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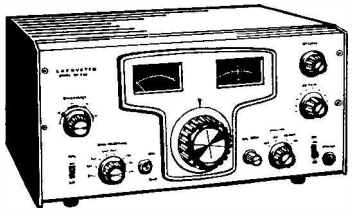
The SHORT WAVE Magazine

VOL. XXIV NOVEMBER, 1966 NUMBER 9

LAFAYETTE 10-80 Metre SSB/AM/CW Amateur Receiver



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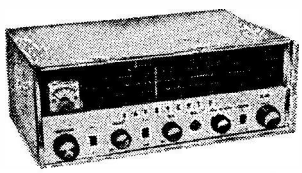

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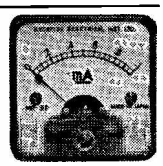

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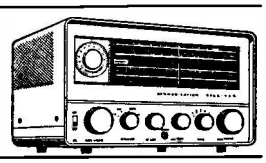

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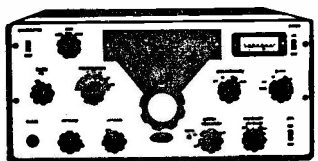

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SHORT WAVE MAGAZINE

GB3SWM)

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AUTHORS' MSS

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E. & O. E.

FOR THE RADIO AMATEUR AND AMATEUR RADIO

The SHORT WAVE Magazine

EDITORIAL

Probation

The question of what the rules should be for the aspirant to an Amateur Radio licence has been a subject for discussion for many years. There are those who hold that today's procedure tends to make it unreasonably difficult for the genuine amateur to obtain a licence; others consider that there should be much stricter control of probationers on the air. As a result of experience, opinion is tending to harden against permitting unrestricted operation at full power from the outset — and the obvious question now being asked is " Why the Morse test, anyway ? "

As we see it, one solution would be to re-introduce the old AA (" artificial aerial ") procedure, the licence being granted on easier terms than at present. Then, at the end of twelve months, it should be convertible into a full radiating permit on passing the Morse Test, followed by a six months' compulsory period of CW-only before reaching the full maturity of unrestricted operation. This would graduate the aspiring amateur in easy stages, and would ensure that operators came on the air with tested apparatus they had some knowledge of using.

It is sometimes said that for many of the professionals now taking out amateur licences this probationary process would be unnecessary. But experience shows that a professional qualification does not necessarily guarantee any particular competence in the practice and techniques of Amateur Radio. Our sort of radio demands an all-round competence and the practical approach; it is conducted in that peculiar atmosphere in which the keen schoolboy working from first principles and the specialist radionics engineer are on an equal footing and can meet on common ground. Indeed, this is " one of the things about " Amateur Radio !

Over the years, we have consistently advocated the principle of the AA Licence. Those who possess pre-war files of SHORT WAVE MAGAZINE *may care to look up the editorial pages for June 1938, November 1938 and July 1939; they may agree that what was said then is broadly true for the situation we are in today. The only radical change called for is that whereas in pre-war years a licence was obtained by the vague process of " convincing the GPO that it was needed for experimental purposes " (and what stories were told to back that up!), nowadays the simple qualifying examination is more appropriate, even for an AA Licence.*

Austin Forsyth, G6FO.

FIVE-STAGE ALL-BAND SSB EXCITER/TRANSMITTER

Part I

B. A. WATLING (G3RNL)

THE MINI-5 FOR SIDEBAND OPERATION—DESIGN AND CIRCUITRY—CRYSTAL ETCHING

As the logical outcome of his series of practical articles "Discussing Single Sideband," appearing regularly since December 1965, our contributor now offers a low-power SSB exciter-transmitter for the home constructor. By simplifying the approach—yet using accepted circuitry, with a crystal filter—he has produced an effective design for anyone who wants to start building something for Sideband.—Editor.

ANY amateur operator, whether newly licensed or not, who considers going SSB, constantly puts off the happy day while trying to find the rig to suit the purpose. One constantly hears "I think I'll build a simple rig first to get some experience." This simple rig, however, rarely matures, because on second thoughts the simple rig offers only one band and "if I go Sideband I want all bands—and high power." So what happens? Either a commercial rig is acquired or a rather long and complicated construction programme is commenced, following a published design. This often falls by the wayside long before completion.

There can be exceptions to this when one of the excellent simple rigs is built. A good example of one of these is G3BDQ's "Natterbox," (SHORT WAVE MAGAZINE, June 1961) which many amateurs have built to familiarise themselves with SSB. Basically this design is for 160 metres, but it can be used, with some changes, on other bands.

Another simple design is the W4IMP "Imp." This is again a single-bander (20 metres) but could, with some changes, be adopted for other bands. Both these designs are excellent for the newcomer but do have limitations.

For some time the writer has been looking for a design comparable, from the constructor's point of view, with a "first-time-on-the-air" Top Band Tx, yet offering greater facilities. It is suggested that the following design may "fill the gap."

General Description

The *Mini-5* is designed to offer all-band SSB, with AM and CW operation also possible. The output is about 10 watts p.e.p. and can, from the low impedance output (Lo-Z), be fed directly into an aerial or into a medium-power grounded-grid linear amplifier. An alternative high-impedance output (Hi-Z) is provided in order that a grid-driven Class-AB1 linear amplifier can be used to follow.

The rig may be either crystal controlled or VFO driven. Two sockets on the front panel allow either a crystal to be plugged in, or an external VFO capable of about 1 volt RF output.

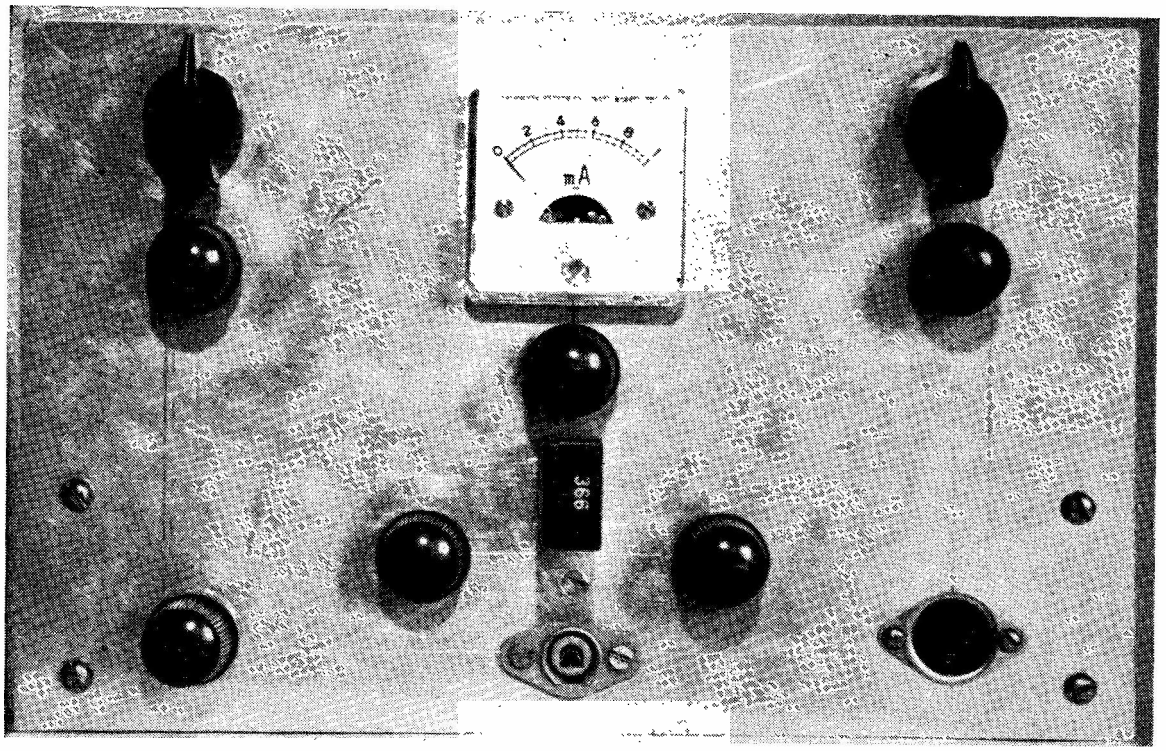
Generation of the original SSB signal is at 5·25 mc USB and either a single half-lattice filter, or two half-lattice sections back-to-back, can be used. This is the only part that may be new and therefore a little frightening to the newcomer. However, full details of crystal etching and method of alignment are given later. It's really very easy! If you really are against fiddling with crystal frequencies, then you could buy the crystals new. But this will cost you about as much or more than the rest of the rig! With certain limitations a McCoy or KVG 9 mc filter could be used—but that will be discussed later. The filter is built on a separate sub-chassis which mounts on the main chassis. This means that a simple half-lattice section can be built at first and easily replaced or extended to incorporate a two half-lattice filter.

An absolute minimum of tuned circuits is used, thereby easing alignment problems. The six bands are tuned at the grid of the PA with only two coils, a 500 $\mu\mu$F variable condenser tuning three bands per coil. These coils must be good quality high-Q types and the *Denco* range of dual-purpose coils, which are generally available off the shelf, suit this purpose admirably. Using these two coils the band switching comprises only a single-pole two-way wafer.

The PA is a 6146 in Class-A. An 807, miniature 807, or similar valve with an anode dissipation of 25 watts will be a suitable alternative. The PA tank circuit is a link-coupled output and takes plug-in coils, either on an octal based former or the *Eddystone* formers. With this type of tank circuit each coil can be designed specifically for the band in use, thereby ensuring maximum efficiency. In addition both a low-Z and a high-Z output can be provided. When feeding the *Mini-5* into a high power PA this plug-in tank coil can be dispensed with and replaced by switched grid tank coils in the linear. Metering of the RF output is provided so that the PA can be tuned "on the nose."

Size overall of the rig as shown here is 9ins. by 8½ins. wide by 5½ins. high, including built-in power supply. A standard receiver type mains transformer is used, rated 250-0-250 volts at 100 mA. The transformer, by employing full-wave bridge rectification, gives +550 volts for the PA anode and, from the transformer centre tap through a single smoothing section, +250 volts for the normal HT rail.

Mechanical design is kept quite simple so that even the most inexperienced constructor should find little difficulty. Front panel layout is symmetrical and therefore presents a neat appearance, which can be enhanced by the addition of a cabinet. It's difficult to say what the cost will be but with careful shopping one should be able to keep it below £10—even less if your junk box is well stocked.



Front panel view of the G3RNL Sideband Exciter/Transmitter

Before getting down to describing the rig in detail the writer would like to thank both G3TSI and G3EBF who have each constructed, modified, tested and operated the Tx as described here. Without their help this article would probably never have appeared. (The actual transmitter shown in the photographs is the one produced by G3TSI.)

Design Consideration

The choice of carrier frequency was determined by several factors. First, it should be high enough to require only a single conversion to the bands. Secondly, that the frequency when combined with the heterodyning oscillator does not produce any unwanted spurious responses ("birdies.") Secondary considerations were the availability on the surplus market of crystals at the requisite frequency and last, but not least, the possibility of operating two bands with one VFO. This last requirement can be achieved with either 8 mc (± 6 mc for 160 and 20m.) or 9 mc (± 5 mc for 80 and 20m.). However, with both these frequency relationships the two bands come out on the same sideband as the original generated SSB, therefore, sideband switching is needed. For the *Mini-5* this was undesirable so both these frequencies were discarded.

Two other frequencies came to mind : 6·2 mc was one. A VFO running 7·8 mc-8·2 mc when mixed with SB at 6·2 mc produces 1·6 mc to 2 mc LSB and 14·0 mc to 14·4 mc USB. This frequency is OK for conversion to all bands except 40 metres where not only is the 6·2 mc rather close to the final output frequency, but also unwanted products from this mix can occur.

The frequency 5·25 mc was finally decided upon. The exact frequency is not at all critical: 5·20 or 5·22 mc would do equally well. The reason 5·25 mc exactly was chosen is that if a VFO is used with a calibrated dial the calibration points on the two bands covered by the one VFO line up. The VFO frequency range for two-band operation is 8750 kc to 9250 kc, giving 3·5 mc to 4·0 mc LSB, and 14·0 mc to 14·5 mc USB, from a 5·25 mc USB input.

Circuit Description

V1A is an untuned crystal oscillator for carrier generation. The carrier crystal frequency is chosen just higher (about 200 c/s) than the final required frequency so that exact positioning of this carrier frequency with respect to the filter passband can be established by adjustment of VC1. RV1 allows for carrier reinsertion to a later stage, and may be used for tune up, AM or CW operation.

V1B is the speech amplifier which has fixed gain. With a crystal microphone the output of this stage should be just about optimum for correct balanced-modulator operation; therefore, no audio gain control is provided. A transformer T2 in the anode of V1B provides a low impedance output to the balanced modulator. T2 is not critical but should have an

impedance ratio of about 10:1 with the secondary at 500 ohms. If you can't find one like this, a 12-volt heater transformer will do the job quite well. The low-impedance side of this is decoupled to the RF by a ·001 μF capacitor C19 and is coupled to the balanced modulator *via* an RF choke.

The balanced modulator is a simple two-diode type (D1, D2) and providing there is no leakage around it due to bad layout the carrier suppression, when adjusted correctly, should be greater than 40 dB. With the added suppression of 20 dB or more from the filter the overall carrier suppression should be about 70 dB. The choice of diodes was a matter of some deliberation. While OA79's were found usable there was a tendency for the carrier balance to drift. The apparent cause was the two diodes. Silicon types were tried but because the knee voltage of the silicons is greater than for germanium diodes there was a threshold before the audio would mix with the RF. This gave a rather "jerky" output which was most undesirable. One could probably get over this effect by increasing the carrier drive to the balanced modulator. This, however, was not tested at G3RNL. The next diode tried, the OA90, proved to be quite satisfactory for the application.

Two forms of control are provided for in the balanced modulator. Adjustment of RV2 ensures that the voltages at each end of the primary of T1 are equal and, because they are in opposite phase, they balance out in this winding. The capacity balance is effected by VC2, to counteract any capacitive differences between the two sides of the balanced modulator which would cause a phase error to occur at the primary of T1, preventing good balance.

The secondary of T1 is tuned to the carrier frequency and provides a high impedance to match into V2 grid.

The usual arrangement is to follow the balanced modulator by a sideband filter and then follow this with an amplifier to make up the loss in the filter. But with this configuration, discounting the filter, there are two tuned circuits required. The *Mini-5* uses only one by following the balanced modulator with an amplifier, and then into the filter. Although this results in some mismatch the loss of gain introduced is insignificant in this design.

The amplifier stage V2 is in Class-A and is gain controlled by RV3. Using a Tx gain at this stage rather than an audio gain serves two functions: First, as previously mentioned, the output from V1B is just about optimum for correct balanced-modulator operation. If an extra audio stage were added with a gain control it would, with misuse, be possible to introduce distortion by overdriving the balanced modulator. The other point is carrier suppression. This is the ratio between the peak SSB signal and residual carrier. If the peak SSB only is varied by adjustment of the audio gain then obviously the carrier suppression varies. Controlling the gain of V2 overcomes this. Reducing the gain not only reduces the peak SSB but also the residual carrier by a proportional amount, maintaining carrier suppression. V2 is followed by the filter which can be a half-lattice type or two half-lattice sections back to back. Construction and alignment of the filter is discussed later.

Following the filter is the mixer, V4. The frequencies chosen for carrier and heterodyning do not warrant the use of a balanced mixer which considerably simplifies the design. An EF184 gave the best conversion gain, but if the *Mini-5* is to be followed by a linear enough conversion gain can be obtained with an EF80.

The heterodyning oscillator, V3, is another EF80. This doubles as an amplifier if an external VFO is used. About 1 volt of RF drive at the coax socket is required to produce the same output from the mixer as with a crystal in the appropriate socket. Table I (*see* p.531) gives crystal or VFO frequencies for all-band operation.

The mixer output is coupled to the PA grid *via* a switched parallel tuned circuit. One coil covers 160, 80 and 40m., while the other accommodates 20, 15 and 10m. Although this *is* a compromise nevertheless there is adequate drive to the PA.

Table of Values

Fig. 1. Circuit of the "Mini-5" by G3RNL

C1, C19 = ·001 μF
C2, C3,
C5, C6,
C8, C9,
C11, C13,
C14, C20,
C21, C22,
C24 = ·01 μF
C4 = 4·7 μμF
C7, C10,
C23 = 100 μμF
C12 = 200 μμF
C15, C16 = ·001 μF, 1 kV wkng.
C17 = 16 μF
C18 = 25 μF, 25v. wkng.
C25 = 47 μμF
VC1,
VC2 = 3-30 μμF trimmer
VC3 = 2/500 μμF, BC tune type
VC4 = 250 μμF, tank tuning
R1, R4,
R13 = 1,000 ohms
R2, R3,
R7, R14
R17 = 47,000 ohms
R5, R9,
R15 = 27,000 ohms
R6 = 47 ohms
R8 = 220 ohms
R10 = 470 ohms
R11 = 4,700 ohms
R12 = 1 megohm
R16 = 100 ohms
R18, R20 = 100,000 ohms
R19 = As required for relay
RV1,
RV3 = 20,000-ohm potentiometer
RV2 = 1,000-ohm linear potentiometer, carbon
Xtal
Filter = *see text*
X2 = *see text*
D1, D2 = OA90
V1 = ECF80
V2, V3 = 6BW7
V4 = EF184, or EF80 (*see text*)
V5 = 6146

TABLE OF COIL DATA

RFC1, RFC2, RFC3, RFC4: Standard 2·5 mH RF chokes.

T1: Primary, 2/10 urns bifilar wound on Aladdin former; Secondary, 45 turns shunted by 47 μμF, on same former.

T2: Ratio approximately 10:1, secondary impedance about 500 ohms. Suitable alternative is 12-volt heater transformer.

L1: *Denco* Type D.P., Blue Range 2, standard.

L2: *Denco* Type D.P., Blue Range 5, standard.

L3: For various bands, wound on octal-based 1¼in. dia. formers:
160m. 30 turns 22g. close-wound, with 8-turn link.
80m. 20 turns 22g. close-wound, with 6-turn link.
40m. 12 turns 22g. close-wound with 5-turn link.
20m. 6 turns 22g. spaced one groove, with 4-turn link.
15m. 3½ turns 22g. spaced 6 grooves, 1½-turn link.
10m. 5 turns 16g. self-supporting inside former, with 2-turn link to ¼in. diam. Adjust spacing and coupling for resonance.

Miscellaneous Items: Switch SW1, single-pole 2-way; SW2, 2-pole, 3-way. RLA, any suitable relay with four change-over contacts (spare pair, not shown, to be used for linear amp.). R19 selected for relay used.

