).

R. W. Finch, 36, Bathurst Rd., Ilford, Essex.

PHONE: PY4KL, VP2VV, CW: CO2OE, FA9RW, KP4LK, KZ5DC, PJ5RE, PY1AIU, 2AVY, 3KW, 3WV, VP90O. (Rx: 3.V.2 Mains Home-Built).

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

PHONE: KP4CU, 4DP, 4FS, 4CF, LU6AJ, 6VF, PY2CK, VP5MU, VP6HM, 7DM, 9VV, YV5AG. (Rx: Commander).

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

PHONE: CO7PM, SMP, CX2CL, EA8BU, LU1JC, 3DR, 7FS, PY1AVM, 2AXG, 6QM, TI2JV, VP6HM, 9VV, CW: KP4CU, KV4AA, KZ5AP, 4BC, LU1CA, 7BN, OQ5LL, PJ3XA, PY1AIU, 2QW, 4NT, VP90O. (Rx: V55R and Converter)

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

PHONE: CE3CZ, CO7AA, 7PM, SMP, CX1CA, EASAV, KG4AO, KP4DP, LU6AJ, PY1ARG, 2CK, 4CT, 7KA, VP9D, 9VV, YV1AA, 5EC. (Rx: 1-V-1).

J. Richardson, 19 Colman Ave., Wednesfield, Staffs.

CO7BN, EASAV, 8AW, KG4AD, LU6AJ, PY2AK, 2CK, 6BP, VP5NU, 9B, 9VV, 9ZZ, YV4BK. (Rx: RME.69).

M. E. S. Birch, Walkington Park, Beverley, East Yorks.

PHONE: EASAV, 8AW, LU6AJ, PY2CT, VP9VV. (Rx: R.1155).

A. H. Trigell, Lynwood, Everton Road, Lymington, Hants.

PHONE: COSMP, EASAV, KG4U, KP4CO, 4DT, 4EE, LU6AJ, PY2CK, 4KL, VP5UV, 9D, 9VV, YV5AC. (Rx: R.1155A).

Please note these simple rules for sending in your lists of Calls Heard.

28 mc: No Europeans.

14 mc: No Europeans or North Africans, no East Coast U.S.A. or Canada no PY.

7 mc: No Europeans.

3.5 mc: No Europeans.

1.7 mc: No U.K. stations.

Arrange logs in the form given in this section with

(a) Prefixes in alphabetical order, but not repeated after the first one; (b) Numbers in numerical order and repeated as part of the call-sign; (c) Call-signs in alphabetical order. For example:— VK2GW, 2ZC, 3CP, 4UL, VP1AA, 2GB, 5BJ, 7NM, VQ4RF, 8AF.

Underline each prefix; put your name and address at the head, and type of receiver at the foot; restrict your lists to a total of 25 calls. In short, make them out exactly as those shown herewith, but take as much space as you like. Microscopic writing is neither necessary nor popular. And if you want to use our Calls Heard Report Forms, specially produced for the purpose and supplied free of charge, send a large S.A.E. to the office, with a card marked — "Report Forms, please."

S. Smith, 40 Stoneleigh Road, Kenilworth, Warks.

EA8CR, KP4HF, 4VO, LU5CZ, 60E, 7BH, PY2CK, 6UN, TI2AS, VP3GT, YV5EC, 5VK. (Rx: B.36).

M. G. Whitaker, R.A.F. Ouston Newcastle-on-Tyne.

PHONE: COSMP, KP4CP, LU2FE, 4MM, PY1FF, 2CK, 4KL, 6BP, 6CN, VP9VV, CW: CO2OE, KP4CU, 4LK, KV4AA, KZ5DC, LU1CA, 5CK, 7BN, 9AX, PJ5RE, PY1AZA, 2AQ, 2JS, 2QW, 2WB, 3MV, 4AJD, 4NA, VP6SW, VQ4CR. (Rx: 0-V-1).

R. E. G. Sivyler, 7 Norman Ave., Henley-on-Thames, Oxon.

CW: HZ1JD, LU9AX, OQ5LL, PY1AIU, SM8LS.

PHONE: EA8CR, LU7OL, PY2CK, YV5AB. (Rx: Decca 55).

A. Levi, 33 Old Cavehill Road, Belfast.

PHONE: CO7PM, EASAV, PAC, EL2R, FG7XA, HK5EV, HP1GD, 1LA, KG4AO, KP4CO, LU4GN, 6AJ, 8DL, PY2CK, 3VP, 4CT, VP9AJ, 9D, 9VV, VQ4CM, YV1AF. (Rx: S.504).

H. Froggatt, 28 Lea St., New-Mills, Stockport, Cheshire.

CW: CO7AH, CX5BH, KP4CU, KV4AA, KZ5DC, 5AP, LU1WC, 5CK, OQ5LL, PY2WB, 2QW, 2UV, 3WV, 4NT, PJ5TR, VP9AJ, 9OO. (Rx: S.358X).

F. W. Hardstone, 43 Shrubbery Road, Streatham, London, S.W.16.

PHONE: CE1CR, CN8EB, COSMP, EASAV, 8BE, EK1AS, EL2R, FG7XA, HH2RP, KG4AO, KP4HF, LU6AJ, PY1KU, 2CK, 4KY, 4TI, 6BV, 6DF, 6UM, TI2FG, VP3FD, 9AJ, 9D, 9VV. (Rx: RF24 and "S40tr.")

28 mc

April 22, 1000-1100 GMT

F. W. Hardstone, 43 Shrubbery Road, Streatham, London, S.W.16

PHONE: AP5SS, 4X4CW. (Rx: S40a and RF24).

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

PHONE: PY2CK, 4X4CW. (Rx: Commander).

## GENERAL

28 mc

B. W. Sutton, 117 Utting Ave., East, Liverpool 11.

PHONE: AR8MR, CR6AJ, CX4CS, EA8AX, FF8PG, KG6HG, KP5NY, LU6AJ, MD2GC, MI3NA, OQ5BW, TI2EV, VP6SD, VQ4RF, VT1AB VU2GP, XE2AN, ZD4AF, ZE2KO, ZS9F, 3V8BB. (Rx: S.640).

D. A. R. Tilcock, 16, Taffy's-How, Mitcham, Surrey.

PHONE: AP5HQ, AR8BD, CX4CS, 6BD, KP4MQ, LU4DP, 5BZ, SOB, 7UO, PY2ADT, 2CK, 2KU, -3CR, 3SI, 6AO, 7KC, VQ4RF, ZS1JB. (Rx: Ham-bander and Preselector).

**R. A. Hawley, Torvire, Brookfield Crescent, Gostrey, Cheshire.**

**PHONE:** -CE3AE, CP4DG, CR6AQ, CX1NE, 4CS, 6BD, EA8AX, FF8PG, HC10A, HK1AB, KP4KA, 4NY, LU6AJ, PK3WH, PY7QT, VQ4ASC, 4BU, VP6LD, 6SD, VS9AA, 9AH, VU2GB, W3NVI/MM, ZD4AH, ZS5IW/Marine. (Rx: AR-88 and S.504).

**I. S. Davies, 127, Hazelwood Lane, London, N.13.**

**PHONE:** AP5HQ, CE3AE, 6AM, CR6AJ, 6AM, 6AQ, FF8PG, HC1JW, 10Y, KP4ES, 4HF, 4NY, OQ5BN, 5BP, PK3WH, VP6JC, VQ4AC, 4RF, VS9AH, VT1AF, ZD1SW, ZE3JT, ZS1KO, 1YI, 2CR, 7C, 9F. (Rx: R.208).

**E. J. Logan, Linten Cottage, Fanshawe St., Bengoe, Hertford.**

**PHONE:** AR8AB, CE3AE, 6AM, CR6AJ, 6AQ, 7AF, 7AL, LU4LDE, M13NA, OQ5DD, 5NK, PY7RD, VP5FR, 6HM, VQ2JS, 4ERR, VS1AD, 1AX, VU2JG, ZD1SW, 4AF, ZE3JP, ZS7B, ZS7C, 9F. (Rx: BC-342-J/RFU-32).

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

**PHONE:** AR8AB, 8BB, CR6AJ, 6AQ, EL6A, FF8CG, FG7XA, HZ1AB, M13NA, 3US, OQ5BO, 5CA, TA3XOX, VP6SD, VQ4BU, 4CRE, 4RF, VS9AA, XE1DY, ZD1SW, 4AX, ZE2JA, 2JP, 2KH, 3JJ, 3JP, 3JT. (Rx: SX28 and AR88).

**K. Parvin, 98 Winterbourne Rd., Thornton Heath, Surrey**

**PHONE:** AP5HQ, CE3BE, 7ZN, CR4AC, 6AJ, 6AM, CX2CO, FF8PG, 9FAL/ARS, FF8PG, HC1KV, 10Y, PK3WH, VP6MD, 6PV, 6SD, VQ4RF, 4SGC, VS9AA VU2JU, ZD1SW, ZP5BA, ZS7B, 7C, 9F, 4X4CR. (Rx: S.504).

**R. W. Pennells, Neals Cottage, Lamberhurst, nr. Tunbridge Wells, Kent.**

**PHONE:** AP5HQ, CE2CC, 7ZN, CR4AC, 6AJ, 6AM, CX2CO, FF8PG, LU5DH, MD2AM, OQ5AB, 5BW, 5EC, PY7RT, TA3FAS, VP6SD, VU2JU, W2PFL/MM, 2VKW/MM, 3OZA/MM, ZE2KH, ZS1B, 4X4AS, 4CW. (Rx: 0-V-2).

**A. R. Daniel, 18b Tyndalls Park Road, Bristol 8.**

**PHONE:** CR6JO, LU5DU, 6AJ, 8CW, PY7RD, VQ2HW, 4RF, ZE2KH, 3JP, ZS1JB, 1KO, 4X4AB. (Rx: BC342).

**T. G. Spencer, Cherry Tree Cottage, Slimbridge, Glos.**

**CE3BE, CR6AJ, ZS5CP, 5NA, M13NA, PY7XC, VU2JG, ZS1KY, 5CH, 60Y, 9F. (Rx: 2 Commander).**

## 14 mc

**B. R. J. Pooley, Steam Yacht "Thistle," c/o Newman's Shipyard, Poole, Dorset.**

**CW:** FA8DA, HP1LL, HZ1HZ, PJ5TR, ZB1BS.

**PHONE:** CN8MZ, CT3AB, EK1RR, FA9UO, FF8DA, FG7XA, KH6CD, 6IJ, LU6KE, M13US, PY1MK, 4PI, T20A, VK2BX, VP9G, VQ4RF, YV5BE, ZB1AIS, ZL2GX, 3V8BB. (Rx: R1155A).

