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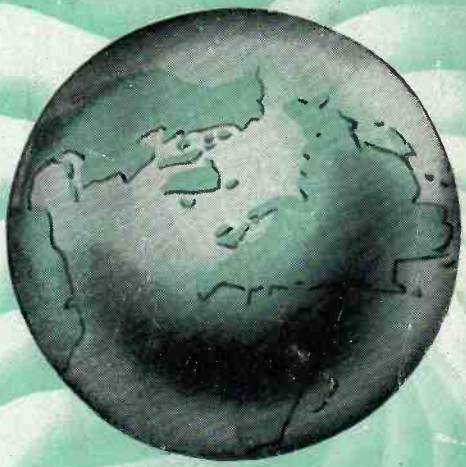
The SHORT WAVE LISTENER AND TELEVISION REVIEW



DEVOTED TO
SHORT WAVE RADIO RECEPTION
AND AMATEUR TELEVISION

JULY 1951
VOLUME 5 · NUMBER 7

THE SHORT WAVE LISTENER
AND TELEVISION REVIEW

VOLUME 5 JULY 1951 NUMBER 55

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JULY 1951

EDITORIAL

Opportunity

This season will start a new chapter in the story of VHF endeavour, and we would again draw the attention of all SWL's to the opportunities open for them in this field.

Already, first contacts G/EI, G/CC, G/OZ and G/SM are reported, setting the horizon still further and extending the boundaries beyond what was considered reasonably possible two or three years ago.

It is unfortunately true that, with some few noteworthy exceptions, SWL's generally have not attained the VHF receiving efficiency now accepted as commonplace by the majority of their transmitting brethren—yet both have access to the same technical and constructional information covering VHF receivers, converters and aerial systems. This is the more regrettable when it is remembered that for years before the war it was always agreed that, on the communication bands, an efficient SWL operator was capable of showing receiving results as good as, if not better than, his transmitting counterpart.

Since, as we believe, it is in what is now called the VHF area that Amateur Radio must develop for the future if it is to survive, and as it is evident that SWL's generally are chary of venturing into new territory without the certainty of finding something to which to listen, we have produced two simple constructional designs—converters for TV sound and the reception of Wrotham on 93.8 mc—which will serve as an introduction to the technique of VHF receiver construction. These two units incorporate modern principles and will be found to give excellent results on the VHF transmissions for which they are intended.

High Gain Converter for Receiving Wrotham

DESIGN, CONSTRUCTION AND AERIAL INSTALLATION

By **J. N. WALKER (G5JU)**

(There are not many receivers tuned to the BBC's Wrotham transmission on 93.8 mc. But the signal level within normal VHF range is high, the quality excellent and normal BBC programme material is radiated. Here is a very nice design for a converter suitable for the reception of Wrotham's amplitude modulated transmission, which is of considerable experimental interest and well worth trying for at long ranges.—Editor.)

CONSIDERABLE interest is being shown in the 90 mc (3.3-metre) experimental transmissions being carried out by the BBC from their station at Wrotham in Kent. The station is situated on high ground, has a mast over 400 feet high and operates with a power of 18 kilowatts. In consequence, the range is excellent and, given a fair location and a properly designed aerial, reception is possible at distances up to 100 miles. As a matter of interest, the station is consistently received in Birmingham (some 110 miles away) at strength S7 to S8.

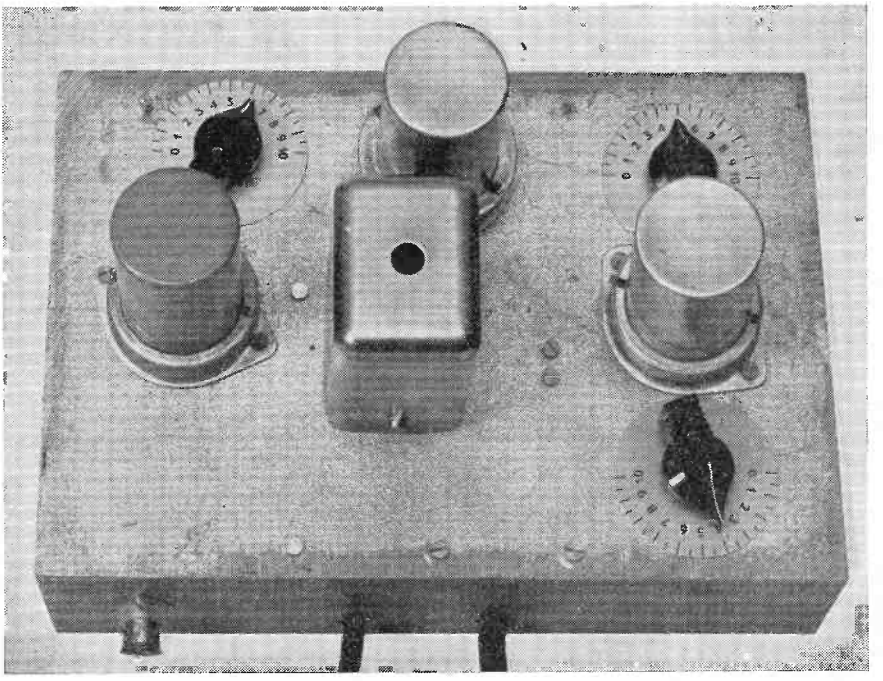
Two separate transmitters are in operation, one using frequency modulation on 91.4 mc, the other amplitude modulation on 93.8 mc. The simplest method of receiving the transmissions is to employ a VHF converter which accepts the incoming signal and changes its frequency to approximately 10 mc. The output from the converter is fed into a separate receiver which reproduces the original modulation. The frequency modulated signal can only be resolved intelligibly on a special type of receiver and few readers will possess one such. Further, it is not an easy matter to construct one, particularly as certain essential parts are not generally available, at least to the writer's knowledge. On the other hand, any standard receiver will deal with amplitude modulation, the method of transmission used by Wrotham on 93.8 mc.

The converter here described for this AM reception is intended for use with the communications type of receiver possessing good, but not necessarily very high, sensitivity.

General Points

The converter uses three valves—one as RF amplifier; one as frequency changer ane one as combined oscillator/multiplier. There are a number of valves which could be used, but it is always advantageous to employ one standard and easily obtainable type throughout, for which reason the EF50 has been chosen. It is possible that EF54 valves will give slightly improved results and, if desired, substitution may be made in the RF and frequency-changer positions. For those requiring the best possible performance, miniature valves on B7G bases could well be used —the Osram Z77 and the Mullard EF91 come to mind.

Freedom from frequency drift is an important factor. It is to be expected that some drift will occur during the initial warming-up period, but thereafter one does not wish to make continual adjustment to the oscillator tuning. The ideal method would be to use a crystal oscillator, but then this would involve several multiplier stages and the trouble and expense is not warranted. As can be seen in the circuit diagram Fig. 1, the oscillator is of the cathode-coupled type and incorporates a capacitive potentiometer. In fact, this part of the circuit is well-known to amateur transmitters and is frequently to be found in VFO units, its particular merit lying in the high degree of frequency stability obtainable. The oscillator functions on approximately 27.9 mc and the third harmonic on 83.7 mc is extracted by placing a circuit tuned to this frequency in the



Panel appearance of the 93.8 mc converter described in detail in the accompanying article. It is giving good results on the BBC's Wrotham AM transmitter at ranges up to 100 miles.

anode of the oscillator valve. The harmonic is injected into the screen of the frequency changer, a system which has been found to give good conversion with low inherent noise.

Provided the lay-out illustrated is followed fairly closely, the fundamental oscillator circuit should cover the required frequency with the concentric trimmers C11 and C12 both at maximum capacity, but one or other of these condensers may be moved if necessary to bring the frequency within the range of adjustment afforded by C14. It will noticed that all the tuning condensers across L3 are of the air dielectric type, a factor which assists in the maintenance of high frequency stability. The grid condenser C13 is ceramic and it will be of benefit if a negative temperature co-efficient type (*e.g.*, Erie Ceramicon N750) is chosen. C14 is across part only of the tuned circuit and adjustment is not unduly critical. No slow motion drive is therefore necessary, thus simplifying the constructional work.

Construction

The construction and location of the various parts is well illustrated by the exterior and interior photographs. Fig. 2 gives details of the positions and sizes of holes to be made in the " floor " of the chassis, in addition to which three $\frac{3}{8}$" holes are required in the rear wall to take respectively the coaxial aerial socket, the coaxial cable going to the receiver and the power input cable.

Two small metal screens are necessary to screen the input and output circuits of V1 from each other. The positions they occupy are shown in the underchassis photograph and the dimensions are given in Fig. 3. Any available metal (brass, aluminium or copper) may be used. If desired the screens can be made up in one piece, but it is an easier job to mount them if made separately. One screen has part cut away to enable it to fit closely over the valveholder.

The majority of the small parts (condensers and resistors) can be identified

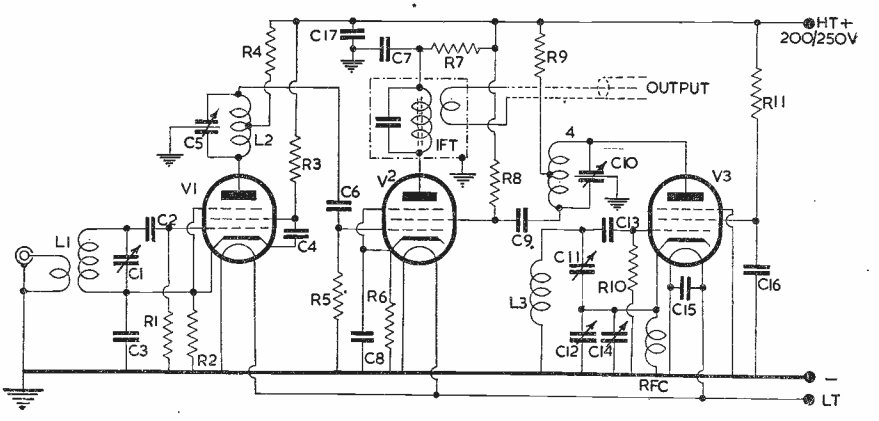


Fig. 1. Circuit diagram of the Wrotham converter for the 93.8 mc amplitude modulated transmission. The inclusion of an RF stage ensures high sensitivity; and with the oscillator circuit used there is no frequency drift after the warm-up period.

from the annotations made on the under-chassis photograph. R9 and R11 are taken to the anchoring tag above V3 valveholder, and R3, R4, R7, R8 and C17 to another, located on the chassis wall near C5. A tag strip is provided for the connections to the power supply cable.

Coils

All the coils are wound on identical formers, $\frac{5}{8}$" diameter, the wire in each case being 20/SWG bare tinned copper. Details are as follows :—

L1 4 turns, double spaced and provided with one (sleeved) turn at the "earthy" end for aerial coupling.

L2 and L4 6 turns, triple spaced.

L3 11 turns, double spaced.

The formers are grooved and the windings are held in the grooves, but made to jump one groove each turn with double spacing and two grooves with treble spacing.

L2 and L4 are soldered directly to the soldering lugs on the butterfly condensers C5 and C10. L1 and L3 are mounted on insulating ceramic strips. In the case of L1, this permits the "earthy" end of the winding being returned direct to the valve cathode, so cutting out the impedance presented by the cathode condenser.

The strip holding L1 also supports the concentric trimmer C1, whilst C11 and C12 are held by the other strip. It should be noted that, with these concentric condensers, the centre rod is the low potential electrode.

Wiring

The LT wiring is made with green PVC covered 20 gauge wire and the HT wiring with similar red wire. Other connections are made with 20SWG tinned copper and as all wiring can be well spaced (as it should be in an instrument of this type), sleeving is only necessary in a few instances. Where

HIGH GAIN CONVERTER FOR RECEIVING WROTHAM

LIST OF COMPONENTS

1 Diecast Chassis *Cat. No.* 643 *Eddystone*
1 IF Transformwe 10 mc *Cat. No.* 728 *Eddystone*
1 Microdenser 12.5 $\mu\mu$F(C14) *Cat. No.* 580 *Eddystone*
2 Microdensers 8 × 8 $\mu\mu$F (C5, C10) *Cat. No.* 739 *Eddystone*
4 Coil Formers, threaded *Cat. No.* 648 *Eddystone*
1 RF Choke *Cat. No.* 1011 *Eddystone*
2 Ceramic Strips (supporting L1, L3) *Cat. No.* 749 *Eddystone*
3 Knobs and Dials *Cat. No.* 425 *Eddystone*
3 Valves EF50 *Mullard*
3 Valveholders B9G L500 and L568 *Belling-Lee*
1 Coaxial Plug and Socket L604 *Belling-Lee*
3 Concentric Trimmer Condensers 3/30$\mu\mu$F (C1, C11, C12) *Philips or Mullard*
1 Centre "Tee" Insulator (for aerial) *Cat. No.* 766 *or* 767 *Eddystone*

Table of Values

Resistors

1 200 ohm (R2)
1 470 ohm (R7)
2 1,000 ohm (R4, R9)
1 2,000 ohm (R6)
3 10,000 ohm (R3, R8, R10)
1 30,000 ohm (R11)
2 220,000 ohm (R1, R5)

Condensers

1 6$\mu\mu$F ceramic (C2)
2 20 or 25 $\mu\mu$F ceramic (C6, C9)
1 50 $\mu\mu$F ceramic (C13)
3 .0003 or .0005 μF mica (C3, C4, C15)
4 .001 or .002 μF mica (C7, C8, C16, C17)

used, the sleeving should be of the polythene kind.

Power Supplies

The heater current required is 1 ampere at 6.3 volts, and HT about 16 mA at 200 volts. Possibly these supplies can be drawn from the receiver used in conjunction with the converter, but if there exists any doubt about this or if it is proposed to use the converter over prolonged periods, it will be better to construct a separate power unit, which can of course be quite small and compact.

Adjustment

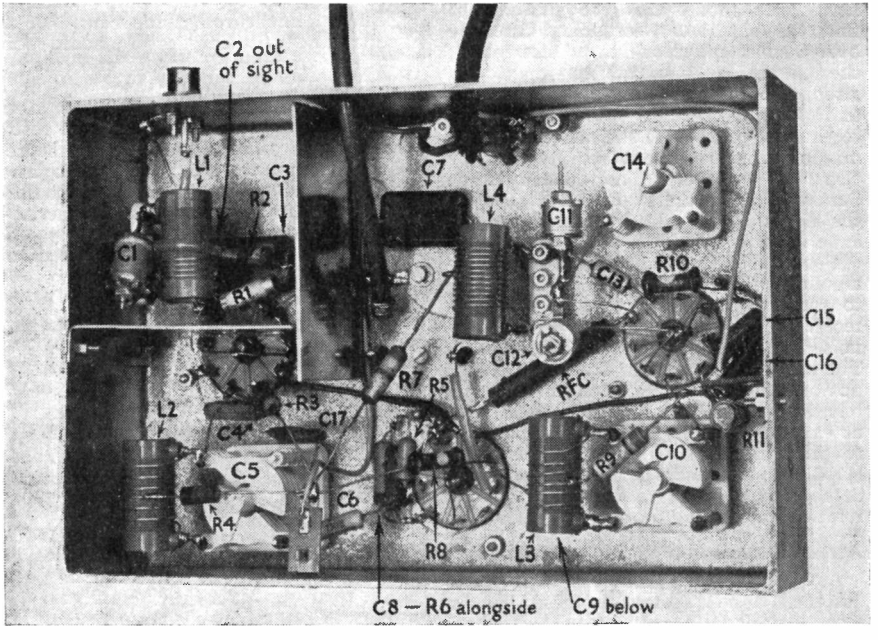
A decided asset when making adjustments is a grid dip oscillator as described in the May, 1951 issue of *Short Wave Magazine*.

With its aid, the various tuned circuits can be set very near their correct frequencies before power is applied to the converter and the signal from Wrotham should then be found quite easily.

The first operation is to set the oscillator near the correct frequency, the easiest way of doing so being to tune in the beat on the main receiver, presuming the latter covers the 28 mc band and is calibrated reasonably accurately. With the concentric trimmers at maximum capacity, the tuning range of the oscillator will be found to be 27.6 to 28.6 mc approximately, and it is a simple matter to note where 27.9 mc comes up.

Still listening to the oscillator (with the BFO on) C10 should be rotated. At one point the note will increase slightly in intensity or at least show some slight change, when it can be assumed that L4/C10 is resonating at the third harmonic, 83.7 mc or near.