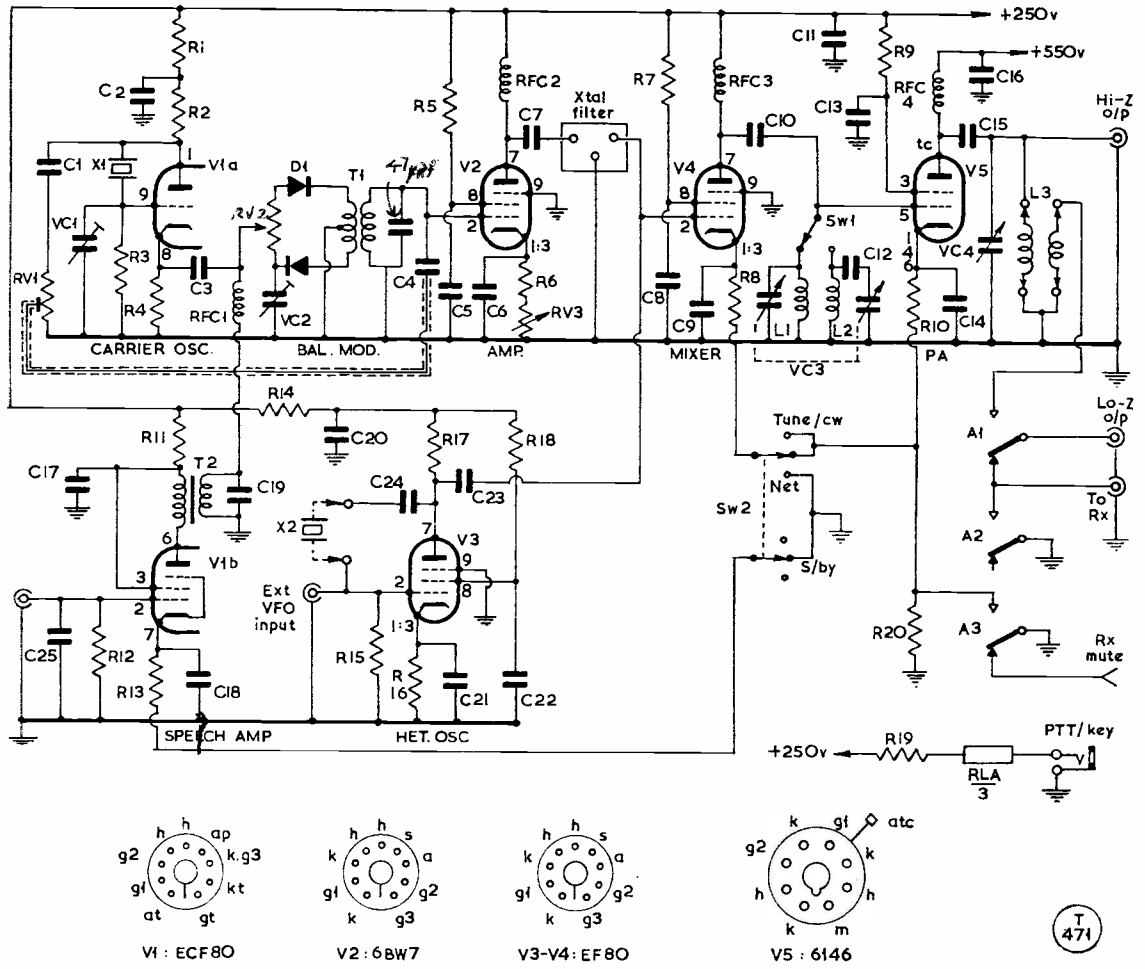


Fig. 1. Circuit of the Five-Stage All-Band SSB Exciter/Transmitter

(Note that the variable resistor across the diodes in the balanced modulator should be marked RV2, and the lower of the two diodes is D2. In V1B cathode, C18 should be shown across R13.)

For the PA, a 6146 is run in Class-A. This was chosen for several reasons, the most important being that it needs no negative bias supply and of course does not require any power to drive it, only voltage swing on the grid. The harmonic content of this PA will inherently be extremely low; hence, reducing harmonic content by use of a *pi*-tank is unnecessary. Link coupled output is therefore used and in addition a high-impedance feed from this type of tank circuit is possible.

A change-over relay is incorporated in the basic design but could be dispensed with if the rig is to be followed by a linear amplifier. All the switching could be performed in the latter unit. Alternatively spare contacts on the relay in the *Mini-5* could be used to control the linear.

For best operation the relay contacts should be break-before-make, and adjusted so that the aerial change-over points make before the transmitter is switched on. This will ensure silent change-over with no arcing on the aerial contacts.

The function switch SW2 has three positions: *Net* —cuts off the audio stage, leaves the PA cut and earths the cathode of V4; the carrier insertion control can be advanced if necessary for a larger netting signal. *SBY*—returns audio stage cathode to earth and connects mixer and PA cathode returns together, to go to the relay contact; they are earthed on "transmit." *Tune/CW*—as for SBY except the audio stage is cut off.

Power Supply

At Fig. 2 on p.530 is the circuit of the power supply. This utilises a standard 250-0-250 volt 100 mA transformer to provide approximately +550 volts for the 6146 anode and +250 volts for the main HT rail. Four BY-100 rectifiers are used in a bridge configuration across the two outers of the transfor-

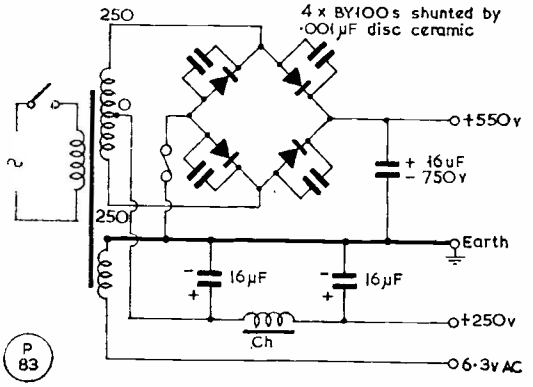


Fig. 2. Suitable PSU for the Tx, using BY100's in bridge to get +550v. from the 250-0-250v. transformer, rated 100 mA. Choke Ch is 10 Hy, 50 mA.

mer secondary. A 16 μF condenser was found quite adequate as the smoothing for the +550v. rail. The +250v. is derived from the secondary centre tap through a single smoothing section.

Each of the BY-100's is by-passed by a ·01 μF disc ceramic capacitor. This prevents damage that could be caused by transient spikes which might exceed the p.i.v. rating of these diodes.

Metering

The usual type of metering, *e.g.* anode current, is of little use in the *Mini-5* because the PA current should remain substantially constant under all conditions. RF voltage output on the Low-Z link winding is therefore monitored, as shown in Fig 3 below.

FILTER ASSEMBLY

We come now to detailed consideration of the heart of any Sideband transmitter—the crystal filter.

In this design, it is built as a unit measuring 3ins. by 1¼ins. by 1¼ins., which mounts on top of the main chassis. If a two-half-lattice section filter is used with resistive terminations at the input and ouput, it can be aligned externally and fitted without the circuitry affecting the alignment. However, a half-lattice filter will require the secondary of the RF transformer to be peaked up when finally fitted to the main chassis.

As previously mentioned the exact frequency is not critical but a 5250 kc carrier does mean that a VFO running 8750 kc to 9250 kc covers 3·5 mc to 4·0 mc LSB, and 14·0 mc to 14·5 mc USB, with the calibration points lining up.

The biggest problem is getting the crystals exactly on to the correct frequency—but this need not be such a great problem. The bandwidth of the filter will be aproximately 1·6 times the frequency spacing. Then, the minimum spacing you want is 1·5 kc for a bandwidth of 2·4 kc (It could be less but then the speech will sound a little restricted.) The maximum spacing should be about 2 kc for a bandwidth of 3·2 kc. Incidentally, these bandwidth figures are for the 6 dB points. The carrier frequency (if you care to work it all out) will be about 850 c/s *lower* than the lowest frequency crystal for a bandwidth of 2·4 kc, and 900 c/s lower than the lowest crystal for a bandwidth of 3·2 kc.

Let's assume you're making the half-lattice filter as shown in Fig. 4. Three crystals are required, including the carrier, so if you are at all ham-fisted you'd better buy four of them, all at the same frequency. "All at the same frequency" is suggested because it's very unlikely that you can buy surplus crystals giving the correct spacing. Either FT-243 or the 10XJ types are suitable providing they are not the hermetically sealed 10X specimens—but those that you can get at inside.

Now, with these four crystals plug each in turn into a crystal oscillator and mark these crystals in their oscillating frequency order. It's very high odds against them all being on the *same* frequency. The lowest frequency specimen can be used as the *Carrier Oscillator Crystal* and should be marked as such.

Crystal Adjustment

One of the others will probably be about 500 cycles higher in frequency than the lowest one. Anything between 500 and 750 cycles higher will be OK. Although this is less than the required spacing the difference can be made up by pulling the carrier crystal lower in frequency by means of VC1, Fig. 1. In the (unlikely) event that you do not get crystals with this few hundred cycles difference, then the carrier crystal will have to be moved lower. This should be done by first removing the crystal from its holder and holding it by the edges. Either a pencil lead or preferably a piece of solder can be used to draw a line on the face of the crystal—anywhere, it does not really matter. Its frequency should then be checked again and the process repeated until the required frequency spacing is achieved. Don't worry if it stops oscillating—just take out the crystal and wash it thoroughly in soapy water, rubbing between thumb and forefinger. Make sure it's rinsed and completely dry before replacing it and always hold the crystal by its edges when drying so that you don't get your sticky finger marks on it.

An alternative to moving the carrier crystal lower in frequency is to move the lower crystal in the filter higher in frequency by etching. The lowering-of-frequency method reduces the Q, and hence the activity by a fair amount. Therefore, it is not advisable to lower the frequencies of crystals used in the filter—well, at least not by more than a few cycles.

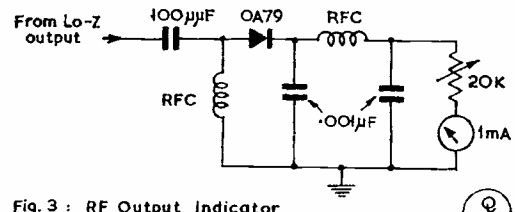
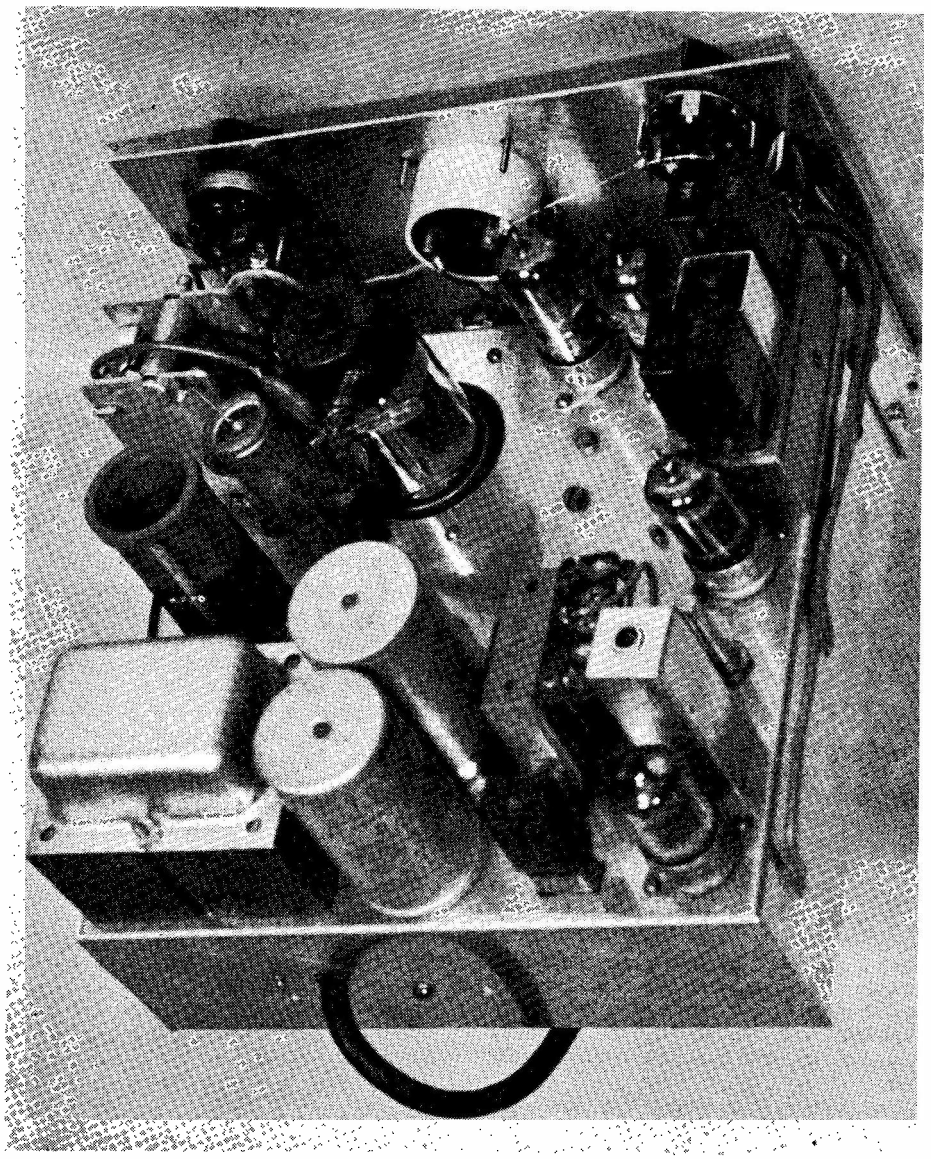


Fig. 3 : RF Output Indicator



Inside view of the Sideband Exciter/Transmitter

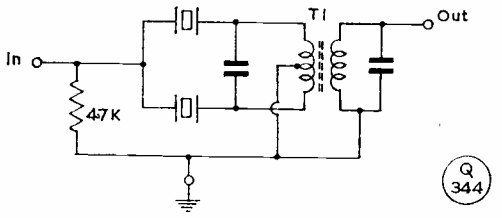


Fig. 4. Circuit of a half-lattice filter for the SSB Tx. Both primary and secondary of T1 can be 45 turns of 26g. enam., with primary centre-tapped, on an Aladdin former, each winding shunted by 47 $\mu\mu$F. The resistor should be taken as 4.7K.

Table I

Xtal/VFO Frequencies for 5250 kc Carrier

Band	Xtal/VFO
1·8 mc to 2 mc	7050 kc to 7250 kc
3·5 mc to 3·8 mc	8750 kc to 9050 kc
7·0 mc to 7·1 mc	12250 kc to 12350 kc
14·0 mc to 14·35 mc	8750 kc to 9100 kc
21·0 mc to 21·45 mc	15750 kc to 16200 kc
28·0 mc to 29·7 mc	22750 kc to 23450 kc

(To be continued)

SSB ON TOP BAND USING THE SB10

AND NOTES ON ADAPTING AN EXISTING AM/CW TRANSMITTER FOR THE SB10

P. E. H. DAY, ZL2BDA (G3PHO)

TWO years ago the writer, as G3PHO then, acquired an American SB10 sideband adapter which proved to be a versatile and economical method of getting on SSB—at least until something more elaborate could be built.

Originally the SB10 (and its British counterpart the SB-10U) was designed as a matching accessory to the Heathkit "Apache," an 10-80m. Tx running some 150 watts DC input. However, in the writer's case only a much-used Panda "Cub" was available but even this modest transmitter proved to be a most useful basis for the first steps into SSB. The SB10 takes RF input at the operating frequency and produces some 5 to 10 watts of SSB which is returned to the PA of the companion transmitter. Later in this article are details of how any Tx can easily be modified to accommodate the sideband adapter.

In spite of its versatility, the SB10 in its original form lacks one feature, facilities for 160m. At G3PHO Top Band had always been the favourite channel for DX working and no time was lost in converting the adapter to give full SSB operation from 1·8 mc to 2·0 mc. The following modifications are easily carried out in a couple of hours, and the unit can be quickly restored to its original form if need be. Unfortunately, as with most things these days we don't "get owt for nowt," and for the facility of 160m. SSB we have to lose 10-metre operation—which may not be much of a loss.

In its modified form, the SB10 gives 160-metre SSB when switched to 10 metres, the 10m. components being removed.

The job was done in four stages. For this work it is essential to have the Heathkit handbook and circuit diagram. In the case of the American SB10 removal of the front panel is also a "must" before work begins (this should not be necessary with the British version).

(1) *The RF Phase Shift Network.* Remove the two 110 $\mu\mu$F capacitors from positions 1 and 7 of the bandswitch (Deck 1). Replace these with 1% silver mica components of ·0017 μF.

(2) *The Balanced Modulator Anode Circuit.* The leads going into position 7 on both bandswitch decks 2 and 3 are removed. These switch positions are connected to position 12, on both decks 2 and 3, with an insulated lead. This ensures that when the unit is at the "10-metre" setting the tank coil is all in circuit. A 220 $\mu\mu$F ceramic capacitor is connected from each of the number 7 switch lugs down to ground. Thus, the coil is now tuned to 160m. when the unit is switched to 10 metres.

(3) *RF Driver Tank Circuit.* Take out the 10-metre series anode coil L5 and replace with a coil resonant at 1·9 mc. The writer used an old medium-wave oscillator coil, slug tuned.

(4) *RF Output Valve Tank Circuit.* This is basically an L-network in its original form and as such cannot be simply adapted for 160-metre operation without adding turns to the coil. An easier approach is to wind a 160m. coil and arrange to bring it into operation with the switch already available.

Remove the lead from position 1 of bandswitch deck 5 to the output coil. From the switch lug pos. 1 connect a short lead to a new tank coil wound for 160 metres. (50 turns 22g. enamelled wire on a 1in. former mounted in some nearby convenient position.) The other end of this coil is connected to ground. Thus, when the SB10 is switched to "10 metres" this 160-metre coil is brought in. To ensure that the Tx PA bias is not shorted to ground by this new coil, a ·01 μF disc ceramic condenser is inserted in series with the coax to the output socket (*see* Fig. 1).

Setting Up on 160 Metres

The audio phase shift network can be checked for correct adjustment according to the handbook. When on 160 metres the writer noticed a need for very slight readjustment of this circuitry. However, this may not be necessary in all cases. The RF driver anode coil is then tuned for maximum drive, as shown on the SB10 output meter. All further tuning is done from the panel controls and follows the same pattern as for the other bands.

The SB10 will now cover 160 metres to 15 metres. If the ten-metre components already removed are kept in some safe place it is a simple matter to restore the unit to its original form.

Results

As G3PHO in the U.K., the writer operated regularly on the 1·9 mc SSB net with some 40 watts p.e.p. input to a TT21 PA, and a 260-foot end-fed aerial. Reports of S9 were commonly received from all parts of the country. In addition, contacts with DL, OH and OK—often one way SSB only—were easily made. The best DX QSO was two-way SSB with

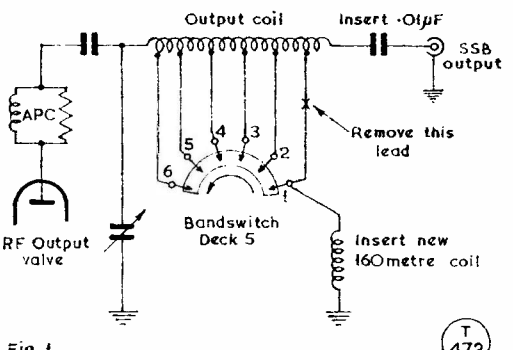


Fig. 1. Modification to put the SB10 output tank circuit (10-metre section) on to 160 metres — see text.