**D. S. Kendall, 40 Aberdale Gardens, Potters Bar, Middx**

**PHONE:** EQ3FM, FOSAB, JA2OM, KH6AQ, 6EL, 6FO, 6IJ, 6LG, 6OA, 6OR, VK2APA, 2NS, 2PG, 2TE, 2TI, 3AUP, 2MX, 4HR, 4WF, VR5GA, VS1AX, 6BE, 7GD, 7SG, VU2JP, ZL2BE, 2GX, 4CB, 4HJ, ZM6AA. (Rx: National HRO. Asia and Oceania only).

**I. S. Davies, 127 Hazelwood Lane, London, N.13.**

**PHONE:** CE7ZN, CR5AC, DU1AL, FG7XA, FPSAW, HC1FG, HH2R, HK1AS, HP1LA, 15ZC, JA5GC, KG4AO, 4AU, KH6CD, 6IJ, KJ6AQ, OA4DW, VP3FD, 3HAG, 3MCB, VQ5AI, 5AU, VS1AD, 7GD, 7NG, VT1AB, VU2BN, 2JP, W4RWR/KV4P, Y13ECU, ZL2JB, 2QK, 4AW, 4CP, 4IG. (Rx: R.208).

**E. J. Logan, Linten Cottage, Fanshawe Street, Bengoe, Hertford.**

**PHONE:** AR8BC, CO8BO, CR7V, DU1AL, EL2R, FPSAW, H18WF, HK3AT, HZ1TA, JA2CL, KG4AO, M13NA, PJ5FN, TA3XOX, T14JG, VP3LF, 4TK, 5BI, 6WR, VS7WA, VT1AB, VU2CO, YS1MS, 1ZG, ZC4ND. (Rx: BC-342-J).

**R. Hawley, Torvire, Brookfield Crescent, Gostrey, Cheshire.**

**PHONE:** EA8AP, 8BB, 9AI, H16EC, KH6GF, 6TY, 6LG, 6OA, KL7ACO, KR6CO, T12CHV, VE7GQ, VK2ASD, 4RT, 4VJ, 5MS, VP3MCB, 6SD, VS1AX, 6BE, VT1AF, ZL2BE, 4CU, ZM6AA. (Rx: AR-88 and S.504).

**B. W. Sutton, 117 Utting Ave. East, Liverpool 11.**

**PHONE:** CO7AA, CX2CO, DU1AL, EQ3FM, FG7XA, HP1GD, JA2CC, KL7CO, OX3BG, T12OA, UA0KKB, KQ4WF, VP3MCB, 6FO, 9XX, VQ5BH, VR2C, VU2JU, Y13BZL, YS1ZG, YV5BO, ZC6DH, ZL2JR, 3V8BB, 4X4CR, 9S4AX. (Rx: S.640).

**H. J. Hill, 7 Ventnor Gardens, Whitley Bay.**

**PHONE:** CE7ZN, CX2CO, EA8BB, EK1JC, EL2R, H16EJ, HZ1TA, MP4BAO, M13US, OQ6AF, PY1AQI, TA3XOX,

3FAS, VS2AA, VP4LL, 9AG, 6FO, VQ9G, 4RF, ZS5KF.

**K. Parvin, 98 Winterbourne Rd., Thornton Heath, Surrey**

**PHONE:** CE7ZN, CP3CB, 5EP, 6FF, CR4AD, DU1AL, EQ3FM, FG7XA, FPSAW, HH2RP, 15ZC, JA5GC, KG4AO, KH6DY, 6EL, 6IJ, 6LG, KL7ACO, KR6FA, KZ5CA, OA4AT, 4DW, VT1AB, 1AF, Y11AD, 3ECU, YS1MS, 1ZG. (Rx: S.504).

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

**AR8UN, COSMP, CP5EP, EA9AC, EL2R, 9A, FG7XA, HC2LE, H18WF, HK1DW, 4FV, 5EV, HP1GD, 1LA, KG4AT, KP4CO, M13US, TDRK, T2AS, 2OE, VK6VM, UP3HAG, 3MCB, 4LL, 4TK, 5AO, 6FO, 6VR, 7NH, 9D, 9G, 9WV, 9XX, VT1AB, VU2SWL, W4JBC/KP4, ZC4ND, 4X4DR. (Rx: S.504).**

**J. R. Sergeant, 21 St. James' Avenue, Peterborough.**

**PHONE:** AG2AB, CN8BV, 8EL, 8EN, 8EQ, 8ER, CX2CO, EA8AY, 8BC, EK1AB, 1RR, KP4HF, MD2AM, 2EU, M13RP, 3US, PY2CK, TA3FAS, TF5IP, VP6FO, 6SD, YV5AB, ZB1AH, 3V8AS, 4X4AT. (Rx: 0-V-1).

**J. P. Colwill, Hay Common, Launceston, Cornwall.**

**PHONE:** CO2JK, EA9AC, FF8DA, FPSAW, HK4FV, KG4AO, KH6OA, 6OR, KP4CO, 4EE, 4FP, 4OZ, M13RP, OA4AT, OQ5LL, PJ5FN, VK2APA, 2PU, 3ABE, 3FE, 3SP, 4MW, VP3HAG, 6PV, VQ4AQ, YK1AA. (Rx: Roberts' P4D).

**M. E. S. Birch, Walkington Park, Beverley, East Yorks.**

**PHONE:** AG2AB, CN8BG, 8EI, 8EG, 8EN, 8MZ, CS3AA, CX2CO, DU1AL, EA9AI, FASIH, 9OW, H16EC, JA2OM, KG4AU, KP4DP, 4JM, HP1LA, LU4BH, MD1ZV, 2AC, 2AF, M13NA, 3RF, 3US, OX3MC, PY1AQ, 2CK, 2CT, 2JU, 4AGZ, 4AJK, 4X1, 7XC, VE8CG, VK3HG, 3VA, 5MS, VO1AB, 6B, VP3MCB, 4LL, 5AK, 6FO, 6MO, 6SD, 9AG, 9G, 9HH, VQ4RF, TA3XOX, T12OB, YV5AB, 4X4AT, 4BK, 4BN. (Rx: R1155).

**D. C. Stace, Spring Creek, New Zealand.**

**HA5BD, HC2LF, HK1DW, HP1LB, KZ5CA, LU2NC, 4VB, 8FP, M13US, VQ4RF, W5LUA/KM6, W5NG/KC6, Y05LC, YS1MS, YV5BZ.**

**W. Neal, 217 Sladefield Road, Ward End, Birmingham 8.**

**CW:** CR4AD, FPSAW, SBX, JA2KW, KB6AQ, KL7ACO, KV4AA, OQ5LL, PJ5RE, VESAW, VK3AZW, 3XO, VP4LZ, ZL2AL.

PHONE : CX2CO, HK3AS, MD2PJ, MI3US, VE8MB, 8RG, VP3MBC, YV5EG. (Rx: S.640).

P. O. Dodson, 7 R.A.F. Camp, Rhuddlan, N. Wales.

PHONE : COSMP, CP5J, CX2CO, EA7DA, 9AI, FP8AW, SZZ, KG4AU, KP4EE, 4ES, 4CA, MF2AA, OX3BG, 5MC, 2PO, VO1AB, 1DX, VP1CV, 3MBC, 6SD, 6FO, ZS5CC, W4WRW/airborne, Virgin Islands.

J. H. Lloyd, 51, Larmans Road, Enfield, Middx.

PHONE : AR8BC, CE1EM, 3CZ, EA9AI, 0JM, EQ3FM, FE8AE, FO8AB, FP8AW, HZ1KE, JA2OM, 8BL, KG4AU, KH6GS, KL7RD, KR6AR, OA6VS, TF5SV, VE7CN, VK1RB, VP3MBC, 5FA, VR5GA, VS6QX, YS1ZB, YV5EC, ZC4MD, ZD4ND, ZS1BJ. (Rx: Mod. R.1155).

M. G. Whitaker, R.A.F. Ouston Newcastle-on-Tyne.

PHONE : DU1AL, EA6AT, EL2R, FG7XA, FUSHS, KH61J, KR6CM, VP5MU, VQ2GW, 3AT, 5AU, 5CK, CW : CR5AF, F8OK/MM, 9QV/FC, FY7YC, HZ1ID, KL7ACJ, JA2GA, PJ5RE, UN1AE, UP2KBC, VP8AI, W7GMJ, ZS3K.

K. R. R. Bowden, 33 South View, Letchworth, Herts.

Phone : EA9AI, EQ3FM, HC1FG, KH6DY, 6LG, 6OA, KL7AE0, VP9VV, VQ3BNU, 5AU, VR5GA, YS1MS, CW : CR5AF, 6AQ, 7AD, FP8AW, 8BX, JA2DS, KH6YL, KL7LA, UA9KOG, VU2CW. (Rx: R.107).

K. B. Ranger, 89 Station Road, Strood, Rochester.

PHONE : CE7ZN, CO2DG, CS3AA, CX2CO, EA6AR, 6AT, 9AI, K6USA, KG4AO, KP4EF, LU5CZ, MD1ZV, MD2AF, MI3RP, 3ZX, OQ5CA, 5DZ, IF5TP, VO1T, VP3MBC, 6MO, 6PV, 6SD, VQ4BU, YV5EC, ZB1BE, ZC1AIS, ZL4IG, ZP0WS, 3V8AS. (Rx: 0-V-2).