Next, with the coaxial lead from the converter connected to the aerial terminals of the receiver, the tuning of the latter should be varied around the 10 mc mark. Over a small range there should be a slight but distinct increase in noise level and the core in the 10 mc IF transformer in the converter should be moved until resonance occurs



Under the chassis of the 93.8 mc fixed-tune converter for the BBC's Wrotham VHF station, on the AM frequency. Essential parts are identified and can be related to the circuit diagram and list of components. *(Note that L3 above should be marked L4, and vice-versa).*

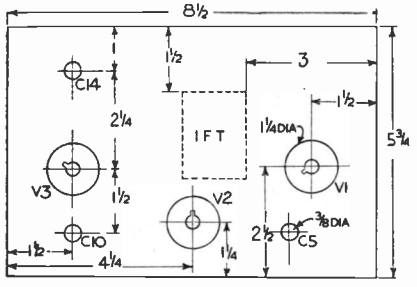


Fig. 2. Drilling details for the converter, looking at the top of the chassis. The orientation of the valveholders should be noted, as making for the easiest and most efficient wiring. (*All dimensions in inches*).

close to 10 mc. Of course, it does not matter greatly if the IF is 10.5 mc or any other figure near 10 mc, but whatever it is, the fundamental oscillator frequency should be calculated accordingly, as setting C14 near the right spot will help considerably in finding the desired signal, particularly when it is weak.

With C1 and C5 initally at minimum settings and with the aerial feeder connected, it should now be possible to find the signal by searching carefully over a small range of C14. Once found, the signal is brought to maximum strength by adjustment to C1 and C5 and possibly a slight alteration in the setting of C10. The times of transmission from Wrotham are given as 11 a.m., to 11 p.m. each weekday (not Sundays) and there may be gaps in the times as the station is still on an experimental basis.

Probably, without signal, a fair amount of noise will be audible, due to the combined gain of converter and receiver. On tuning in the signal, the noise level will drop, due to AGC action. The tuning adjustments should be made, not only for maximum strength of signal but also for minimum noise. Except at extreme ranges, it should be possible to bring the noise down to a very low level. If the receiver is fitted with an S meter it is simply a matter of tuning for maximum reading.

Aerial Systems

As with television, a properly designed aerial system is desirable in most instances and quite essential when long distance reception is attempted.

Up to 30 miles, or perhaps more if the location is good, a simple dipole will prove effective. It should be constructed as shown in Fig. 4(a), using an Eddystone "Tee" insulator at the centre, both to give mechanical strength and to ensure a completely waterproof junction between feeder cable and aerial elements—the losses will be severe if water is permitted to enter the feeder cable. The aerial arms should preferably be made of ¼" brass tubing but duralumin forms a useful substitute. The 72 to 80 ohm feeder cable may be of ¼" diameter, but the ⅜" diameter type, although more expensive, is more robust, and is recommended particularly for outdoor installations.

At distances greater than 30 miles, or where for any reason it is likely the signal will not be strong (for example, in a valley), the two element beam illustrated in Fig. 4(b) can be tried. The aerial element is identical to the dipole but 24" behind it is fixed a reflector element, again of ¼" tubing, in one unbroken length of 61".

Wrotham employs horizontal polarisation and the aerial must be mounted horizontally. With the single dipole, the elements should be broadside on to the direction of Wrotham. With the beam, a line through the centre of the aerial and of the reflector should point to the transmitter, as is indicated in Fig. 4(b). In many cases it will be satisfactory if the aerial is sited in the roof loft (the writer obtains good results with the two element beam in the roof space), but it should be kept away from mains wiring. Signal pick-up is undoubtedly greater when the aerial is mounted out in the open on top of a pole (metal or wood) well clear of ob-

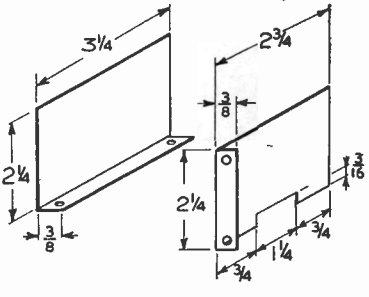


Fig. 3. Dimensions of the two metal screens. The smaller one is fitted over the valveholder, the metal passing between tags 1 and 2, and 5 and 6. The screen must be clear of tags 2 and 6.

structions. When this is done, metal work should be painted with a bitumastic paint to prevent corrosion, and wooden supports also painted or treated with creosote.

Propagation Effects

At close ranges, reception will be found strong and consistent. At ranges greater than 50 miles, signal strength will probably vary, falling off a little perhaps at times, but more frequently building up to a value well above average. Rapid fading, of the type encountered on low frequencies, will not often occur, but slow fades may be experienced.

For those unfamiliar with VHF reception, it may be well to mention "aeroplane effect." When an aeroplane flies on or near the path traversed by the signal, a flutter is set up due to reflections. The flutter may be rapid, it may be slow or it may change from one to the other, depending on whether the aeroplane is crossing or travelling in line with the path of the signal. Usually the effect does not last long.

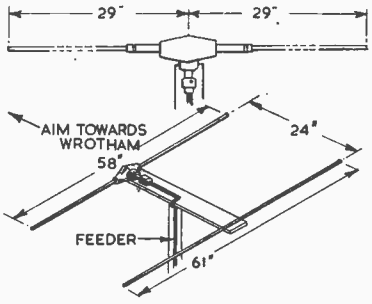


Fig. 4. Aerial designs suitable for reception of the BBC's Wrotham transmitter on 93.8 mc. (*Above*) is a simple dipole, and (*Below*) a two-element beam.

Morse for the Beginner

METHODS OF LEARNING, AND USING THE KEY

By **P. GRAHAM (G3CBP)**

(We have frequently recommended all SWL's to set about learning Morse. Apart from its unexpected usefulness when one does know it, a working knowledge of Morse is not only an essential pre-requisite for obtaining an amateur transmitting licence, but even if that is not the objective, it will open up a vast new field of interest on the receiving side alone.—Editor.)

THERE are many ways and means of learning the Morse code—that stumbling block of many who want to obtain their amateur ticket. Morse code when properly sent, either by hand or automatically, is a pleasure to listen to—like a piece of music well played.

Various countries and institutions within these countries have their particular way of teaching the code. At a wireless college the author went to, a printed Morse alphabet was thrust in his hand with the instructions to learn it off by heart. That was wrong. He chose the hard way and started to learn it as: 4 dots make H, 2 dashes and a dot make G, and so on. Learning it in that fashion handicaps one considerably.

The code should be learnt on the "dit-dah" system, dit meaning a dot and dah a dash. You may find that taking opposite symbols—such as A and N, B and V, or D and U, and then T, M, O, Ø, E, I, S, H, and 5—will help you to grasp the code more easily. When these are mastered, then the remaining letters can be remembered. Do not learn the alphabet in alphabetical order; if you do, you'll find yourself counting along the alphabet to recognise a symbol.

Keying

There are various opinions as to how far from the edge of the table the key should be placed. In the States, it's anything from 12 to 24 inches, so that the elbow rests on the table. In Great Britain this is considered poor practice. If one is pounding a key for 8 hours a day, 7 days a week, then possibly it's not so bad. For an amateur who has a couple of hours a night and whose occupation does not allow that fineness of control over the wrist muscles, then the idea is very unsatisfactory. In 99% of English wireless schools the keys are on the edge of the table. This allows wrist and a little elbow motion in the vertical. The elbow should not move from side to side nor should the shoulder jump up and down.

The forearm should be in line with the bar of the key and on the top of the knob should rest the first and second fingers. The thumb and third finger are allowed to "drape" the sides of the knob, but on no account to grip it. When first starting, it will be found best if the contacts are adjusted so that there is a gap of 1/16th in., and, as speed is acquired, they may be closed accordingly. The spring, the setting of which differs with individuals, may be adjusted to that position where it counteracts, and a little more besides, the weight of one's hand.

Formation

A dash is equal in length to three dots. The space between characteristics in a symbol is equal to one dot; the space between letters of the same word, three dots (one dash); and the space between words, five dots.

It will be best if you can enlist the help of some operator able to criticise your sending. On the receiving side, he should send to you, making the letters fairly quickly but leaving an enlarged space between them. When a little speed is obtained and half-a-dozen letters can be read in less than as many minutes, then whole words or groups can be taken. Code or cypher should be taken in preference to plain language. The latter tends to make one guess the whole word when only halfway through. If a letter is missed, don't stop to think about it; go on to the next—if you don't, you'll find you've missed a few more thinking about the original one.

Practice makes proficient and, when speed is improving, tune round the

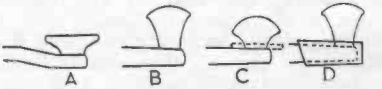


Fig. 1. Knob shapes and balance for the transmitting key.

amateur bands. There is to be found at all hours of the day Morse transmissions of varying speeds. Some operators consider it very nice to have a distinctive fist. Nothing sounds worse than to hear an operator accentuating his dashes and attenuating his dots. The best Morse is perfect Morse.

The Key Itself

So far, we have not dealt with that all-important and necessary item, the Morse key. If you are going to buy one at all, then it's well worth the money on the original outlay to buy a good one. A solid medium-weight key is the best. One having good firm replaceable contacts, a heavy base, precision pivots and fore and aft adjustments, will be one's lifelong servant and friend. Contacts these days are usually made of platinum alloy and do not pit or wear so easily as did the soft silver contacts of some years ago.

On American keys will probably be found a knob, something similar in shape to that shown in Fig. 1a, the English-style knobs being at Figs. 1b and 1c.

A flat knob, unless used in training the beginner, tends to rub one's fingers during a long session. The knobs at

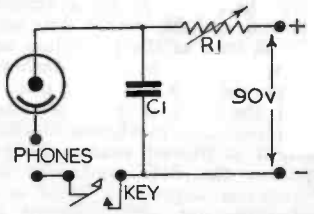


Fig. 2. A suitable audio oscillator for reading one's own keying. R1 is 2 megohm, ¼-watt and C1 .0005 μF, connected as shown across a neon tube, with 90 bolts or so HT. The pitch of the note can be changed by variation of R1 and C1.

Fig 1b and Fig. 1c are the best to work with. Some keys may have a disc round the bottom of the knob. Several people I have met thought that the disc was to rest the fingers on. This is not so, but is there merely to stop one's fingers touching the bar should it be "hot." Other keys have an insulating jacket on, as shown at Fig. 1d. With 220 volts AC on the key, it's wise to be careful.

Up to now, conventional keys have been mentioned. Much favoured in America is the Bug-Key and the Side-

swiper. The bug-key, by a system of weights and springs, makes dots on one side, for as long as the pendulum action of the spring allows, and dashes are made separately on the other side. The speed of the dots is regulated in the same manner as a pendulum clock. As the weight is moved nearer the pivot, the quicker the dots, and *vice versa*. When one has acquired a speed suitable for experimenting with different types of keys, a correctly regulated bug-key sounds very pleasant. However, quite a number of them lack the correct weights for working at speeds in the vicinity of 15 w.p.m. A nut or washer fastened on the end of the bar will slow things down suitably.

The side-swiper, derived from the old American telegraph keys of long ago, is not heard much these days. If it can be mastered, then it sounds very regular. No great speed can be obtained, but precision Morse can be pumped out at 20 w.p.m.

The key consists of few parts. Two pillars mounted about an inch and a half apart with suitable contacts, in between them being a spring bar fastened at one end about three inches from the pillars, the other end being used as the handle. Morse is made by swinging the bar between the pillars from side to side. The distance travelled in making the spaces between dots and dashes is always the same, and hence the regularity of the keying.

Checking Progress

In addition to having the key, some means must be available for hearing how the code is progressing. The simple oscillator, shown in Fig. 2, can be made up very simply. Probably the most expensive part will be the battery. If you have the necessary "know-how," a tap can be taken from your ordinary broadcast receiver, to supply the 90 volts.

In this oscillator, only a source of voltage, a resistor, condenser and a neon bulb are required. By varying the value of the resistor or the condenser, a note of a different frequency can be obtained. The values shown are not critical, but may vary slightly with different types of neon bulbs. Volume is quite sufficient for headphones.

To conclude these notes, the writer would add that, in his seven years as a commercial operator, the conventional key is still preferred. Whilst learning the code, eight hours a day, five days a week, a blind spot occurred when 15 w.p.m. was reached. He could get no faster and, to top it all, the code was forgotten almost completely! This is not uncommon and will only last three or four days. It is probably due to brain fatigue. If you can't get on, don't give up. All will come right in the end.

CHANGE OF ADDRESS

Will all concerned kindly note that, with immediate effect, our address becomes **55 Victoria Street,** London, S.W.1, where we shall have larger and more convenient accommodation to carry on the activities of *Short Wave Magazine, Short Wave Listener & Television Review,* the *British Short Wave League* and our publishing interests generally. No. 55 is next door to the old address, and in the same block.

"SWL STATIONS"

Readers are again reminded that we are always interested to see descriptions "in own words" for this popular feature, but it is essential to send in a good sharp photograph (print or negative) with the story. Payment is made for all such material used.

Have you heard?

IT seems that practically all the listening for the past month has concerned that irrepressible 14 mc band; a few adherents to 28 mc have continued to be faithful, but they *are* few. And the LF bands have seemingly produced an excess of static and a shortage of signals—which, together, would be a very good reason for not bothering too much about them.

As usual, then, *Twenty* has had to carry the traffic, and it is chiefly with that band that all the following notes will be dealing.

The SLP's

Even the Set Listening Periods didn't amount to much. The Saturday evening one drew most of the lists (not very many, at that), but the Sunday morning period seems to have dragged only one solitary listener out of bed. I *could* start another little homily on the joys of CW reception, but perhaps this is not the time or the place.

DX, on the whole, has not been too bad lately. All bands have been open at odd times—*wide* open—and all have likewise had their blank periods. But it remains pretty safe to bet on the twenty-metre band, particularly at times like 1500-1700 GMT and 1800-2000 GMT. Late at night it is more variable, but sometimes very interesting indeed.

There is so little in the mail about other bands than Twenty that I shall not attempt to split up this Commentary into bands. Just take it that *everything* refers to twenty metres unless otherwise stated. Will you do that, please? Good!

DX of the Month

J. Butcher (Blackpool) has found the short-skip very trying right up to midnight, with I's, CT's and EA's taking up more than their fair share of the dial. (On May 30 I noticed one of those freak nights, when all the G's outside a 100-mile radius were S9). J.B.'s best three countries were JA, VK1 and XZ, but for consistency the cakes went to VP6FO, VP6SD and VQ4RF. A W station was heard in contact with CS2AB—could this have been CS3AB in the Azores? (I wish they wouldn't mess about so with some of these prefixes).

K. R. R. Bowden (Letchworth) heard KC6WC, XE1AC and LZ1KDP, all on CW in the mornings; the evenings supplied him with VS7IC, UN1AE, FY7YB and CE7ZN on CW, plus JA5GC, PJ5RE and VQ2HN on phone. He reminds me that I recently mentioned "MX1AF" but didn't explain it. Well, MX was formerly the prefix for Manchuria; but it has been C9 for a long, long time, so "MX" probably means a pirate.

From J. H. Lloyd (Enfield) comes another nice list, including HR1BG, KC6WC, XE1ZR, ZD6RD, XZ2EM and ZM6AA. He also logged ZA1CC (14335) but missed FR7ZA, who now works phone on 14380. J.H.L. would like to know whether VK1BA (heard at 1745) is genuine, and also the whereabouts of I6NZ.

First Funny One of the month comes from T. E. Botham (Walsall). He heard "JY1XY," claiming to be a neighbour of ZC1AZ. C. R. Burchell (also of Walsall) did very well in the May Contest with 71 countries. He was quite thrilled to log two ZD6's within a few minutes, and other good stuff—all on phone—was YN4CB, HR1BG and XE 1, 2 and 3. C.R.B. wants to know whether there is any phone activity in the Soviet States UB5, UC2, UO5, UP, UQ and UR. Finally, he queries PI1LC, actually one of those Dutch weather ships in the Atlantic. [over

AMATEUR BAND COMMENTARY *by the DX Scribe*

Rare Pacific DX

This is one of the times of year when the more exotic stations in the Pacific may be heard. J. P. Warren (West Croydon) starts his phone log with ZK1BA, ZM6AA, VR5GA, FO8AB and thirteen KH6's by way of proof! Other good ones were VS6BO and TG9AD. J.P.W. brings up a few odd points. He, too, logged this JY1XY type, supposed to be in Transjordan. And he answers a constantly recurring query in this month's mail by pointing out that the Tangier stations will soon be using CN2 as their prefix. By way of query, he asks whether UA1KAC is in Spitzbergen, Jan Mayen or anywhere unusual. (So far as I know, he is not).

E. J. Logan (Hertford) wonders whether LZ1RF is genuine; he was working a whole string of stations on May 10. There seems to have been a spate of LZ stations, both on phone and CW; we shall only know which of them are good when the QSL's start arriving. E.J.L. had found *Ten* pretty fair in daylight, and sometimes the South Americans have been there at full strength after midnight. CE7ZN was on the band, describing Graham Land as "Chilean Antarctic." Of course, freak claims like this by Chile and the Argentine do *not* count for country-scoring purposes.

N. C. Smith (Petts Wood) breaks into the Zones Heard table with a score of 40 and 209. He also did well in the Top-Band Trans-Atlantics, logging W, VE, KV4 and EK. N.C.S. is a pre-war listener who returned to the short-wave field last year.