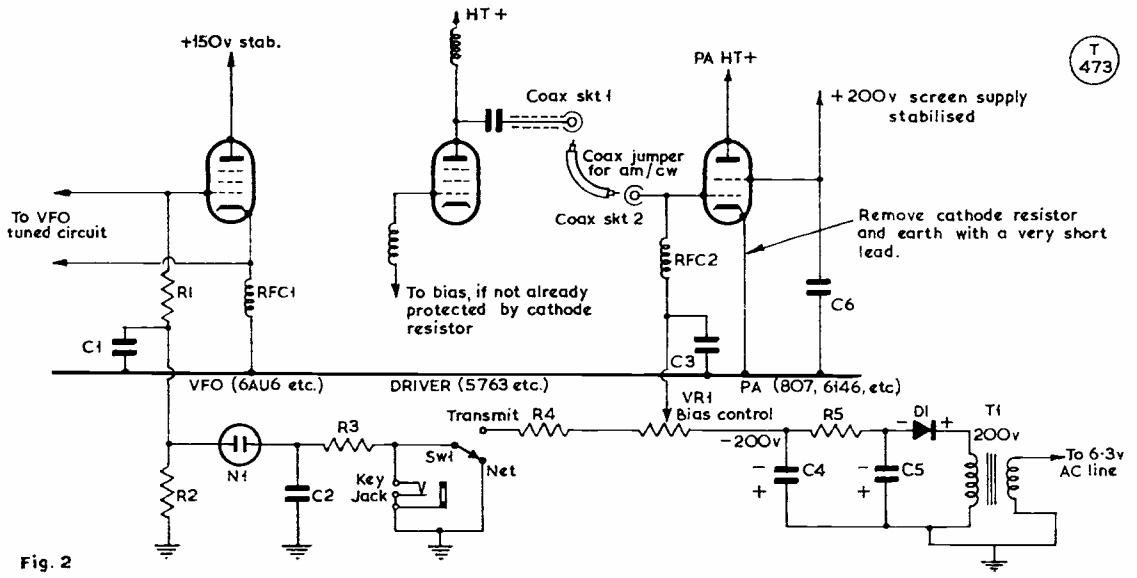


Fig. 2. Suitable modifications for any AM/CW Tx to allow for use of the SB10 Sideband adapter. A time-sequence, grid-block keying circuit is also shown, the SB10 then controlling the "send-receive" switching via the key-jack. If necessary, the driver can also be included in the grid-block keying circuit if it is not already protected with cathode bias during stand-by.

VO1FB, a report of RS-44 being received.

At the moment of writing G3PHO is ZL2BDA, in Gisborne, New Zealand. He is still looking on 160 metres for old friends and is still able and willing to try SSB.

ADAPTING AN AM TRANSMITTER TO TAKE THE SB10

The Heathkit "Apache" and the DX-100U both accept the SB10 unit readily. The following notes will enable the owners of other transmitters to modify their equipment suitably while retaining full CW/AM capabilities.

Basically, the modifications aim at providing VFO drive (about 2-3 watts) into the unit and a suitable linear amplifier to receive the SSB generated by the SB10.

First step is to disconnect the grid input lead to the transmitter PA stage. Take this lead to a coax socket mounted on the rear of the Tx chassis. Mount a similar socket one inch from this one and connect it to the grid of the PA.

The PA must be operated in linear mode for SSB and so a very necessary addition is a variable bias supply. All tuned circuitry is removed from the PA grid and the bias supply connected through a 2·5 mH choke to the grid pin (Fig. 2). The PA screen is fed with 200 volts, stabilised if at all possible (this was not found to be absolutely essential with the TT21 used in Class-AB1 at G3PHO).

It is also essential to arrange for the transmitter to be switched on and off by the relay contacts of the SB10. This unit has two contacts which close on "transmit" and thus if connected to the keying jack by a length of coax and jack-plug the transmitter is automatically controlled by the SB10. In the writer's case, however, the Panda Cub was cathode keyed in the PA and when the SB10 returned to the "receive" condition the Panda VFO remained on. Thus some method of disabling the VFO during "receive" had to be found.

Grid block, sequential keying of the VFO and PA seemed to be the obvious answer to this problem. Fig. 2 shows the essential circuitry for this, a method which improved the CW note of the transmitter and also gave full break-in facilities. Applying this system to any transmitter is quite straightforward and results in the PA being biased beyond cut-off and the VFO silenced during "receive," with no switching necessary at the transmitter. The SB10 relay does all the work.

Whenever SSB operation is not required the two coaxial sockets at the rear of the transmitter are

Table of Values

Fig. 2. Adapting an AM/CW Tx for the SB10

C1	= ·001 μF, disc cer.	VR1	= 10,000-ohm potentiometer (bias control)
C2	= ·01 μF, disc cer.		
C3	= ·01 to 0·1 μF	RFC1, RFC2	= 2·5 mH RF choke
C4, C5	= 20 μF elect, 350v.	D1	= Silicon diode, 600v. p.i.v.
C6	= Existing screen by-pass	N1	= Mains neon
R1, R2, R3	= 33,000 ohms, ½w.	T1	= 6·3v. heater xformer, reverse connected
R4	= 47,000 ohms, 1w.		
R5	= 1,000 ohms, 2w.		

Notes: R1 replaces the VFO grid resistor. C2, C3, R3 all affect the keying wave-form and can be varied. The existing net switch could be used for the DPST switch S1. The transformer, connected primary as secondary, can be wired to a 6·3v. winding in the main Tx power supply.

shorted with a jumper and the Tx is restored to its former CW and AM operation, but with full break-in if needed.

During SSB operation the bias potentiometer (which can be mounted on the front or rear of the Tx) is adjusted to let the PA pass the correct standing current for Class-AB1 operation. As this depends on plate voltage and number of valves in the final amplifier the constructor should refer to the handbook for the correct standing current for his own particular PA. For instance, a pair of 6146's with 750 volts on the anode should stand at 55 mA. When on "receive," both VFO and PA get −200v.

Finally a word of warning! Class-AB1 operation in SSB requires only a whiff of drive to the PA. In fact if a grid-current meter is available the output from the SB10 should be adjusted to a point where grid current just disappears. If grid current does show then you are most probably running into distortion due to overdriving. (You are then a very unpopular person on the band!) Of course, the only way in which a true picture can be obtained is to use an oscilloscope and tune up to avoid all traces of distortion and flat-topping.

A final-final! If you are one of those who would like to try SSB but can't afford a super-deluxe transceiver, then give the SB10 a try. Many a second-hand unit is to be found in the small advertisement columns in SHORT WAVE MAGAZINE, and the cost is of course very much less than a full SSB rig. You also have the advantage of still possessing your AM/CW Tx until you want to progress a bit further.

IRON CURTAIN EPISODE

TRYING TO MAKE A PERSONAL QSO IN YUGOSLAVIA

L. S. STANDALOFT (G3OLS)

HAVING experienced the extraordinary enthusiasm of the YU's to work G stations, several weeks before embarking on a holiday in Yugoslavia I wrote to their "Cultural and Exchange Bureau" requesting that I might be granted an opportunity to meet fellow radio amateurs in YU and perhaps visit the local club in Opatija. No reply was ever received.

On arrival at Opatija—you know, that exotic place where the last Region I IARU meeting was held—I spotted the Radio Klub notice-board at the entrance to a large villa. Seemingly, this establishment was also given over to various other types of club activity. Armed with my G3OLS card and some basic written Yugoslav, I approached the resident caretaker. Nothing helpful ensued—except that I was given to understand that, radio-wise, there was nobody there.

As an idea, I pinned up my QSL card on the club notice-board, with my hotel address and the inclusive dates of my stay in Opatija. Two days later, I looked round again and saw that the card had been taken away—somebody had noticed.

Determined and still undaunted, I had a word with the manager of our hotel. Full of enthusiasm and bursting with co-operation, he explained that the secretary of the local radio klub was a certain Mister Bak, the "lift master" at a hotel round the corner; he suggested that I should call on him.

Round I went, with another QSL card and a clearly-written request that I would like to contact Mister Bak. The two reception clerks at this other hotel went into an excited huddle and finally volunteered the information that "Mister Bak is not here today." So I left the QSL card with a message for Mister Bak, asking him either to call on me at my hotel or leave a message. I checked daily but nothing whatever happened.

During our jaunts into Opatija I kept an eye on the Klub and saw that they had a dipole on the roof. Often, there were lights on, but the windows were shuttered and I was unable to attract anyone's attention to the eager G hanging about outside.

These negative results of my attempts to make some sort of human YU contact were—well, disappointing, to say the least. After all, they seemed to be keen enough for my QSL cards and all I wanted was to talk about Amateur Radio to some licensed native.

By now, you will gather that I had been forced to the conclusion that the real extent of "friendship" is confined to the chance on-the-air contact and the inevitable eager request for "ur QSL card, dear friend, (my QSL sure, tnx and 73, hpe CUAGN very soon, dear friend")—which is as meaningless now as it was when this idiotic form of words was first conceived. *Personal* contact and a *genuine* desire to meet people just do not seem to be encouraged on the YU side of the Iron Curtain.

Never mind—their superb climate, breath-taking scenery, marvellous bathing and sailing, the food and the wine, fully justified my choice for a memorable holiday.

Editorial Note: In case anyone may think that the experience of G3OLS could be an isolated instance, we have heard in the last year or so in the same vein from several readers who have been through the Curtain and have had exactly the same sort of thing happen to them. In one case, letters of introduction were arranged and exchanged through the *Magazine* (with all the gaudy enthusiasm one hears over the air about the exchange of QSL cards)—but when the time came for the actual meeting, nobody wished to know or had any information.

VHF BANDS

A. J. DEVON

THOUGH there have been some EDX flashes since the latter part of September, most of the story this month—necessarily a bit curtailed, because for one thing your A.J.D. is very short of time, being right up against the deadline, and for another space has been cut down (and the Editor has been told that these two things must never happen again, together) —is a tidying-up on the happenings during September.

For those who may be a bit new to VHF—and there are always many such—it should be explained that for weeks, and even months, nothing much happens in the way of a DX opening. Evening after evening, or weekend following weekend, one comes on to find the two-metre band much as it usually is: The same chaps heard making their regular contacts, and talking about the ordinary things just as often talked about locally on Top Band.

Then, all of a sudden, there is An Opening. It may be tropospheric (which will have been divined by all who watch the signs) or it may be Auroral, or it may be sporadic-E, that most mysterious of all VHF propagation modes — but whatever the mechanism, the band becomes full of unusual callsigns, and stations never heard before start coming through. The lid is taken off the two-metre stations of Europe.

Well, as we all now know, that is what happened during the September openings. Though these occurrences are not usual, and are difficult to predict, the odd fact is that they do happen fairly frequently—otherwise we would not see that (as shown on p.480 last month) about 15 stations have worked 20 or more countries on two metres. And more than 80 operators have worked up to 12 countries. Of course, all this has happened over a long time—the *Magazine* records are unique, and go back to the beginning of it all—but the point is that it shows what can be done on the two-metre band. (The other active VHF bands, 4 metres and 70 centimetres, also have an interesting set of records of their own, enshrined in the *Magazine* archives.)

* * *

Incidentally, when putting in claims for the several Tables we are now running, pse do avoid making general statements like "my counties score has gone up somewhat, to 39"—without saying on what band, or since when! In fact, to ensure accuracy both at this end and your own, all claims should be made clearly on separate slips, headed by title of table and callsign. A number of our correspondents are exemplary in this respect, and there is never any difficulty in processing their data. Others wrap it up in such a way that the letter has to be read three times and checked against positions shown perhaps several months back before the current state emerges. If you remember that the exigencies of getting the stuff into print demand that the tabular matter must be dealt with separately (and that your A.J.D. is right up against the deadline when this goes down) then you can make it easier.

* * *

An interesting letter from EI2A (Navan) who now must be one of the leaders on the European two-metre air. Able to operate in any mode, he has worked 13 countries by tropospheric propagation (including DL, HB and OZ); two by meteor-scatter, the most difficult mode of all (EA4AO and OK2WCG); and SM6PU *via* Aurora, making a total of 16C. In addition to this, he has chalked up his 101st county in the two-metre All Time (it should be noted that EI counties *do* score for all our Tables and always have done). EI2A has knocked off 24 of them, as well as 17 in GM and the whole of Ulster (GI). When one realises that EI2A is situated well inland in Eire, and has to get out to 150 miles or so to work a G station, let alone the EDX, such results reflect great credit on Shane—who acknowledges the help he has had from his "good friend and mentor, Harry EI2W."

From Ulster, GI3HXV (Belfast) talks of happenings during the Aurora, when much GDX was worked; apart from his own results he mentions an interesting GC/GI "First" on 4 metres, GI3PGG having worked GC3POI /P on Alderney, also raised by GI3RXV and GI3HXV himself. The 4-metre enthusiasm in GI is maintained at a high rate—and has been much encouraged by types like G3EKP (Blackburn, Lancs.) who can be relied on to give a QSO to any GI on the 70 mc band.

A bunch of chaps who did

TWO METRES

COUNTIES WORKED SINCE SEPTEMBER 1, 1966

Starting Figure, 14

From Home QTH only

Worked	Station
39	G3COJ
34	G3DAH
31	EI2A
28	G3TQZ
26	G3FIJ (58)
22	G2CDX, G3TDL
19	G3FVC

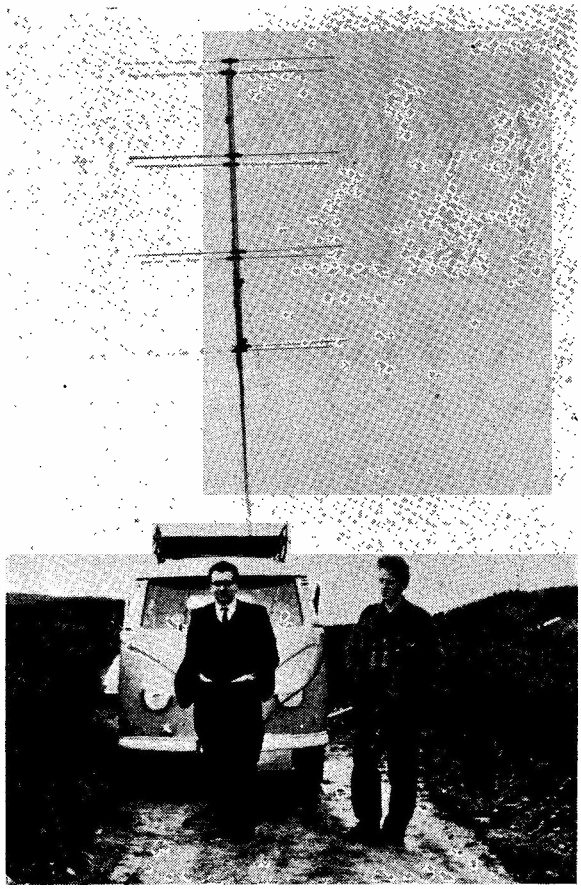
This annual Counties Worked Table will run till August 31, 1967. All two-metre operators who work 14 or more Counties on the band are eligible for entry. QSL cards or other proofs are not required. After the first 14 worked, simply claim from time to time with counties as they accrue, giving callsign and date for the county worked. Total of stations worked in excess of 50S may also be claimed and will be shown in brackets after callsign. To keep the Table up-to-date, claims should be made at frequent intervals. Operators new to VHF are particularly invited to join Annual Counties.

extraordinarily well during the late September tropo opening were signing G3RXK/P from the Clee Hills, in Shropshire. This was a Dudley Club effort, sustained by G3PWJ, G3UDY and G3UWK. Running 30 watts into a QQV03-20A modulated (interestingly enough) by a pair of OC35's, with a 6CW4 converter into an Eddystone EC-10 on the Rx side and a 10-ele J Beam, they knocked off, on two-metre Phone, 41 G stations, 12 DL's (including DM in East Germany), nine PA's, six French stations, and assorted GC, GW and ON4. The actual total of different stations worked during this Sunday session on September 25 comes out at no less than 71—no wonder the boys feel that they "had a good day out, in spite of the mist and fog." (Oddly enough, foggy or low-cloud conditions are always good for propagation on VHF.)

And it was on September 25 that GM3OBM (Guernsey) found two metres wide open to the north of England, giving contacts in Cumberland and Northumberland —but nothing much doing on four metres.

G8ANQ (Whitby) is on an extensive 70 cm. rebuild and, on the Tx side, starts with a transistorised VFO having a rock-steady frequency characteristic—being built into an ali. box with ¼in. sides, with its 9v. supply kept on continuously. (The result is drift measurable to cycles only at 430 mc.) The whole outfit is home-constructed and leads into a PA running a pair of 4CX250B's, and the aerial is a J-Beam assembly consisting of two slot-fed 8/8's at a mean height of 260ft. a.s.l. Very nice—especially as G8ANQ's 70 cm. Rx involves a parametric amplifier pumped by a 10 Gc klystron, and having an "extremely low" noise figure.

Which winds it up for this month, with a word of thanks to all who wrote in at short notice. For the December issue, appearing on November 25, the dead-line is **Monday, November 14** latest, addressed A.J.D., SHORT WAVE MAGAZINE, BUCKINGHAM. *Tnx, es 73 agn.*



EI7AF (left) and EI4AL, with EI5BH (who took the picture) were out /P on four metres on September 4, when they succeeded in working a good number of G stations. They were also receiving on two metres and logged a number of G's. The picture shows the 4-metre aerial array, the gear being operated from inside the vehicle.

THREE-BAND ANNUAL VHF TABLE

September 1966 to August 1967

Station	FOUR METRES Counties	FOUR METRES Countries	TWO METRES Counties	TWO METRES Countries	70 CENTIMETRES Counties	70 CENTIMETRES Countries	TOTAL pts.
G3FIJ	23	5	26	8	4	3	69
EI2A	5	2	31	7	—	—	45
G3EKP	17	5	8	3	6	3	42
G3AHB	—	—	13	3	12	2	30
GW3CBY	2	2	9	4	—	—	17

Scores are since September 1, 1966, and will accrue until August 31 1967. Position is shown by last-column total, as aggregate of all scores. Own county and country score as one each. Entries may be made for a single band, any two, or all three. Claims should be made as often as possible, to keep the Table up-to-date.

COMMUNICATION and DX NEWS

ONE aspect of the *practique* of Amateur Radio is that of QSL card returns, which assumes its more frustrating effect mainly, if not entirely, through misunderstanding as to the worth and value of a card. When an operator is for one reason or another working for an award, there will always be certain contacts for which he will need a QSL—but even he does not particularly want a card for every run-of-the-mill contact in that direction. QSO's that have no bearing on the particular award do not, for him, merit a card. However, this philosophy takes no account of the fact that the other fellow may genuinely be wanting your card for some award *he* may be chasing. Thus, as long as there is no compulsion to send a card, the ethical problem of QSL'ing will always remain with us.

Your scribe has often wondered about the criteria determining people to QSL or not to QSL. In his own case, a QSL is always sent to a new station the first time he is worked, remembering the eagerness with which his own first QSL's were awaited.

On the other hand, it is pretty pointless to QSL every contact on a regular sked, even if one of the other stations concerned is in the nature of real DX. In between these limits obviously there are an infinite number of shades. And yet, there is no polite way of indicating quickly to the chap at the other end of the QSO that a card is—or possibly more important—not wanted.

With such a service signal, by way of a Q-combination or similar, it would be possible to reduce a lot of the redundant cardboard at present sculling around the posts and QSL Bureaux of the world, and at the same time ensure that one could receive almost 100 per cent return of wanted cards with nil returns of unwanted stuff. For instance, it would eliminate the need for an exchange of cards if one party to the contact only wants a QSL. All that is wanted is something like *QSL Y*—meaning "I would like a card, pse," and, say, *QSLN*—"I would prefer not to receive a card for this contact." Then, if G3XYZ sends *QSLN* but G3ZYX responds with *QSL Y*, 3XYZ can put his card into the bureau with no fear of an unwanted one coming back or exhausting his stock of envelopes at the bureau. He also knows the card he has filled in is going to be worth-while for its recipient.

Forty Metres

Not much mention this month of 7 megacycles. G2DC has been looking at the situation immediately after the early morning sessions on 80m. and recommends others to do the same. Jack has been finding the VK's coming in like locals on some mornings—VK2 and VK3 early, followed by VK7SM around 0730z. October 6 was a very good day, with a thumping great S9 signal from VK2EO which ended up as a long ragchew, almost like a cross-town contact.