C. R. Burchell, 109, Dartmouth Ave., Walsall.

PHONE : CE3CZ, 7ZN, CR4AD, COSMP, CX2CO, DU1AL, EA0AC, EQ3FM, HC1FG, HIBEC, HK4FV, HP1LA, 1LL, HZ1KE, 1FA, JA2MB, 2OM, KG4AU, KR6FA, OQ5CF, SU1MR, VP3MBC, 4TK, 5MU, VS6BE, 7GD, VT1AB, 1AF, VU2JU. (Rx: HMV 1120).

S. Smith, 40 Stoneleigh Road, Kenilworth, Warks.

HZ1TA, JA2OM, KP4AZ, LU9AC, OQ5DZ, 6X3BD, 3BG, TF5SU, 5TP, UA1BE, VP8GT, 4CK, 6FO, 6MG, VQ4RF, 4UL, 5AC, VS7BE, 7BR, 7EA, 7SG,

7WN, YV5CA, 5DJ, 5EC, ZC6DH, 6JM, ZS6DX, 6FD, 6SG, 6GY. (Rx: B36 and 1155A).

R. J. Riding, Trewatha, Fickersley, Wednesfield.

PHONE : COSMP, CT3AE, EA0AC, HZ1TA, KG4AU, KP4AV, 4CO, MI3NA, 3US, OX3BD, VP3MBC, 6FO, 6MO, 6SD, 9HH, VQ4RF, 4VU, VS1AX, ZS6CY, 4X4BD. (Rx: Home-built Battery 1-V-1).

G. Ayton, 76 St. Bernard Road, Stockton-on-Tees.

FA8CC, KH6AQ, 6CD, 6EL, 6IJ, 6LG, 6OR, 6YL, KP4CO, VE6CO, VP6SD, 6VG. (Rx: Eddystone 640).

A. Jackson, 57 De Lacy Ave., Almondsbury, Huddersfield.

CE7ZS, COSMP, CS3AA, CX2CO, EA8AV, 8BB, EA9AI, HIGEC, HZ1KE, KG4UA, OQ5CF, OX3BD, 3BG, TA3OX, TF5AS, 5SV, VE7EIH, VP3MBC, VP6FO, 6MO, 6SD, VP9F, 9G, 9VV, VQ4RF, YV5AB, 5CZ, 3V8BA, 8BB.

A. H. Trigell, Lynwood, Everton Rd., Hordle, Lympington.

AR8BC, CS3AA, 3AB, COSMP, CX2CO, EA8AW, 9AI, EK1JC, 1RR, FA8CC, 9UO, FG7XA, KG4U, KH6CI, 6CD, 6IJ, 6MB, 6OA, KP4CO, 4DT, 4EE, MD2AC, 2AM, VK2ATL, 4AWW, 4RT, 6VM, VP3HAG, 5UV, 6FO, 9D, 9VV, VS1AX, 7GD, VU2EB, 2JP, 2WR, YV5AC, ZE2GK, ZM6AA, 3V8BB. (Rx: R1155A).

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

PHONE : CE7ZN, FF8DA, HC1FG, KH6EL, 6IJ, 6OR, 6RR, KL7ACQ, 7AHC, MI3US, OX3BD, TE2OE, VP3MBC, 6MO, 9VV, VQ3CH, 4AQ, 4BV, VT1AB, YS1ECU, ZL4AW, 4CP, 4TG, ZM6AA. (Rx: SX28 and AR88LF).

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

PHONE : CO2VW, EA0AC, EQ3FM, FO8AB, HC1FG, HP1LA, HZ1TA, JA2OM, 5AL, 5GC, KG4AO, KH6EL, KP4IJ, LU5XE, MI3RP, OX3WJ, PK4DA, TI2QR, VE8TH, VP6CJ, 9ID, 9VV, VQ4BU, YV1AA, YS1ZG, ZC4XP, ZL4CP, ZS6DZW. (Rx: 5 valve S.H.).

R. W. Pennells, Neals Cottage, Lamberhurst, nr. Tunbridge Wells, Kent.

PHONE : AR8BS, CE7ZN, CX2CO, DU1AL, EA0AC, EQ3FP, HZ1TA, JA2OM, KG4AW, KP4HF, KR6FA, OQ5CF, OX3MW, TF5AS, VE8PK, VK3EE, VP1HC, 6LN, 9F, VQ3CH, 5CB, VS2JP, 6BE, 7SG, VT1AB, VU2LJ, YS1DCU, YV5EE, ZC4TF, ZS2MI, 6KT, 4X4BL. (Rx: 0-V-2).

B. Monks, 2 Foyle Road, Fairview, Dublin.

PHONE : CE6AK, CO2FN, 2VW, 7RQ, 8GM, 8MP, CX2CO, EK1AQ, EL2R, 6A, FB8AB, HC1JW, HIBEC, HK4AD, 5EV, HZ1KE, KG4AT, KP4AZ, 4GU, 4OF, MI3NA, 3US, OX3BD, 3BG, 3GG, 3MC, 3WX, TI2CHV, 2OEC, VE5GA, 8TG, VP3MBC, 6CJ, 6FO, 6MO, 6SD, 9G, 9HH, 9VV, VQ4BU, W7DV, YS1JR, 1ZG, YU3BC, YV4AA, 5AB, 5BQ, 5ET, 5BV, 5EC, ZC6JM, 4X4AH, 4X4CR. (Rx: G.E.C. 7 valve Broadcast).

7 mc

D. Morris, Priddbwl Mawr, Llangedwyn, Oswestry.

PHONE : EA6AU, EL8DX, EP3RT, FA8BE, 8LE, F8SNP, FN4BN, 5PP, PY8TF, VQ4RS, CW - W7JZ. (Rx: R1120).

I. S. Davies, 127 Hazelwood Lane, London, N.13.

PHONE : CE6AX, CM6RV, CO2HO, 8LF, CT3AC, 3AK, EA8AL, 8AM, 8BC, 8BF, 8ZK, FA8BE, 8FN, 8MZ, LU4DD, PY2WY, 4LY. (Rx: R1155A).

W. Neal, 217 Sladefield Road, Ward End, Birmingham 8.

CW : CO2AJ, 7NR, KZ5BE, LU5IA, VESMA, VP5AD, 8AP. (Rx: S640).

N. S. Beckett, 194 Waveney Drive, Lowestoft.

CW : C6KB, CE3AG, 4AD, CO7NR, HK5CR, KP4OD, LU5IA, PYIARE, 1AZA, 1QZ, 2AQO, 2AUQ, 2BBO, 4AHG, 4FI, 5QG, 7WS, TI2PZ, VP8AP, ZL1PN, 2AGL, 2AKI, 2GH, 2IQ, 3CP, 3JD, 3JQ, 3OX. (Rx: Hamband).

3.5 mc

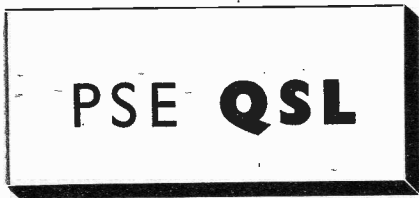
K. J. Gurney, 68 Stocklake, Aylesbury, Bucks.

PHONE : CNSBJ, 8MI, FA8BG, 8JO, 9UP, KP4CK, 4CP, 4ES, 4GP, 4GU, 4KD, W4JBC/KP4, ZC6JM. (Rx: Batt. 1-V-1).

1.7 mc

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

CW : EI2S, 9F9VA, HA4SA, HB9CM, OKIAEF, 1AJB, 1AJX, 1AW, 1AWA, 1CX, 1DC, 1FA, 1GY, 1HI, 1KP, 1PR, 2BMK, 2OQ/1, 2UD, 3DG, 3IT, 3TI, PA0RTR, UA1MK, 3AW, 3IS, 4FC, UB5BO, 5KAI, YO1TW. (Rx: Modified R.103A).



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 reports as comprehensive as possible.