R. W. Thomas (London, E.5) has just made the Double Century. He thought his score was 199, but had not counted G as a country! The new one that elevated him to the Doubles class was PK6AG. R.W.T. says "all bands seem spotty"—which just about sums it up.

DX QTH's

AC3PT	The Crown Prince, The Palace, Sikkim.
CE7ZN	Radio Club of Chile, Casilla 761, Santiago.
CR6CB	Box 1045, Luanda, Angola.
FP8AW	G. de Buren, HB9AW, Rue Pierre Fatio 1, Geneva.
MD1VK	E. Angell, Signals Section, Benina, MEAF 6, Cyrenaica.
MT1BA	Army Post Office, MELF 6.
LZ1RF	P.O. Box 830, Sofia, Bulgaria.
PK5AA	Devos, Radio Station, Balikpapan, Borneo.
TI2TY	Box 268, San Jose, Costa Rica.
ZC4ND	Box 451, Nicosia, Cyprus.

Conditions "Down Under"

D. C. Stace (Spring Creek, N.Z.) was fortunate enough to catch FG7XA during April, and tells us that KG6SG is on Saipan, and VR1G on Canton Island. D.C.S.'s score (36 and 129) has been made entirely on 14 mc phone. He, too, is bothered by things like AG6 and AI2—more American Military stations just beyond the band-edges. The reason why I have never had much to say about these fellows is that they are *outside* the amateur bands, although extremely close!

J. R. Sergeant (Peterborough) wielded an o-V-1 receiver on 14 mc to some purpose, and has now heard 50 countries since he started listening in January. New ones recently added to the list are KG4AT, VT1AB, ZC4ND and some VQ4's. The latter, he says, have been good of late. Personally, I can't switch on in the evenings without hearing one!

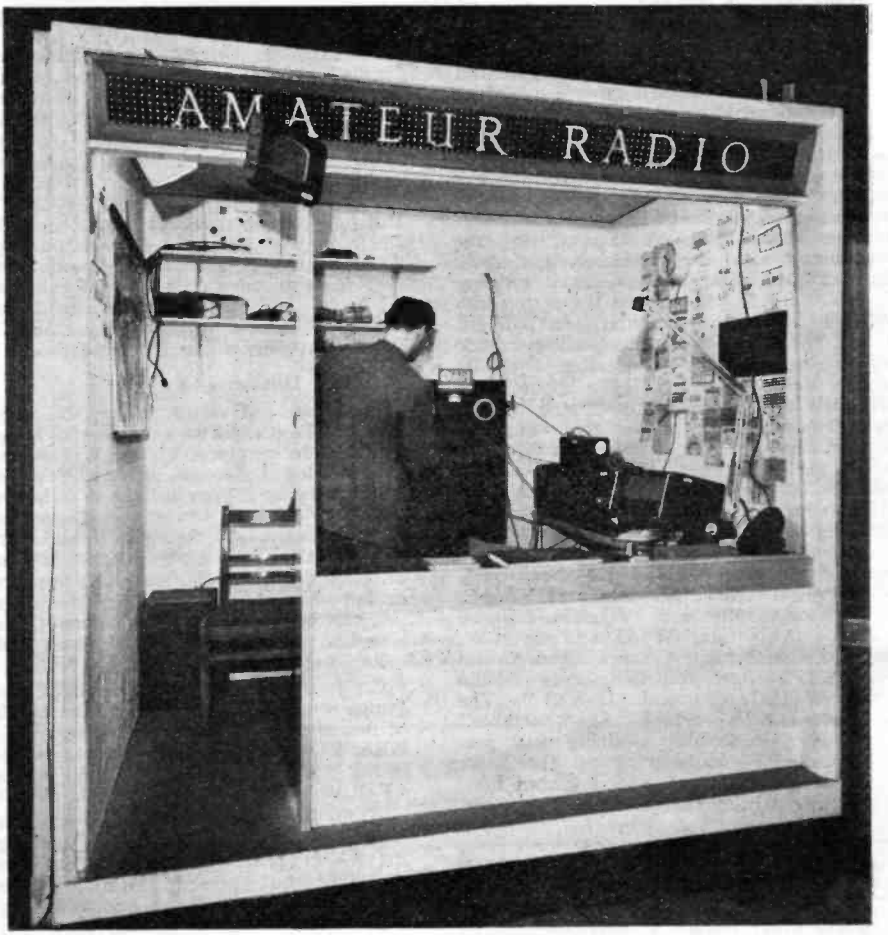
A new reporter is A. J. Benton (Reddish), who found it a tough job pruning the lists down to 25 calls. He lists VQ6SQ and wonders whether this could have been right; I suggest it *might* have been VP6SQ.

R. Lamble (Ardingly) has been busy with the R.A.E. and with school exams., but managed to add three new countries and a new Zone, JA5GC giving him the latter.

Military Traffic

W. Neal (Birmingham) writes just after hearing TA3FAS and DL4EN handling traffic of an official and military nature in the 20-metre phone band. He asks whether he can claim TA3FAS as an amateur station? I don't see why not; several of these Americans in European countries spend most of their time traffic-handling for other than amateur purposes—but they are licensed as amateur stations just the same. Several listeners (and an even greater number of transmitters) are somewhat sore about this, but the people concerned seem to be within the law. All the same, that isn't what the amateur bands are supposed to be for.

P. King (Offaly, Eire) is one of the lucky ones who heard FI8TP, who worked on CW during the month. He was logged at 1615 GMT. P.K. would like more information about the times at which some of the rarer DX is heard. He also asks for the early morning



If you go to the Festival of Britain Land Travel Exhibition— Leeds, June 23-July 14; Birmingham, August 4-25; and Nottingham, September 15-October 6 — you will find GB3FB in action on the communication bands, under the guidance of local amateurs. GB3FB is operated under considerable difficulties by reason of the very high noise level, reading S9 on the meter all the time, caused by a mass of electrical machinery associated with the Exhibition itself.

route of signals from VK and ZL. His guess is correct—in the mornings they come "long way round," *via* South America; afternoons and evenings find them coming from the North and East. Anyone with a rotary beam can easily check this.

J. H. Hayden (Tunbridge Wells) has logged CM9AA since his return from Cuba (he was, of course, FG7XA for a while). The "FG7XA" heard a few times this month was obviously a pirate. Others from J.H.H. are EQ2L (using 650 watts), FO8AB (0555), HI6EC (0620), KL7AHM in the Aleutians (0710) and ZK1BA (0615)—all on phone. He has found W5, 6 and 7 excellent mornings, between 0500 and 0600, VK sometimes good but patchy, Pacific better than for some time past, and South America good all the time. That's a pretty fair summary of band conditions. Note, by the way, J.H.H. and others, that Aleutian Islands and Alaska are one and the same for scoring purposes.

[over

D. Garrard (Ipswich) managed to log HR1KS and AC3SQ during the month. He wonders whether anyone else heard the AC3—and whether he was genuine! D.G. has built himself an o-V-o battery receiver and is going to do some "QRP listening" for a change.

N. S. Beckett (Lowestoft) has found the month particularly good for the Far East, which, as he says, seems to have produced signals at all times of day. (I have heard VS6's at 1230, during the afternoon and early evening, and again at 2300!) But he has heard nothing new. On *Ten* he reports more openings in the evenings, particularly for CE, HC and the like. *Forty* has produced little of note, although he did log W7, VP4 and VP8; even on *Eighty* he collected a new one in the shape of a VP9!

Generally high noise level has been the curse of the band, according to R. E. G. Sivyer (Henley). He says there is always some good stuff about at 0700—if one listens then—but at most times the CW part of the band has been getting rather more like 40 metres than 20. He pulled in three new ones, though—CR4AD, KV4AA and VS6AC. Best on phone were VQ4RF, YV5AB and 5AC, and W7ADA; on CW, CE7ZN and 7ZQ, CX1FY, VS6AC and W6KIP. And R.E.G.S. asks "Who are W4JBC/KP4 and 9D3AA?" The former is a W working "fixed portable" in KP4—probably awaiting his permanent KP4 call-sign; and the latter (who also signs 9B3AA) describes himself as "Unlicensed in Zone 20"—but might be almost anywhere!

Conversion to CW

B. R. J. Pooley (Pangbourne) says "I am having a go at CW, and it is worth every minute I spend learning it. It has already brought me several new countries, including PJ, HP, UA9 and, best of all, VR2." He asks whether LJ is a Norwegian call used by any particular body. It is, but I forget which! I rather think it is some kind of training organisation. B.R.J.P.'s list of the most consistent phones runs as follows: VQ4RF, VP6FO, VP6MO and VQ5AU.

E. Hall (Bolton) found conditions patchy but better than last month. Early morning sessions have brought him some KH6's, HK3AS and 4FU, a KP4, YN4CB, HR1BG and a W7. M. E. S. Birch (Beverley) will be "QRT" for two years (guess the reason?), but says that in his first seven weeks of short-wave listening he has logged 67 countries on twenty-metre phone with his R.1155—nice going, that.

H. Watson (Grimsby) has stuck exclusively to 14 mc since the end of the Top-Band Marathon, and has heard a few good ones. He quotes ZS3K (1800), 3V8AN, ZC6UNX, YV5BZ (2200), HZ1AB and a type signing UL7A, who, I think, must be phoney. On this tender subject—he also heard "AC4Y," and had a card returned from OY with the note that the only genuine one up there is OY3IGO. H.W. found how easy it is to misread badly-sent calls on CW; a station he had logged as EA8TVR turned out to be EA8BC. Work that one out in dots and dashes!

Don't be Discouraged

B. Monks (Dublin) writes in very depressed mood because his list of Calls Heard didn't appear in the May issue. (I hope his June one is in!) It's no good worrying if your list doesn't always turn up, because we generally receive far too many lists to allow publication of them all. It then becomes a matter of space available whether yours appears or not—but if it didn't obey the rules you can be *sure* it won't be there. (This is not to suggest that B.M.'s was a dud—he was just unlucky).

C. J. Rourke (Belfast) brought his Phone score up to 107 with a nice batch of new ones, including EAØ, FG7, HH, KR6, VQ5 and VT, all logged at weekends. For "queeries" he offers AF3ICW, QI2BN and SX7QR. Wow!

A. O. Frearson (Birmingham) says his best logging was ZK2AB working ZK1AA (1735, CW). I hope they were all right—but present information is that ZK2AA is still the one and only ZK2. And I have heard an absolutely obvious pirate signing ZK2AB—roaring in at about 577, just like a European. A.O.F. adds that *Ten* has been full of exceptional short-skip and, except for ZD4AB and the ZS's, has produced nothing worthy of mention.

K. B. Ranger (Rochester) is disgusted with the short-skip in the mornings and early afternoons, but thinks the good patches at other times of day have compensated for it. The standard of DX heard, he thinks, is improving, and his best have been DU1AL, KR6FA, AR8BS, CT3AE, VP1CV and 1NT—with the consistency prize to VQ4RF, whose ears ought to be burning happily by now.

E. H. Williams (Poole) was not much amused by the SLP, so he tried 10

metres instead, and collected EL2A, some LU's and PY's, VQ4RF, ZD6HJ and a ZS. He asks, by the way, whether the amended rules to Calls Heard really mean "No East Coast USA, or Canada," or "No East Coast, USA or Canada"! The answer is this: leave out W1, 2, 3, 4, 8 and VE 1, 2 and 3.

"The band (14 mc) seems to have been full of Europeans, whatever time of day I've listened," says H. M. Graham (Harefield). Certainly the short-skip hasn't given us much peace, and, as he says, the EA's, I's and SM's are usually there "with whopping signals," but often equalled by stations like CE3CZ, HC1FG, PL2CK and VP6SD. Other calls mentioned by H.M.G. are CN2AA (Tangier), MD1VK in Cyrenaica, VT1AB, TA3QZ and 3XOX, and a few others. For a change, he thinks the consistency prize should go to PY2CK.

A little listeping on *Ten* by H.M.G. brought in AR, CE, LU, MD2, MI3, PY, VQ4 and ZS, with VQ4RF heard as late as 2200.

S. Smith (Kenilworth) says Ten is "the lazy man's DX band," and adds: "Give me Good Old Twenty, where you have to dig for it!" He asks whether anyone knows aught of MT1BA—or is it another one for the funnies' section? *See* list for his QTH.

Some Multi-Banders

There are still one or two who try to cover all bands, and we'll have a look at some of them. M. G. Whitaker (Ouston) winkled out two new countries on Ten—SP5AB and 9S4AX on phone. He also heard LZ1KAB being called on CW. Several other Europeans were logged on CW, and M.G.W. says he finds these European openings more exciting than the hoards of ZS's and PY's.

On *Twenty* he logged VK9BO on CW (my Call Book doesn't give him, so I can't say whether he is Papua or New Guinea). And he asks whether there is anything peculiar about LUØBD? He queries the "seven KM6 phones" attributed to J. P. Warren last month. This was, of course, just a slip-up, and should have read KH6. (Oh, to hear seven KM6 phones—or even one!) Passing on to *Eighty*, M.G.W. heard LZ1AC for a new one up there.

The *Top Band* is still excellent, says M.G.W., although static is naturally troublesome by now. By the way, you will see that M. G. Whitaker managed a very close second place in the Top Band Marathon which finished on April 30;

"ZONES HEARD" LISTING
(POST-WAR)

Listener	Zones	Countries
PHONE and CW		
A. H. Edgar (Newcastle) ...	40	223
R. S. Stott (Upminster) ...	40	222
E. Trebilcock (Australia) ...	40	218
N. C. Smith (Petts Wood) ...	40	209
R. A. Hawley (Goostrey) ...	40	202
R. W. Thomas (London, E.5.)	40	200
W. J. C. Pinnell (Sidcup) ...	40	198
D. W. Waddell (Hitchin) ...	40	194
B. Davies (Beckenham) ...	40	177
M. G. Whitaker (Ouston) ...	40	177
N. S. Beckett (Lowestoft) ...	39	194
W. Neal (Birmingham) ...	38	161
M. J. Marlow (Guildford) ...	38	154
F. A. Herridge (Lon. S.W.12)	37	157
R. W. Finch (Ilford)	35	133
A. O. Frearson (Birmingham)	35	125
PHONE ONLY		
E. J. Logan (Hertford) ...	40	203
K. Parvin (Thornton Heath) ...	39	179
R. G. Poppi (Beckenham) ...	39	175

Listener	Zones	Countries
PHONE ONLY (*cont'd*)		
F. K. Earp (London W.S.11) ...	39	163
R. A. Hawley (Goostrey) ...	38	188
D. Kendall (Potters Bar) ...	38	170
M. G. Whitaker (Ouston) ...	38	156
K. M. Parry (Sandwich) ...	38	154
D. Vincent (Beckenham) ...	38	148
D. L. McLean (Yeovil)	37	186
J. P. Warren (West Croydon)	37	174
P. H. Strudwick (Lon. N.W.11)	37	168
A. Levi (Belfast)	37	160
A. M. Norden (Lon. N.W.11)	37	156
R. J. Line (Reading)	37	156
B. W. Sutton (Liverpool) ...	37	141
D. G. Martin (Cheltenham) ...	36	154
C. S. Pollington (Chichester)	36	151
N. Roberts (Launceston) ...	36	145
D. C. Stace (Spring Creek, N.Z.)	36	129
H. M. Graham (Harefield) ...	35	149
A. L. Higgins (Aberkenfig) ...	35	138
R. Lamble (Ardingly)	34	107
J. H. Lloyd (Enfield)	34	105
B. L. Stedman (Lon. W.3.) ...	34	105

he wants to congratulate the winner, F. A. Herridge (London, S.W.12), for his very fine show.

Some Winners

So we will pass to that very listener and add our own congratulations. I am sure his victory meant a lot of very concentrated listening, which can become quite hard work! F.A.H. himself has recently taken the R.A.E. and hopes to hear good news about a "ticket" before long. By the way, his present totals for the Top Band are 26 countries and 60 counties, involving 1275 different stations! QSL's have arrived from EK1AO, W1SS and W2PEO.

Now congratulations to another winner. The May Contest (Countries heard on 14 mc Phone, not counting Europe) went to K. Parvin (Thornton Heath) with his score of 74. The first sentence in his letter reads: "Conditions have been excellent, and my score of 74 will almost certainly be passed, because of the stuff I heard being called but didn't hear myself." However, he wasn't passed, and remains Top Scorer for the May event. Doubtless by now he will be having a good go at the 28 mc band for the similar June event.

K.P.'s remarks about Twenty include a note that ZK1BA on phone was another new one, and so was ZA1CC. VP1GM, heard at 1900, was, K.P. thinks, "probably an I1 trying out a new call." Nice ones that got away were FE8AA, FO8AB, ZM6AA, VR3C and AC3PT, who, rumour has it, is operated by "a local Maharajah"!