G3TLX (Edgware) says he has

FIVE-BAND DX TABLE

(New Cycle)

Starting date: January 1, 1966

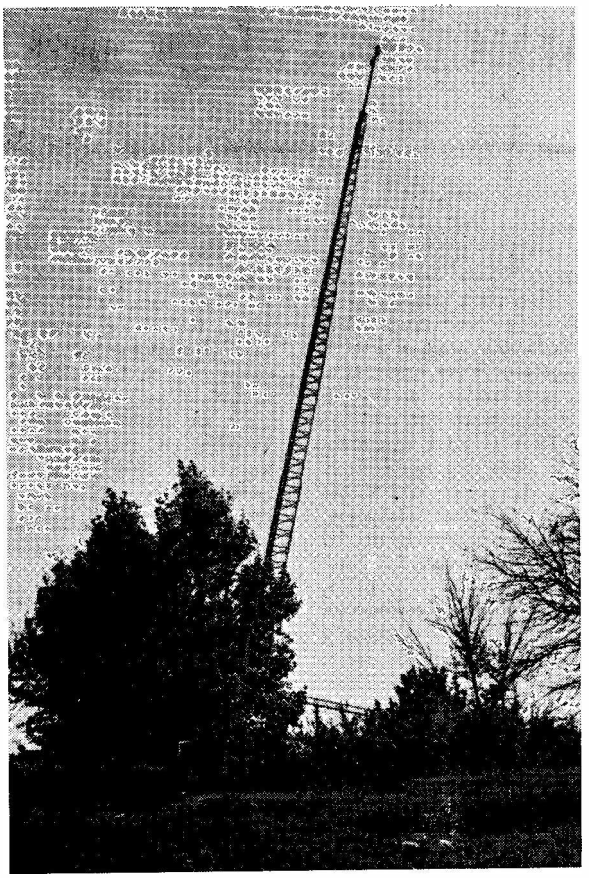
Station	Countries	28 mc	21 mc	14 mc	7 mc	3.5 mc
G3UML	196	79	89	174	54	35
G3NMH	187	48	93	177	—	—
GM3SVK	145	22	112	107	51	6
G3LZQ	141	6	52	120	29	18
GM3RFR	135	7	79	98	61	8
G3IAR	123	34	72	86	52	34
G3IGW	110	1	59	68	46	43
G3UDR	104	9	43	68	2	20
G3VDW	100	18	66	68	24	16
GM3KLA	91	15	71	45	46	39
G3VDL	91	8	35	69	37	15
G3PQF	72	21	6	18	58	24
G3UBI	70	2	25	52	8	30
VP8HJ	67	3	8	65	5	1
G3MWZ	60	—	11	54	7	4
G3RJB	57	—	—	54	—	28
G3VES	36	1	18	27	4	11
9V1LP	35	14	22	24	21	21
G3VPS	26	—	1	12	25	3
GI3GTR	22	1	6	14	10	9

Note: Placings this month are based on the "Countries" column.

found conditions good on certain days and then rough for as long as a week at a time. His list is quite a revelation as to what can be found if one is ready to excavate a little—VE1, 2, 3; all W call areas other than W7 and WØ, MP4BEU, CM2QN, CT2BO, CT3AU, YS1DHE, HK3ASJ, ZL2, ZD8J, UL7, UD6, and VP3JR. As a matter of interest, Ron points out that with ten watts, he has worked W1, W2, W4, with 579 reports when the band has been in good shape.

Laurie of G3UML has not found the band too good, but still has contrived to offer a formidable list: ET3AC, UD6BR, W, VK, 9M2, VP6, JA, 4X4, and IØRB—the latter is in U.N. Trust territory and has been offered for consideration as a new one for DXCC; if all goes well, the operators will be off to activate ZA1RB by the time this reaches you, although rumours reaching these old ears suggest that maybe the ZA prefix may *not* be "on." (*ZA*, by United Nations bods.—it's impossible!)

GM3SVK (Haroldswick, Unst) has been running a sked with ZL4BO that had, up to the time of writing, not been successful; however he is still trying. Fred would like to see the Big Boys who work VK/ZL regularly move off 7002 kc and give others a chance, which seems to be a fair comment.



A really keen Top Band man is John Dormois, WØGDH, of Kansas City. He has put up a 100ft. tower to carry his 160-metre aerial, and will be active during the coming test period.

Eighty Metres

Quite a few who write in this month give 80m. a mention; at the top of the heap is G3TLX, who comments on the recent improvement in conditions, and remarks that the band is often apparently dead due to lack of activity. Ron cites a recent case when he worked HI8XAL out of the blue, which turned into chaos by the time he had finished. Ron's bag for the band includes the HI8 (who was 599—and one hopes he was genuine), W1-4, VO, VE1-3, ZL4IE several times, and 5A3CM.

G3UML (Ilford) finds Eighty good in the mornings but "rather crowded at night," which must surely win a prize as one of those understatements. He offers ON6HC (Knokke Convention), CN8, ZL's, W1, W2, W5, and W1FZJ/KP4, which would seem fair enough.

Just to prove that courtesy is not quite dead in Amateur Radio, we have a letter from G3PAI, offering his apologies to any disappointed customers for his abortive trip to LX, where he was to have signed G3PAI/LX. Unfortunately, after John got there he went sick, and in the end had to return without having managed even to get on the air.

G2DHV has been operating under the call DJØAA, which he also had 'way back in 1956; we gather the licence is valid for three months. George has so far connected with ZS, LU, VE1, YO, YU, and also W1, 6, and 7, which tends to make the whole exercise seem well worth while, we should imagine. Quite a contrast to Sidcup?

On to G2DC (Ringwood) who lets the band pass with just a few words of wisdom. He finds it pleasant once again to be able to work the ZL's between 0600 and 0700z, always provided the QRN will permit.

G3VDW is another one who snagged HI8XAL on CW; Terence makes no comment otherwise. In a similar sort of way, GM3SVK mentions no DX worked but does say the static on 80m. has been rather high for the time of the year.

The 160-Metre Band

The next letter to mention this band is that of G3SED (Portsmouth), who says that the activity is way down on the level of last season, on both sides of the Pond; your scribe is not quite sure that he would agree with Mike's statement about activity, and would prefer to reserve judgement until things really get under

TOP BAND COUNTIES LADDER

Station	Confirmed	Worked
	Phone and CW	
G2CUZ	98	98
G2NJ	98	98
GM3KLA	98	98
GM3IKD	98	98
G3LWQ	98	98
G3PLQ	92	95
G3SED	82	92
G3NTI	80	81
G3UBW	70	87
G3SWH	70	80
G3PPE	68	83
GW3PMR	67	76
G3SVW	57	75
G3IDG	55	59
GW3TLW	55	70
G3SHY	53	71
G3TSS	43	53
G3UVR	42	63
G3KPT	41	70
G3SQX	34	64
G3VLX	3	19
	Phone only	
G2NJ	75	80
G3PLQ	55	58
G3MDW	52	69
G3RTU	35	37
GW3PMR	20	42

(Failure to report for three months entails removal from this Table. New claims can be made at any time.)

way. So far, the best opening has probably been the one on August 28 when G3SED was in QSO with W1BB/1 at 589 over a period of 1½ hours. Mike uses an inverted-Vee aerial, which in his case has the centre up at 60 feet.

Another 160-metre opinion comes from ZE3JO (Salisbury, Rhodesia) which says : "Top Band is a dead loss, too much static, nothing else!" 6Y5YH (Kingston, Jamaica), does not comment on conditions, but was in there swinging right up to the time of close-down, which Frank says had to be October 22. Using a doublet with strapped feeders series-tuned against ground, feeding into an HRO receiver, Frank has not had much luck in the way of 160m. QSO's, but has heard VE2UQ and hoped for something before the final close-down.

A newcomer to the column is G3VLX (Sidcup) who writes the sort of letter we like to see: Deryck was first licensed on July 28, and since then seems to have enjoyed himself. He has a 160ft. length of wire up, at about 35ft. fed at one end, worked against an earthing system of five 6ft. earthing rods, ten radials, and a 60-gallon water tank buried three feet down. The list with the letter from G3VLX shows 19 counties worked so far, nicely spread over the country.

An old-timer at the top of the table is G2NJ (Peterborough), who is going through it all again on Phone after having reached the top of the Ladder the other way. Nick has lifted his Phone score by contacts with GM3SVK (Shetlands), GM3UVL (Dunbarton), GM3ONS/A (Ross and Cromarty), and GD3TNS in Douglas. As a sidelight, he mentions a report from G3PLQ, who at the time was ship-borne 156 miles S/W of Cape St. Vincent, Portugal. G3PLQ has, of course, appeared in this column several times in the context of Top Band reception at DX while he is on his sea-going travels.

Allan, G3IDG (Basingstoke) reacted to the mentions of HB9YL and G3TNN last month by consulting his invaluable files, from which he can say there is a total of 47 licensed YL's in this country, who include four GM's, two GW's, and a couple of G8-plus-threes, with calls varying from the very latest of G3V - - to a G6 first licensed back in 1927. Allan claims QSO's with four of them, all on the key, but, like your conductor, wonders why we never hear of them.

Another nice letter comes from G3VEK, who, like G3VLX, is very modest about his achievements. Since we last heard from Steve the transmitter has been rebuilt to VFO control, and the aerial is a half-wave; the latter has constituted one of his technical hitches, insofar as it fell down, and, before this was realised, some kind soul came along and cut it into small pieces for scrap copper! Before he graduated to this aerial, Steve was using an indoor device 15 feet long, with which he managed GM, GW, and (nearly) OK. A list of "good" contacts is added, "just to prove that 3VEK is working stuff of some sort!" It shows GM3GIZ/P, G3JJC, GD3TNS, GW3UMB, and OL5AEE, which proves his point. Incidentally, G3VEK is located in Shipley, Yorks.

VK Top Band Tests

If you want to obtain a WAC the hard way, then go for it on Top Band. It *has* been done, although your conductor is not sure that it has been achieved by a G. It is made theoretically possible by the presence of VK5KO, whose appearance on the band at specified times has been quite a stimulus to the keen types. To complement this we have a long and interesting letter in which G3IGW (Halifax) sets out the story in some detail. Mike is of the opinion that attention to the VK tests has been only sporadic, apart from the efforts of himself and G3NEO. At the VK end, VK5KO in Adelaide was supported by SWL Allen, who is at Perth, Western Australia; at this end were G3IGW and G3NEO (Sheffield), all four being in touch by airmail, nightly 7 mc skeds, and the use of two metres for the inter-G working. VK5KO heard DHJ (the German marker signal) on 1st, 7th, and 8th September. On September 20, G3IGW was logged by SWL Allen at strengths between S2 and S4—seemingly, the last 1400 miles to Adelaide was too much and VK5KO did not receive G3IGW. However, on that same night VK5KO was heard over here and definitely identified on peaks although he was never very far out of the noise. Further, on September 26, signals were heard which were not clearly

MAGAZINE TOP BAND DAYLIGHT TEST

Sunday, November 6, from 1000 till 1600 GMT.

Come on the band on CW and work all you can at distances of greater than 100 miles. Call "CQ MDT" and give your location when calling. Send in your logs for the Test to arrive first post, Wednesday, November 9, addressed MDT, Short Wave Magazine, Buckingham.

identifiable, but believed to be VK5KO; again, on this occasion '5KO heard a weak and fluttery signal, not clear enough to identify, on both G3IGW and G3NEO's frequencies. In the end it boils down —as far as can be said at the time of writing, with the tests almost over— to a very near miss indeed, which will be all the more galling to G3IGW, who only needed this one contact for his WAC on Top Band.

As for VK5KO, during the run of tests, on September 13, he worked WØGTA/8F4 on 1801 kc—which, after all, was at least a worthwhile consolation-prize!

Yet again, just as this was going to press, a report from SWL Lindgren (R.A.F., North Luffenham) about hearing VK5KO, this time on October 5, at 2000z, on 1802 kc, about S4 with fading into noise. So VK5KO has positively been getting through—a momentous effort, having regard to all the circumstances of frequency, power and distance.

As far as GM3SVK is concerned, the event of the month was when his aerial fell down! He has been keeping an ear cocked for VK5KO, and may have had a near-miss when, after calling, a station came back to him on the right frequency and sounding as though it was a long way off, but before the callsign could be read the fishes started phoning on the frequency, and that was that.

Top Band Daylight Test

Don't forget about the MDT affair, on Sunday, November 6— details on pp.482-483-484, October issue. The basic idea is to look for GDX on CW. You won't work VK5KO, but you might find some unexpectedly interesting long-haul stuff over the U.K. Anyway, come on for the Test and let us hear about your results. (And *see* p.539.)

After these stirring events, life on the HF bands is so easy (?) that working the DX is a pedestrian sort of game by comparison with Top Band. However, it has its own satisfactions, as the mail reveals.

Twenty Metres

Our first call this month is once again from a station that could be classified as real DX for any G, namely W6AM (Long Beach, California), who shows the staggering total of no less than 345 countries worked. Don must be the most consistent "top-of-the-heap" man in Amateur Radio, as your scribe can remember the call W6AM heading the lists almost from the time of his own early SWL days.

Right at the other end of the chain is a station who has only just graduated from the "SWL" feature and its HPX Ladder. G3VPS has the use, until he gets organised, of a K.W. Viceroy (by courtesy of G3MOJ), and has been demonstrating that his high place on the CW HPX Ladder was no flash in the pan. The aerials at his Hailsham QTH are dipoles on Twenty and Forty, plus a long-wire; however, G3VPS is already showing the instincts of the true DX operator and is saying that though they were good enough for SWL they will have to be improved for transmitting. It is rather interesting to notice that as he gets into the swing of being operational on the air, G3VPS is becoming involved in the occasional ragchew, something he found most annoying when he was an SWL! So far, the DX worked is 26 countries, spread nicely over five of our six bands, and including such as EA9EO on 20m., and W on both 7 and 14 mc CW, plus IØRB on SSB.

A couple of months back G3GIQ was saying he was finding it "difficult to give up the chase" after his target figure had been achieved; to look at his letter this month it is clear that he is at it again—on SSB, DU1HR, EP2BQ, F9UC/FC, HS, KC4, KB6, KG6, KR6, KL7, VP2, VP7, VS6, UL7, 9G1, 9L1, 9M6 and sundry South Americans, to make a pleasant sight in the log-book.

The next letter on the clip is from G3VDW (Coalville) who has made his 100th country worked during the period. On AM, VE6RP, 3A2DS; and on CW, ZC4, ZS, VK, ZA1BE, EA6, UA9's, UAØKUV (Chita), MP4, TF3, TA2, UG6KAA

FIVE-BAND DX TABLE

(All Time)

Station	Countries	28 mc	21 mc	14 mc	7 mc	3.5 mc
G2DC	331	171	292	319	171	112
GI3IVJ	329	182	266	323	104	84
G3NOF	293	134	195	278	34	39
G3KMQ	237	10	99	212	101	55
G3UML	235	74	115	221	63	35
G3LZQ	202	58	122	170	57	29
G3IGW	197	123	136	161	119	74
VP8HJ	178	8	57	174	26	11
G8DI	165	68	109	144	74	43
G3UDR	165	31	87	134	4	38
GM3RFR	157	11	91	125	65	16
G3RJB	123	11	26	116	50	24
G3UBI	115	10	32	93	13	44
GM3KLA	106	15	71	48	74	40
G3IDG	106	61	75	54	27	18
G3PQF	100	26	25	46	75	46
G3MDW	88	44	57	60	8	10

Note: Placings this month are based on "Countries" column.

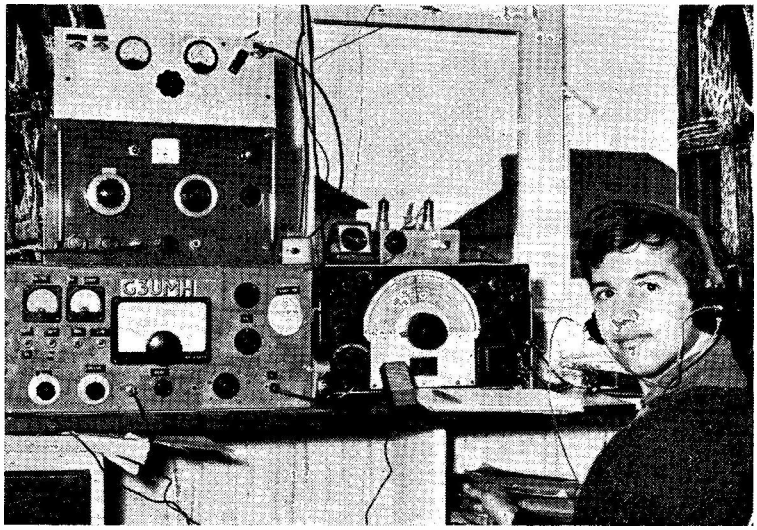
(the hundredth), and many more.

Now to G3UYK (Ilford) who has temporarily come to a halt because of joining English Electric at Stafford and hence being landed with a four-year stint of studying; but before then Peter had been running a Heathkit DX-100U and an RA-1 receiver coupled to a Joystick. He was licensed in January, and wisely spent the first few months knocking around Top Band; since about May he has been wetting his feet on the CW ends of the HF bands. The score so far is mainly in prefixes, including ZS, PY, ZC4, W, and Europeans—*all* worked on the Joystick, on one band or another. When the grind of training is over, Peter has ambitions along the lines of a 3-element beam and a transceiver, but is proposing to satisfy himself with a Top Band rig while he is working at Stafford, using the present set-up only at holiday times, a decision which is wise indeed in the long-term.

G3NOF listens round 20 metres most mornings about 0700, and remarks that while the band was, until a few weeks ago, opening to VK as early as this, the time has shifted to nearer 0800, and the morning path over the North Pole to the Pacific has died. The VK's can sometimes appear a bit later, about 1000, over the long path. The afternoons have produced S/E Asia, and VK6, but the evening openings to Africa and North America have fallen off. Contacts in the log are with CT3AU, HS1HC, VK9AG (New Guinea), VK9DJ (Papua), YA1DAN, YK1AA, 5W1AZ, and 9V1NP.

Laurie of G3UML (Ilford), had the pleasure, if one could say it was such, of being called by a commercial intruder in the band, signing "1414" from Vietnam! Otherwise, he found 14 mc both crowded and noisy, though with plenty of good DX a couple of layers down. As exotics, he mentions W6FHM/DU1, XE1KKV, VS6FR, HS4AK, and "dozens of VK/ZL stations," including VK9XI on Christmas Island.

G2DC strayed up into what he politely calls the "duck-and-spitch" part of the band, and found that awful ignition-like QRM that had been manifesting itself at the CW end had settled there to plague the Phone-merchants.



Station of Alan Dailey, G3UMH, of 1018 York Road, Leeds, 14. He has been on the air for 13 months, starting off on 160m., but is now mainly active on 21 mc, CW and Phone, running 50 watts and a dipole. The equipment includes two transmitters, one a xtal/mixer type for 14-21 mc CW, and the other covering 10-80m., CW/AM, using a Z-match coupler; he also has an HF-band crystal converter as a front-end feeding into the R.1155 Rx.

GM3SVK has put your conductor in a cleft stick—he has a rise in his countries-worked score from 54 to 107, and gives the calls concerned, all DX, and then dares us to print the list in full! For the first time in his life your conductor has had to refuse a dare, but instead quotes the first one in each line; CP5ZE, EA9EO (Ifni), HP1AC, KM6JB, LU2ZG (Sth. Orkney), VK4SD, VP2KJ (Nevis Is.), VS9ASP, and 5Z4SS. Gotaways included ZP5OG, PJ3AH, FG7XX, TR8AG, and various others.