- DL1AU** Rochusstr. 3, Stochdorf b. Munchen, Germany. Phone and CW, all bands except 3.5 mc, 1600-0300 GMT. Modulation, keying and stability.
- DL3HG** Untere Parkstr. 26, Haar b. Munchen, Germany. Reports on 145 mc phone and CW.
- DL3MC** Pieperstr. 14, Hildesheim, Germany. 3.5, 7, 14, 28 and 145 mc phone, 1900-2200 GMT. Details of modulation.
- DL3PO** Am Einfang 4, Grafelfing b. Munchen, Germany. 7 mc phone, 0900 GMT: 3.5 and 14 mc phone and CW, 1900-2300 GMT. Modulation.
- DL3WW** Kaiserstr. 26, Herborn/Dilkreis, Germany. 3.5 and 7 mc phone and CW. Modulation.
- DL6RT** Posthofenstadt Haus 1, Grossviehberg, Germany. 3.5 and 14 mc CW and phone.
- DL7AH** Gielowerstr. 33, Berlin-Britz, Germany. 3.5, 7, 14 and 28 mc CW, 1300-2000 GMT. Detailed reports. Stations heard calling DL7AH.
- EA3DF** P.O. Box 1312, Barcelona, Spain. 14340 and 28320 kc phone, 1800-2200 GMT.
- EA3GI** P.O. Box 5041, Barcelona, Spain. Phone: 14 mc, 2300-0100 GMT; 28 mc, 1500-1800 GMT.
- EA3HL** Calvo Sotelo 10, Sabadell, Barcelona, Spain. Reports on 7, 14 and 28 mc phone.
- EA5CX** Marve 27, Valencia, Spain. 7 and 14 mc phone and CW, 1900-2300 GMT.
- EA6AR** P.O. Box 135, Palma de Mallorca, Balearic Islands. 7, 14 and 28 mc phone, 0700-0900, 1300-1530 and 2300-0100 GMT. Modulation.
- EA0AB** P.O. Box 195, Santa Isabel, Span. Guinea. 14125 and 14305 kc phone, 14050 kc CW, 2100-2359 GMT, Saturdays 2100-0200 GMT.
- F3YP** 51 rue Docteur Roux, Troyes, Aube, France. 3.5, 7, 14 and 28 mc phone and CW.
- F8LP** 14 rue Mottet de Gerando, Lyon, France. 14 mc CW, 0700-2100 GMT.
- FA9RW** Boite Postale 21, Maison-Carree, Algeria. 3.5, 7, 14, 28 mc phone and CW, 0500-0630 GMT.
- G2BBA** 34 Cumberland Road, Bradford, Yorkshire. Reports on 3725, 7115 and 14230 kc phone, 1800-2000 GMT and weekends.
- G3DH** Greylands, Bramhall Park Road, Bramhall, Ches. 144 mc phone and CW, 1800-2100 GMT.
- G3DRC** 42 Southfarm Road, Worthing, Sussex. 1.7 mc phone, 1830-1900 GMT, Sundays 1500 GMT. Series of detailed critical reports to June 30th. Modulation and width of sidebands.
- G3GIS** 71 Brynland Avenue, Bristol 7. 1.7, 3.5, 7 and 14 mc phone and CW, Wednesdays and Fridays 1830-2200 GMT.
- G3GSZ** Old Hall, Hulton Henry, Castle Eden, Co. Durham. 1.6 mc CW, after 1930 GMT.
- G3HAZ** 73 Pamela Road, Northfield, Birmingham 31. 145 mc CW, 435 mc CW, MCW and phone, evenings and most weekends.
- G3HCW** 40 Eastbourne Terrace, Baghill, Pontefract, Yorkshire. 1.7, 3.5 and 7 mc CW, QRP.
- GM3HDI** 79 Iwertry Road, Bucksdown, Aberdeenshire. 3555 kc CW, QRP, Sundays 0700-0800 GMT.
- G3HKP** The Vicarage, West Mersea, Colchester, Essex. 7026 kc CW, over 150 miles, especially from GW; 14052 kc CW, reports from outside U.K.
- G3HKQ** 29 School Road, Langold, Worksop, Notts. 1.8, 7.01 and 14.02 mc CW, evenings, weekends.
- HB9AM** Im Heuried 54, Zurich 3/55, Switzerland. Reports on 3.5, 7 and 14 mc CW.
- HP1BR** Apartado 883, Panama, Rep. Panama. 3528 kc CW, 0500-1100 GMT.
- II0IX** via Nazionale 56, Quero, Belluno, Italy. 14 mc phone, 1000-1200 and 1500-1800 GMT.
- IIRN** via F. Rismondo 24, Modena, Italy. 7, 14 and 144 mc phone and CW, 1300-1400 and 2000-2300 GMT.
- IT1SNG** via Umberto 25, Catania, Sicily. 14 and 28 mc phone, 0900-1100 and 1500-1800 GMT. Details of modulation.
- LU6JDJ** Arenales 1531, Florida, Bs. As., Argentina. 14310 kc phone, 014390 kc phone, 1800-2359 GMT.
- LU04JD** 11 rue de Ecoles, Rebecq, Bt. Belgium. 3.5, 7, 14 mc phone and CW, 1900 GMT onwards.
- OZ2BW** Baghavenne 16, Koge, Denmark. 3.5 and 14 mc phone, 1800-2100 GMT and weekends. Signal strength and percentage modulation.
- OZ5WJ** Sjaellandsgade 44. V., Randers, Denmark. 7 mc CW, 1500-1700 and 2100-2300 GMT.
- OZ7ML** c/o E.D.R., P.O. Box 79, Copenhagen, Denmark. 3.5 and 14 mc CW, 1800-2300 GMT and weekends.
- PA0RB** Vlasakkersstraat 6, Den Haag, Netherlands. Reports on 7 mc phone and CW.
- PA0TYC** 2 Emmastraat, Dorrecht, Holland. 3.5 and 7 mc phone and CW, 1530-2300 GMT and weekends.
- PY2RU** P.O. Box 286, Sao Paulo, S. Paulo, Brazil. 3.5, 7, 14, 28 and 56 mc phone and CW.
- SM4AWC** P.O. Box 240, Soderbaerke, Sweden. 14 mc phone, 1700-1900 GMT. Modulation.
- SM5APS** Ringvaegen 52-A, Nyhopping, Sweden. 3.5, 7 and 14 mc phone and CW, 1900-2100 GMT.
- SM5BCJ** Enkopingsvaegen 1, Ultriksdal, Sweden. Reports on 7 mc CW operation.
- SM6BVJ** S. Skogsberg, Brandstationen, Trollhattan, Sweden. 3.5 and 7 mc CW.
- ST2TC** P.O. Box 1, Wadi-Halfa, A. E-Sudan. 3.5, 7 and 14 mc CW, 2300-0200 GMT.
- VE3BUD** 50 Meadowvale Drive, Toronto, 18, Ont., Canada. 3.7 and 28 mc phone. Modulation.
- VE3CBV** 81 Stewart Street, Ottawa, Ont., Canada. Reports on 28 mc phone.
- VE5CX** Box 234, Gravelbourg, Sask., Canada. 7, 14 and 28 mc phone and CW, 0100-0800 GMT.
- VQ5CB** P.O. Box 264, Kampala, Uganda. 7, 14, 28 mc phone and CW, 1600-2100 GMT and weekends.
- W1CPI** O. Greene Jr., Old South Road, Wakefield, R.I., U.S.A. 3990 kc phone, 2330-0200 GMT.
- W1DFQ** P.O. Box 22, W. Scarborough, Maine, U.S.A. 14002, 14011, 14016, 14028, 14038, 28004, 28022, 28032, 28056 and 28076 kc CW, 1200-1500 and 1900-2200 GMT. RST, QRL, QRM, QSB.
- W3JYS** 8217 Cedar Street, Silver Spring, Md., U.S.A. 3.5, 7, 14 and 28 mc CW, 0001-0500 and 1100-1300 GMT.
- ZB1BJ** 163 Victoria Avenue, Hamrun, Malta. Reports on 3.5, 7, 14 and 28 mc CW.
- ZE3JO** M. Hitchcock, Radio Club, R.A.F. Heamy, Bulawayo, S. Rhodesia. 7050-7150 kc CW. Comparative reports from South of England.
- ZS1JA** 11 Donore Court, Main Road, Kenilworth, Cape, S. Africa. 7, 14 and 28 mc phone and CW, 1600-2000 GMT and weekends. Comparative reports.
- ZS1KF** C. K. Hall, Aeradio Stn., Alexander Bay, Cape, S. Africa. 7 and 14 mc CW, 1400-2200 GMT.
- ZS1KZ** Wilsirene, Pinehurst Road, Lansdowne, Cape, S. Africa. 14 and 28 mc phone and CW, 1800-2000 GMT. Details of modulation.
- ZS6DO** 16 4th Avenue, Lambton, Germiston, S. Africa. 14 mc CW, 0300-0630 GMT.
- 9S4AL** Heinesstrasse 24, Saarbruechen 3, Saarland. 14 and 28 mc phone and CW.



# THE VHF END

by A. A. MAWSE

## The Fine Weather Break—

## Discussing Converter Faults—

## Station Reports and DX Logging—

## The Calls Heard Lists and Achievement Tables

THE period of fine weather which began in the third week of April brought the long-awaited good conditions on Two Metres. This change was most welcome after the dearth of DX during the past winter. Activity, also, was often of a high order and enabled new counties and even countries to be added to the achievements of many. It was interesting to notice, however, how on some evenings the really good conditions were confined to certain areas or directions. On more than one occasion extremely strong signals were being heard across south-east England, south coast stations being S9+ in London, and working well into East Anglia, yet little or nothing was audible in these areas from the Midlands or North.

DX propagation on VHF is generally accepted as being due to abnormal bending of the radio waves in the troposphere. This bending is due to changes in the refractive index of the air with height above ground, and conditions suitable for abnormal bending exist when there is a temperature inversion, *i.e.*, temperature increasing with height, or a rapid decrease of humidity with height. Such conditions are more likely to occur during fine, warm weather than at other times, as observations this year will have shown. Several correspondents have been keeping checks on barometric pressure and finding some correlation between high pressure and good conditions. High pressure is, of course, a feature of anti-cyclones and, in general, that means

fine weather, while low pressure indicates the presence of a depression with its attendant rain and high winds. However, there are several links in the chain between high pressure and good VHF propagation conditions, and although the barometer readings will give an indication of the *possibilities* of DX, much will be missed if listening is confined only to those evenings when the glass is high—and likewise some of those evenings will be disappointing.

It would appear that certain of the transmitting fraternity act on the fine-weather principle, as during the recent good spell several were heard to remark that they "had come on the band as they thought conditions might be good"—and, without doubt, much of the quietness of the band on rainy evenings is caused by the inactivity of those who "know" there will be no DX!

## Converters

From time to time correspondents tell us of their troubles in getting a DC note from a self-excited oscillator in a 2-metre converter. This month, P. J. Towgood (Bournemouth) has been running into trouble. He rebuilt his power pack, and included in this a VR105 stabiliser. The pack supplies both converter and the IF/AF amplifier. These latter were connected by about 18 inches of cable to act as HT and LT earth. With this arrangement, all notes were accompanied by an AC ripple. Removing the VR105 cured the ripple, but produced instability of frequency due to mains fluctuations. The whole trouble has since been overcome by using the aluminium framework of the rack in which the gear is housed as the common HT/LT connection, instead of the length of cable, and by grounding the panel of the converter to this framework by a length of heavy braid. P.J.T. comments that some rough measurements he was able to make showed that there was considerable voltage loss in the 18 inches of cable and the Jones plugs he was using to join converter and amplifier, and this no doubt superimposed an AC component on to the HT

supplied to the oscillator. His puzzle as why removing the stabiliser should effect a cure, or putting it the other way (as P.J.T. does) why the stabiliser accentuates the ripple. Your conductor has not had time to give this problem much thought, but a point which comes to mind is that when the VR105 is in circuit the AC introduced is modulating the HT to the oscillator and its load resistance (if any), while, with the VR105 out of circuit, the AC voltage is applied, in addition, to the stabiliser limiting resistance. This will, of course, reduce the AC voltage actually effective on the valve itself. A further point is that the stabiliser, by its very nature, maintains a highly stable voltage across its terminals, no matter what happens in the output circuit (within reason). This is not quite so true of the output condenser from a power pack, where a reduction in output current will raise the output voltage and therefore tend to restore the current to its original value. Now, the AC ripple is P.J.T.'s case is being introduced in the *output* circuit, and hence when the VR105 is not present the power pack condenser

will tend to counteract the changes of current, caused by this AC, by producing changes of output voltage, thereby maintaining the voltage across the oscillator reasonably constant. In any case, the morals are: (1) If possible, place the stabiliser in the converter and not in the power pack; and (2) Avoid common HT/LT negative leads.