Other notes from K.P.—HL1US and 1CD were on at the start of the Korean war and are probably handling GI traffic now; TDRK, heard on 14 mc, should probably sign TG9RB. And an interesting one on 28 mc—W5SGH/MM, operating from Surrey Commercial Docks, London River!

THE MAY CONTEST

(14 MC PHONE)

Listener	Countries
K. Parvin (Thornton Heath)	74
C. R. Burchell (Walsall)	71
E. J. Logan (Hertford)	67
N. C. Smith (Petts Wood)	67
A. H. Trigell (Lymington)	60
H. J. Hill (Whitley Bay)	58
T. E. Botham (Walsall)	54
R. J. Riding (Wednesfield)	49
A. M. Munford (Cambridge)	45
D. Garrard (Ipswich)	43
D. A. Winters (Loughborough)	42
R. Booth (Manchester)	41
H. M. Graham (Harefield)	40
R. A. Hawley (Goostrey)	36
J. Butcher (Blackpool)	34

THE TOP-BAND MARATHON

(Feb. 1 to Apl. 30)

FINALISTS

Listener	Countries	Counties	Total
1. F. A. Herridge (London, S.W.12)	21	52	73
2. M. G. Whitaker (Ouston)	16	56	72
3. R. A. Hawley (Goostrey)	9	51	60

More on Ten Metres

B. W. Sutton (Liverpool) has found the band in poor shape, but there have been openings, during which he logged KP4, KZ5, LU, OQ, PY, VQ2, VS1 and ZL—all on phone. He asks whether KZ5 and HP, also YK and AR8, are separate countries. Yes—there are four different ones there altogether.

Some more regular devotees of Ten:—D. L. McLean (Yeovil) and R. A. Hawley (Goostrey). The former has logged CE7ZN, CR4AC, CR6CB, HH2W, VP3CW, VS9AA, ZD1SW, 2DYM and 6HJ—a nice varied bag. R.A.H. was delighted to hear several Maritime Mobiles once more, but couldn't locate some of the ships. His best fixed station heard was ZP3AW. Another regular, J. W. Cave (Parkstone) wants to make it clear that the times he gave last month refer to the summer months only.

D. L. McLean also covered Twenty pretty well, and came out of it with CP3CB and 5EK, EQ2L, KH6 and KL7, VQ3 and 5, VS, VU and ZM6AA.

I. S. Davies (London, N.13) sends in a few QTH's which might be useful. He logged DU, FG7, JA, KL7, MD1 and SU—together with the usual load of short-skip on Twenty. On *Ten*, however, the same short-skip presented him with six or seven new countries—mostly Europeans. Replying to one of last month's queries, he says that ZPØWS is probably genuine, as some other ZPØ's are listed in the *Call Book*.

F. H. A. McClymont (Ayr) is a newcomer to the game, with a BC348. Two weeks of listening have convinced him that YN4CB is the most consistent DX station (S9 + 20 dB every morning). VK's, W6 and 7 and other "semi-DX" can also be logged most mornings. In

When the City of Belfast Y.M.C.A. Amateur Radio Club staged an exhibition locally, this was the operating set-up for GI6YM, the Club's own station.

the evenings JA5GC, KR6GJ and VS6BP have provided good signals.

A. Jackson (Huddersfield) finds our Calls Heard section "worth its weight in gold" for the information it offers, and he is glad to note the new ruling and the pruning of the lists, to give everyone a chance of slamming in a reasonably good selection of 25.

M. J. Marlow (Guildford) has been busy with exams., and his only receiver is an S.27, so he has concentrated on *Ten*. He has been rewarded with EL1oA, CE7ZB, VU2GJ, CR4AC and some OQ5's. These were on phone, and on CW he logged SU1NK and a UA6—also a bad character signing YA3WA. Short-skip conditions have helped to bring in some new ones—but M.J.M. *would* like to hear a station signing AP. They're a bit scarce these days, I know.

F. J. Rockell (High Wycombe) is another one who sticks to the ten-metre band, using an RF24 and an 1196. With this rig he has pulled in 69 countries on the band, but he says one needs the patience of Job; sometimes it takes the best part of an hour's listening to get one new station.

Paul Q. Dodson (Rhuddlan) stuck to Twenty and says the only station of real interest was HP1PV, R5 and S8 at about 2200. He proposes to build "a red-hot o-V-1" for listening in bed on the cold nights next winter. (He doesn't say whether it is to be water-cooled from the hot-water bottle). P.Q.D. is also flat out for Calls Heard and more contests; he says "What the Heck—I didn't take up radio to go cultured. I *enjoy* what I listen to, and competition is half the fun."

J. Carwardine (Bournemouth) is another new recruit (although just demobbed from the Army), and he is going to get down to DX in a big way. He sends a list of Calls Heard for 20 metres, and on Ten he has logged AR8, CE, KP4, LU, PY, VQ4, ZD1 and some MM's. (One gentle reminder, J.C.—please read the rules on the Calls Heard page before your next one!)

A. M. Munford (Cambridge) would like to give some sort of a prize to HC1FG—S9 every morning; and PY2CK is the other outstanding one. The latter was heard to say that he has 193 countries confirmed—on phone. New ones for A.M.M. (on phone) were

YI3ECU and CR4AI. He asks about the "Chilean Antarctic" stations for counting purposes—to us they are just CE's and no more.

A.M.M. was rather pleased to hear AK2AH, on phone, calling "CQ Mars." As a matter of fact, this was probably all right. The AK is one of the US Military stations that work just outside the amateur bands, and MARS is the American "Military Amateur Radio Service"—so there you are.

H. J. Hill (Whitley Bay) has a few queries, to which the short answers are as follows: PX is Andorra, and a separate country, but there has been no genuine transmission from there since the war. KG4 is not just Cuba under another prefix, but the American Guantanamo Bay—and a separate country. The present status of the SU's is very much "under cover." And a "late flash" from H.J.H. tells of a visit by M. G. Whitaker from Ouston. A combined super-DX effort brought in G phones from nearly every part of the country—on 14 mc. This must have been the day I referred to earlier on. He suggests that FK9AGZ (queried last month) might be a new station on the Wallis Islands (although I thought they used the prefix FW).

Contests and Suchlike

-1- **The June Contest:** This is already running (May 22 to June 22, midnight to midnight) and consists of logging Countries outside Europe on the **Ten-Metre Band only.** I shall be interested to see what sort of totals are turned in.

-2- **The July Contest:** In response to many requests, I propose that we run our own private Field Day. So this will be a contest for receivers away from the home QTH during the week-end of July 7th and 8th (any time between 1500 GMT on the Saturday and the same time on the Sunday). Don't try to send in full logs, but the winner will be the sender of the best list of 25 stations heard on 14 mc during this period. State whether CW or Phone, and if the entries warrant it we will have two winners—one for each. Receivers must be battery-operated, but otherwise no restriction except that they must be away from home and not operated in a house or permanent building.

Set Listening Periods

June 23, 1800-1900 GMT — 28 mc Phone Only

June 24, 0700-0800 GMT — 14 mc CW and Phone

July 21, 2100-2200 *GMT — 14 mc Phone*

July 22, 0800-0900 *GMT — 14 mc CW and Phone*

Make a note of these July dates, because they come just after publication of the August issue, and the deadline for the issue following will be first post on July 25. For the one after that, it is first post on August 29. For our next appearance, on July 19 for the issue dated August, your final date is **June 27.** Note all these dates, and address all your news and views, DX reports and calls heard to DX Scribe, *Short Wave Listener & Television Review,* 55 Victoria Street, London, S.W.1. Good Hunting, 73 and—BCNU.

BOOKS FOR REFERENCE

The last few copies of our *DX Operating Manual* (2s. 8d. post free) and *Principles of Short Wave Reception* (1s. 8d. post free) are now being cleared and will be found to be of particular interest to the beginner. Their titles indicate scope and coverage, and they are invaluable for general reference purposes. Order on The Circulation Manager, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

MAP FOR DX

Our *DX Zone Map* is still the only thing of its kind available to the DX enthusiast, giving full details of the Zone System as well as being a great circle map of the world, in five colours, for wall mounting. The *DX Zone Map,* at 6s. post free, has been a steady seller for several years, and will be found displayed at many amateur stations. It comes to you carefully packed in a cardboard "postal tube," and can be obtained on order to The Circulation Manager, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

AMATEUR TV CONVENTION

Readers interested in amateur TV, whether actively or otherwise, will see this just in time for June 23, when the British Amateur Television Club is holding a TV convention at 164 Shaftesbury Avenue, London, W.C.2, from 10 a.m. to 6 p.m. Admission will be 2s. 6d. at the door, and there will be technical discussions, a show of amateur TV transmitting and receiving equipment, and demonstrations.

CALLS HEARD

SET LISTENING PERIODS

14 mc

May 26, 1800-1900 GMT

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

PHONE : AR8BC, DU1AL, EA8AE, 8AX, FF8JC, JA2OM, PY4CT, VP6FO, VQ4NJ, VS2CY, 4X4DR. (*Rx : S.*504).

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

PHONE : AR8BC, DU1AL, EA8AE, MI3LV, VP6FO, YO2RI. (*Rx : R.C.A. AR-88 and Eddystone S.*504).

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

PHONE : AR8BC, DU1AL, JA2OM, VP6FO, VQ3AT, 4NJ, VS2CY, ZB1AIS, 4X4DK. (*Rx : R.F.*24 *and S.*40*a*).

J. St. Leger, c/o 64B, Mount Pleasant Rd., Camborne, Cornwall.

CW : SU1GO, 1NK, UP2KBC, UQ2AN, VQ4ERR, 4X4BR. (*Rx : Battery* 0-*V*-1).

B. R. J. Pooley, BSWL 3588, Harbinger Division, Nautical College, Pangbourne, Berks.

PHONE : EA8AE, VP6FO, ZB1AIS, ZC6JM. (*Rx : R*1155*A*).

G. C. Jones, 19, Braithwaite St., Staincross, Nr. Barnsley, Yorkshire.

PHONE : AR8BC, DU1AL (Manila), VQ4NJ, 4X4AT. (*Rx : S.*640).

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

PHONE : AR8BC, CN8EI, FA8BE, JA2OW, PY7AD, 7PM, VP6FO, VQ2JD, VS2CY, VT1AG, 3V8AK, 8BB. (*Rx : Battery* 1-*V*-1).

R. J. Riding, Fibbersley, Wednesfield.

PHONE : DU1AL, MD2AC, VQ2JD, ZB1AIS, ZD1SW. (*Rx : Home-Built Battery* 1-*V*-1).

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

CW : FM7WF, FP8BX, JA8OT, SU1GO, VQ4ERR, VU2CP, W7RDA, 4X4DA, ZE3JM. (*Rx : Hambander*).

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."

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

PHONE : AR8BG, 8CS, CC6CM, DU1AL, MD2AC, OQ5DZ, VP3US, VP6FC, 4X4DR. (*Rx : Commander*).

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

PHONE : AR8AB, 8BG, OQ5DZ. *CW :* FP8BX, VQ4ERR, ZE3JO.

14 mc CW

May 27, 0700-0800 GMT

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

CW : FA9VN, LZ1KAB, UI8AE, UN1AE, VK3YP, ZL1AH. (*Rx : AR-*88 *and S.*504).

GENERAL

28 mc

M. J. Marlow, Epsom Road, Guildford.

PHONE : AR8AB, 8PO, CP5EO, CR4AC, 6AJ, 6AQ, 6CB, 6UN, CX4CS, CE1AJ, 1AH, 2CC, EL1OA, HC2GRC, HH2W, HK4JO, HZ1AB, KP4HF, KZ5MD, OQ5AA, 5AB, 5CJ, 5EC, OX1RB, VP6HF, 6RD, 6SD, ZD1SW, ZS3O, 9F. (*Rx : S.*27).

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

PHONE : CE6AM, KP4ML, LU3BU, 5DC, 5DJV, 6AT, OQ5AB, 5BW, 5DD, 5EC, PY3CR, VQ2NS, 4BU, 4CRE, 4ERR, 4RF, 4SGC, W2PFL/MM, 3NVI/MM, 3OZA/MM, 5AXI/MM, ZD1SW, ZP3AW, ZS2AF. (*Rx : AR-*88 *and S.*504).

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

PHONE : AP5HQ, CE1AJ, 2CC, 3BE, 6AM, 7ZN, CR4AC, 6AI, 6AQ, 6CB, EL1OA, FF8PG, HK4AM, HZ1AB, TI2RL, VU2JU, ZD1SW, 4AB, 4AX, 6HJ, ZE2JA, 3JF, ZP3AW, ZS9F. (*Rx :* 504).

A. J. Benton, 24 Finsbury Rd., Reddish, Stockport.

PHONE : CE3CF, 3VE, CR6AQ, KZ5WF, LU1OGE, 2HZ, 3AX, 5AR, 5AZ, 5OC, 6AJ, 7BU, PY1AVM, 1GR, 1JY, 2ADT, OQ5GR, VQ4RF, 6SQ, W5AXI/MM. (*Rx : S.*640).

J. W. Cave, 12 Hilda Road, Parkstone, Dorset.

PHONE : AR8BS, CE2CC, CR6AQ, EA8AX, KP4MQ, LU8CW, MD2GC, MI3NA, OQ5AB, PY2CK, ST2KR, VQ4CRM W2PFL/MM, ZD2DYM, 6RD, ZE2KH, ZS6AB, 4X4CR. (*Rx :* 0-*V*-1).

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

PHONE : EL1OA, LU1KG, 5DBL, 6AJ, 6DJD, MI3NA, OQ5BW, VQ4AC, 4RF, ZD6HJ, ZS1T, 4X4CZ. (*Rx : R.*208).

N. C. Smith, 79 Greencourt Road, Petts Wood.

PHONE: AR8BB, 8PO, CE2CC, 3AE, 7ZN, CR6AQ, EL1OA, LU1EK, OQ5BP, 5CJ, 5DZ, ST2KR, VQ4BU, ZD6HJ, ZE3JT, ZS1T, 5CU. (*Rx:* 750).

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

PHONE: AR8AB, CR6AJ, 6CQ, EL1OA, HC1AL, LU3BU, 4DB 5DC, OQ5BW, 5LL, 5MJ, VQ4ASC, 4BU, VP6CG, 6FC, ZD4AE, 4AF, ZE3JD, ZS6YK. 4X4BX. (*Rx: RF Unit* 24 *into B*36).

E. J. Logan, Linten Cottage, Fanshawe St., Bengeo, Hertford.

PHONE: AR8AB, 8DB, 8MR, CE7ZN, CR4AC, 6AJ, 6AQ, 6CB, 7IV, CX4CX, EL1OA, FF8PG, HC1BB, 1DL, LU5DBN, OQ5AO, VQ2NS, 4CRM, ZD2DYM, 4AB, ZE3JF, ZP3AW, ZS6NX, 3V8BB, 4X4CZ. (*Rx: BC*.342.*J*/*RFU*32).

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

PHONE: AR8AB, 8BB, 8PO, CE7ZN, CR4AC, 6CB, FF8PG, HC2GRC, HH2W, MI3US, OA1F, OQ5AB, 5AO, 5BW, 5LL, TI2TY, VP3CW, 6PC, VS9AA, ZD1SW, 2DYM, 4AF, 4AH, 6HJ. (*Rx: SX*28 *and AR*88*LF*).

14 mc

A. J. Benton, 24 Finsbury Rd., Reddish, Stockport.

PHONE: EA6AR, HK4AM, JA5GC, PZ1WK, UA4NI, VE8TD, VK2AGW, 2GH, 3AKA, 3BN, 3HW, 3ND, 3OAK, 3PK, 5AX, 5RM, 6VM, VQ2JU, 4AJ, 4BU, 4RF, 5AI, 5AU, ZL3JA. (*Rx: S*.640).

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

PHONE: CR4AC, CS3AB, CT3AE, HP1PV, KG4AI, KP4PO, LU9CI, VP3FF, YV5AT, 5BZ, 5EC. (*Rx: National FBX*)

N. B. Henry, Perrymans, Northiam, Rye, Sussex.

PHONE: CO8WM, CS3AB, LU5CZ, MI3NJ, OA4M, VP6FO, 6SD, VQ4RF, VK2WT, W6LDZ, W7ADZ, YS2SA, YV5AB, 5CE. (*Rx: Murphy A*.122).

H. Watson, 8, Homefield Ave., Grimsby, Lincs.

CW: ET3Q, FP8AW, FQ8AC, FR7ZA, FY7YC, HC1KD, HH2G, HZ1AB, 1JD, JA2JM, KH6BA, 6IJ, KV4AA, OQ5LA, 5LL, TI2TG, UL7A, VK2MT, 8KX, VQ4KRL, YV4AX, 5BZ, 6AO, ZC4XP, 6UNX, ZL1BY, 2FA, ZS6D, 6RX, (*Rx: Echophone E.C.*2.).