Fifteen Metres

G2DC finds the most encouraging trend is the more frequent openings to VK over the short path from about 1000 to 1300z. Jack mentions that VR6TC is still around on about 21060 kc CW, or occasionally on 21300 kc SSB; probably the best time to angle for this fish is around 2100z, over the short path.

G3UFO/MM, who is on the m.v. *Clan Malcolm*, a picture of which handsome ship graced our pages recently, is at present on a trip right round Africa and has been running daily skeds on the 15-metre band with GW3ITZ, 1130z and G3AOW around 1800z. His /MM transmitter is a K.W. Vespa modified for crystal operation, with a Hammarlund HQ-100A receiver. As for the essential aerial, this is a 132 foot wire, coax fed through a balun.

The list from G3GIQ (Ealing) covers 21 mc SSB only, and shows quite a nice DX logging, to include CR6, VQ1, VQ9, VS6, VS9, WØGTA/8F4, ZS8, 9J2, 9M2, and some 9V1's. For a chap who says he has given up the chase, pretty fair going!

One can usually rely on a large crop harvested on 21 mc by G3NOF, but although Don says the band has been good at times, he does not seem to have taken much in, other than a few Sideband, W and VK contacts, with KG6ALW, VK9DJ, and VS6DS heard.

Up in the Shetlands GM3SVK has been finding 15 metres open on most days to almost anywhere. His 75 watts and inverted-Vee dipole brought in CT3AU, CR6, DU1CL, EA6BD (Balearic Is.), HC2SB, KR6AG, JA's, KG4CX, KZ5, MP4BEU, VP6, ZP5LS, VK's and YA1BW.

G3UML is finding the band in pretty good shape; which would seem, if the truth were known, to be a fair assessment of the general view. Certainly your conductor

would agree. Laurie offers KG6AQA, 9M8RS, VK9DJ, VK9DR, some VK4's, TN8AA, YA1FV, JAØBUZ, FR7ZD, and assorted " ordinary " JA's. (Rather reminds one of the old thing about " penny plain, tuppence coloured.")

As far as G3VDW was concerned, activity was as noted elsewhere mainly on Twenty—however, he did take the odd look at Fifteen, and found ZS6, ZE1, LU1, ZB2AX, CT3AS, 6O6BW.

Unquestionably, as time goes on 21 mc will become our most interesting and effective DX band—if, indeed, it is not that already. Under good 15-metre conditions, all the world is workable every day between early morning and late evening, with—and this is what matters—the minimum of EU/QRM. The intrusions of Vlad, Boris and Ivan are reduced to manageable proportions—and, let's be fair, that probably goes for them, too, in terms of intrusion from the U.K.

Ten Metres

ZE3JO (Salisbury, Rhodesia) reports in detail on his doings on 10 metres over the last three months, using his Viking Ranger at 75 watts CW to a TA-33Jr. The score amounts to no less than 53 countries, including all W districts, most of Europe, and various odd ones in the other Continents. It should be explained that these are contacts achieved when the band is trying. When it is really doing its best, Mal reverts to his " artificial leg aerial " —it will be remembered by many readers that ZE3JO in fact has a tin leg, which can be loaded up on all bands—and in one afternoon recently 75 watts into this produced W1, 2, 4, JA, DL, G, GW, UA6, OK, HB, SP, CT3, F and 5Z4. One wonders how far Mal has yet to go for a DXCC on this odd aerial system, and whether he would get special endorsement for it!

G3VDW has no 10-metre comment to offer—however, ZC4, CR6, ZS1, 2, 6, 4X4, PY2, PY5, ZE1 and 6W8DD would suggest that things are not *too* bad.

One who keeps watch over Ten through thick and thin is G3IDG, who offers 22 countries heard outside the European area, spread over all continents and in all modes although, surprisingly, more were to be found at the CW end, in spite of Ten always having been regarded as the DX Phone paradise when it is going well, rather than as a CW band. Allan's report boils down to a clear indication of increased liveliness, and he is in a position to decide this by records kept over the years.

On the other hand, GM3SVK reports that he has only heard 9G1DM and a few ZS calls; however, Fred says it is noticeable that he is not able to raise anything on Ten—so we expect next month he will tell us what is wrong in the ATU.

G3NOF is a pretty regular observer on 28 mc, and he found it open to Africa at 1700z every evening over the three weeks to October 8. In addition, on several evenings this was followed up by an opening to South America, and occasionally to the east side U.S. area. Don has noticed that on some evenings, although the band is not open to W, they can be heard very weakly, working the Africans, *via* the backscatter mode, in all probability. Don offers contacts with EL2R, EL8B, ET3RB, FH8CD, CX3BBD, CX9AAN, W, PY, VP8CW, ZE, ZS, 5N2, 5R8, and others.

G3UML considers the upsurge of activity on Ten is quite encouraging, but on the other hand he feels it could, and should, be doing better. Laurie summed up band conditions at the time of writing, as " quiet up till today, booming now." Among the list of those worked, we select the following: EL8B, ZS4O1, 9J2, CX, ZP, VP8, KP4, ZD8, FH8, TN8, and many others.

Here and There

The U.K. is a surprisingly large place, and GM3SVK points this out clearly when he says the weather is already turning a little cold up there—they have already had the first snowfall of the year. A quick calculation by way of a small-scale map makes the distance from Haroldswick to London about 760 miles, by way of Aberdeen—which is quite a long way.

Laurie of G3UML has a novel name for the short deadline which was necessary last month—" Instant contributions." This lad has obviously been taking a bit of time out to watch the telly-ads instead of concentrating on the SSB DX, and it is whispered on the grapevine that he has even been known to plug a key in the transmitter and work UD6CA. He must be sickening for something!

W6KG and W6DOD, Lloyd and Iris, are on from CT2TA (the call was issued to her) and are collecting up the permits for the next phase. Replies are understood to be already in from FL8, TT, TY, 5T5, 5X5, and 5V4.

G2DC has had a long letter from Sax, W2SAW, who went with the party on the Socorro Island DX-pedition last December. The operators found that it was extremely difficult to work DX themselves because of the barrage of *Stateside* calls. Sax describes the process of working the W's during this show as being " rather like fishing out of a barrel!"

Allan G3IDG writes that he has recently celebrated the fifteenth anniversary of the day he first got his call. Over the time since being licensed the records show an average of one contact every one-and-a-half days, a QSL about once every four days, and a new country every 52 days. That's the way to keep records.

By the way, with reference to those comments (attributed to G3LWM) on p.487 last time out, it seems that we were misinformed. The Stevenage chaps do still use Top Band for their local net and Morse practice transmissions. The 10-metre exercise is for a different purpose entirely.

Pirates

G3TRW has now been posted to El Adem, and he is, therefore, justifiably peeved to find himself receiving QSL cards for GW3TRW

TOP BAND LADDER

(G3T-- and G3U-- stations only)

Starting Date, January 1, 1966

Station	Counties	Countries
G3UAN	86	13
G3UTS	84	12
G3UBW	75	18
G3TXZ	55	11
G3TTK	43	12
G3USE	40	8
G3UMK	39	7
G3UCS	36	?

for contacts originated in August and September, when the real thing has not been on the air since August 10; anything after that is NBG, whether as G3TRW or GW3TRW.

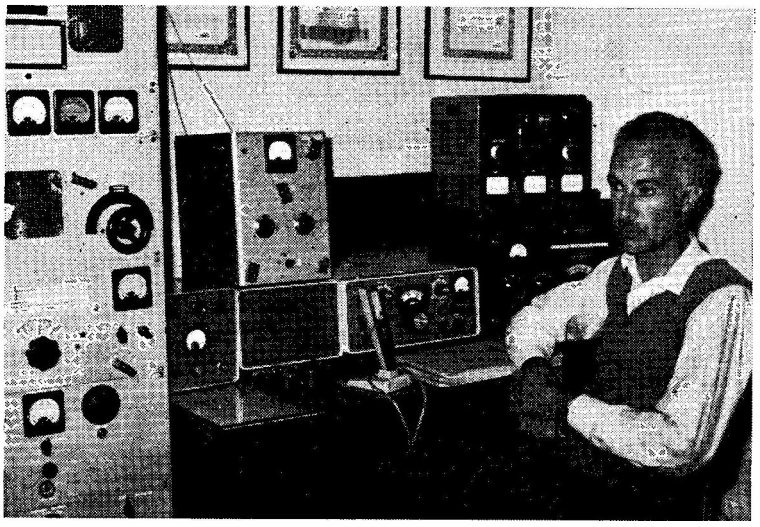
A DX pirate has been unearthed in the form of a thing which signs itself CR8AB; the real operator is now in Luanda, and it is the rule that calls are not re-allocated for at least 2 years.

QRT and QSL Matters

We hear from MP4TBM, who is enjoying the Brighton air for a while, and is therefore QRT as MP4TBM, a situation that will continue when he returns to duty, as he is about to come up again as HS1ND in Bangkok. As to QSL cards, any G's who are minus the card for a contact with MP4TBM can write direct to his Brighton address (260 Dyke Road) and he promises to return the compliment at once.

6Y5FH will be bringing all the logs home with him when he returns to the U.K., but points out that cards may be sent *via* the Bureau, as arrangements have been made to ensure them reaching him. Frank is rather cross about the fact that in the matter of cards the G stations are by far the worst offenders—his return is as low as 18 per cent which is a little unfair, to put it mildly!

G3UFO/MM has been suffering in much the same way. He has been adopting a policy of QSL'ing direct at considerable personal expense as he has gone along, requesting the return cards direct to his home QTH. So far only 2 (yes, two!) G stations have had the decency to send the cards direct as requested—so, in future, all cards to go *via* the bureaux. The other thing is, of course, to make it QSLL—which means "I send you mine when I get yours."



One of the more interesting DX stations on Top Band is CX3BH, operated by Horatio Acosta Y Lara in Montevideo, Uruguay, whose QSL address is P.O. Box 37, MvDeo. He runs just the 850 watts into an aerial which is half-wave for 160m., and his Rx is a Collins 75A-3. Horatio Acosta Y Lara also has gear for the HF bands, from 3.5 mc up to 28 mc, involving kilowatt Linears and ground-plane antennae. In addition to all this he is a top-ranking DX operator because last June he worked W1BB/1 for the first 160-metre CX/W contact.

Dead-Line

And so, once again we come to the end of the piece. It remains to thank everyone for the magnificent response to the call for immediate letters, and to say how much we have enjoyed reading them, and putting them together to make the feature. The next time round demands a deadline of first post on **Monday, November 7** (for publication on November 25), addressed as always to "Communication and DX News," SHORT WAVE MAGAZINE, BUCKINGHAM, England. Till then, *gd DX es bcnu.*

E.P.E.

LATEST LICENCE FIGURES

Checked on August 31, there were 11,857 "A" Licences in issue in the U.K. The "B" Licences (G8/3, UHF only) totalled 456. The A/TV licence figure (G6/3/T, UHF only) was 176. The mobiles totalled 2,170 of whom eight were holders of "B" licences.

THOSE JAP TWO-WAY RADIOS

At last, the P.M.G. has been able to initiate a successful prosecution of a user of a Jap walkie-talkie outfit. Though the defendant got away with a magisterial admonition and the payment of costs, the point was finally established that the operation of these sets—which work in the 27 mc band—is illegal. The case gained wide publicity, which might have the effect of warning dealers not to sell them to the general public. Indeed, dealers are well aware that their use is prohibited—except by licensed amateurs in our *28 mc* band—so that anyone prosecuted in future could almost certainly sue the dealer who sold him the thing, and recover damages and costs.

• • • SWL • • •

SHORT WAVE LISTENER FEATURE

DISCUSSING THE THIRD SLP—READERS' NEWS AND VIEWS—FOURTH SLP FOR BOXING DAY—IDEAS, SUGGESTIONS AND CRITICISMS

ONE of our correspondents this time, *George Piscunov (Novosibirsk, USSR)* comments in his letter that an "international SWL competition" would be a very good thing. Your scribe could not agree more. The point that arises, however, is that a contest becomes international in the true sense just as soon as entries roll in from overseas, regardless of whether or not the *organisers* call it "International." In this sense, the entry of George Piscunov to the HPX Ladder does make it international; so George and any other SWL from overseas are always welcome, not only to enter the Ladders and the SLP's, but to write in with their news, views, and comments, so that not only the tables but the column itself can be international in its content and flavour.

The Set Listening Period

Out of a total of 23 logs sent in this time, three were either all, or partly, CW entries. Assessing the entries was done under three main heads. First, the Quality of the DX logged; secondly, the Accuracy of the logging; and thirdly, the Observance of the logging rules laid down for the entries. The largest, the most accurately logged and the neatest log was that offered by *A. Niblock (Ilkeston)*, who recorded a total of 60 QSO'S, with no detected misloggings, and he sent in a very neat and readable entry in accordance with the rules. A total of 29 different countries, covering all continents, all heard on SSB, made up a very good log for a period of time when the general consensus of opinion was that the band was not in too good a shape.

The runner-up was *P. D. G. Milloy (Doncaster)* who sent in a log showing 45 contacts, again in the right manner prescribed by the rules, and again with no error detectable. Peter was sensible enough to list his doubtful ones seperately, with times and details. The countries total ran out at 26, all of which appeared in the winner's log also.

Had *P. Cayless (Exeter)* stuck to one mode, he could well have come out top of the list; as it was he divided his time between the two modes and although his total number of contacts runs him into third place, Murphy's Law ensured that when he was at the phone end the good stuff was on the key, and *vice versa.*

The only other entry that was anywhere near these three was that of *J. Margolis (Ilford)* which was unfortunately marred by a number of mis-loggings, and by the fact that the log was so cramped in a vertical direction that it was very difficult to follow.

None of the others came near to these four as regards Quality, and among them only a couple of countries were mentioned that did not appear in the leading log.

The remaining logs were somewhat variable in standard; some were models of what a log should be, but a few were distinctly below standard, and seemed to have been rather careless in the reading of callsigns. Mis-logging of stations shown as having received reports of "5 & 9" is very bad indeed and bodes ill for the perpetrators when eventually they receive their own licences.

The Next SLP

Because of the heavy load of work in prospect for the January issue (which will include the MCC results and write-up) it is not really practicable to handle another large SLP entry in time for January's "SWL."

So, just for the fun of it, let's do as we used to in earlier days, and have the next SLP on **Boxing Day** afternoon, December 26, on 15 metres this time, 4.00-7.00 p.m., excluding all West European stations, i.e. those west of Long. 30°E. (which near-enough runs through Kiev and Leningrad—see *Zone Map*), taking CW and Phone as separate listings.

Closing date for log entries will be Friday, January 20, 1967, and the results will be discussed in "SWL" in the issue dated March, due out on February 24 (seems a long time off!).

More Reports

P. D. G. Milloy (Doncaster) sends a brief note with his SLP entry, mentioning a couple of stations who identity appeared obscure, due to difficulty in reading them through the QRM. The two stations were recorded as KL6ML in QSO with VP6XY, with a large element of doubt as to the correctness of the latter part of both calls. It seems quite possible that others may have heard this contact, and Peter is curious to know what others made of the call-signs. Your scribe was on but will admit to having missed them . . . so, what offers, chaps?

Andrew Niblock (Ilkeston), writes with a list for the HPX Table, as well as his entry for the SLP. He notes the onset of a severe ionospheric disturbance on September 1st, the effects of which were pretty heavy in the way of absence of DX; as he remarks, it would have been better had we picked some other time or some other band for the SLP—but, of

course this is just the luck of the draw, and has to be taken the way it comes.

Over in *Lincoln, David Rollitt,* who wrote last time to recruit for the RAE, has achieved the target and at the time of his letter was just recovering from the effects of the first lesson. Your scribe can comment on this from his own experience in taking an RAE course; if you can keep them awake each time during the first four lectures, you can almost guarantee they will pass—if they go to sleep, it is usually an indication that they will not last out the course!

A new chum joins the ranks this month: *B. Thomas (Castleford)* who sends in a first list. He is a member of the Wakefield and District Club, and uses an NC-155 receiver and a vertical aerial.

Iain Paterson's letter from *Carstairs Hospital* makes mention of the great help given to him by Pat Longbone and John Singleton in matters SWL generally, and in particular with the preparation of an HPX list, which we are only too pleased to see in the Table. Iain does not mention his receiver, but does say that he has a 50ft. wire up as an aerial, and found most of the prefixes on the 21 mc band, albeit a few were located in amongst the QRM on 3·5 and 7 mc. A good point in his letter is the thought that it would be a fine idea if "some people" would speak more slowly when giving their callsign, so the SWL's can read them better, Aye, and that is fair comment as far as the licensed-types are concerned as well, Iain; there is nothing more irritating than to hear a gabbled call-sign and not know whether he is DX or a long way away!

This month's letter from *Pat Longbowe* and *John Singleton (Hull)* is well up to sample. It would seem that G3PQY has been booted out of his shack, as Pat has been getting in some listening time on 144 mc, and we suspect she has been using big-brother's gear for this. However, leg-pulling apart, it is heartening to see that in spite of three evenings a week at night-school, Pat and John are sufficiently keen to put in a further evening a week to get their RAE passes. Both of these characters are members of BARTG, so one way and another there is not much in the Amateur Radio game that they do not take an interest in. On top of all this they find time to keep up their good work in keeping in touch with Iain Paterson up in Carstairs Hospital.

An old-timer re-appears this month with a list for the SLP, in the person of *R. G. Poppi (London, S.E.24);* Dick queries 7X2SX as being on Jan Mayen, but we hate to disappoint him. 7X2 is the prefix for Algeria, in Zone 33 (*see* p.563).

The next letter on the pile is from *B. A. Smith (Ruislip Manor),* who is ex-VS9AS, ex-VS9OM. He has now scored 363 in the HPX Ladder, and mentions specially the hearing of his first VS9; being back in the U.K. makes him realise just how DX'y VS9 really is! Another one on his list is probably of interest to Dick Poppi, insofar as he heard JX2IK/P from Jan Mayen recently. However, prefix-chasing is having to take second place to the grind of preparing for the next RAE in December, for which SWL Smith has our very best wishes for success.

Over now to *J. Fitzgerald (Great Missenden)* who has lifted his total quite a lump by the simple expedient of combing out all the prefixes in the log which were overlooked in the past. As a cheer-up to all the BC-set SWL's, it would be as well to mention that John uses a Japanese transistor portable and gets the BFO voltage by tuning another BC receiver to an appropriate frequency and extracting a whiff of the local-oscillator signal. With this unlikely-sounding machinery he has a score of 195 countries in 38 Zones. This only goes to prove the point made so often that it is not the rig but the operator and his ability that make the difference.

Glyn Watson (Sheffield) is another one to be getting ready for the December RAE, and has also been getting his Morse speed up to scratch; in this

SWL Steve Blaber, Lyelands Farm, Bolney, Haywards Heath, Sussex, has a CR-100 witb Codar PR-30 preselector, and outside is a multi-band doublet type of aerial. Steve is at 516 in the HPX phone-only and is now busy working up his Morse. He says he is surprised to find so many amateur operators who are content to paddle along at about 7 w.p.m. — he wants to do a lot better than that !

context, Glyn makes a special note of the help he has received in the way of Morse practice from fellow members of the Sheffield Amateur Radio Club. As he so rightly says, it is well worth-while to become a member of the local Club at an early stage in one's SWL development. Glyn seems to doubt his knowledge of radio theory being adequate for the passing of the RAE; let us wish him all the best and hope the questions fall right for him.