### Station News

Other news from P.J.T. is that he has found the band interesting every night since the good conditions arrived on April 17. Even TV hours have shown signs of liveliness. He thinks April 23 was probably the best night, and he heard ON4BZ on that occasion. G8SB has also been very consistent with him, and G3BW, from 'way up in Cumberland and heard twice, made a welcome reappearance. GW5MQ provided P.J.T. with a new county.

J. E. Harman (Eastbourne) now uses an 8-element stack, and it shows a gain over the previous 4-element Yagi. At the same time, signals are heard over a wider area. He finds directions from

## VHF CALLS HEARD

### Two Metres

**H. J. Balsam, 38 Wantage Rd., Didcot, Berks.**

G2AOK/A, 2ATK, 2BUJ, 2DSW, 2DUS, 2FTS, 2HCG, 2HDZ, 2HIF, 2MM, 2MV, 3AVO/A, 3BA, 3BLP, 3CCP, 3EJA, 3FAN, 3GHI, 4AP, 4RK, 4RO, 4SA, 5DF, 5MA, 5IW, 5TP, 5UM, 6AG, 6JK, 6KB, 6LK, 6NB, 6OH, 6XM, 6XY, 8DM, 8IT, 8OU, GW2ADZ, 3EJM.

(March 24 to April 23, G2IQ converter into Commander, Dipole 30 feet high).

**L. B. Bailey, 16 Fulthorpe Rd., Norton, Stockton-on-Tees, Co. Durham.**

**0-25 miles:** G2FO, 2FXA, 3DMK, 3EHZ, 4XT, 5QU, 8GL.

**25-50 miles:** G2ADR.

**50-100 miles:** G6PJ, G8SB.

**Unknown:** G2DUS/P. (RF27 into S640, 3-element w.s. Yagi pointing South).

**L. A. Whitmill, 762 Kenton Lane, Harrow Weald, Middx.**

G2AHP, 2AVR, 2BMI, 2FTS, 2HDZ, 2KF, 2MV, 2XC, 2YC, 3AEX, 3BLP, 3CGQ, 3CVO, 3CWW, 3CEA, 3ENI, 3EOH, 3EYV, 3GBO, 3GHI, 3GHS, 3GSE, 3MI, 4CC, 4DC, 4FB, 4HQ,

4MR, 4RO, 5DS, 5MA, 5NF, 5UM, 6AG, 6CB, 6HG, 6JK, 6JP, 6LO/A, 6LR, 6NB, 6PR, 6XM, 8KZ, 8OU.

(April 7 to 8, Activity Weekend, 6/6 pre-amp into RF27 into S640, 5-ele beam).

**J. E. Harman, 10 Royal Sussex Crescent, Eastbourne, Sussex.**

DL3FM, 4XS/3KE, F3LO, SAA, SEC, 8GH, 8JR, 8KF, 8LO, 8MX, 8NW, 8OB, 8OL, 8OX, 9AE, 9DI, 9MX, G2AHP, 2AOL, 2CPL, 2DT0, 2FQP, 2HDZ, 2KF, 2MC, 2MV, 2UJ, 2UQ, 2XC, 2XV, 3ANB, 3ARL, 3BA, 3BCY, 3BEX, 3BLP, 3CFK, 3CGQ, 3DAH, 3DCC, 3DJH, 3ECA, 3EOH, 3EVH, 3FG, 3GGJ, 3GHI, 3GSE, 3HBW, 3HCK, 3VM, 3WW, 4HQ, 4HT, 4IG, 4MW, 4RO, 5DS, 5LI, 5LK, 5MP, 5MR, 5UD, 6AG, 6CB, 6LL, 6GN, 6WU, 6XY, 6YP, 8AX, 8IP, 8LN, 8OU, 8SK, 8VR, ON4BZ, 4HC, 4HN, 4IF, 4LI.

(Modified G2IQ converter, into HQ120X, 8.4 mc IF, 8-element stack 35 feet high, QTH 180 feet a.s.l. March 26 to April 23).

**W. C. Askew, Burrough, Melton Mowbray, Leics.**

G2AOK/A 2ATK, 2BVW, 2DLJ/A, 2FNW, 2FZU, 2HCG, 2HOP, 2IQ,

2XS, 3ABA, 3BA, 3BLP, 3CGQ, 3CHY, 3DUP, 3EMJ, 3ENS, 3FFC, 3FQP, 3WW, 6CW, 6NB, 6VX, 6XM, 6XY, 6YU, GW2ADZ.

(G2IQ converter into Commander, 4-ele Yagi, 600 feet a.s.l. March 20 to April 20).

**P. J. Towgood, 6 Guildhill Rd., Southbourne, Bournemouth, Hants.**

**50-100 miles:** G2AHP, 2AOK/A, 2AVR, 2BMZ, 2DT0, 2FTS, 2HDZ, 2KI, 2MV, 2UJ, 3AUS, 3BEX, 3BLP, 3BVJ, 3DIV/A, 3EHY, 3FIH, 3GAO, 3GDR, 3GHS, 3HBW, 3HCK, 4HT, 4HQ, 4MR, 4RO, 4SA, 5BM, 5DS, 5LI, 5MA, 5PY, 6AG, 6CB, 6KB, 6LK, 6NB, 6NB/A, 6UH, 6WU, 8LN, 8OU, GW3EJM.

**100-150 miles:** F9RL, G2ATK, 2HCG, 2XV, 3ABA, 3BA, 3DUP, 3HAZ, 3WBV, 4MW, 4RK, 5SK, 6XY.

**150-200 miles:** G2CPL, 2DLJ/A, 2IQ, 2OI, 3ATZ, 3BOC, 3CXD, 3DA, 3ENY, 3FMI, 3VM, 5UD, GW2ADZ, 5MQ.

**250-300 miles:** G3BW, ON4BZ. Rx: 6/6 RF, 6/6 mixer, 2X6C4 osc., into xtal controlled 9 mc converter, into 1.6 mc IF/AF amp. Aerial: 4-ele c/s beam, 22-foot high, QTH 86 feet a.s.l. All heard April 4-24).



On April 14, the Fiveband Club held in London the first of its 1951 series of dinners, at which no less than 76 VHF operators were present. This is a general view of the room, looking towards the top table; unfortunately, it was not possible to get everyone into the one photograph.

NE to SSE best for his location, and much time is spent looking towards the Continent. French stations are heard almost nightly, F8GH being the predominant signal. ON4BZ is the most consistent Belgian and is on 144.9 mc most nights. DL4XS/3KE and DL3FM have both reappeared. J.E.H. is now busy searching for HB, LX and OZ.

H. J. Balsam (Didcot) is using a G2IQ type of converter and a dipole. His list of calls heard gives promise of some extraordinary good results when he gets his 4-element beam up. A. W. Blandford (Mitcham) has a new converter and has heard many good things. During the April Activity week-end he logged 53 stations in 11 counties. Gloucestershire and Derbyshire provided him with new ones for his Counties heard score. On 70 cm his stations heard now total 27, which is a remarkably high figure, even having regard to A.W.B.'s location. L. A. Whitmill (Harrow Weald) found good activity during the Activity Week-end (April 7-8), and, in five hours' listening, logged 45 stations in 10 counties. His best were G2AVR (Bexhill), G2FTS (Hailsham) and G2XC (Portsmouth). Conditions were very good with him on April 18, when a number of new stations were logged. On April 21, G4AP (Swindon) was heard quite well. L.A.W. has had

no luck so far on 435 mc, but is still trying.

From Stockton-on-Tees, L. B. Bailey writes to proclaim his first DX triumph, he having heard G8SB (Chorlton-cum-Hardy) at 85 miles. It has taken him 4 months and 5 hours! He has also heard G6PJ and G2DUS/P (QTH?). The excitement began on April 19, when

**TWO-METRE COUNTIES HEARD**

**IN 1951**

*Starting Figure, 10*

P. J. Towgood	...	...	...	34
E. A. Lomax	...	...	...	27
A. W. Blandford	...	...	...	23
L. A. Whitmill	...	...	...	20
W. C. Askew	...	...	...	19
R. L. Bastin	...	...	...	15

**Note:** Only counties heard since January 1, 1951 may be claimed for this table.

**ALL-TIME**

*Starting Figure, 10*

E. A. Lomax (Bolton)	...	...	39	(152)
P. J. Towgood (Bournemouth)	...	...	38	(221)
A. W. Blandford (Mitcham)	...	...	30	(273)
L. A. Whitmill (Harrow Weald)	...	...	28	(311)
R. L. Bastin (Coventry)	...	...	27	(81)
W. C. Askew (Melton Mowbray)	...	...	22	(53)
P. Finn (Iver)	...	...	17	
H. J. Balsam (Didcot)	...	...	12	

**Note:** Figures in brackets give total number of stations heard.

L.B.B. noticed the barometer was high and a cold NE wind was blowing. For 5 hours he went up and down the band, and at last, at 2200, he was rewarded with an S1 carrier. He hung on to this for 45 minutes, and then it suddenly went up to S5 and was found to be G8SB calling CQ; it was persistence rewarded. L.B.B. tells us that he also heard the FM station which A. H. Edgar reported last month and noticed the same drift. He is 35 miles from A.H.E. What's the answer to that one?

### In Conclusion

Several regular correspondents have failed to report this month. Probably they are so busy logging the DX that there has been no time to write. At any rate, we hope to have a full chronicle of their doings to report next time.

Next month's reports are due **by May 31**. The lists of Calls Heard are always most interesting and very useful, but may we remind you again that special report forms are available on request from the office (large S.A.E. with a card saying "Report Form, please," is all that is necessary), and the use of these forms lightens the task of your earnest conductor. One or two correspondents are in the habit of listing two-letter and three-letter calls separately. This is incorrect. A glance at the lists in this issue will show the way in which lists should be set out: In addition, please note that F's come before G's, and DL's before F's! And, just to remind you, the address for letters, reports, VHF Calls Heard, and all your news and queries for "VHF End" is: A. A. Mawse, *Short Wave Listener & Television Review*, 53 Victoria Street, London, S.W.1. CU on June 21.