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

PHONE: CO2DG, CR4AC, CE3CZ, DU1AL, FG7XA, FR7ZA, FO8CC, HC2KG, HH2X, HI6EC, HK4RM, HP1LL, JA5GC, KP4CO, PK3HA, TI2RC, VP5AK, VS6BA, VK3LO, XZ2DY, XE1AA, YS2SA, YV5DV, ZL2JB, ZS6J. (*Rx: R*.107).

A. Jackson, 57 De Lacy Avenue, Almondbury, Huddersfield.

PHONE: AR8BC, CE2CC, CO8MP, CR4AC, DU1AL, HH2X, HI6EC, HP1AY, JA2HB, 2MB, KG4AO, KP4HF, KZ5AA, OQ5DX, TI2TG, VK5MS, VP5AR, 6AL, 9VV, VQ4BU, VQ5AU, VS7BR, VT1AB, YV1AA, ZC6GI. (*Rx: Battery* 0-*V*-0).

A. M. Munford, 51 Woodlark Road, Cambridge.

PHONE: AR8AB, 8BB, 8BS, CR4AI, DU1AL, HI6EC, KG6USA, KR6CO, VP6FO, 6MO, 6SD, VQ3CH, 4AQ, 4BU, 4RF, 5AU, VS7FG, 7WA, VT1AB, 1AG, VU2JP, 2JU, YI3ECU, YN4CB, YS1FA. (*Rx:* 6 *valve Super*).

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

PHONE: FG7XA, FK8AI, JA2OM, KG6SG, KL7AHM, LU8VR, VK5PN, VP3MCB, 6SD, 6WR, 9G, VR1G, ZL2QK.

J. Carwardine, 41 Seaward Avenue, West Southbourne, Bournemouth, Hants.

PHONE: CE3AI, 3CZ, DU1AL, HC1FG, HI6EC, MI3NJ, 3US, UA4HI, VK2AGW, VP6FO, 6SD, VQ4RF, VT1AB, W6SHW, YV1AA, 5AI. (*Rx:* 0-*V*-1).

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

PHONE: CO7AA, 8MP, CX2CO, HK3HY, KP4HF, LU6CI, MI3NA, 3US, OQ5BZ, PY6BP, TI4JJ, VE8ML, VK2AGW, 3HG, VP3HAG, 3LF, 5AR, VS1AX, 2CY, 6BG, VT1AB, W5GAN/MM, XZ2EM, YV5EC, ZL2BE. (*Rx: AR*-88 *and S*.504).

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

PHONE: CE7AQ, EA0AB, 0AC, EQ2L, HR1BG, I5ZC, KG6GD, KH6CD, 6DY, 6IJ, 6OA, 6OR, 6YL, KL7ACO, 7AHM, KR6DN, 6FA, 6GJ, TG9AX, VQ3CH, VS6BA, VT1AB, 1AG, W6QZK, KL7, ZK1BA, (*Rx:* 504).

K. B. Ranger, 89 Station Rd., Strood, Rochester, Kent.

PHONE: AR8BS, CT3AE, DU1AL, HZ1AB, 1TA, KR6FA, MD2RG, MI3RP, 3US, OQ5CF, 5DZ, 5LL, TA3FAS, TF5AS, 5TP, VK2AGU, VP1CV, 1NT, VQ4BU, 4RF, 4VL, VS7BE, VU2JU, 2LJ, ZC4VD, 4XP, ZS6DW, 6J, (*Rx:* 0-*V*-2).

J. Butcher, 27, Westfield Road, South Shore, Blackpool.

PHONE: CE2CC, CO8MB, CX2CO, HK4CO, HP1GD, HZ1AB, JA2MB, KG4AT, KP4AZ, LU3EB, MI3US, OA4M, OQ5RA, TA3FAS, VK1AD, 2OQ, 3HG, 5MS, VP6SD, VP9VV, VQ4RF, XZ2KM, YV5EC, ZC6GI, 4X4AT. (*Rx: Home-Built Battery* 1-*V*-1).

R. J. Riding, Fibbersley, Wednesfield.

PHONE: CE3BM, CP5EP, DU1AL, EL2R, HI6EC, HK1IY, JA5GC, KG4AO, KP4HF, OQ5CF, VK2TC, VP4LL, 5AR, VQ3CH, 4LM/Airborne, VS2BS, VT1AB, YN4CB, YS1RR, YV1AA, ZC6AH, ZE2JE, ZK1BA, ZL4CU, ZS1BV. (*Rx: Home-Built Battery* 1-*V*-1).

F. W. Hattemore, 243 Seaside, Eastbourne.

PHONE: CE2CC, CP5EP, CX1RA, HG4FV, HK1FK, 1IY, HP1LB, LU7BF, OA4EC, TI2ES, 2JV, VK2APA, 2WT, 3ES, 4XR, VP1AB, 5AR, W6MO, YX, W7HIA, YN4CB, YV1AA, 5AC, 5AV, ZP1AL. (*Rx:* 358*X*).

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

PHONE: AR8BC, CS3AA, 3AB, CT3AE, DU1AL, EL2R, JA5GC, KG4AG, KR6DN, 6FA, 6GJ, 6X3BG, TA3QZ, TF3MB, TF5TP, UA1BW, 1KAC, 4MJ, VQ4AC, 4RF, 4VU, 4HU, 5CB, VS2BS, 7SV, 6BA, VT1AB, 1AF, YV5AU, 5EC, ZC4ND, 4XP, 6D6, 6JM, ZE2JE. (*Rx: B*36).

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

PHONE: AR8BS, CE2CC, CX2BG, HC2KJ, HK2BH, HR1BG, HZ1AB, KG4AT, MI3NJ, OQ5DZ, OX3GD, TA3QZ, TF5SV, TI2AB, VP4LL, 5AR (Jamaica), 6YB, 9VV, VQ4SGC, VT1AB, VU2JU, YS1ZG, YV5EN, ZC4ND, 6GI. (*Rx:* 1-*V*-1).

N. Roberts, Aspen View, 29 Race Hill, Launceston, Cornwall.

PHONE: CE3AI, 3CZ, CO7AA, 7GM, 8MP, CP3AA, DU1AL, FF8GZ, HC2AB, HH2X, KG4AT, 4AU, MI3AB, 3LV, 3NA, 3US, OA4CN, SU1AS, TI6IA, VP5AR, VQ5AU, VS7MS, VT1AB, YV5EC, ZD1SS. (*Rx: SX*.28.*A and S*1750).

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

PHONE: DU1AL, FG7XA, HC1FG, HK1AS, 4FV, JA2HB,

2KW, KL7AHM, KP4HF, 4JG, MD1VK, SU1AS, TI2OA, VE8MB, VK4KS, 4RT, 5RN, VQ5AU, VS7WA, W6DYB, 6DGJ 6KPC, 6SHW, YN4CB. (*Rx: R.*208).

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

PHONE : CX3CS, EA6AR, HI6EC, HK1FW, HR1BG, KC6WC, KH6DY, 6EL, 6OA, KL7ACO, TA3XOX, VP3AHG, 4LL, VS1BU, 2BS, 7WA, VU2JU, XE1ZR, XZ2EM, YN1OC, 4CB, YV5BC, ZA1CC, ZD1SS, 6RD, ZM6AA. (*Rx: Mod. R.*1155).

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

PHONE : DU1AL, EAØAB, ØAC, HC2LF, HH2X, HI6EC, HP1GD, HR1BG, KG4AT, 6FAA, OA4AT, 4M, PJ5RE, TI2OA, 2ES, VP3HAG, 3LF, VS6BA, VT1AB, XE1CQ, 2BM, 3AF, YI3ECU, YN4CB, YS1FA, ZD6HJ, 6RD. (*Rx: H.M.V.* 1120).

D. H. Black, 12 Gladstone St., Anstey, Leicester.

PHONE : CO8MP, EAØAC, HH2X, HK5LA, JA2HB, K6AQ, KG6USA, KL7OM, KR6CO, LU6AJ, MI3US, OX3BD, TA3FAS, TF5TP, TI2OA, VE8MB, 8OP, VP5MU, 6FO, VQ3CH, 5AU, VS2BS, VU2JU, ZS6CY, 6FD. (*Rx: Hambander*).

B. R. J. Pooley, Harbinger Nautical College, Pangbourne, Berks.

CW : CO6VA, HZ1AR, KP4AZ, OX3MC, UA9DP, VK3CY, VR2DM, VS2DF, VU2JG, ZL4AW.
PHONE : AR8BC, HC1FG, HK4FV, KR6FA, OA4M, OQ5CA, TA3FAS, TF5TP, VP4TK, 6MO, VQ1AB, 3CH, 4SGC, 5AU, VS7BR, VT1AB, W6GAL, ZC6GI, 4X4BR. (*Rx: R.*1155*A*).

B. L. Stedman, 5 Palmerston Mansions, Palmerston Road, Acton, London, W.3.

PHONE : AR8BC, CE2CC, CM9AA, CO8WM, CX2CO, HC1FG, LU5CZ, MI3NA, OA5M, VP6AL, 6SD, VQ4RF, YV5AB. (*Rx: B.2. Modified*).

W. Stephen, 109, Ben Walk, Methil, Fife, Scotland.

PHONE : AR8BC, CE3GZ, HI6EC, HK4FV, HZ1AB, KG4AT, KP4HF, 4DG, LU4AJG, MI3US, OA4MOA, 4EG, OX3BD, 3GD, VK4RT, VP6FO, 6MO, 6SD, VQ4RF, VS2BS, 7MP, VT1AB, VU2JP, W6GAL, 6LSO, 7NI, XZ2KN, YV5AB, ZC4ND, 6GI, ZP2AE. (*Rx: R.*1155).

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

PHONE : CO2ME, CS3AB, LU3DJZ, 6DJD, 9LA, MI3HV, OX3BD, TI2ES, VK2AGW, 2ATO, 2DA, 2MO, 3AKA, 3BD, 3BH, 5MS, 5RN, VP9G, VQ4BU, 4RF, W7HIA, XE1CQ, YN4CB, YV6AR, ZL4HV. *Rx: Roberts' P4D*).

E. Horton, 44 Grafton Road, West Bromwich

PHONE : KP4AV, MI3ZX, YP6CJ, YO3RI, ZB1AIS. (*Rx:* 1-*V*-1).

F. H. A. McClymont, Alloway, Ayr.

PHONE : CE3CZ, CO2OZ, HC1FG, JA5GC, KG4AT, KP4AZ, 4CO, 4EE, 4HF, KR6GJ, LU1JC, OQ3LL, VK3GQ, VP3LS, VQ2C, VS6BP, W6KPC, 6MYO, YN4CB, ZP1SS, ZS6OY. (*Rx: BC-*348).

J. St. Leger, C/o 64B Mount Pleasant Rd., Camborne, Cornwall.

CW: CE3HL, CO7AN, FN8AD, KP4EQ, KZ5GF, UA9KSB, VP5BL, VS7PS, VU2CP, 2JG, ZE3JG, ZS3K. (*Rx: Battery* 0-*V*-1).

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

PHONE : CP1BD, CR6AI, DU1AL, HC2NF, HH2XT, HI6EC, HP1PV, HR1BG, JA2HD, KH6YL, KR6FA, MD1VK, OQ5OA, OA4EG, TI2OA, VK7AZ, VP2SE, VP3YG, VT1AB, VQ1HX, YN4CB, YS2SA, ZD6HJ, ZM6AA, KL7ACO. (*Rx: R.*1155*A*).

N. C. Smith, 79 Greencourt Rd., Petts Wood.

CW: CE7ZQ, CP5EK, FF8OC, FP8BX, HP1XA, JA2KW, 7SS, KG6FAB, KH6DK, KL7AIA, KR6GL, 6GQ, SU1GO, UA9DP, VE6UB, VK9GB, VP4LZ, 4TAB, 5AK, 6PV, 9HH, XE1AC, VR2CD, ZC1DK, ZS3Q. (*Rx:* 750).

R. E. G. Sivyer, 7 Norman Avenue, Henley-on-Thames, Oxon.

PHONE : CT3AE, EA8AW, MI3RP, OX3BD, TA3FAS, OZ, TF5TP, VP6SD, VQ4RF, W7ADA, YV5AB, AC.
CW: CE7ZN, ZQ, CR4AD, CX1FY, KP4EQ, KV4AA, LU3SH, OQ5RA, TF3NA, UA9KAB, UG6KAA, VO6VB, VP6CDI, VS6AC, W6KIP. (*Rx: Decca* 55).

J. H. Hayden, 7 Linden Gardens Tunbridge Wells, Kent.

PHONE : EQ2L, FO8AB, HC2GRC, HI6EC, HK4FV, HR1FB, 1PD, HZ1KE, JA2KW, KG4AT, KH6GS, KL7AHM, TI2AI, VE7IJV, VK4CC, VP3HAG, 4TH, 5AR, W7JMY, XE1GQ, YN4CB, YS1FA, ZK1BA, ZL2GX, ZS6DW. (*Rx: S.*640).

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

PHONE : CE3AI, CO7PM, FG7XA, HH2RP, 2X, HK1AO, 1EE, 1IY, HP1GD, KG4AO, 4AU, KP4CO, 4FAA, 4FP, 4HF, KZ5AA, TA3FAS, 3XOX, TI2OE, VP5AR, 6WR, VQ4RF, YV1AA, 5AI, ZD1SS. (*Rx G.E.C.* 7 *valve*).

E. J. Logan, Linten Cottage, Fanshawe St., Bengeo, Hertford.

PHONE : CE3CZ, CR6AI, DU1AL, EA9AI, EL9A, HC1FG, HH2S, HI6EC, HK1DG, HP1GD, JA2OM, 5GC, KC6WC, KG4AO, KH6IJ. KL7CL, KR6FA, PJ5RE, TG9AD, UG6KAA, VQ5AU, 6BFC, VS2BS, VT1AB, ZD6RD. (*Rx: BC.*342).

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

PHONE : CE3AI, CS3AB, CX1CA, HC1FG, 2GRC, 2LF, JA2HD, TI2TG, VK5MC, YV5AB, 5EC.
CW: CE2CC, CR4AH, FP8BX, KV4AQ, LUØBD, TF5TP, VK9BO, VP8AP, XE1AC, ZE4JC.

J. P. Warren, 14 Francis Road, West Croydon, Surrey.

PHONE : CP3CB, FO8AB, JA2HB, KG4AO, KH6CD, 6DG, 6EL, 6KA, 6RJ, 6YL, KL7ACO, 7CL, 7JO, OA4AO, 4M, TG9AD, VQ5AU, VR5BA, VS1AX, 6BO, 7PS, VU2JU, YN4CB, YS1SA, ZK1BA, ZM6AA. (*Rx: R.*103/*RF* 24 *Unit*).

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

PHONE : AR8BC, CE3CZ, CR6AI, CX2CO, DU1AL, EL2P, JA5RC, KR6FA, OQ5CF, OX3BD, PI1ZE, PK1ED, SU1AS, TF5SV, VE8OP, VS1AX, 6BO, 7WA, VT1AB, VU2LJ, ZE2JE, ZC4XP, 6GI. (*Rx: Homebuilt* 0-*V*-2).

P. King, Boveen Lodge, Sharavogue, Offaly, Eire.

CW: AP2N, FI8TP, SU1GO, UC2KAC, UG2KAA, UO5KAA, VQ4SGC, VS6BA, VU2JG, ZC4TF, ZL2AAM, 2GL. (*Rx: Batt.* 0-*V*-1).

7 mc

N. C. Smith, 79, Greencourt Road, Petts Wood.

CW: CE3ET, KP4KF, K5FBB, W5GND, 5SPO, VE2AJR, 3AXN, XE1JZ.

1.7 mc

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

CW OK1AEF, 2OQ/I, 3DG, UR2AF. (*Rx: Modified R.*103*A*).

PSE QSL

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

CR7AF *P.O. Box* 264, *Lourenco Marques, Mozambique.* 14 and 28 mc phone and CW, 1500-1900 GMT.

DL4RK *J. A. Worrall,* 319 *S.H., APO.* 69, *c/o. P.M., N.Y.C., U.S.A.* 14080 kc CW, weekends 1600-2000 GMT. Reports on quality and keying.

DL6RS 7 *Mozart Street, Straubing, Lower Baveria, Germany.* 3550, 7025, 14050 kc CW, 2000 GMT.

EA3HS *Rambla de Cataluna* 125, *Barcelona, Spain.* 7 and 14 mc phone, 1100-1300, 1900-2359 GMT. Speech quality, modulation, stability.

G2AOP *Misida, Ripley, Surrey.* 1715-1930 kc CW and phone, 2030-2215 GMT and weekends.

GM2CUV *J. Sinclair, Lamlastt, Isle of Arran.* 3.5, 7, 14 mc phone, 0900-1000, 1700-2230 GMT.

G2GK 106 *Warbro Road, Babbacombe, Torquay, Devon.* 14 and 28 mc CW and phone, 0645-0715 and 1900-2100 GMT. From C. and S. America, not LU, PY.