As a result of the reading of the HPX Rules in the last piece, the score of *R. Wyatt (Basildon)* has taken a downward trend, from 270 to 265; however this has been compensated for by some intensive listening and the new claim goes in at 340. A query is 7XØ, which is in fact French Sahara, and in Zone 33. SWL Wyatt mentions the afternoon of September 11 as being rather good, so much so in fact that he heard WØGTA/8F4 at S7, using a horseshoe as an aerial. This should enable us to settle once and for all the old argument as to which way up the horseshoe has to be in order to make use of its lucky powers!

The events of the week September 17 onwards in terms of VHF propagation resulted in interesting DX/TV reception for *Dennis Boniface (Ripon)* who reports no less than 14 new ones, to bring the score up to 117 stations in 24 countries which is pretty fair going in any man's language—we are talking of the reception of *TV stations!*

Quad for Fifteen

A 21 mc addict is *R. G. Preston (Norwich)* who has managed to put up a two-element Quad aerial for this band, and, of course, has a corresponding increase in his score to show for it. While some of the claims put forward for the Cubical Quad have been a mite exaggerated, there is no doubt at all that the Quad is probably the most gainy device in the aerial line that can easily be made up. The only snag seems to be a tendency to generate side lobes of some magnitude, which can be rather a nuisance when one realises that the effects of propagation result in received signals usually displaying random polarisation, so that signals from the side can find their way into the receiver front-end.

A. G. Scott (Liverpool) wants your conductor to obtain a crystal ball! To be more specific, he wishes for a forecast of band conditions each month. Rather a tall order. While there are skilled types about who can give a prediction of the trend of the MUF on a given path for the month ahead, this is no guide at all to the way the bands will in fact behave at any given time. What one can say is that there is a seasonal trend, and a monthly trend, which is superimposed on the long-term variation due to the sunspot cycle, all of which can be set at nought by some occurrence on the Sun, or by the onset of any one of the anomalous propagation effects which make Amateur Radio such a fascinating and chancy game.

A first SLP entry from *Norman Henbrey,* who hails from the lovely village of *Northiam, Sussex,* and has been an SWL since 1946, graduating from a BC set, through a CR-45 and an 840C to the present Eddystone EA-12 receiver. Norman is of the opinion that the latter receiver is too good for his limited ability, but having seen the log he put in we would take leave to dispute this!

John Miller (Cheltenham) bewails the sad fact that he always seems to miss the SLP events; nevertheless, he has been listening to some effect, as the tables seem to show. John has made a change of aerial system, from 270ft. at 25ft. in the air, to a 130ft. wire up at 40-feet, both of which are fed

HPX LADDER

(Starting January 1, 1960)

Qualifying Score 200

SWL	PREFIXES
PHONE ONLY	
T. R. Popham (Exeter)	950
P. Cayless (Exeter)	922
D. Douglas (Dundee)	915
A. W. Nielson (Glasgow)	737
S. Foster (Lincoln)	706
P. D. G. Milloy (Doncaster)	636
A. Niblock (Ilkeston)	627
D. Rollit (Navenby)	621
J. Singleton (Hull)	611
R. G. Preston (Norwich)	602
C. Squires (Saltash)	579
W. Felton (Lincoln)	576
G. S. Taylor (Wolverhampton)	562
E. R. Chivers (Lydney)	552
M. Woollin (Leeds)	550
C. D. Morris (Tenbury Wells)	549
D. Poulter (Morden)	543
W. Smith (West Bromwich)	542
J. Hart (Leeds)	539
J. Fitzgerald (Great Missenden)	534
D. G. Cooke (Nottingham)	532
A. Huggett (Lamberhurst)	528
S. J. M. Blaber (Haywards Heath)	516
G. Wyllie (Johnstone)	496
K. C. Staddon (Stroud)	491
T. Pinch (Plymouth)	486
W. Moncrieff (Hampton)	486
D. Fitzgerald (Dublin)	482
C. Edwards (Warwick)	472
P. Baxter (Winchester)	465
J. Hodgson (Gainsborough)	461
B. Cullen (Dublin)	457
R. Coates (Lancaster)	455
C. P. Martin (Chertsey)	442
A. G. Scott (Liverpool)	441
A. D. Jones (Chertsey)	440
C. Sparrow (Millhill)	440
P. A. Cayless (Exeter)	429
(AM only)	
S. Wilson (Ossett)	429
B. Macklin (Winchester)	423
S. Hardisty (Accrington)	417
G. Watson (Leeds)	411
D. H. Foster (Rainham)	408
B. J. Turner (Westcliff)	404
J. Butler (Bargoed)	401
J. Dixon (Barrow)	400
D. G. Evans (Neath)	398
W. Chaffer (Edgware)	393
Mrs. M. Worbey (Dartford)	392
G. Bowden (Crawley	391
A. Parker (Chesham)	391
J. Tozer (Plymouth)	382
Miss P. Longbone (Hull)	379
P. Crust (Loughborough)	375
L. Case (Widnes)	367
G. Cowling (Goole)	363
G. Piscunov (Novosibirsk, USSR)	362
H. M. Graham (Harefield)	358
D. Parker (Redditch)	357
D. J. Mortimer (Gloucester)	357
N. R. Clyne (Hounslow)	354
D. Edwards (Coalville)	352
J. W. Thompson (Tollerton)	342
R. Wyatt (Basildon)	340
B. Stephenson (Walsall)	338
A. P. Legg (Sutton, Surrey)	335
C. Freeman (Nuthall)	327
S. Swain (Hayling Island)	327
W. C. Torode (London, W.C.1.)	314
M. R. Warburton (Sale)	313
(AM only)	
P. Freeman (Chessington)	307
E. K. Law (Walsall)	307
R. Glaister (Haywards Heath)	303
P. Aston (Stowmarket)	286
A. Jones (Cardiff)	283
P. D. G. Milloy	280
(AM only)	
J. Miller (Cheltenham)	280
D. Poulter (Morden)	273
(AM only)	
K. F. Ballinger (Worcester)	272
B. Walker (Doncaster)	266
D. Nichols	263
K. Evans (Shepperton)	261
P. Smith (Linby, Notts)	258
Mrs. J. Davies (Strood)	254
A. McCudden (Glasgow)	251
E. Parker (Hove)	246
A. Marriott (Bishops Stortford)	231
A. Niblock (Ilkeston)	229
(AM only)	
R. T. Sutton (Birmingham)	219
S. Shaw (Stockport)	218
T. Bailey (Burgess Hill)	216
N. Bradley (Stevenage)	216
T. Farkasch (Benfleet)	207
I. T. Patterson (Carstairs)	206
B. Thomas (Castleford)	201
CW ONLY	
C. Harrington (Hounslow)	612
S. Wilson (Ossett)	606
D. Douglas (Dundee)	601
P. J. Lennard (Worthing)	599
R. de Buis (Felixstowe)	450
D. H. Foster (Rainham)	401
M. Woollin (Leeds)	391
B. A. Smith (Ruislip Manor)	363
P. Etheridge (Hull)	303
P. Cayless (Exeter)	262
J. Miller (Cheltenham)	248
R. Bacon (Thetford)	234
G. Wyllie (Johnstone)	221
L. Allwood (Horsham)	214
N. Bradley (Stevenage)	207

(NOTE: *Listings include only recent claims. Failure to report for two consecutive issues of "SWL" will entail removal from the table. Next list, January issue, for which the deadline will be November 18.*)

straight into the receiver without the benefit of aerial tuner or earth connection. John queries a signal signing IT4KN, on 21 mc CW, heard at 2148z on August 28, and wonders if anyone else logged this one. Your conductor would guess that this could be a mis-reading, as there are plenty of IT1 signals about; as an alternative, there is the possibility of special-activity call. A grouse regarding procedures, which will be echoed in many a DX listener's heart, refers to operating practices. John was listening to W9WNV/HKØ for nearly 15 minutes before he heard the callsign.

V. A. Lindgren (North Luffenham) has, as his QTH suggests, joined the Royal Air Force, which is having the effect at the moment of reducing his radio-activity but as the station Club has the call G3TCQ he will no doubt be listening around on Top Band. Already the Club receiver has (as mentioned in "Communications and DX News" last month) managed VK5KO and several other choice items of 160-metre DX under the hands of SWL Lindgren. Your scribe would be prepared to lay long odds that Vic was wishing he had passed the RAE while listening to that sort of DX!

Co-operation is the order of the day in Exeter, where we gather the two top-of-the-Table characters are getting together to teach *T. R. Popham* Morse, Terry has recently had a trip to the States, and in the process managed to spend some time with VE3FOY, and also get a look at the Amateur Radio station attached to the Ford Motor Museum at Detroit, signing W8MRM.

At the time of writing his letter, *B. Macklin (Winchester)* was being forced into eating his words; it seems that he intended to say that Ten had been rather unproductive, but decided to have a check before committing such a statement to paper—and found the band crawling with DX!

Quick comment from *S. Blaber (Haywards Heath)* who says the rise in his HPX score is due to re-reading the HPX Rules; as a tail-piece he adds a note to the effect that he has put his Morse speed up to 14 w.p.m. Good! (*see* picture p.545).

J. Dixon (Barrow-in-Furness) among others, registers agreement with the suggestion of an SLP set for an early morning. (We could probably lay this on after the Boxing Day event.) Unfortunately he was not able to get on for the last SLP. SWL Dixon refers in acid terms to the activities of the Barrow "nut" who, it seems, has been making a nuisance of himself with false "Mayday" calls, which have turned the Barrow life-boat out a dozen times. The local press have got a theory that the perpetrator of this outrageous piece of lunacy is someone who has taken and failed the RAE. All your commentator can think is that this nitwit is a person who should have been locked up in an asylum a long time ago—more especially as in these cases some of the dirt inevitably rubs off on to licensed amateurs.

Phil Ashton (Stowmarket) did not have a great deal of luck with the SLP, but puts his list in nevertheless. Phil has an offering for the "Comic of the Year" contest: An I1 station on Twenty calling "CQ Ten" for all he was worth!

Another entrant in this particular line comes from *J. M. Hodgson (Gainsborough, Lincs.)* who quotes the same one as Phil Ashton, and adds to it as a second-string "SSB nets on Eighty" which is possibly being a little hard on them although it must be admitted they are a bit of a shambles at times.

Pete Cayless (Exeter) intends clearly to stay at the top of the HPX Ladder, to judge by his list. To satisfy the enquirers, he adds that the receiver in use is an Eddystone 680X, used in conjunction with a Codar PR-30X preselector.

Another to comb out the log as a result of the HPX rules list last time is *W. Smith (West Bromwich)* who does so to the tune of 37 prefixes in addition to the crop from the month's listening. Wilfred has been nearly QRT for a month or more now due to the incidence of exams.

J. Margolis (Ilford) is the youngest of the G3NMR family, and turns in a creditable list for the SLP, in spite of the fact that elder brother G3UML would not hand over the receiver for part of the time, as he was himself operating in a contest. With two amateurs and an SWL in the same shack it must be pretty chaotic on occasions!

On to *M. Goldman (Leeds)* who writes to say that the proposed Leeds RAE is now well on the cards, and that if anyone cares to contact the Leeds club, at Woodhouse Square, Leeds, 3, they will get the full details. On the home front Martin has been giving the receiver a dose of the soldering-iron, and the R.107 now has an S-meter. In addition, he has acquired some co-operative neighbours and now has a much better aerial up. How *do* you acquire co-operative neighbours, Martin?

G. Bowden (Crawley) has received help from L. Case of Widnes and has got his PCR-3 perking to some effect. Geoff has now got an external S-meter, the PSU, an ATU, and a signal generator used to inject carrier for SSB and CW reception, all permanently hooked in together, and as a result the thing looks rather more like a Christmas tree than a receiver. However, who cares (the XYL!) so long as the beast works?

[over

SET LISTENING PERIOD

Boxing Day, December 26, 1966

21 mc Band, CW or Telephony

1600-1900 GMT

Log everything you can positively identify, *excluding* stations in Western Europe, taking Long. 30 degs. E. as the East//West boundary line. Log headings to be Time GMT, Station heard, RS or RST report, and Station called (or CQ). Send separate lists for CW and Phone, and write all callsigns clearly. (Use ruled paper if possible, and prepare a fair log.) Mark each sheet "4th SLP" and print name/QTH. Address to: "SWL," SHORT WAVE MAGAZINE, BUCKINGHAM, to arrive by Friday, January 20, 1967.

G. Piscunov (Novosibirsk, USSR) enters the HPX Ladder in a big way with a first entry of 362. George uses a 10-valve receiver and a dipole as aerial, but he is hoping to get a two-element Quad for Twenty up in the near future. The latter is also the height of your scribe's ambition, but neighbours do not seem to think a Quad in the back garden is a thing of beauty in quite the same way as the writer!

B. Stephenson (Walsall) re-enters the HPX Tables with a list, re-written in accordance with the rules given on p.425 of the September issue. Barrie uses a Marconi B.52 receiver with a Geloso/KW converter in the front-end, which seems to be doing its stuff to the great satisfaction of its owner. The aerials he uses are "an end-fed piece of wire" for the LF Bands and Fifteen, and a 14 mc dipole. A move is in prospect, to Ripon, where Barrie hopes to meet with Dennis Boniface and get started in earnest on the DX/TV ploy—he could not have a better adviser.

52 Set user is *R. L. Dowdell (Ewell, Surrey)* who has a list for the month which includes ET3WH, HS1AK, 9M2, 9J2, SU4, MP4BEU, and various other interesting calls.

Next, a letter from the Emerald Isle: *D. Walsh* runs a BC set to listen on Top Band and is surprised at the lack of use of 160m. by the EI boys. Des wonders whether the presence of solar flares is an indication that the rise in the sunspot cycle has really commenced, and also asks whether the next sunspot peak will be a high one or a low one. (The things these chaps want to know!) Well, Des, as to the first one, your ears will, no doubt, answer that, as there is not much argument that HF conditions in general are quite a bit better than they were a year ago. As to the second, there seems to be some element of doubt. But watch the signs and read the literature—all we can do here is to record things as they happen.

R. Allisett (St. Peter Port, Guernsey) duly acquired the TCS receiver mentioned last time round and is doing well with it. As would be expected, Dick has been concentrating on 80 and 40 metres and the SSB nets.

A. B. Thompson (Neath) is a user of the Lafayette HE-30 and has come across a new version of the wartime BC-453 (the "Q'5-er") which has recently been hitting the surplus shops in small quantities, and is known as the "R.16 Receiver."

It is pretty obvious that *J. Tring (Sutton, Surrey)* is intending to get on to the HPX Ladder in the near future, as he writes in with a few queries. In Rule 1 we mean different prefixes, and in Rule 8, we do *not* require confirmations with the list of callsigns. (Cor, save us those QSL cards!) As far as John is concerned, his log starts much later than the start of the HPX, and so all he has to do is to sort them out of his logs from the beginning.

From *Benfleet* we have a letter making a first claim for the Ladder from *Tony Farkasch* who uses a Heathkit RA-1 as the main receiver, backed up by an R.1155 and a CR-100.

Rolling His Own

A home-brewer of gear in a big way is *E. Parker (Hove)* who has quite a complex set-up based on the G3HTA receiver circuit (SHORT WAVE MAGAZINE, December, 1964) with two calibrators, a pre-selector, and an aerial-matching unit—all of which need power which they get from a couple of fully stabilised packs. The system is used in conjunction with a random-length piece of wire about 120 feet long and 25 feet high. The whole boiling is home-brewed. But it has now to take a back seat in favour of swotting up for the RAE. Ernie feels that, *at 51*, he needs to do three runs through the RAE syllabus before taking the Exam. Your conductor does not agree—he has chaps of this age or greater in his class every year, and they are just *not* allowed to fail!

A cricket addict is *W. C. Torode (London, W.C.1)* who returns to the fold now the season is done, to re-enter the Ladder and offer for the SLP. Wally is tied to indoor aerials, and uses a *Joystick* to very good effect with an Eddystone 888A receiver.

M. R. Warburton is a "regular customer" who this month raises a query about the status of a station signing 7XØ from Colomb Bechar, Algeria. This would seem fair enough, Martin—there are at least two 7XØ calls in the latest issue of the International *Call Book*.

In *Tenbury Wells* (a small town in Worcestershire) there are no less than two followers of this piece, who for some reason do not seem to have come into contact—Colin Morris and Anthony Watts. Anthony has an entry for the SLP, and Colin also enters for the SLP, to boost his HPX score. His letter is rather pontifical on the matter of rules for HPX, with which he disagrees in some respects. His arguments have as much force as the ones used in deciding the rules in the first instance—and so, of course, when the rules were formulated and thought up, many of the decisions made were, of necessity, quite arbitrary. (At this stage, it would not make sense to change from one arbitrary rule in favour of another arbitrary one.) Just follow the rules, as laid down on p.425 of the September issue, and you won't go wrong.

R. Coates (Lancaster) has been having a dabble with RTTY and on the day of writing his letter had just managed to persuade the machine to print sense for the first time, on 80 metres. SWL Coates is thinking along the lines of acquiring an RCA AR77, and would like to hear from anyone who knows something about this receiver. (QTH, 23 Pinewood Avenue, Brookhouse, Lancaster.)

P. J. Lennard (Hailsham) writes his "farewell letter." He has graduated to the ranks of the licensed. Clearly, he is very pleased—and why not?—so much so, in fact, that he has completely forgotten to mention the new callsign!

This and That

A nice new entry for the CW end of the HPX Ladder comes in from *Thetford*, where *SWL Richard Bacon* is operating with a CR-66 receiver and a Vee

SWL • • • • • •

continued

aerial, end-fed. Modifications are in progress to the CR-66 to make it a little easier to winkle the stuff out.

D. E. Fitzgerald (Dublin) wants to drag us into an argument about the use of "Hertz" for the units we call "cycles." As far as it goes, the Continentals have used Hertz for years; the Americans have simply followed the Continental line, and quite a lot of sheep are following in the trail. The rights and wrongs of it are quite simple; the two units are of equal merit. As far as certain un-read people are concerned a Hertz is new, and as they are foolish enough and uncritical enough to think that things new *must* be better than things old they all, calf-like, follow the lead in taking up the new. So far, no person has produced a good case for the use of *either* one, and so the decision to retain or change is quite arbitrary.

Bill Felton (Lincoln) and David Rollitt joined forces for the SLP, using David's ground-plane aerial and Bill's HA-350 receiver; apart from this exercise, Bill has spent a lot of his listening time on the LF bands. The Lincoln RAE class seems to be going great guns, to judge by the note of enthusiasm in the letter.

The short note from *Peter Smith* this month says that he is suffering from a certain shortage of time for listening due to a constructional project, as well as the possession of a part-time job. That's life, Peter, and after all, making a living is at least as important as collecting prefixes, when all is said and done.

One of the Joystick addicts is *S. Swain (Hayling Island)* who has a list of 327 prefixes to put in the Ladder. Stuart has started sending out QSL cards but to date has had a *nil* return; not to worry, the bureaux system works slowly, but eventually you will see some returns.

D. H. Foster (Rainham, Essex) finds there is not time enough for all the things he would like to do, but, reading between the lines, it seems that the effort has been concentrated into the matter of DX/TV although he does not mention any specific stations apart from the 819-line French transmission which has been taken on most evenings.

As far as *H. M. Graham (Harefield)* is concerned, the SLP was a complete washout with only one station outside Europe heard (OD5EL, at 1617 GMT), so no entry was put in. Interesting that for him the DX of the month was KS6VQ on Twenty Sideband at 0900 GMT on September 18.