**Late Flash — First EI Heard.** Just as this issue was going to press, late letters arrived from R. L. Bastin (Coventry) reporting much improved results on Two during the past month, and from E. A. Lomax (Bolton), who says that EI8G, of Foxrock, Co. Dublin, has been heard in QSO with GW2ADZ and G8SB. EI8G is on 145.6 mc, just HF of G5BY's frequency; these two contacts are, of course, "firsts" for G/EI and GW/EI on the two-metre band. Fuller details and more news next month.

### CALLS HEARD

Readers interested in compiling calls-heard lists for publication in our pages

should note that they can obtain, free of charge, suitable forms for the purpose. Please keep the request separate from all other correspondence, and send a large S.A.E. with a card marked "Report Forms, Please," to the Circulation Manager. They will then be despatched by return.



### THE CORRECT QTH

Because "53" is a large office building accommodating some sixty business concerns, several of them publishers, it is essential that our name, *SHORT WAVE LISTENER*, should appear on the envelope to prevent delay, mis-delivery or "returns to sender." All departments should also be separately addressed—as given in our various features—to ensure expeditious handling of mail internally within our own organisation.

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53 VICTORIA STREET, LONDON, S.W.1

## WORLD WIDE RECEPTION OF SHORT WAVE PROGRAMMES

**DX** broadcast

MONTHLY COMMENT BY R. H. GREENLAND, B.Sc.

IN the April number of *Short Wave Listener & Television Review*, a contributor described how British Coast stations operating between 1825 and 1845 kc make contact with the various craft at sea. Though the shore stations are not broadcasters in the true sense of the word, it may interest readers to know that at 2030 each evening they give weather forecasts for their immediate regions, and it is thought that such reports might well prove useful to some of our listeners. During recent weeks the following have been logged giving such news at 2030: Wick, Stonehaven, Cullercoats, Humber, London, North Foreland, Niton, Hartland Point, Burnham, Avon, Holyhead, Seaforth, Belfast and Malin Head.

If by chance you have heard point-to-point phone transmissions, with very occasional sports commentaries, on 6600 kc, you will have been eavesdropping on a Public Schools Cadet Corps (Signals Section) Network; on afternoons during Easter week, attempts were made to transmit on-the-spot comments in at least two inter-School athletic contests.

**Australasia**

The new morning service to the British Isles from Radio Australia over VLB9, 9580 kc, and VLA8, 11760 kc, has been logged by P. White (Rushden Northants); he notes that VLB9 is a consistent S8.9 signal. The schedule is 0600-0815, and Graham Hutchins, of Radio Australia, informs us that "Australian DX-ers Calling" is now given on Sundays at 0700 and "Listeners' Choice" on Saturdays at 0602. VLA8 has also been heard by J. R. Mathews (Rhymsney, Mon.) at 2015 with a talk: "The Australian Scene," followed by Waltzing Matilda and Australian News at 2030. C. R. Johns (Bournemouth) spotted VLC, 15200 kc, between 2100 and 2200; we

were fortunate to log VLB5, 21540 kc, at 0700 on April 14, when we followed a running commentary on the Public Schools Head-Of-The-River Boat Race at Sydney. Great excitement prevailed as Shore Grammar School overhauled City High School in the last 400 yards to win this senior event at the annual regatta. We also logged VLX, Perth, Western Australia, 4898 kc, at good strength on April 13 at 2200, when the news was given by a lady announcer, after which there was a forecasting of the times of arrival of certain ships at the port of Albany.

ZL3, 11780 kc, after a long absence, was audible at 0700 on April 21, opening up with the National Song and the words: "This is Radio New Zealand," followed by a programme summary.

C. Costello (Wellington, N.Z.) informs us that Radio New Zealand has extended its recently announced schedule by a quarter-hour to allow for a news-reading to troops in Korea at 1030 on weekdays and 1000 on Sundays. Incidentally, C.C. has sent us a copy of the New Zealand DX Radio Association's publication, *Radio Calls Of The World*, 1951. It contains 72 pages of long, medium-wave and short-wave broadcast stations, and rightly claims to be a Call Book having no counterpart in the world; actually, some 1331 short-wave broadcasting stations with their schedules are listed.

The price is 3/- (plus postage), and the publisher: J. J. Saunders, 20 Marion Street, Wellington, N.Z.

**Asia**

Radio Peking has been logged with English News on 15060 kc at 1330 by W. D. Nutt (Nottingham). R. Abrahams (Hounslow, Middsx.) heard this one with a selection of marches after the news, and has received their letter-verification, which states: "Our broad-

cast in English is from 0930 to 1000 GMT and 1330 to 1400 GMT on 11690 kc and 15060 kc bands every day."

There are various reports about Indonesian stations. W. D. Nutt gives YDE, 11770 kc, and YDC, 15150 kc, with English News and "Turn-Table Time," at 1915. The latter is better heard at 1430-1530 according to J. C. Catch (South Shields), and P. Fry (Chandlers Ford, Hants.) tells of YDF<sub>2</sub>, 11785 kc, also audible with English broadcast at 1430 and the direction: "You are tuned to Djakarta, the key station of the Indonesian Network." The address for reports is: "Voice of Indonesia," P.O. Box No. 7, Djakarta, Indonesia. J. C. Catch also spotted the more elusive YDK, Palembang, Sumatra, 4855 kc, with popular Western music at 1420.

Both J.C.C. and P. Fry have logged DZH8, 15300 kc; the former hears them on Sundays as early as 1315 and as late as 1700 (Close down), and the latter noted the direction: "This is the Far East Broadcasting Company, Manila," at 1630. We understand that they now have a new transmitter on the air, namely, DZH9, on 11855 kc.

B. H. Brunemeier, of the Electronics Department, Far East Broadcasting Co. Inc., Box 2041, Manila, P.I., writes to inform us that their transmitting equipment is *all home-made* and that their daily schedule is: 2200-0600, 0800-1700, with a continuous transmission from 2200 to 1700 on Sundays, and he adds: "Our main reason for being on the air here in the Orient is to tell and re-tell the blessed story of Christ Jesus." This station now broadcasts the Gospel in thirty-five languages and dialects, and a large number of PM's (Portable Missionaries) in the form of short-wave receivers for use in dense jungles and far-off islands are re-tuned to the "Call of the Orient" frequencies.

M. Milne (South Woodford, E.18) has a verification from the British Far Eastern Broadcasting Service in Malaya for their transmission on 11880 kc. To quote from this letter: "Although our programmes are intended for reception in the Far East, it so happens that the bearing of our 11880 kc aerial is also approximately the same as that of the U.K." Radio Ceylon is reported by G. Paton (Salford 7, Manchester) on 9520 kc at 2345 with a programme entitled: "Sunday Morning Records," and on 11975 kc it was heard closing at 1715 with the words: "Goodnight till tomorrow at 0715," by W. D. Nutt.

All-India Radio, Delhi, has given pleasure to A. Rayner (Rotherham) with its evening broadcast in English to the United Kingdom at 1900 over 7155 kc; J. Lippold (Cricklewood, N.W.2) hears this transmission on 9720 kc, but remarks that there is much interference from PRL7 on the same frequency. All-India Radio has sent R. Abrahams a letter confirming his report for reception on 17840 kc at 1400; R.A. also recommends a Western dance music session with a "Guess Who?" quiz, in which listeners are requested to send in their answers and their favourite tune to: Saturday Date, Western Music Section, A.I.R., Delhi; listen to this from 1500 to 1530 on Saturdays over 15210 kc! P. Fry offers VUD<sub>3</sub>, 9590 kc, with English News and weather forecast for West Bengal at 1530.

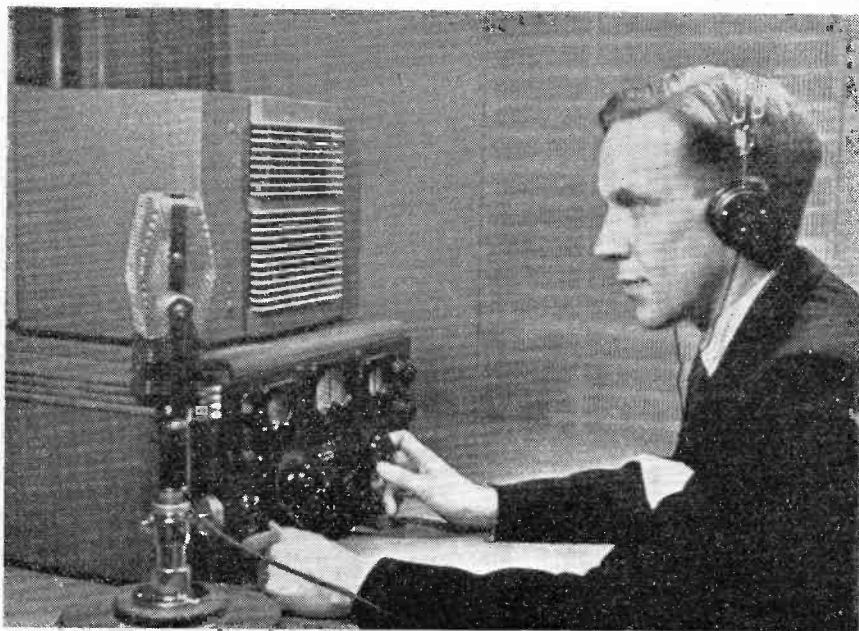
APL2, Lahore, Pakistan, 6075 kc, is reported to be on the air daily 0200-1730 also at 2130 on Sundays, Mondays and Tuesdays with English talks. E. Lund (Morecambe) listened to Radic Pakistan, Karachi, on the new channel of 11725 kc, with News in English at 1515; B. Mercer (Hulme, Manchester) mentions this news with a female reader and an S9 plus signal: we have heard APK<sub>3</sub>, Karachi, 11885 kc, with another English News at 1715. P. Fry is to be congratulated on logging the almost unknown Radio Afghanistan, Kabul, 9600 kc, with native music and French and Arabic announcements between 1715 and 1800 on March 4. B. Mercer says that Radio Tashkent, 6825 kc, is a very good signal from 1615 to 1630 with its English News and talks.