GC2RS *Ivy Mount, Mount Durand, St. Peter Port, Guernsey.* 14 and 28 mc phone, 0730-0750 and 1930-2030 GMT, and weekends.

G2WN 8 *Stanley Street, Hanley, Stoke-on-Trent, Staffs.* 3.5, 7 and 14 mc CW and phone, 1900-2000 GMT, Sundays 1100 GMT.

G3CSP 89 *Tideswell Road, Sheffield,* 5, *Yorkshire.* Quality and modulation, 14 mc phone, 1700-1900 GMT. Especially from Asia and VK.

G3EJF 24 *Beryl Avenue, Tottington, Bury, Lancs.* 1.7 mc ; 1.7, 3.5, 7 and 14 mc CW.

GM3FSV *C. Thomson, Sourin School, Rousay, Orkney.* 7 mc phone, 0700-0900, 1200-1300, 1500 GMT.

G3GVS 25 *Barrowby Lane, Austhorpe, Halton, Leeds.* 1.7, 3.5 and 7 mc CW, 1830-2000 and 2215-2300 GMT, weekends 1400-1700 and 1830-2000 GMT.

G3HJT 77 *Horsham Avenue, Kinson, Bournemouth. Hants.* 7026 and 14052 kc CW. Outside Europe.

G3HKX 39 *Woolwich Road, Bexleyheath, Kent.* 1.7 and 3.5 mc CW. Details of QSB. Reports over 50 miles, but from any distance when /P.

G3HMC 27 *Summerleaze Park, Yeovil, Somerset.* 7018 kc CW, evenings and weekends.

GM3HMU 5 *Bayswell Park, Dunbar, East Lothian.* 7029 kc (outside Europe only) and 14058 kc CW, 1600-2000 GMT, Sundays 0700-1000 GMT.

G3HRT *Yew Tree Cottage, Horning, Norfolk.* Reports on 3527.5 kc CW, operating weekends.

G5RW 18 *Burns Street, Ilkeston, Derbyshire.* 433 and 436 mc MCW and phone, 2130-2230 GMT, Sundays 0930-1130 GMT.

G8IX 17 *Nelson Road, Hanley, Stoke-on-Trent, Staffs.* 3.5, 7 and 14 mc phone and CW, evenings and weekends.

HH2RP *Dr. Ricardo Peluffo, Argentine Embassy, Port-au-Prince, Haiti.* 14 and 27 mc phone, 2300-0800 GMT.

I1SCO *via Cappella Vecchia* 27, *Naples, Italy.* 7 mc CW, 0500-0700 GMT.

I1WYK *via Milazzo* 2, *Udine, Italy.* 14 mc phone, 1330-1530 GMT. Quality and modulation.

LU5IA *J. Coullery, Apostoles, Missiones, Corrientes, Argentina.* 7 mc phone and CW, 2200-2330 GMT.

MB9BR *W. T. E. Bevan, Vienna Sig. Sqdn., British Troops in Austria.* 4. 14 and 28 mc phone, 1600-2300 GMT. Stability and modulation.

OH6PT *Eero Vatiainen, Kuusa as, Vilppula, Finland.* 7 and 14 mc CW, operating weekends.

OQ5NK 15*c Avenue du Syndicat, Leopoldville, Belgian Congo.* 14026, 14080, 14146, 28052, 28160 and 28292 kc CW and phone, 1200-1300 and 1700-2300 GMT. Modulation details.

OX3WX *J. Lomholt, Prince Christians Sund, Greenland.* 14 mc phone and CW, 1100-2359 GMT. Modulation : also rpts from S. E. England.

PAØQE *Da Costalaan* 5, *Ermelo, Netherlands.* 3.5, 7, 14 and 28 mc phone and CW.

PY7CJ *P.O. Box* 101, *Recife, Pernambuco, Brazil.* 14150-14250 kc phone, 2200-2300 and 0001-0200 GMT. Details of modulation.

PY8GD *Rua Tapajos* 800, *Manaus, Amazonas, Brazil.* 14.3-14.35 mc phone, weekends 2000-2200 GMT.

VE1QW *E. Cross, Croft Road, Chester Basin, N.S., Canada.* 3793 kc phone (comparative reports VE and W) : also 14155 and 28205 kc phone.

VE5MS *Box* 187, *Lafleche, Sask., Canada.* 14 mc phone and CW. Comparative reports.

VE7ABB 605 *Dickens Street, Trail, B.C., Canada.* 3.7, 7, 14, 28 mc phone and CW, 1500-2359 GMT.

VK5KU *E. VonStanke, Shepherdson Road, Mount Gambier, S. Australia.* 7 mc CW, 1930-2100 GMT : 14 mc phone and CW, 1000-1200 GMT.

VO4AJ *O. R. Carter, Port aux Basques, Newfoundland.* 3.5-3.8 mc CW and phone, 2200-0300 GMT.

VP6TR *Miramar, Brighton Road, St. Michael* 26, *Barbados.* 7027, 7100, 14054, 14162, 14200 kc CW and phone, 2100-0100 GMT. Comparative reports.

VP8AO *J. Kendall, Admiralty Bay, South Shetlands, Falkland Islands.* 14 mc phone and CW, 2000-2300 GMT.

VP9VV *Blue Cottage, Fairylands, Bermuda.* 14150 kc phone, 2000 GMT. Modulation quality.

VQ2JN *P.O. Box* 7, *Livingstone, N. Rhodesia.* 14 mc CW, 28 mc phone, 1930-2300 GMT and weekends.

VS2CY *Cpl. Wglker, HQ.* 48 *Brigade, P.O. Kuala Lipis, Malaya.* 14 mc phone, 1600-1700 GMT. Mod.

VS6AC 367 *S.U., R.A.F. Kaitak, Hong Kong.* 7043 and 14086 kc CW, 0700 GMT and 1200-2200 GMT.

VS7DB *P.O. Box* 907, *Colombo, Ceylon.* 7 and 14 mc CW, after 1900 GMT. Tone reports.

W1CV 11 *Libby Avenue, Lewiston, Maine, U.S.A.* 14003.8-14050 kc CW, weekends 0001-0300 GMT.

W1OLU 30 *Magoun Avenue, Medford, Mass., U.S.A.* 28.5-29.7 mc phone. Modulation percentage.

W2DLQ 86 *Grove Street, East Paterson, N.J., U.S.A.* Reports on 28.6 and 29 mc phone.

W2PTD 432 *W. Ostrander Avenue, Syracuse,* 5, *N.Y., U.S.A.* CW and phone operation, all bands.

W3LVF 725 *Garden Road, Glenside, Pa., U.S.A.* 7 and 14 mc phone and CW, 2300-0500 GMT. Comparative reports.

W4GHP 2508 *N. W. 30th Street, Miami, Fla., U.S.A.* 14 mc CW, 1950-2300 GMT.

W4PPL 2010 *East Clifton Avenue, Tampa.*4, *Fla., U.S.A.* 7, 14 and 28 mc phone and CW.

W5RDD } *Box* 212, *Cotton Valley, La., U.S.A* 28.7
A5RDD } and MARS 21 mc phone, weekends 1300-1600 GMT.

W8KLI 24359 *Dartmouth Avenue, Dearborn, Mich., U.S.A.* 7005-7050 kc CW, 2300-2359 GMT. Comparative reports.

W8ZQL 2470 *Andrus, Hamtramck, Mich., U.S.A.* 14 mc phone and CW, 1500-2100 GMT.

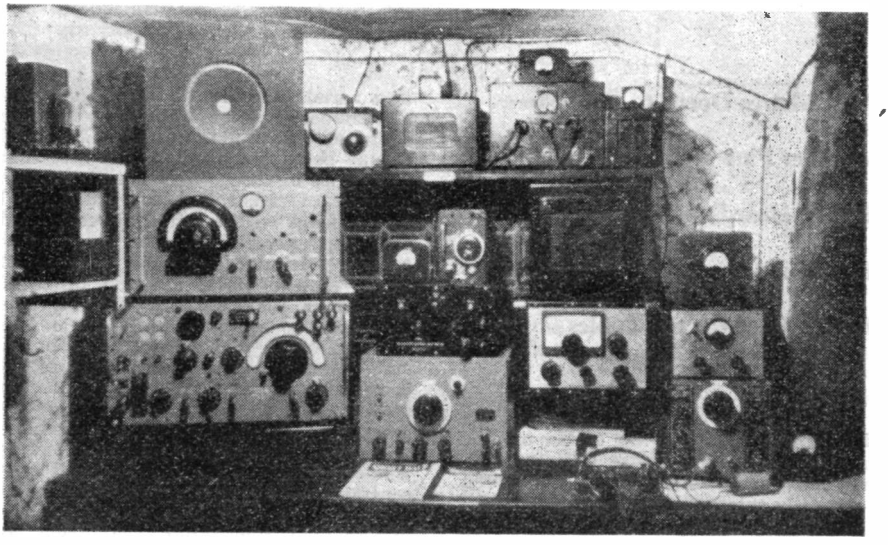
W9PHE 109 *Bates Avenue, Roodhouse, Ill., U.S.A.* 28.5-29 mc phone, weekends 0600-1200 GMT.

YU1AFG *Uzelac Milos, Post Box* 48, *Belgrade, F.P.R., Roumania.* 3.5 and 7 mc CW.

ZS3M *P.O. Box* 535, *Windhoek, South-West Africa.* 14 and 28 mc phone, 1500-1800 GMT.

4X4DB *P.O. Box* 7068, *Jerusalem, Israel.* Reports on VFO-controlled phone transmissions.

SWL Stations NO. 39



ANOTHER interesting SWL station, that of A. A. Allen at 46 Duke Street, Kington, Herefordshire, who is BSWL-3601. His activities cover mainly frequency measurement, the construction of instruments for accurate "home laboratory" work, and improving the performance of the not-so-good category of receiver.

His equipment includes an R.107 modified with S-meter and 360-degree mechanical bandspread; a completely rebuilt R.1132, with S-meter, for reception on Ten; an R.1224A modified for mains operation; a modern TRF 1-V-1 to the design in *Short Wave Listener* for February '49; a 6AC7 pre-amplifier for 14 mc; a modified RF26 unit; a wide-coverage grid dip oscillator; a crystal calibrator giving beats at 10, 100 and 1000 kc intervals; a signal generator; a home-built valve voltmeter with diode probe; two universal AC/DC test sets, one home-constructed and including a wide-range ohm meter; a wavemeter Type W.1191A; a Collins TCS5 receiver, and a fully stabilised multi-output power pack arranged to feed all the various items of gear.

Aerials for use with this fine array of equipment comprise a 14 mc N/S dipole, a long-wire arranged to run N/S and E/W, and a 45-ft. vertical rod.

BSWL-3601 remarks that he is not greatly interested in the transmitting aspect of Amateur Radio, as he finds there is already more to do on the receiving side than his available time permits. And having regard to the scope of his activities as an SWL, we can well believe that. He is one of those keen radio amateurs who is able to show that there can be a great deal more to it than just being on the air.

THE VHF END

by A. A. MAWSE

Two Metres Opens to OZ/SM—

Another Fine Weather Break—

EI/GC Heard and Worked—

Discussing Angle of Radiation—

Latest Achievement Tables

ALTHOUGH May showed a decided improvement over the earlier months of the year for two-metre DX, the cold northerly and easterly winds prevented any really outstanding achievements until towards the end of the month. Signals up to 150 or 200 miles were audible many evenings, but were usually weak and fading down into the noise at times. However, as your conductor writes these words, the temperature is up, the sun is shining and the wind has dropped —and reports are beginning to come in about some real DX.

Most exciting events appear to have been the appearance of OZ1WP, OZ2FR, OZ6PX, SM7BE, EI8G and GC2CNC on the band. All have made G contacts across the intervening waters, and for those who wish to search for them, the frequencies are: OZ2FR, 145 mc; OZ6PX, 144.1 mc; SM7BE, 144.72 mc; EI8G, 145.13 mc; and GC2CNC on 145.7 mc. The latter is usually to be heard after about 2210 BST on CW. A number of French stations have also been heard on the south coast and in the south-east generally. F8AA, F8GH, F8NW and F9RL appear to be the most consistent.

Full details on all this are not yet available, but it is quite clear that, as conditions serve this summer, we shall have something worth-while to shoot at all through the season..

Angle of Radiation

From time to time, correspondents tell us that they are "constructing a new aerial in order to lower the angle of radiation." There appears to be some confused thinking on this subject, and it may be as well to point out here that the angles in the vertical plane at which maxima of radiation occur are decided by the height of the aerial above ground and the nature of the surrounding terrain. In addition, the number of these "lobes" is a function of aerial height. In VHF working, the only lobe in which we are normally interested is the one which is nearest to horizontal, and efficient aerial design is directed towards ensuring that as much as possible of the radiation goes into this particular lobe, and as little as possible into the higher-angle lobes. That is where stacking is important, for it concentrates the radiation into the near-horizontal lobe at the expense of the higher-angle lobes—but the angle at which peak radiation occurs in this lobe remains the same. Putting it another way, the lowest angled maximum is now a bigger maximum, but still at the same angle. To bring the angle lower, the only solution is to raise the aerial.

Sunspots and Two Metres

Another point on which there is occasionally confused thinking is the connection between solar activity and two-metre propagation. It is never wise, in a scientific subject, to say anything is impossible. So your conductor will instead put it that any direct connection between sunspots and ordinary day-to-day two-metre conditions is highly improbable. The only likely effects are auroral reflections and, rarer still, sporadic-E. There have been definite instances of the former, and possible cases of the latter. Usually, however, sporadic-E is only effective up to about 100 mc. Normal two-metre DX of 100-200 miles is almost certainly not *via* the ionosphere. The angle at which reflection would be required is such that it can only rarely be achieved on twenty metres, let alone Two! The only possible connection, so far as we can see, would be if the weather is directly affected by solar activity, for

it is beyond all reasonable doubt that it is the weather which controls two-metre DX. But, in spite of some well-known attempts by certain amateur meteorologists to .forecast the weather by studying solar eruptions and so forth, it can be confidently stated that there is no *direct* connection between local weather and sunspots.

Station News

A. W. Blandford (Mitcham) writes to say that he heard so many stations during May that any list of them would take up too much room! (Can we suggest, A.W.B., a list of the DX ones next time?) His best days were May 5, 12 and 21, and he logged an F8 on the 24th. He is waiting for the band to open on 70 cm, and hopes to have an ASB8 in operation soon. L. A. Whitmill (Harrow Weald) found May 23 and 24 good dates for DX. G5UF and GW3EJM provided him with new counties. On May 29, G2HCG (Northampton) was a good signal during a spell of poor conditions. L.A.W. has made up a "City Slicker" and tests with it at ground level have been satisfactory, particularly since he fitted a balun to the 80-ohm co-axial feeder.

F. W. Hattemore (Eastbourne), recently moved from Winchester, regrets that his new location, at sea-level and cut off by the Downs to the north, is no more favourable than the old one. Usually only locals are to be heard. Three converters are in use, two of them crystal-controlled and the other a converted RF27. A 70 cm converter has also been constructed, but difficulty is being experienced in obtaining crystal current. P. J. Towgood (Bournemouth) comments that, due to business, he has missed one or two good spells recently. The best evening he experienced this month was May 11. He was particularly glad to hear G6YU (Coventry) for the first time since five-metre days. On the following evening he heard another old-timer, G6CW, who provided him with his first Notts. station this year. Another new one for P.J.T. is G5IW, who is in Worcestershire.

H. J. Balsom (Didcot) has found conditions rather poor, but has obtained confirmations from 16 counties this year. W. C. Askew (Melton Mowbray) is in the course of changing his QTH and hopes to be 700 feet up soon. In the meantime, he is inactive.

E. A. Lomax (Bolton) asks us to make it clear that he personally has not yet heard EI8G. E.A.L. has been using an S640 as main receiver during the past month and has found conditions fair, peaks being around May 13, 14 and 19/20. Although there has been some fine weather in Lancashire, the cold east wind prevented any real DX, and he

VHF CALLS HEARD

Two-Metres

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

0-25 miles: G2FO, 2FXA, 3DMK, 5QU, 8GL.
25-50 miles: G2ADR.
50-100 miles: G6PJ, 8SB.
Over 100 miles: G3WW.
(*RF24 into S.640. 3-element Yagi beamed south*).

F. W. Hattemore, 243 Seaside, Eastbourne.

Phone and CW: G2AON, 2ATZ, 2AVR, 2FTS, 3DIV/A, 6NB. (*CV66-6AK5-6J6. cc osc., into 358X. Dipole 20 feet. a.s.l.*).

E. A. Lomax, 28 Welbeck Rd., Bolton, Lancs.

G2AG, 2AJ, 2ALN, 2ASR, 2FCV, 2FKZ, 2XS, 3ABA/A, 3AGS, 3AOO, 3AYT, 3AUB, 3BA, 3BKS, 3BLP, 3PBJ, 3BW, 3CHY, 3DA, 3DMU, 3DUP, 3EHY, 3ELT, 3ENS, 3GMX, 4HT, 5CP, 5LI, 5YV, 6CW, 6VX, 6XM, 8AX, 8SB, GW2ADZ, 5MQ.
(*May 12-21. 6J6 converter into 640. City Slicker 40 feet high, 650 (feet a.s.l.*).