Up in *Aberdeen,* a newcomer to the ranks is *Graham Knight,* who uses a 14-valve double super-het and a 272ft. end-fed piece of wire, mainly on the LF bands. One very interesting QSO was heard, in which W1FZJ/KP4 was saying he had a *full-sized* Cubical Quad for the 3·5 mc band! This must be some aerial—one would think the mechanical problems involved in keeping it up must be pretty formidable, quite apart from the size of pole needed to hold such a device up in the air.

A *nil* return is the state for *B. Cullen (Dublin),* who has been plagued with receiver troubles and in any case is in the process of preparing for the RAE.

M. Woollin (Leeds) defends himself in the argument about the relative merits of 7 and 14 mc, by saying that he finds the QRM worse on 20m., and that there are also more dirty notes on Twenty. On the other hand SWL Woollin points out that he still uses the band, to the tune of 115 countries since the start of the year.

The letter from *Mrs. M. Worbey (Dartford, Kent)* strikes a sad note; it seems the OM has had the bad luck to come unstuck on the RAE, so the building of the Top-Band transmitter has had to be shelved for the time being. Never mind, encourage him by threatening to have a go yourself and the OM will redouble his efforts!

Les Allwood (Horsham) has got his ticket, and is now radiating on the 3·5 mc band on CW with 8 watts; the call to look out for is G3VQO. Congratulations, Les.

HPX Point

Down in the West Country, they are always on the look-out for a chance to catch the foreigners bending. *Colin Squires (Saltash)* has done just that to your conductor, who hangs his head in shame. In the Rules for HPX, published in the September issue, we completely forgot to mention the case of suffixes which have no number in them, such as VE1AED/P/SU, and VE2BUJ/P/SU. In such cases an arbitrary ruling was made long ago that the first would count as an SU1 and the latter as an SU2. In other words if the suffix lacks a number, it takes the number of the callsign it has been tagged on to. (Fortunately, callsigns with these complications do not come up very often!) Colin clarifies the XP1 callsign mentioned last month as being the old KG1 call; as it was heard on Twenty, it would seem likely it belonged to the old KG1AA, now signing XP1AA from Greenland.

Yet another newcomer to this piece is *G. A. Budden (Bournemouth)* who has been a reader since 1964, and has access to all the postwar copies in his School Library. (Sounds rather a good school!) Geoff has a 19 Set and an R.1155, but has recently been using the school CCF receiver, an HRO-M, as he is the only member of the Signals section. The RAE has already been passed, but Morse is at the moment holding up the ticket, as the Test was goofed

DEAD-LINE

For the next "SWL," in the issue dated January, 1967, and due out on Friday, December 30, all correspondence should reach us by Friday, November 18, addressed: "SWL," SHORT WAVE MAGAZINE, BUCKINGHAM.

first time, and since then the GCE has taken precedence. Never mind, Geoff, GCE helps you later on in life in the important matter of eating regularly! It is always easier to contemplate a receiver when the inner man is well-filled. A quickly-answered question in this letter is one about the OL prefix; quite OK, Geoff, it is just the latest batch of OK calls. Finally, Geoff would like to correspond with any other SWL, preferably abroad, and preferably in the same age group, around the 16 year mark.

No actual letter this month from *Charles Harrington* of *Hounslow*, or *T. Pinch* of *Plymouth*, just a quick entry for the Ladder. Likewise, an entry for the SLP but no letter from *D. Heaton (Bradford)* who does however add at the bottom of his log the information that he uses an AR88D, and crossed 50ft. end-fed wires.

A first claim for the ladder comes in with a couple of queries from *N. R. Clyne (Hounslow)*, who is interested in the IE1 prefix; IE1PEE is probably the character in question, who is on Lipari Is., and uses the name Salvo on 14 mc SSB. The other one is the *old* one " where are the BY's? " All your scribe can say is that people mention one occasionally, but they nearly always turn out to be phoneys. A genuine BY call is about as common as a two-metre WAC.

G. Cowling reports a good day out at the D/F " do " run by the *Hull* group recently, and met John Singleton and Pat Longbone; the only snag to the day was the fact that he did *not* find the hidden transmitters.

B. J. Turner was not very pleased with his SLP log, but put it in just the same; he uses an RF preselector, into crystal-controlled converter, into single-conversion receiver, fed from a 14 mc dipole at 20ft. high which runs N-S. Another letter from the same area is from *R. A. Gape (Leigh-on-Sea)* who uses 33ft. of wire, end-fed without benefit of an earth or ATU, into a PR-30 preselector, driving a 52 Set. SWL Gape responds to the idea of an early-morning SLP by suggesting an 0400z start to the thing—*ugh!*

Andrew McCudden (Glasgow) sends his list in this month with a very brief covering note from which we glean details of an inverted-L aerial 100ft. long and 30ft. high, feeding into a home-brew preselector and HA-320.

Peter Milloy has already been mentioned in this piece, but in his second, last-minute letter he points out that the OK6 prefix is the OK equivalent of our own GB callsign, used for special-activity stations and asks about the suffix problem (already dealt with in the letter from Colin Squires) also mentioning that the DK calls are not only genuine but are likely to appear in greater numbers as time goes on. His final crack must surely win the " Comic of the Century " prize: The G3 who was heard to say " The 80-metre antenna here is very good—the SWR is less than 1:1."

SSB Reception

An interesting letter from Geoff Bowden to supplement his earlier epistle, in which he puts a new slant on the front-end injection scheme for receiving SSB signals; he finds a considerable improvement in stability by using the generator on 7 mc when receiving 14 mc SSB. The reason for this is of course that on the lower frequency the generator is inherently more stable and possibly the lower amplitude of the generator second harmonic as compared with its 14 mc fundamental reduces the tendency of the receiver local oscillator to " pull " (your scribe seems to remember that the PCR receivers were rather prone to be pulled by a strong signal, anyway.) A good point in this context is that if the receiver has AGC on, this should be disabled in some way; just short the AGC line to earth somewhere near the detector end is easiest, and then use an RF/IF gain control to set the level. To fit the latter, it is necessary to lift the earth from the cathode bias resistors of the RF and IF valves (*not* the mixer) and common these points to the top of a variable resistor of about 25K, log law (this is then the volume control) and earth the other end of the pot and its slider.

And so to the sign-off; we hope you have enjoyed reading it as much as we have enjoyed putting it together, and it only remains to point out that the deadline for January issue, due out on December 30, is first post on November 18, addressed to " SWL," SHORT WAVE MAGAZINE, BUCKINGHAM. Until then, good hunting, and take care of yourselves.

OUR THANKS

To all those good people who, having seen the announcement on the Editorial page of the October issue, about the change of publication date, responded immediately by sending in the material for which we asked. It has been a great help over a period during which the pressure has been on to no uncertain degree. Inevitably, some of what we wanted arrived too late to be taken into this issue, and will have to be held over for December (due out on November 25). And for your A.J.F., it has been a humbling experience to realise that there *are* people who *do* read his Editorial!

MORE RECIPROCITY

We are very glad to know, from the latest issue of the South African *Radio ZS*, that there is now reciprocity as regards radio amateur licensing between the U.K. and the Republic of South Africa. On the ZS side, the situation is a little clouded in that our authorities—and, we think, quite properly—stipulate that any South African amateur wanting the U.K. permit must hold the appropriate certification, i.e. that he must have passed the equivalent of the R.A.E. It seems that many of our ZS *confreres* do not hold this qualification. In case it may be thought that our Post Office people are being obdurate or obstructive, let it be said that they are only working to the agreed international regulations affecting amateur station licensing.

CRYSTAL TEST OSCILLATOR

VERSATILE POWER CIRCUIT FOR HF/LF COVERAGE

G. R. KENNEDY, A.M.Inst.E. (G3OGK)

OFTEN one wishes to check the activity of a quartz crystal, or find whether the crystal will oscillate at all. Most people requiring to do this can knock-up a Pierce oscillator for, say, an 8 mc crystal—but when it is required to check a low-frequency plate such as may be used in a 100kc calibrator, or a high frequency crystal for a VHF multiplier chain, a lot of the out-of-my-head circuits come unstuck !

Here is described a Pierce oscillator that will work with any crystal in the range 50 kc—30 mc, with the possible exception of very high frequency overtone types. The circuit may be regarded as outmoded, since it uses a valve, but from the writer's experience, a 6C4 and a small mains transformer are more to hand out of the junk-box than a VHF transistor and suitable small battery. In any case, the power requirements are so small that most receivers will supply the power, and this arrangement has the advantage that the oscillator output can be monitored on the receiver at the same time. However, a power supply circuit is shown on p.552.

Circuit

This is given in Fig. 1, and consists of a straightforward Pierce oscillator using a 6C4 triode with a capacitor divider which is added by switch S1 for low-frequency crystals, to enable them to oscillate by supplementing the anode-to-cathode and grid-to-cathode capacities. The amount of grid capacitance may be varied by C2 to start off crystals of different cuts. The RF output is rectified by diode D1, smoothed by C7, R3, C8 and applied to the 5 mA meter, M1. The grid bias potentiometer VR1, can also be used in conjunction with C2 to start difficult crystals. The HF/LF switch S1 can be used to good advantage with dual frequency crystals, such as the QCC 100/1000 kc bar. With the switch in the "low-frequency" position the crystal will oscillate at 100 kc and in the "high-frequency" setting at 1 mc. An output socket is available through C5 for using the RF in external equipment.

Construction

The lay-out is not critical, except that the feedback capacity C1 should not be brought near the grid pin of the valve base, or near C4 or C5, otherwise some VHF self-oscillation may occur. A convenient method of construction is to build the circuit in an *Eddystone* die-cast box, with the main components grouped around the valve base pins. Several crystal sockets, each different from the other, should be wired in parallel, so that any crystal can be tested. It is best to wire these with stiff self-supporting wire, to cut down the stray capacity across the holders. (A transistor socket makes a good holder for wire-ended crystals, incidentally). For B7G glass encapsulated crystals, pins 1, 2, 3 and 5, 6, 7, should be shorted and connected as the two terminals for the crystal, and no connection made to

Table of Values

Fig. 1. Circuit of the HF/LF Oscillator

C1	= 0·1 μF 250v.	RFC1, RFC2	= 2·5 mH RF chokes
C2	= 0-50 μμF. var.	D1	= SX781 diode, *Mullard*
C3	= 180 μμF, 250v.	D2	= REC51 rectifier, (*Radiospares*)
C4	= 800 μμF	T1	= 0-250v., 6·3v. midget mains (*Radiospares*)
C5	= 56 μμF	S1	= DPDT toggle
C6	= 100 μμF, 250v.	S2	= SPST toggle
C7, C8	= ·05 μF	M1	= 0-5 mA m/c meter
C9, C10	= 8 μF, 250v.	V1	= 6C4
R1	= 1,000 ohms, ½w.		
R2	= 10,000 ohms, 1w.		
R3	= 680 ohms, ½w.		
R4	= 470,000 ohms, ½w.		
VR1	= 1-megohm carbon potentiometer		

Miscellaneous Items: Crystal sockets, various; coax socket; fuse and pilot lamp; *Eddystone* die-cast box. Note that values for PSU are included in listing above.

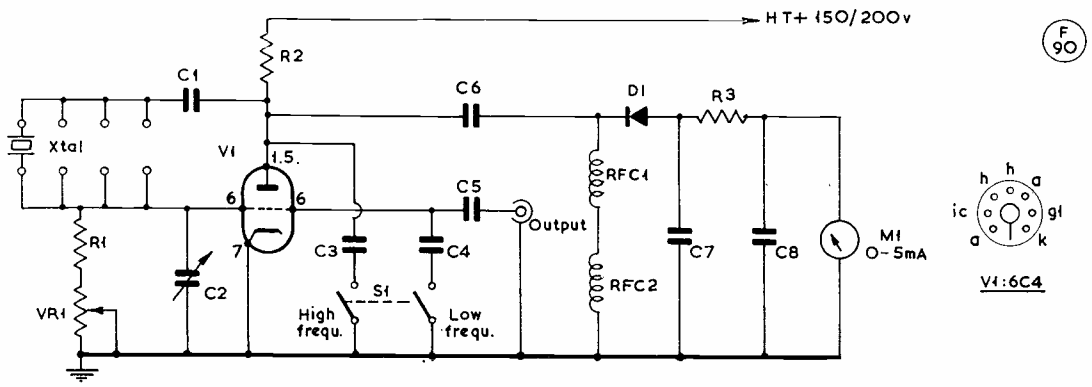


Fig. 1. Circuit of the Test Oscillator.

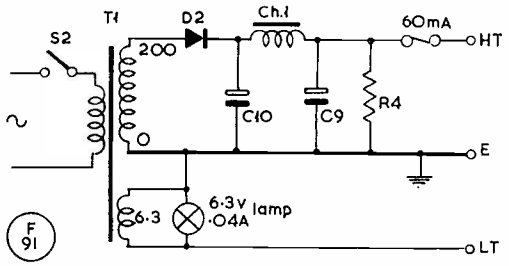


Fig. 2. A Suitable PSU for the Tester.

pin 4, to suit the standard pin connections of 1-and-5 and 3-and-7.

Power Supply

The circuit of a suitable power supply is given in Fig. 2. If a transformer giving a higher voltage of, say, 250 volt is to hand, then this may be used, and R2 altered to 18K. However, most receivers will provide the 200 volts or so at 10 mA and 6·3 volts at 0·3 A. required for the circuit.

Application

The oscillator is simple to use : Just plug in a crystal, switch on and, in most cases, off it goes ! More feedback, using C2, may start a sluggish crystal going, but in difficult cases VR1 may have to be altered to give less bias in order to start the crystal oscillating. No trouble should be encountered using the high/low frequency switch; the frequency at which the two positions overlap is about 500 kc, and either side of this frequency the appropriate position should be chosen. The RF level monitored on the meter is not quite linear as regards oscillation amplitude nor frequency, but it does give a basis for comparing crystals of similar frequencies, and will show up gross differences in activity of crystals over the range 50 kc-30 mc.

TVI SUPPRESSION DEVICE

APPLICATION OF THE FARADAY LOOP TO TV RECEIVERS

R. J. CONSTANTINE (G3UGF)

Though this is not a new approach to the problem of dealing with TVI in local receivers —it was discussed in "Short Wave Magazine" in the November, 1965 issue—the subject is so important that it is thought new readers may find this article helpful. It has been found to be a pretty certain cure in many obscure cases—but it does involve the co-operation of the owner of the offending Rx.—Editor.

TVI is something which all amateurs have to deal with sometime or other. What causes the TVI is often a mystery and it is even more mysterious when you start to cure it. It is frequently a time-consuming and costly business, especially if you've already spent many a frustrating hour constructing the home station rig, or erecting an aerial which through no fault of its own (except that it's the best direction for the DX) happens to face into a dozen or more TV antennae.

It is never possible to generalise and say that any one method of approach can be a complete answer to the TVI problem—but the following may be food for thought.

Assuming that the rig is clear of harmonics and everything in the shack is OK, read on :

Patterning and voice break through on both channels were the symptoms and it was first thought that this was due to IF pick up—but if this was the case then why only on two sets out of many ? One TV Rx was giving trouble on 160m. and the other on 15m. If it was IF break through nothing could be done as G3UGF did not own the sets concerned. So it was decided to rule this theory out and work on the assumption that the interference was being caused by rectification on the downlead from the TV receiver aerial.

First Approaches

Cleaning the contacts on the roof antennae produced no results, neither did a detailed cleaning of the displexer assembly. It is not uncommon to find the GPO undertaking such work as this sometimes does have the desired effect. After careful thought it was decided that some device had to be constructed that would break the line of pick-up between the aerial on the roof and the receivers on the ground floor. Whatever was the answer it would have to be suitable for mounting as close to the receiver as possible so as not to induce the same problem further down the coax.

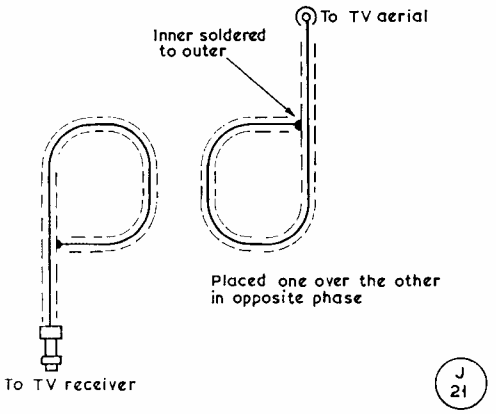
Initially, a high-pass filter was tried. The result was that in one case it merely reduced the level of interference whilst in the second case it was a complete success. However, high-pass filters can also be very costly, even if they are home-brew, when it becomes necessary to use more than one. No, this was not the answer. Something cheaper and just as effective had to be found.

So after more discussion and experiment the "Ugfloop" finally arrived—or, as it is sometimes referred to, "the one and sixpenny version", so called because it exhibits almost the same characteristics as a high-pass filter, but at a fraction of the price.

It merely consists of a one-turn loop of coax bent to the shape of a letter P, as will be seen from the diagram. At the junction where the coax rejoins

itself, on the straight part of the figure, the inner connection of the lead is soldered to the outer braiding. Having completed two such loops these are placed on top of each other so that they are in phase opposition. They are then bound together with tape to make a solid job, fitted with a coax plug and line socket and placed in the receiver fly-lead at the back of the set. There is now no direct mechanical connection between the receiver and its aerial.

Now is the time to load up the Tx and see what happens. It's no good trying to check for TVI on your own, especially if the shack is in an attic or bedroom. Repeated attempts at checking as a single-handed exercise revealed that unless you are very careful you can get very misleading conclusions.



Construction of the loops.

Results

As was stated earlier, the loop exhibits similar characteristics to a high-pass filter. In fringe areas where the TV signal is low the genuine high-pass filter is desirable as there tends to be a slight loss of picture quality on the commercial channel. In areas where reception is quite good simply re-adjust the contrast control and nobody will ever notice it; even in poor reception areas the loop will give a good indication as to whether or not it is worth spending money on a filter. The loss in picture quality in fringe areas is almost its only disadvantage. It is, nevertheless, worth remembering that if the loop diameter is miscalculated it is possible to make one that will resonate on one or more of the amateur bands. The type in use at G3UGF are roughly four inches in diameter but this has a tendency, if the Tx is not loaded correctly, to pattern.

No doubt that by mounting the loop in a metal case this could be avoided but this is not neccessary as it is rare that ten metres is used during viewing hours and by removing the loop the patterning is cured so it is not a great problem.

In conclusion the writer would like to say that not enough is yet known about its full performance and experiments are still being carried out to find a version that will work in the weaker reception areas and will give an even better performance than the ones already employed. The author wishes to express his thanks to G3VJV, G3TQA and G3UBI for their valuable assistance in the construction of the loop and the checking of results.

NEW PREFIX LISTS

On pp.561-566 of this issue appear what are unquestionably the most complete, accurate and up-to-date Country/Prefix lists yet published, anywhere in the world. A compilation of this kind involves an enormous amount of research—it is not just a matter of copying from other lists (such as those we ourselves have published in the past) but of throwing everything away, and starting again. Additionally to this complete revision, we show the Zone in which every Country/Prefix is located. Moreover, the listing is alphabetically both ways—by *Country* and Prefix/Zone, and by *Prefix* and Country/Zone.