R. Abrahams heard Radio Teheran, Iran, 15100 kc, with their English broadcast at 2000, and Radio Iraq, Baghdad, 7092 kc (16 kW), using an omnidirectional aerial, is on the air daily: 0430-0600, 0900-1100, 1300-2000; but has been heard on occasions closing at 1915. Lastly in Asia, Radio Ankara, Turkey, 9465 kc, is logged by P. White every night when it comes on the air with its English transmission at 2100.

### Africa

Johannesburg on 11927 kc is still being logged, despite the interfering point-to-point phone station, by a number of readers.

C. P. Turner (Crewe) listened from 1930 to 2000 on March 31 to a Sports Session (this is a regular Saturday evening feature), and at 2005 the male announcer said: "This is the South African Broadcasting Corporation



**Arne Skoog is the well known DX commentator on the Swedish short wave broadcast services, and is frequently heard on the air. Here he tunes round the amateur bands before an open microphone, presenting his feature to Swedish listeners.**

operating on a frequency of 11927 kc; we are now closing down until 10.30 a.m. (S.A. Time) tomorrow and will be transmitting on a frequency of 17747 kc in Afrikaans." C.P.T. has since received by air mail a reply to his report from E. F. Pretorius, Director-General S.A. Broadcasting Corporation, 194-196 Fox Street, Johannesburg, S.A. We, too, have a communication from the Chief Engineer, expressing some surprise at our report of good reception in this country, for, as the letter states, this service is really intended for *Central Africa*. The schedule is: 0830-2005, with a break between 1200 and 1400 on Mondays to Fridays; the frequencies given are 9870 kc and 15320 kc, but when we last heard Johannesburg, it was still operating on 11927 kc and 17747 kc. Interesting talks heard were Dr. Cooper's on Medical Research in South Africa, and that of the concert pianist, Hubert Greenslade, who spoke on Musical Life in Great Britain today. R. Abrahams listened at 1530 on March 24 to a running commentary on a lawn

tennis tournament, and at 1545 the transmission closed after asking for reception reports and giving the information: "We will be on the air again at 6 o'clock in the 25-metre band on 11927 kc." Salisbury, Southern Rhodesia, 3320 kc, has been heard with a weather forecast at 1815 by R. A. Savill (Sevenoaks, Kent), who says that the signal was almost inaudible by 1845.

In Mozambique, CR7BE has been noted by J. C. Catch at 1830 on a new frequency of 9857.5 kc; he has measured their other channels, which are: CR7BV, 4817.5 kc; CR7BU, 4915 kc, and CR7BG, 15198 kc.

B. P. Middleton (Clapham, S.W.11) spotted the 9857.5 kc Portuguese transmission, and R. Abrahams says that the 15198 kc signal is so clear at 1700 that he has heard the announcer turning over his news script. Sao Tomé, using CR5SC, 4807 kc, is heard with music at 2045 by A. E. Nichols (North Shields); it closes down with the Portuguese National Anthem just after 2100. B. Mercer tuned in CR5SB, 17677 kc, at

1200 one Sunday; this one only operates on Sundays and Thursdays from 1200 to 1300. K. F. Turner (Bexhill-on-Sea) lays emphasis on Brazzaville's strong signal on 11970 kc at 2055; their address is: Radio Brazzaville, P.O. Box 108, Brazzaville, French Equatorial Africa.

J. C. Catch offers CQM4, Bissau, Portuguese Guinea, 5840 kc, which he heard closing down with A Portuguesa at 2300. In the same area, ELB1, Monrovia, Liberia, 6025 kc, is again in the headlines! S. Coppel (Belfast, N.I.) has listened to this station regularly from 2230 to 2345; it carries the same programme as medium-wave ELBC on 900 kc. The signing-off announcement has been: "This is the Liberian Broadcasting Company, Monrovia, broadcasting over ELBC on medium-wave and on short waves of 6025 kc or 49.79 metres. This is your announcer, John B. West." G. Paton heard Monrovia from 2315 to 2345 broadcasting a *Voice of America* presentation of "An Hour of Music," and J. C. Catch logged the same transmission with some interference from PCJ before the latter closed at 2310. *Australian DX'ers* offer Radio Nigeria, now on 6035 kc; soon, however, the following schedule will operate:—7255 kc: 0100-0230, 0600-0700; 9655 kc: 0100-0230, 0600-1300; 4990 kc: 1300-1700. ZOY in the Gold Coast is reported to be on new channels also:—9640 kc: English from 1030 to 1130; 7300: 1530-1800; 15430 kc is an additional frequency.

We heard Nairobi, Kenya, 4855 kc, with dance music until 2000 on March 31; the final announcement was: "We are now closing down until 11 o'clock tomorrow (Sunday) morning." Anglo-Egyptian Sudan has a new transmitter on the air on 18070 kc (16.6 metres announced); signals were loud and clear when Dr. J. A. C. Block gave a talk on cerebro-spinal meningitis at 1745 on April 6. P. Fry has logged Sharq-al-Adna, Cyprus, 9650 kc, at 1500, and SUX, Cairo, 7867 kc, at 2045, and writes, facetiously perhaps: "You will note that I have logged quite a lot of 'native music'—this music has a magnetic influence over me—I just cannot tear away from it (?)."

A. E. Nichols mentions Morocco on 9020 kc, heard from 1950 to 2035 with some interference from Tel Aviv on 9000 kc. The station offers Arabic music and frequent direction in French: "Allo! Allo! Ici Rabat." (S8-9). R. B. Welch-Bartram (Aylesbury, Bucks.) has

been notified by the London office of "Bringing Christ To The Nations" that their organisation now has a radio station of its own situated in Tangier. This is designated by them, "The Walter A. Maier Memorial Station," in memory of their world-famous speaker who died recently. The station is advertised to work on either 6200 kc or 6215 kc, and the schedule (now changed, possibly) was:—Monday: 1700, Yugoslav; 1715, Russian; 1730, Finnish; 1745, Albanian. Tuesday: 1700, Slovak; 1730, Polish; 1745, Bulgarian. Wednesday: 1700, English; 1730, French; 1745, Persian. Thursday: 1700, German; 1730, Roumanian; 1745, Greek. Friday: 1700, Ukrainian; 1715, Lithuanian; 1730, Armenian; 1745, Hungarian. R.P. W-B would like to know if others have heard this station, because, although it has been in operation for some time, he has not yet managed to log it.

CSA92, Ponta Delgada, Azores, 11090 kc, has been an S9 signal with Portuguese programme at 2030 (M. Milne); R. A. Sayill, after waiting exactly one year, has received their letter-verification for reception of 4845 kc. The schedule (winter times) is:—11090 kc: 2000-2100; 4845 kc: 2200-2400; and the address: Emissora Regional dos Azzores, Avenida Gaspar Frutuoso, Ponta Delgada, E. Miguel, Azores.

### North America

We, like J. C. Catch, have received a letter of verification from Jacob S. Grone, of Greenland Radio. To quote: "Our broadcasting studio and transmitters are located in Godthaab, the capital of Greenland. We are on the air every week-day from 1830 hours to 2045 hours local time (2130 hrs. to 2345 hrs. GMT), and on occasional Sundays, when religious services are transmitted. Our daily programs consist of News in Danish and Greenlandic, and since our Greenland audience has shown a preference for light music, we limit our classical selections and play mostly dance and folk tunes. Gronlands Radio broadcasts from Godthaab, with a power of 1000 watts and relay stations at Godhavn and Frederikshaab, re-broadcast the signal to North and South-West Greenland. It is planned to increase the size of our transmitter in the near future to permit a better coverage. Our frequencies at present are: 633 kc (2130-2345); 5942.5 kc (2130-2250); 6676 kc (2255-2345)."

In Canada, CKCS, 15320 kc, is good



at 1715, and CKLO, 9630 kc, at 2230 (C. P. Turner); CHNX, Halifax, 6130 kc, has been heard with a Quaker Oats programme at 2330 (P. Fry). CJCX, Sydney, 6010 kc, was logged by J. C. Catch at 0200-0230 on April 1 with an exciting commentary on an ice hockey match between the Maritime Islanders and the Sydney Millionaires; E. Lund heard this one at 0130 with a talk in the series: "Our Kind."

P. Fry and J. C. Catch comment on WRUL's latest slogan, "Radio Boston—The Voice Of Freedom"; we noted WGEO3, Schenectady, 17760 kc, with the General MacArthur speech to Congress on April 19. WLWO8, 9560 kc, has been excellent with a *Voice of America* News at 0630. Further west, KCBR3, Los Angeles, 11810 kc, has been audible with a talk at 0715 and closing at 0730 with The Star-Spangled Banner.

From San Francisco, J. C. Catch heard KGE12, 11730 kc, with AFRS News at 0700, and KWID1, 19570 kc, with a baseball commentary at 0730.

#### West Indies and Central America

J. Lippold mentions ZNX32, Barbados, 7547 kc, which advertised its next broadcast for the horse-racing events in November! He gives VP4RD, Trinidad, 9625 kc, with a newscast at 2345; R. T. Blackmore (Exeter) heard the following direction at 2400: "This is Radio Trinidad and the Golden Rediffusion Network—the Time: 8 p.m."; a Lux Toilet Soap feature followed. C. P. Turner says that other sponsored items are offered by Halo Hair Preparations, Rudge Cycles, Horlicks, Kodak Cameras and Pan-American Airways! B. Mercer offers PJC2, Curacao, 5010 kc, with Dutch News at 0255 before the close at 0258. Also 4VCM, "La Broadcasting Haitienne," Port-au-Prince, 6407 kc, closing at 0128; and 4VEH, Cap Haitien, 9730 kc, with a religious broadcast in English, 2330-2400. We understand that Creole is the medium used 0001-0130, and that English is again employed after 0130.