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

G2BCY, 2DKH, 2FO, 2FXA, 2XS, 3CYY, 3DMK, 3WW, 4WB, 5QU, 5YV, 6LI, 8AX, 8GL, 8SB, GM3ENJ.
(*April 21 to May 18. Mod. RF 26 into S.640, 4-ele very wide spaced beam in loft*).

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

Phone: 2AJ, 2AOK/A 2BUJ, 2FTS, 2HCG, 2HDZ, 2HIF, 2MV, 2NH, 2WJ, 2XC, 2XV, 3AKU, 3AVO/A, 3BA, 3BK, 3BKW, 3BLP, 3BNC, 3CCP, 3EHB, 3EHY, 3EJA, 3FAN, 3GHI, 3WW 4AP, 4HT, 4RK, 4RO, 4SA, 5DF, 5HN, 5TP, 5UM, 5WP, 6AG, 6HG, 6KB, 6LK, 6LX, 6NB, 6YU, 6XY, 8IL, 8OU, 8SY, GW3EJM.
(*Rx: 2IQ Type Converter into "Commander." Aerial Dipole 32ft. high. Heard April 24-May 25*).

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

G2AHP, 2AJ, 2AVR, 2BN, 2BVG, 2DVD, 2HCG, 2HDZ, 2MQ, 2XV. 3BHC, 3BLP, 3CUA, 3CZY, 3DAH, 3DIV/A, 3DUP, 3DVQ, 3EHY, 3FAN, 3GBO, 3GSK/A, 3MI, 3SM, 4CG, 4HT, 4MR, 5DS, 5LI, 5QB, 5UF, 5UM, 6AG, 6CB, 6GR, 6LR, 6LX, 6QN, 6WP, 8HY, 8KZ, GW3EJM.
(*Rx: RF27 Unit into S.640. 6J6 pre-amp into 5-element beam. May 6-29*).

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

Phone and CW: **50-100 miles:** G2MV, 2UJ, 3BLP, 3DJX, 3FD, 3SM, 4SA, 5HN, 5LI, 5TP, 6LX, 6UH, 8KZ, GW3EJM.
100-150 miles: G2FNW, 2HCG, 2XV, 3DUP, 3WW, 4RK, 6SN, 6XY, 6YU, 8KL.
150-200 miles: G2DLJ/A, 2OI, 3BOC, 3DA, 3FMI, 5UD, 6CW, 8SB, GW5MQ.
250-300 miles: G3BW.
(*Rx: 6J6 RF, 6J6 mixer, 2x6C4 Osc., into 9 mc Xtal controlled converter into 1.6 mc IF/AF amp. Aerial 4-ele. c/s Yagi, 22ft. high. QTH 86ft. a.s.l. All heard April 25-May 29*).

recalls that last year, at the same time, signals from F, ON and PA were being logged.

Two reports have come to hand from the north-east. L. B. Bailey (Stockton-on-Tees) has pushed his DX up to 180 miles by hearing G3WW (Cambs.) on May 11. G8SB (Manchester) has also been a good signal on a number of occasions. L.B.B. anticipates being able to enter the "Counties Table" before long if conditions continue to improve. He has been comparing his RF27 against a 6J6 and finds it to be equally efficient. However, he comments that the noise-level on the RF27 made it difficult to read weak phone signals. That, of course, is the whole point about the 6J6 RF stage. L.B.B. now has a 6-element stacked array, firing east and west, but so far has heard no DX on it. A portable 144 mc receiver is also under construction. A. H. Edgar (Newcastle-on-Tyne) starts his letter by saying that he has at last found out what it is like to experience good conditions on Two. The particular DX nights he has encountered during the last 8 weeks gave him a lot of fun. The first of these was April 24, when G6LI (Grimsby) and GM3ENJ (Dunfermline) were heard. May 11 provided the second good session for A.H.E., when 8 new stations were logged at one sitting, including G2XS (Mansfield), G3WW (March), G8AX (Norwich) and G8SB (Manchester). Some weak CW was thought to be ON4BZ. A.H.E. is collecting the necessary pieces for a G2IQ-type converter, but two 955 acorns will be used for the oscillator instead of the 6J6. Regarding the tie-up between weather and two-metre conditions, A.H.E. comments that although some of the finer days have produced good conditions, others have been very disappointing. The answer to that is that the sunshine and the good conditions are not cause-and-effect, but rather two effects of an anticyclone. For a number of reasons, some anticyclones are more effective than others in producing the necessary tropospheric conditions for DX VHF propagation.

Just as your conductor was about to close this column, news came in that OZ1PW, OZ2FR, OZ6PX and possibly other OZ/SM stations were heard in East Anglia and the London region on June 1 and 2, and some two-way contacts were made between G and OZ. F8NW was heard calling OZ2FR on June 3. This is once again very encouraging, and now we must look for SM.

To keep the record straight, an up-to-date table of "Firsts on Two" is given in an accompanying panel.

TWO-METRE COUNTIES HEARD

IN 1951

Starting Figure, 10

P. J. Towgood	36
E. A. Lomax	27
A. W. Blandford	26
L. A. Whitmill	22
W. C. Askew	20
A. J. Balsam	16
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	(225)
A. W. Blandford (Mitcham) ...	30	
L. A. Whitmill (Harrow Weald) ...	28	(317)
R. L. Bastin (Coventry)	27	(81)
W. C. Askew (Melton Mowbray) ...	23	(55)
P. Finn (Iver)	17	
A. J. Balsam (Didcot)	16	

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

Late Final: The opening days of June produced some of the best two-metre conditions yet experienced. At 2145 BST on June 1, G3WW (March, Cambs.) worked OZ2FR (Baekke) for the G/OZ First, the distance being about 450 miles; later, G3WW clinched it by working OZ1WP and OZ6PX, and OZ2FR raised G6CW, G6LI and some other G's. Then at 2245 BST on June 1, G5YV (Leeds) worked SM7BE (Lund) for the first two-metre G/SM contact, the distance in this case being just over 600 miles and a new European DX record for the band. In all cases, signals were excellent and conditions remained good for the three days following, with more contacts achieved.

The best opening of all occurred on June 4, when all Britain (except, perhaps, the extreme north and south-west) enjoyed the most amazing conditions. ON4BZ worked 56 G's in about three hours, and G2XC (Portsmouth) raised DL3MH at 486 miles; in general, the band sounded rather like a short-skip session on Twenty!

Further late reports are that L. B. Bailey (Stockton-on-Tees) logged OZ2FR on June 3, working PAØWL, also heard. A. H. Edgar (Newcastle) was lucky with the ON's on June 4, and on that

same evening E. A. Lomax (Bolton) rolled in five ON's and three PA's. An old friend of this column, R. Rew, of Birmingham (now G3HAZ) is also understood to have clocked in with DL, ON, OZ and PA during this good spell.

Finally, colleague G2XC reports hearing or working the following during the early days of June: DL1LH, DL3MH, F3LQ, F8AA, F8GH, F8KF, F8NW, GC2CNC, G3BW, ON4AP, ON4BZ, ON4HN, ON4IW, PAØBAL, PAØES, PAØFC and PAØFP.

In Conclusion

And, concluding on that bright note, your conductor confidently anticipates many reports of new counties, countries and DX records in next month's mail, which should reach him addressed A. A. Mawse, *Short Wave Listener & Television Review*, 55 Victoria Street, London, S.W.1, by **June 28** at the latest. CU on July 19.

SOME TWO-METRE FIRSTS

G/DL	G3DIV/A-DL4XS/3KE	June 5, 1950
G/F	G6DH-F8OL	Nov. 10, 1948
G/GM	G3BW-GM3OL	Feb. 13, 1949
G/GW	G5MQ-GW5UO	Oct. 22, 1948
G/ON	G6DH-ON4FG	Sept. 25, 1948
G/PA	G6DH-PAØPN	Sept. 14, 1948
GI/GM	GI2FHN-GM3OL	July 1, 1949
GI/GW	GI2FHN-GW3ELM	July 8, 1949
GW/EI	GW2ADZ-EI8G	April 19, 1951
G/EI	G8SB-EI8G	April 23, 1951
G/GC	G8IL-GC2CNC	May 24, 1951
G/OZ	G3WW-OZ2FR	June 1, 1951
G/SM	G5YV-SM7BE	June 1, 1951
DL/OZ	DL6SW-OZ2FR	Mar. 4, 1951
DL/SM	DL2DV-SM7BE	Mar. 10, 1951

Simple BFO Unit

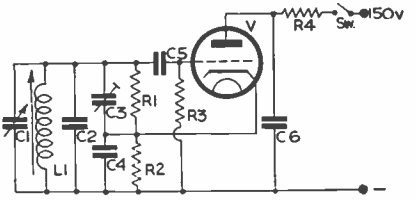
FOR THE HOME-BUILT SUPERHET

By **L. A. CHINNERY**

THE writer recently was given the task of servicing a BCL set, and when it came round to the alignment part of the procedure, a small oscillator on the IF was required. The circuit described below was therefore made up, and will be later used in the writer's new superhet, now under construction.

The junk box was raided and a small chassis, a 6C5 and base and an old IF transformer brought to light. A few resistors and condensers were then sought and found. All this time the soldering iron was slowly coming up to its usual S9 level, and by the time the parts were mounted was ready for the fray!

The circuit of Fig. 1 will be seen to be a resistor/condenser tapped Colpitts. The unwanted winding on the IF was scrapped, and a small tag panel was inserted in the can to take the tapping components. The whole job, apart from the inspiration, took about ten minutes, and the set under test was lined up during the next five! The unit now rests in a large screening can, totally enclosing it, and a shaft coupler will couple the trimming capacity C1 to a panel control for use in the projected receiver.



Circuit of the beat-frequency oscillator, for CW reception using the home-built superhet, as suggested in the article.

This wrinkle for producing a BFO at very short notice without having to wind or tap coils should prove a boon to home constructors. There is also the price angle to be considered. Those doubting the worth of the effort of building this unit should consult list prices; and then build it!

Table of Values

Circuit of the BFO as described.

C1 = 50 $\mu\mu$F variable.
C2 = Condenser tuning IF can.
C3 = 3-30 $\mu\mu$F trimmer or fixed condenser up to 50 $\mu\mu$F value.
C4, C5 = 100 $\mu\mu$F fixed mica.
C6 = .001 μF mica.
L1 = Stripped IF Transformer (*see* text).
R1 = 0.5 megohm, ½ watt.
R2 = 4,000 ohm, ½ watt.
R3 = 100,000 ohm, ½ watt.
R4 = 50,000 ohm, ½ watt.
V = 6C5 or 6J5.
Sw. = SPST switch.

WORLD WIDE RECEPTION OF SHORT WAVE PROGRAMMES

DX *broadcast*

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

CHANGES in call-signs have been made for Australian Inland and Overseas services. New suffixes have been added to the call letters so that the number corresponds to the megacycle band in which the transmitter is operating, *e.g.*, the call-sign for the old VLC transmitter operating on 15200 kc is now VLC15. The appropriate changes have been made in the following paragraphs.

The Australian Broadcasting Commission has sent us a verification card for VLX, Wanneroo, 4897.5 kc, for which the local address is: ABC, Box D 190, Perth, Western Australia. On the face of the card is a map of Australia giving the locations of forty-eight broadcasting stations and the caption: "The Postmaster-General's Department provides the technical services for the ABC: Head Office: 264 Pitt Street, Sydney, N.S.W."

D. K. Cocking (Farnborough Park, Kent) informs us that the morning transmission from Australia to the British Isles now commences at 0600 over VLB9, 9580 kc, and from 0645 on VLA, 11760 kc. VLB9 is quite the best signal from Shepparton, but it does not operate on Saturdays, being replaced by VLA at 0600 on that day. VLB15 (Forces), 15160 kc, is now audible at 2045 and 2145, at which times VLC15, 15200 kc, which is beamed to the U.K., is not heard, partially due to jamming by Moscow. D.K.C. writes: "I'd like to know why it is necessary to occupy 40 kc to jam one station; the Moscow station on 15170 kc is itself often subjected to background interference from this jammer!"

On May 26, at 0615 over VLC21, 21680 kc, we listened to quite a rousing running commentary by Noel Bailey from the Melbourne Cricket Ground on the Australian football game between Victoria and South Australia. When the siren blew for full-time at 0655, the scores in this ding-dong struggle were: Victoria 10 goals, 11 behind—71 points; South Australia, 9 goals, 9 behind—63 points.

ZL3, Wellington, 11780 kc, is occasionally heard by us when it opens up at 0700; the direction is: "This is New Zealand calling from ZL3 for listeners in the Islands for the next 3¾ hours." A programme summary follows. Radio Tahiti is now using a new frequency of 9053 kc, closing down at 0530.

Africa

A verification card has lately reached us from the South African Broadcasting Corporation, P.O. Box 4559, Johannesburg, for a report on the new service to Central Africa. On April 26, at 1730, we heard *via* the 11927 kc channel a talk entitled: "Current Affairs in Australia," which had been specially recorded for the SABC by the Professor of Economics in the University of Western Australia.

A letter is to hand from L. le Roye, Director of OTC at P.O. Box 505, Leopoldville, Belgian Congo. He writes: "We would be very pleased to receive period-reports on our transmissions from your readers. As you will note from our schedules, a program especially prepared for DX-ers is given each Wednesday evening (at 1910) from OTC; it is one of our most popular features!" C. R. Johns (Bournemouth) and D. K. Cocking have logged OTC2 recently with a colossal signal; it has lately been using 9745 kc. OTC6, 21680 kc, is on the air 0615-0715 with a transmission for Belgian troops in Korea. D. A. Harding (Cheam, Surrey) has logged FZI, Brazzaville, 11972 kc, with an English broadcast at 1815. One of our most interesting logs has been Brazzaville on 17840 kc and 9987 kc,

opening up with a French transmission at 1730; the direction is: "Ici Radio Aire," and the broadcast terminates at 2100 with the playing of the Marseillaise. We wonder if any listeners have mistaken this station for Radio Athlone, Eire (Ireland) on the same frequency.

G. Paton (Salford 7) has heard Radio Dakar with English News at 1900 with a better signal on 15347 kc than on 11895 kc. Another French-speaking station is Radio Mauritius, which has lately moved to 11840 kc and is on the air daily from 1430 to 1730.

J. C. Catch (South Shields) heard the Angola station CR6RD), Nova Lisboa, 9705 kc, with popular music at 2015; it closed down at 2032 after chimes, call and Portuguese National Anthem. He also received a verification card for CQM4, Bissau, 5840 kc; and R. Abrahams (Hounslow, Middsx.) has one for CR4AA, Radio Clube de Cabo Verde, Praia, 5895 kc, which uses a power of 400 watts with the schedule 2030-2200.

Nairobi, 4855 kc, was logged by A. E. Nichols (North Shields) on April 15 at 1745, with BBC News, followed by a cricket talk, and D. K. Cocking heard this station with local and South African News at 1810 on May 9. It is reported that since FBS, Malta, ceased broadcasting, the only short wave transmitter now used by Middle-East Land Forces is a 250-watt station at Mackinnon Road, Mombasa, which operates on 6115 kc. SUX, Cairo, Egypt, 7867 kc, was heard with Eastern music at 1945 by R. T. Blackmore (Exeter). J. C. Catch found WWF67, Tangier, 7520 kc, operating for U.N.O. with a Danish commentary at 1945—one in Dutch at 1950, and call in English and close down at 2000. We

When you hear "Sweden Calling DX'ers" on the S/W BC bands, it could be Erik Bergsten at the microphone.

TABULATED SCHEDULES

I. British Far Eastern Broadcasting Service, Singapore

New Schedule.

G.M.T.	Frequencies.					
0915-1130	21720 kc	17755 kc	—	—	9690 kc	6175 kc
1130-1145	—	17755 kc	—	J.11880 kc	—	C.7120 kc
1145-1245	—	17755 kc	J.15300 kc	J.11880 kc	—	7120 kc
1245-1330	—	17755 kc	—	—	—	7120 kc
1330-1415	21720 kc	17755 kc	15300 kc	—	—	7120 kc
1415-1430	21720 kc	—	15300 kc	—	—	7120 kc
1430-1530	21720 kc	17755 kc	15300 kc	—	—	7120 kc
1530-1545	21720 kc	—	15300 kc	—	—	7120 kc
1545-1630	21720 kc	I.17755 kc	15300 kc	—	—	7120 kc

J—To Japan. C—To China. I—To India.
Most other broadcasts directed to Indonesia or China.

II. Radio Australia

New Schedules.

(a) To British Isles.

0600-0815 (Ex. Sat.)	:	VLB9,	9580 kc.
0645-0815 (0600 Sat.)	:	VLA11,	11760 kc.
1400-1445	:	VLA15,	15200 kc.
1400-1500	:	VLB11,	11850 kc.
1400-1500	:	VLG15,	15320 kc.
2000-2130	:	VLB11,	11850 kc.
2000-2155	:	VLC15,	15200 kc.
2145-2315	:	VLC15,	15200 kc.
2200-2315	:	VLG15,	15230 kc.

(b) Other Changes.

To Japan and Korea :	0828-0850 :	VLB11,	11850 kc :	0828-1355 :	VLA9,	9580 kc.
To S. and S.E. Asia :	0828-1145 :	VLC15,	15320 kc ;	1000-1445 :	VLB11,	11850 kc.
	1215-1330 :	VLG9,	9540 kc ;	1400-1615 :	VLA9,	9580 kc.
To China :	0859-1200 :	VLG11,	11880 kc.			
To America, North :	1200-1615 :	VLC11,	11810 kc.			
To Africa :	1500-1615 :	VLB9,	9560 kc.			

heard Latin-American music at 2005 on May 5; at 2015 came the direction: "You are listening to Pan-American Radio, Tangier, operating in the 40-metre band on a frequency of 7400 kc."

Asia

J. C. Catch forwards a few particulars gleaned from a listener-friend in California, U.S.A. Here, one can hear Japan at good strength and JK12, Nazaki, 9656 kc, is on the air at 0730, and JBD, Kawachi, 9505 kc, at 1450, both with native language programmes.

According to *World Radio Handbook* (Copenhagen), JJY, Kemigawa, Tokio, is operating with a power of 2 kW on 4000 kc for the full 24 hours, and on 8000 kc from 2100 to 1100 with various services, including radio propagation and disturbance warning signals.

It is reported that Communist China's station in Peking has extended its English schedule, which now is: 0930-1000, 2200-2230 on 15060 kc, 11690 kc, 10260 kc, 6095 kc; 1330-1400: 15060 kc and 11690 kc. G. Paton logged the 15060 kc transmission at 2230 on April 30, when he heard messages for home from P.o.W.'s. J.M.Simpson (Hassocks) noted Nanking on 9732 kc, with selections from The Tales of Hoffman on a Wurlitzer organ, followed by female announcements in Mandarin at 2315; he also logged another Peking station on 6155 kc at 2245. Taipeh, Formosa, offers a native language broadcast at 1330.

In Indo-China, Radio France-Asie, 9524 kc, was logged by R. T. Blackmore with news in English and a short musical programme between 2230 and 2255 on April 27; the final direction was: "This is Radio France-Asie, Saigon, the Voice of France in the Far East, broadcasting on 9524 kc." The time of the next broadcast in English was advertised as 0430 GMT. S. Coppel (Belfast, N.1) has also heard English News from this one at 2230. In the Philippine Islands, the Voice of Mindanao, Davao City, with call-sign DXB2, is now on 7280 kc with operational schedule: 2200 to 1500 for its English broadcasts (G. Hutchins, Radio Australia).

In Indonesia, YDE, 11770 kc, has been well received by D. A. Harding with English at 1900, terminating with the lengthy Indonesian National Anthem at 1957. J. M. Simpson has heard musical recordings during this session, and R. T. Blackmore mentions particularly the feature, "Turntable Time," consisting of replies to correspondents and musical requests. Other English broadcasts are at 1100 and 1430.

D. K. Cocking offers YDC, 15150 kc, for the latter session. He has sent along a simplified list, printed elsewhere, of the new service from Radio Malaya (B.F.E.B.S.) in Singapore, and J. C. Catch tells us that Kuala Lumpur, 6024 kc, gives English News at 1400.

We have heard Radio Pakistan, Karachi, with a powerful signal on 11725 kc and News in English at 1515; J. M. Simpson offers Radio Ceylon, 9520 kc, with musical recordings and an equally strong signal at 2230. A newcomer, D. Christmas (Southsea, Hants) logged Ceylon, 15120 kc, at 1740 on April 30 with an English discussion in which Lord Boyd Orr took part; D.C. usese an 0-V-0 receiver with a 25-foot indoor aerial and obtains good results! The address for Radio Ceylon is: Torrington Square, Colombo 7, Ceylon.

From India, D. K. Cocking has had good reception of Delhi, with its daily English session from 1900 to 2000 on 9720 kc; J. M. Simpson heard a talk about Indian beauty spots at 1930 from this station. His star turn appears to have been VUD2, 3495 kc, heard until 1730, when it closed with the words: "Huna Indore, Jai Hind."

J.M.S. also logged Eastern music at 2340 on 7998 kc, which he took to be Meshed, Iran, on 8007 kc. S. Coppel mentions that Iran, on 15100 kc, is a powerful signal, with its English News at 2000. R. Abrahams heard Radio Tashkent, 6825 kc, with English News at 1615 and the announcement that they invite listeners to write to the Tashkent Broadcasting Committee with any suggestions about their programmes. G. Paton has logged Radio Ankara over TAT, 9515 kc, in its new experimental English broadcast for North America at 0025; and we noted the increased power of Kol Israel, Jerusalem, still on 9000 kc, for its English News at 1915 (S9).

Syria, too, has two new 20-kW transmitters; R. Abrahams logged Damascus on 11920 kc at 2130 on May 5, the English News including a special commentary on the hostilities which had recently broken out on the Syrian/Israel frontier. The concluding direction at 2141 was: "That is the end of our News bulletin from SBS in Damascus, which also brings us to the end of the second English broadcast for today.

Listen again tomorrow at 1300 hours, that is 1100 hours GMT. Goodnight, Everybody, Goodnight." G. Paton listened on 9590 kc at 2130 and heard the direction: "This is the SBS, Damascus."

North America

OXI, Godthaab, Greenland, 5942.5 kc, has again been logged (S5) by J. C. Catch; he heard musical recordings 2245-2250, after which this channel closed; OXI was again located at 2253 with a musical tuning signal on 6678 kc, and the transmission actually opened on this new frequency at 2255. J.C.C. reports that CBRX, Vancouver, British Columbia, operates on 6161 kc and VE9AI, Edmonton, Alberta, on 9640 kc, the latter giving a farming programme at 1915. On April 27, at 0415, over VED, 8266 kc, we listened to three interesting interviews with prominent Scotsmen, one of whom was Dr. Nevile Davidson, Minister of Glasgow Cathedral, regarding the rightful resting place of the Stone of Scone. The direction at 0430 was: "This is the Trans-Canadian Network of the Canadian Broadcasting Corporation."

On May 2, at 0240, CJCX, Sydney, Nova Scotia, 6010 kc, was logged with a boxing commentary sponsored by Gillette; it appeared to be a relay of the world welter-weight championship bout from New York. At 0300 there was an English News, and CJCX, after giving station announcements, closed with God Save The King at 0310.

CHOL, 11720 kc, has been spotted opening up at 0410 with a United Nations broadcast to Australasia. A. E. Nichols has been hearing KWID, San Francisco, 11900 kc, with Sports News at 0540, followed at 0600 by World News; and D. K. Cocking found WLWO, 9550 kc, with an English Newscast at 0630 and peaking to S9!

Central America

In a letter from J. H. Peacock—of Barbados Rediffusion Service Ltd., Trafalgar Street, Bridgetown M5, Barbados—he explains that only special events are broadcast over the Cable and Wireless transmitter on 7457 kc, with a directional aerial designed to give good signals in Trinidad and British Guiana. The next outside broadcast will be of the Turf Club Race Meeting on a Thursday and/or Saturday in August; Time: 1630-2130. Radio Jamaica has been heard on 3360 kc with Variety around 0300; one hour later, the station closes down with the playing of the National Anthem, preceded by the words: "You have been listening to Radio Jamaica operating on a frequency of 3360 kc, and we are now closing down until 6.30 a.m. in the morning."

S. Coppel sends along the latest schedule given on a recent verification card from Radio Trinidad on 9625 kc; it is: 1000-0300; A. E. Nichols heard VP4RD with a sponsored programme by Phillips' Magnesia at 0115 (S8).

4VEH, Haiti, 9749 kc, is heard with a strong signal every Sunday evening from 2230 by J. M. Simpson; the broadcast is of a religious nature, usually consisting of solemn organ music. On May 12, at 0230, we logged PJC1, Willemstad, Curacao, 5010 kc, closing with a local Air and the Dutch National Anthem after a station announcement of frequencies given in the Dutch language.

We shall be pleased to receive your reports on short wave stations heard during the summer months. Send to: R. H. Greenland, *Short Wave Listener & Television Review*, 55 Victoria Street, London, S.W.1; the closing date for next month is: **July 15!**

SHORT WAVE BROADCAST STATIONS

Revision 48.75-50.25 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	Wavelength	Callsign	Location
6153	48.75	TIRH	San Jose, C.R.
6152	48.76	CE615	Santiago, Chile
6150	48.78	GRW	London
		VLR2	Lyndhurst, Vict.
		CKRO	Winnipeg
		HI1R	San Cristobal, D.R.
		YSPB	San Salvador
6145	48.82	HJDE	Medellin
			Paris
6140	48.86	RW97	Moscow
		DYH2	Cebu, P.I.
		HOQQ	Panama City
		XEEP	Mexico City
			Munich
			Belgrade
6135	48.90	ZJM4	Limassol, Cyprus
		CE613	Punta Arenas, Chile
6130	48.94	COCD	Havana, Cuba
		LKJ	Tromso, Norway
		CHNX	Halifax, N.S.
6125	48.98	GWA	London
		HRQ	San Pedro Sula
		CXA4	Montevideo
		HP5H	Panama City
6120	49.02	OIX1	Helsingfors
		LRX1	Buenos Aires
		XEUZ	Mexico City
6115	49.06	HI1Z	Trujillo, D.R.
			Berlin
			Mombassa
6110	49.10	GSL	London
		DZI3	Manila, P.I.
			Tangier
6105	49.14	ZYN6	Fortaleza, Brazil
		HJFB	Manizales
			Kure, Japan
6103	49.16	HJFK	Pereira
6100	49.18	WRCA3	New York
		DYH3	Cebu, P.I.
		YUA	Belgrade
		TGOA	Guatemala City
			Munich
6095	49.22	ZYB7	Sao Paulo, Brazil
		OAK4H	Lima, Peru
		TGLB	Mazatenango
			Munich
			Peking, China
6090	49.26	GWM	London
		VLI2	Sydney, N.S.W.
		CBFW	Montreal
			Luxembourg
			Spain (Basque)
6085	49.30	ZYK2	Pernambuco
6080	49.34	ZL7	Wellington, N.Z.
		HI1X	Trujillo, D.R.
		CKFX	Vancouver, B.C.
			Munich
6077	49.36	HI1G	Trujillo, D.R.
6075	49.38	KGEI2	San Francisco
		APK2	Karachi, Pakistan
		CXA3	Montevideo
			Colombo, Ceylon
6070	49.42	GRR	London
		RW138	Moscow
		CFRX	Toronto
6067	49.44	EA9AH	Tetuan, Morocco
6065	49.46	SBO	Stockholm
		LRS1	Buenos Aires
		HC2FQ	Guayaquil
6060	49.50	GSX	London
		FIQA	Tananarive
		WRUL1	Boston, Mass.

Frequency	Wavelength	Callsign	Location
6060	49.50	KRCA2	San Francisco
		HORT	Panama City
			Tangier
6055	49.35	CXA14	Colonia, Uruguay
		PRB22	Sao Paulo
		HJEX	Cali, Colombia
6053	49.56	VQG2	Nairobi, Kenya
6050	49.59	GSA	London
6045	49.63	HO50	Panama City
		YDF	Djakarta
		XETW	Tampico, Mexico
			Moscow
6040	49.67	GSY	London
		KCBR2	Los Angeles
		WLWO7	Cincinnati, Ohio
		CE604	Santiago, Chile
		TGNA	Guatemala City
		DZH6	Manila, P.I.
		COBF	Havana, Cuba
		HI1N	Trujillo, D.R.
			Tangier
6038	49.69	OAX6B	Arequipa, Peru.
6035	49.71	CXA30	Montevideo
			Monte Carlo, Monaco
			Rangoon, Burma
			Noumea, New Cale'nia
			Lagos, Nigeria
6030	49.75	XEKW	Morelia, Mexico
		CFVP	Calgary
		HP5B	Panama City.
			Stuttgart
6026	49.78	CP37	Oruro, Bolivia
6025	49.79	PGD	Hilversum
		ELB1	Monrovia, Liberia
		HC1IR	Ibarra, Ecuador
			Kuala Lumpur, Malaya
			Brazzaville
6020	49.83	XEUW	Vera Cruz
			Moscow
6019	49.84	HJCX	Bogota
6016	49.87	PRA8	Recife, Bfazil
		JKK	Nazaki, Japan
6012	49.90	XEOI	Mexico City
6010	49.92	OLR2A	Prague
		CJCX	Sydney, N.S.
		VUD3	Delhi, India
		HS8PJ	Bangkok, Thailand.
		CE601	Antafogasta, Chile
		YSC	San Salvador
		OAX4Q	Lima, Peru
			Rome
6007	49.94	HI1J	San Pedro de Macoris
6006	49.95	CNR3	Rabat, Morocco
6005	49.96	CFCX	Montreal
		VE9AI	Edmonton
		HP5K	Colon, Panama
6001	49.99	OAX2A	Trujillo, Peru
6000	50.00	HJKD	Bogota
		HI9B	Santiago, D.R.
		DZH4	Manila, P.I.
			Damascus, Syria
			Dornbirn, Austria
			Moscow
5998	50.02	PRK5	Belo Horizonte
5990	50.08		Andorra la Vieja
			Karachi, Pakistan
5989	50.09	HCJB	Quito, Ecuador
5986	50.12	LRS1	Buenos Aires
5982	50.15	YSW	Santa Ana, El Salvador
5981	50.16	ZFY	Georgetown, Br. Guin.
5975	50.21		Mecca, Saudi-Arabia
5970	50.25	HI4T	Trujillo, D.R.

SMALL ADVERTISEMENTS

CHARGES: *Readers'*, 2d. per word, minimum charge 3s. Box Nos. 1s. 6d. extra. *Trade*, 6d. per word, minimum charge 7s. All advertisements must be of radio interest only. Add 25% extra for Bold Face (heavy type) announcements. Copy date for next issue, July 6, addressed Advertisement Manager, *Short Wave Listener*, 53 Victoria Street, London, S.W.1.

TROPHY Three receiver, with coils for 1.7, 7, 14 and 28 mc. Built-in speaker and power pack. Cheap at £4/10/0. G3HJT, 77 Horsham Avenue, Kinson, Bournemouth.

FOR SALE. Eddystone 740 communication receiver, £23. Perfect condition, still under guarantee. Potter, 37 Wykeham Hill, Wembley, Middlesex.

FOR SALE. RI116 receiver with HT. Unit. 2 LT. batteries, head phones, loud speaker unit, trickle charger, £6. (*Phone: WORDS* 1875. 50 Trevelyan Crescent, Kenton, Harrow, Middx.

WANTED, RF27 modified 2 metres. Exchange Avo Minor with leather case. Jones, 85 Weald Square, Clapton, London, E.5.

WANTED urgently, receiver Type 25 (T1196). Good condition, please. Also wartime utility receiver. Dorling, Fox Cottage, Haughley, Suffolk.

B50 Rx with own LT trans, p/pack and speaker, 550 kc-23mc, in good condition, what offers? 10/20 metre expander with built-in p/pack, as new £11. Box No. 048.

WANTED. HRO coils 0.9—2.05 mcs and 0.48/0.96 mc. Also communication receivers and BC221's. G200, 55 Union Street, Maidstone.

PHILIPS 681A 9-valve 12-waveband double superhet. Bandspread on 11, 13, 16, 19, 25, 31, 41, 49 metre bands. General coverage 11-110 metres, long, medium waves. Performance superior to AR.88. Perfect condition. As new, £55. or nearest offer. Reeve, 32 Palace Road, Upper Norwood, S.E.19. (*LIV.* 1229).

R.1116 Complete, not in working order. Condition perfect. Offers. Coram, 6 Rock Avenue, Barnstable.

OSCILLOSCOPE FOR SALE—Type 6E Indicator Unit converted to Oscilloscope, 230 volts AC operation, time-base continuously variable 2-20,000 c/s, single amplifier, input sockets for AC, DC and amplifier, new VCR.97 tube. Controls-focus, brilliance, amplifier gain, time-base capacity, time-base resistance, "X" amplitude, pre-set "X" and "Y" shifts. No reasonable offer refused. 62 Belmore Road, Thorpe, Norwich, Norfolk.

WANTED. In good condition, MCR1 Power-Pack, MCR1 Coil-Pack. Ranges 1, 2, 3, and 4. Quote price for either. Box: 940.

URGENTLY required a Bendix model 3206 power supply and L.F. unit. Replies to ZD4AX, c/o Mortimer, 51 Townhead Road, Dore, Shefield, stating price.

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