R. T. Blackmore listened to 4VRW, 9840 kc, from 2330 to 2400 on March 6, when he heard a Band concert, and chimes and identification: "Ici La Voix de la Republique d'Haiti" at the quarter-hours. HI1A, 9737 kc, gave the direction: "La Voz Dominicana, Santo Domingo, capitale de Republica Dominicana" at 2345, and also on 11900 kc quarter of an hour later (G. Paton).

Cuba is heard over COCQ, 8825 kc, announcing as "Circuito CMQ, Havana," at 0020 (B. Mercer); COCW, 6315 kc with clear call: "Say-Oh-Say, Dooble-Vay" at 0245 (J. C. Catch); COCY, 6450 kc with two vibraphone notes and slogan: "Cadena Azul, Havana," at 0300 (E. Lund); and COBQ, 9235 kc with identification: "La Voz de Cuba, COBQ," at 0015 (R. T. Blackmore).

#### South America

**Chile.** J. C. Catch offers here CE615, Valparaiso, 6152 kc, with chimes and call at 0023, and CE1190, Valdivia, 11900 kc, with direction: "Radio Cooperativa Vitalicia," preceded by slow chimes at 0015. CE1180, 12000 kc, is given by R. T. Blackmore, who noted the slogan: "Radio Sociedad Nacional de Agricultura" at 0001; R. Abrahams says it is good at 2215.

**Uruguay, Paraguay and Peru.** R. Abrahams hears CXA19, 11835 kc, at 2200 with the following English announcement: "Hullo, Folks! This is CXA19, the short-wave station El Espectador, Montevideo, Uruguay, owned by Difusoras de Uruguay, on 11.835 mc in the 25-metre band. We now bring you the 7 p.m.-10 p.m. GMT bulletin of National News for our friends abroad." J. Holden logged ZPA1, Asuncion, 6275 kc, with a reasonable signal after 2300, and found OAX6E, Arequipa, 6338 kc, at 2345 with very clear identifications.

**Argentina, Bolivia and Ecuador.** LRT, Tucuman, 11840 kc, was logged at 2200 on April 3 with a Radio Belgrano Spanish News bulletin (R. Abrahams); R. T. Blackmore found LRS, 9315 kc, in the clear at 2345 with four chimes and direction: "LR4, Radio Splendid de Buenos Aires." C. P. Turner hears LRA, 11880 kc, normally readable from 1900 to 2000, and he has just received their latest informative publication: "Eva Perón and Her Social Activities." *World Radio Handbook* informs us that Radio Abaroa, La Paz, Bolivia, 9500 kc, broadcasts daily in Spanish on the following schedule: 1130-1300, 1500-1700, 2130-0300.

Your reports for next month will be appreciated; send to R. H. Greenland, *Short Wave Listener & Television Review*, 53 Victoria Street, London, S.W.1, to reach this office not later than **June 15.**

# SHORT WAVE BROADCAST STATIONS

Revision 41.61-48.75 Metres

## Giving Frequency, Wavelength, Callsign and Location

These lists appear each month, covering the 11-128 metre section of the wave band within which all short wave broadcasting services of the world operate. For economy of space, this band is dealt with in five sections, a list of active stations in one of the sections being given in full every month. Such revision is necessary due to constant changes of frequency, callsign and operating schedules. All stations appearing in our lists are normally receivable in this country and are under regular observation.

Frequency	Wave-length	Callsign	Location	Frequency	Wave-length	Callsign	Location
7210	41-61	VUC2	Calcutta.	6464	46-41	YNZZ	Managua, Nicaragua
		GWL	London	6450	46-51	COHI	Santa Clara, Cuba
7205	41-64		Hue, Indo-China	6440	46-58	TGWB	Guatemala City
7200	41-67	GWZ	London	6407	46-82	4VCM	Port-au-Prince, Haiti
			Singapore	6401	46-87	TGQA	Quexaltenango, Guatemala
			Tangier	6374	47-07	CSA21	Lisbon, Portugal
7195	41-70	OQ2AC	Elizabethville	6360	47-17	CSA38	Lisbon, Portugal
7190	41-70		Colombo, Ceylon	6350	47-24	HRP1	San Pedro Sula
7185	41-75	EDV	Madrid, Spain			OAX4H	Lima, Peru
7180	41-77		Mombasa, Kenya.	6345	47-28	HE12	Berne, Switzerland
7177	41-79	CR6AA	Lobito, Angola				Athens, Greece
7170	41-84		St. Denis, Reunion	6339	47-33	OAX6E	Arequipa, Peru
7164	41-88	CR6RE	Malanje, Angola	6334	47-36	TGTA	Guatemala City
7155	41-95	CR7IB	Beira, Mozambique	6320	47-47	COCW	Havana, Cuba
			Delhi, India				Baden-Baden, Germany
7150	41-96		Berlin	6307	47-57	YNAS	Managua, Nicaragua
7144	41-99	EAJ9	Malaga, Spain	6300	47-61	YSCP	San Salvador
7140	42-02	APD	Dacca, Pakistan			CP23	Tarija, Bolivia
7130	42-08	CR6RN	Benguela, Angola	6295	47-66	TGLA	Guatemala City
7125	42-10	VQ6MI	Hargeisa, B. Somaliland			OTM1	Leopoldville, B. Congo
				6285	47-73	TGTO	Guatemala City
7124	42-09	EA9AA	Tangier	6276	47-80	ZPA1	Asuncion, Paraguay
7120	42-13	FET22	Oviedo, Spain	6275	47-81	YSR	San Salvador
		GRM	London	6270	47-84	HJWO	Bogota, Colombia
		OAX1A	Chiclayo, Peru	6255	47-96	TGRA	Guatemala City
7105	42-22		Macronesos, Greece	6250	48-00	YSUA	San Salvador
		HS8PJ	Bangkok, Thailand	6235	48-12	HRD2	La Ceiba, Honduras
7102	42-24	YNET	Masaya, Nicaragua	6230	48-15	TGJA	Guatemala City
7100	42-05	YDJ2	Djakarta, Indonesia	6223	48-21	CE622	Santiago, Chile
			Bissau, Port. Guinea	6220	48-20	HJCT	Bogota, Colombia
			Moscow			OAX4M	Miraflores, Peru
7096	42-27		Karachi, Pakistan	6215	48-25	SP13	Warsaw, Poland
7092	42-30	YI5KG	Baghdad, Iraq.	6210	48-31	HC1AC	Quito, Ecuador
7075	42-40		Ramallah, Transjordan	6204	48-36		Bucharest, Roumania
7062	42-38		Baghdad, Iraq	6200	48-39	HOB	Panama City
7054	42-53	CR6RF	Benguela, Angola				Paris, France
7050	42-55		Athens, Greece	6195	48-43	GRN	Baku, USSR
7045	42-58	FET15	Cordoba, Spain	6190	48-47	HVJ	London
7043	42-59	YSI	San Salvador				Vatican City
7010	42-80		El Kurds, Iraq	6188	48-48	TGX1	Hanoi, Indo-China
7006	42-83	FET1	Valladolid, Spain	6187	48-49	HIL	Guatemala City
7000	42-92		Khatmandu, Nepal	6185	48-53	KRCA1	Dixon, California
			Brazzaville			XECC	Puebla, Mexico
6980	42-98	F08AA	Papeete, Tahiti	6180	48-54	HC1TR	Ibarra, Ecuador
6963	43-08	YNEQ	Managua, Nicaragua			GRO	London
6899	43-49	TGBC	Mazatenango, Guatemala			LRM	Mendoza, Argentina
				6175	48-58	JKI3	Dalat, Indo-China
6885	43-57	HC2CA	Salinas, Ecuador			XEXA	Tokio, Japan
6877	43-62	YNWW	Granada, Nicaragua			YSHQ	Mexico City
6870	43-67	HC4EB	Manta, Ecuador				San Miguel, Salvador
6860	43-73	TGRB	Guatemala City	6171	48-61	CP37	Athens, Greece
6850	43-80	YNOW	Managua, Nicaragua	6170	48-62	DUH2	Singapore, Malaya
6845	43-83		Khoramabad, Iran			YDB3	Oruro, Bolivia
6830	43-92	4XB21	Tel Aviv, Israel			HJKJ	Manila, Philippine Is.
6825	43-96	RAD	Tashkent, USSR			CXA21	Djakarta, Indonesia
6790	44-18	ZJM6	Limassol, Cyprus			VUV2	Bogota, Colombia
6770	44-31	CP49	La Paz, Bolivia				Montevideo, Uruguay
6758	44-39	YNVP	Managua, Nicaragua	6168	48-64	HI9T	Hyderabad, India
6745	44-48		Larissa, Greece	6165	48-66	4VGM	Munich
6725	44-61	4X4EA	Tel Aviv, Israel			HER3	Puerto Plata, D.R.
6716	44-67	YNCNM	Managua, Nicaragua			TILS	Port-au-Prince, Haiti
6715	44-68	OAX1A	Chiclayo, Peru			HJWD	Berne, Switzerland
		CP22	Potosi, Bolivia				San Jose, Costa Rica
6710	44-71	OAX4G	Lima, Peru	6156	48-73		Bogota, Colombia
6672	44-97	HBQ	Geneva, Switzerland	6155	48-74	KGE12	Saigon, Indo-China
6660	45-05	TGZA	Zacapa, Guatemala			CXA13	Vienna, Austria
		HC3SC	Loja, Ecuador			EQB	San Francisco
6635	45-21	HC2RL	Guayaquil, Ecuador			CSB52	Montevideo, Uruguay
6620	45-32	TG2	Guatemala City				Teheran, Iran
6570	45-66	HC2VP	Guayaquil, Ecuador				Lisbon, Portugal
6550	45-80	YNBH	Managua, Nicaragua				
			Jannina, Greece.				
6511	46-07	CP40	Cochambamba, Bolivia				

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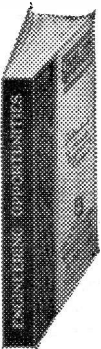
**WANTED.** 3 American CR Tubes type 7FP7, 7FP5, or similar. New, or used in good condition. Good price paid. Box 924.

**WANTED.** New or nearly new Receiver, AR88D or AR88LF. Also frequency meter BC221. Also radar scanning aerial. Good prices paid. Box 925.

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