These listings complement the new issue of our *DX Zone Map* and bring it right up-to-date. And "right up-to-date" means remembering that Botswana and Lesotho became independent countries in October, and finding out that 8F3 is the prefix for the Lesser Sunda Islands, in Zone 28. (And we would bet that you didn't know *that!*)

With immediate effect, all orders for the *DX Zone Map* (price 14s. 9d. post free) will include *gratis* a loose supplement incorporating the data on pp. 561-566 of this issue. If you already have a *Zone Map* and don't want to cut up this copy of the *Magazine*, you can have the Prefix Lists separately, as published in this issue, for 6d. and an s.a.e.

As we have been able to off-print only 5,000 copies of these Prefix Lists, your order for the *DX Zone Map* (14s. 9d.) *or* the Prefix Lists (separately, 6d. with s.a.e.) should be sent immediately to: Circulation Dept., Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

ELECTRONIQUES/STC

The well-known business of Electroniques, formerly of Felixstowe and under the management of Ron Wilson, G4RW, has been acquired by Standard Telephones, of Harlow, Essex. The name and new address is: Electroniques (Prop. STC, Ltd.), Edinburgh Way, Harlow, Essex. *Tel. Harlow 26777* (STD: OBS-96). The range of quality components and assemblies, marketed under the brand-name of *Electroniques*, will be continued, with many additional items of direct interest and practical value to the radio amateur. The new Electroniques (Prop. STC, Ltd.) made its debut at this year's Radio Communications Exhibition.

THE MONTH WITH THE CLUBS

By "Club Secretary"

(Deadline for December Issue: November 4)

(Please address all reports for this feature to "Club Secretary," **Editorial Dept., SHORT WAVE MAGAZINE, Buckingham.)**

A FEW days ago your conductor was involved in a discussion on the relative worth of submitting reports of Club activities, or omitting this secretarial chore in favour of some other activity; after all the old (and very true) arguments about the secretary being the only thing that mattered had been trotted out, someone even suggesting that if the Club was in need of new faces then clearly it must be "going down the drain" in which case it would be unfair to recruit any new members and let them down flat.

There is, as there usually is in such statements, a germ of truth in the comment; however it is also true to say that a group which is on the slide does so because the secretary is either unable to do his duties through lack of knowledge or facilities or personal shortcomings, or because this essential officer who has been a success in past years, has been forced to carry on to the point where he is sick and tired of the job and prefers to get on the air. In such a case the cure is to give the lad a break and get someone else on the job. If no volunteers are forthcoming, then the only answer is a recruiting campaign, and it is almost a certainty that one or more of the new members will be the right type; further the chances are he will be so pleased at being asked to bear office so early in his Club career that he will accept! All of which is to suggest that whenever the programme seems to go a little flat then some event aimed at gaining an influx of new blood is the way to bring back the life.

Talking of Club matters and of this piece in particular, an urgent plea to all groups to try and let us have *advance* information, geared to the deadline (always given in the heading to the feature) and the publication date, which can always be found by reference to the calendar. The point here is that we often get plans for past events rather than future programmes, and more frequently still the programme described at great length as "advance information" is history by the time the item gets into print.

MCC Reminder

This is the last chance we have to remind Club Secretaries and their Clubs that the date for the MCC affair is the weekend of November 12/13, to a set of rules which were given in full on p.493 last month. All we can say at this late stage is that groups wishing to enter whose names do not appear in the lists given on pp.494-495, October, should write for code-letters *pronto*, enclosing an s.a.e.

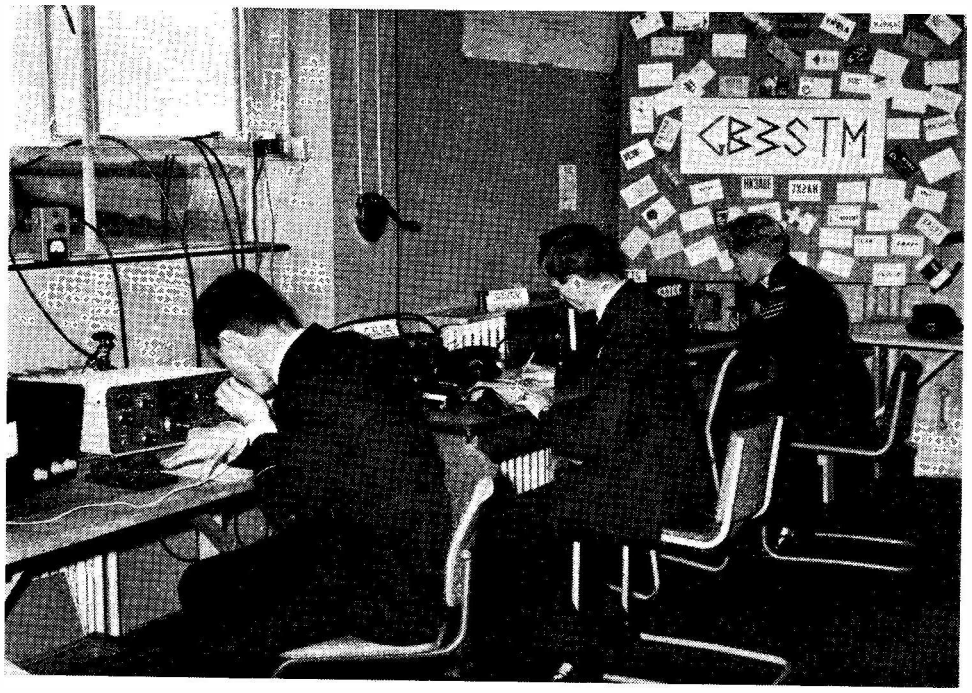
* * *

The first report to mention this month comes from **Harlow,** who are to have their AGM on November 16. For the rest of the month no programme is finalised at the time of writing, but "negotiations are proceeding." In any case, all you have to do is to drop in the Hq. at Mark Hall Barn, First Avenue; on the left-hand side as you leave the Town Centre along First Avenue, just past Muskham Road (in which most of the cars are parked) and look out for the *large* white sign over the door. As a matter of interest, this Club has for some time, run a novel idea in the way of fundraising schemes. SWL Vic Heard sells books—Amateur Radio ones—to the members, who use him for *all* their purchases apart from periodicals, and the resulting profit goes into the funds. With a turn-over of well into the three-figure mark each year the small discounts amounts to quite a sum when the AGM comes round. If you want to look in on these chaps, you will be welcomed, on Tuesdays and Thursdays each week.

Dorking will be remembered as the gang that bought an ex-GPO van, which has been re-furbished and is now on the road; its first run out was to Woburn for the Rally and its second on October 15/16, as transport for the members taking part in the 420 mc Contest. As to group meetings, these are on November 8, an informal affair at the "Wheatsheaf," and on 22nd, at the "Star and Garter" both in Dorking, and both starting at 8 p.m.

Having got the AGM out of the way, **Worthing** have set to work to enjoy the rest of the year; the November affair is a "Mystery Junk Sale" while December is given over to a review of 1966 and a discussion of things for 1967, supported by slides to refresh every-one's memory of history. Dates are not quoted for these meetings (*Grrr*!), so prospective members and visitors should drop a line to the secretary at the address in the Panel.

Alternate Wednesdays is the rule at **Havering and District,** who get together on the 9th and 23rd of this month; the former date is given over to a talk about the GPO Tower, illustrated by slides, and the latter to a tape lecture and slides. In addition this



During this year's Battle of Britain Week, R.A.F. Station St. Mawgan, near Newquay, Cornwall, held an open day, for which station GB3STM was put on the air. The gear included a Sideband Tx working 15m., with a Heathkit SB-300 Rx; a National NCX-3 on 80m.; and a B.44 operating on 4 metres. The operators available for this enterprising effort included G3LVA, G3MNC, G3NID, G3TKC, G3TTG and G3VEV. Those seen here are, left to right: F/Off. Weston, G3MNC; F/Lt. Simpson, G3LVA; and Sgt. Prout, G3VEV. We congratulate the St. Mawgan's group on a smart and workmanlike display — and they worked the DX, too!

group put on Slow Morse classes at the meetings. A recruiting campaign is in vigorous progress at the moment, so it is a reasonable assumption that a newcomer will be welcome.

Another new reporter this month is a Works club, namely **Dynamics Radio Club,** whose members are employed by Hawker Siddeley Dynamics, Whitley, Coventry. They have to acknowledge much help and assistance from the Company, (which is something this Group of Companies is well-known for) and as a result are getting on with some very ambitious activities. Your conductor wonders whether they have ever made contact with other Clubs in the same group of companies, and if not suggests a line be dropped to G3SVE and to G3OVT in U.K., and to VK5MQ "down under."

Acton, Brentford and Chiswick are in solemn conclave on November 15, over "Comparison Tests on Receivers" which should provide fuel for a lot of heated discsusion over the next few weeks; kick-off as usual, at seven-thirty ,at the A.E.U. Club, 66, High Road, Chiswick.

On to **Southgate,** who have secured the draw of the month—Dud Charman's famous lecture on "Aerials" which they are pleased to present to a waiting world on November 11. This ever-popular lecture is not so often given, so any North London type who has not yet heard it should keep the date free, and check with the hon. sec. for the meeting-place.

Wimbledon's chairman was about to make a visitor from DJ-land an honorary member, when the treasurer stood up and advised that such a course was not possible as he had *already* collected a year's subscription; which would suggest that the hon. treas. was "on the ball!" We trust this will not happen to any visitors to the film show slated for November 11, which includes the GPO one on "Ship-to-Shore" as well as three Mullard films on Transistors.

Greenock and District meet fortnightly, at the Arts Guild, Campbell Street, Greenock, the dates of the sessions being November 11 and 25. Further details of this young group may be had from the hon. sec., by way of letter, or a call to his home QTH.

As we remarked last month, **Shefford and District** are, relatively speaking, "out in the sticks" but this does not prevent them from putting on something of interest every week. On November 3 a talk by Mr. Howlett, and on the 10th a Quiz; Mr. R. W. Williams on "Industrial Electronics" on the 17th, and on the 24th a dual-purpose evening—partly to judge their home-construction trophy entries, and also to get ready for the annual dinner the following week. Even on the date set aside for the latter

event there is still a Slow Morse class to kick off the evening.

St. Helens Electronics Society covers a rather greater range of activities than the average group, as it caters for the Hi-Fi fans and other forms of the electronics group of hobbies; thus to them the word "Junk" is anathema, and instead they call it Surplus Equipment, to satisfy everyone, but we are ready to make a small bet that the "auctioneer" on November 1st will still have to work hard! This lively group is to be found on meeting nights at the I.V.S. Centre, 55 College St, St. Helens.

Tunbridge Wells is catered for by the **West Kent** ARS, who foregather at the Adult Education Centre, Monson Road, Tunbridge Wells, on November 4, to hear G3NPU discussing "Avionics." The membership numbers about 40, of whom half are licensed; one would think this is about the ideal balance.

Spen Valley are to have "Radio Control of Boats" on 3rd, a visit to BBC, Slaithwaite on the 10th, while on the 17th an evening on Hi-Fi on Tape should give a lot of pleasure. To round off a well-filled month they finish by devoting the evening of the 24th to a discussion of operating awards and of the KW-2000.

The second and the fourth Thursday of each month, at the YMCA, South St. Andrews Street, Edinburgh, is the place to home on if you are looking for the **Lothians** Radio Society, and we understand the committee is at work to organise a fine programme.

The **Midland** ARS is one group that could be forgiven for notifying us of their programme and forgetting to tell us either the time or the place—after all they are somewhat of an institution in the Midlands area. For November, the programme is a lecture on ATV, and in December, appropriately enough, a Christmas Party—but where or when we cannot tell you!

Now to **Cornish,** whose VHF group are to hear John Birkbeck talking about SSB for their November fare, although we are not aware either of the date or the venue. We have, at the time of writing, no definite news of the SSB group meeting or of the main Cornish affair. All of these activities will welcome visitors, and details are to be found by applying to the hon. sec., address in panel.

Cambridge University have their sessions in the Psychology Department lecture room at Downing, on alternate Tuesdays, which we calculate to mean November 8th and 22nd. **Peterborough** do not give any detail on the nature of their programme either, but nevertheless they are in session every Friday, in the old windmill behind the "Peacock" Inn on the London Road. Sounds a delightful place, doesn't it?

More Club Reports

Over in **Swindon,** where all the fine steam engines came from, there is a group that prefers to refer to a different industry and call themselves "Wiltshire Hams." However, they still manage to enjoy a successful Club life, and on November 2 they are to show how it is done by putting on a lecture on "Transistor and Integrated Circuit Manufacture." This should be worth hearing. It is a pity we have no information (at the time of writing) of the subject for the second meeting of the month, which we calculate will be on November 16. Hq. is at the Redbourne Cheney Old Scout Hall, behind St. Andrew's Methodist Church, Moreden Road, Swindon.

Fareham have Hq. at Portchester Community Centre, Portchester, Hants, where they foregather every Sunday evening at 7.30 p.m., to welcome visitors and deal with whatever they may have in hand. The same goes for **Fylingdales** (Early Warning Station) RC, who meet at 24, Back St. Hilda's Terrace (St. John's House), Whitby, Yorks, each Thursday evening at 7.30

As we said last time round, **Melton Mowbray** have not long passed their AGM, and as a result the new committee have not had time to let us know about the future schedule; however, they have been able to tell us of the date and the venue, which is, after all the main thing. Thursday, November 17 at 7.30 p.m., in the St. John Ambulance Hall, Asfordby Hill, Melton Mowbray.

G3SRA is the Club call at the Hq. of the **Silverthorn** Radio Club, which serves the Chingford area. Every Friday, except the first one in each month is the routine, at Friday Hill House, Simmons Lane, Chingford, E.4. New members will be welcomed from age 15 years and over, and the Club would be strengthened by an intake of older and more experienced amateurs.

On November 2, the Caernarvon Trophy event of the **Thames Valley** group is judged, the venue being the "Prince of Wales" in Bridge Road, East Molesey.

A lecture your conductor would dearly love to attend is coming off on November 18, at **Purley,** when the subject is "Woomera Rocket Range and its Equipment" by Ian Newcombe, at the Railwaymen's Hall, 58 Whytecliffe Road, Purley. This will be illustrated by slides in colour, and will be well worth a visit. Earlier in the month, on November 4, a Natter Nite will give all the troops a chance to raise a thirst by talking. Also from Purley's *Splatter* we glean details of the **South London Mobile** Club dates, which are November 5 and 19, although no details are at the time of writing available.

The Lads of the Village down in **Chippenham** have put in their application for a Club callsign, and the building of the transmitter is well underway; new members are very welcome. Although dates and venue are not to hand it is understood that an extensive programme of events is under way for the coming session and the New Year.

Surrey Radio Contact Club will have had their visit from G6CJ by the time this reaches you, and the next event in the calendar will be in the New QTH. This is about 100 yards south of the old place along the old Brighton Road, at the "Blue Anchor," South End, Croydon. As a result of this change of Hq. the meeting-night changes to the Third Tuesday of the month, that is, November 15, and the programme consists of the well-known W1BB tape lecture.

On the second Thursday in each month the **Salop** boys gather at the Old Post Office Hotel, *i.e.*, on November 10, to hear the Daystrom lecture on the well-known Heathkit range of gear, while on the 17th they make a new departure by holding a "Hot-Pot Supper" and round off the month with the regular ragchew on the fourth Thursday.

Over to **Lichfield,** where on November 7, they are to hear G3GVA talk about "Project '66," which appears to be a Top-Band transmitter. A good turn-out is expected (and so there should be!) at the Club Hq. which is at the "Swan" Hotel, Lichfield.

Another group to sell surplus equipment this month is **Bromsgrove,** on November 11, at the Co-op Hall in Bromsgrove; in addition this group run another do, on the third Tuesday in each month at Burcot Village Hall, which is "Radio Instruction and Construction." Visitors are welcome to both these meetings.

Luton and District seem to be on the upswing, to judge by their programme; on the 1st they are to find out all about TVI (as if they hadn't found out already—Luton is a super-fringe area!), followed by "Home-brew SSB" on the 8th; Tektronix films, which should be very interesting indeed, coming from the home of the finest oscilloscopes in the business, on the 15th; a demonstration of 70 mc equipment laid on for the 22nd; and finally Belling and Lee will be giving a lecture on the 29th.

Mid Warwickshire hold weekly sessions at 7 Regent Grove, Leamington Spa, of which the second and fourth Mondays are given over to the set programme and the other Mondays to informals. This month, on the 14th, Dennis Dumbleton, G3HCM will be giving forth on Single Sideband, and on the 28th there will be a slide lecture telling the story of the GM2ASF/P expeditions to Arran and the Shetland Isles, with A. J. Wilkes (G3PQQ) doing the talking. As an extra attraction, one of the informals this month, on the 21st in fact, is to be a Junk Sale, for which any contributions will be welcome.

East Lancashire ARC have Hq. at the YMCA, Limbrick, Blackburn, where they will congregate on November 3, to hear a talk on Amateur Television.

The copy of *QAV* from the **Harwell** (AERE) ARC makes no mention of any meetings laid on for the month of November, but nevertheless made your conductor's day, with one of the most vivid descriptions of a Field Day he has ever read, larded with a streak of humour. Any Club which can take the pounding that these lads (in common with pretty well every other station operating in the VHF Field Day in September) took and still laugh at their misfortunes, will not fail for want of members or morale. G2HIF should take up writing thrillers!

Another newsletter is the one from the **Cray Valley** crowd, from which no details of the November meetings can be gleaned; however, they are held at Eltham Congregational Church Hall, 1 Court Road, London, S.E.9. Information can be obtained by reference to the hon. sec.—*see* panel.

Bristol ARC have had quite a lot of fun in the last couple of months, with D/F activities, a visit to the Swindon Mobile Picnic, a skittles match, and on a rather higher plane, the AGM. As a result, they have a new lot of officials and the programme for

A well-known member of the Plymouth Radio Club — who has often been mentioned in these pages, first as an SWL and latterly as an active amateur — is Barry Curnow, G3UKI. Departing to continue his studies at the University of Exeter, G3UKI (at centre right in this picture) was the recipient of a presentation by the Club in recognition of all he has done for it during the past six years. A handsome engraved lighter was handed over by G5ZT, himself a well-known old timer and now president of the Plymouth Radio Club.

the future "is to be determined." Hence, we are reduced to advising a look at the Secretaries' Panel and a letter.

Southport say they have been somewhat inactive of late, in a rather apologetic sort of way, and then go on to detail what has been done in a way that makes it clear that *someone* has done more than he is prepared to admit to in the way of hard work. The Clubhouse is on the Esplanade at Southport and is a ½-mile from the nearest house, which should solve the TVI problem as far as the Club Station is concerned. Hq. has been completely redecorated, a Petrol Generator installed to supply AC power, the radio gear has been overhauled, and the aerial is back up. As to the programme, on November 2 G3NKL is to talk about the Club Generator, on the 15th a visit to Southport Telephone Exchange is in view, and on December 7 G3OIE will "tell all" about SSB.

Newsletter Note

Echelford is a Club that is very definitely conscious of publicity, and at this moment two copies of the newsletter and a letter from the publicity officer are all at this moment lying on the desk. While no great claims are made for it, there is no doubt that this is one of the most interesting newsletters that come our way; the style is unassuming but the technical articles and the general standard are far above average: no doubt this has a lot to do with the success of the group. The date of the monthly meetings would appear to be the last Wednesday in the month, and the venue the Links Hotel, Ford Bridge Road, Ashford, Middlesex. Incidentally, if anyone is thinking of contacting the Echelford hon. secretary, a careful look at the panel is indicated, as we have a new name in our records: G3RHF has had to resign due to pressure of work and other commitments. and G3HZL has been pushed into the hot seat; but unfortunately we have no information on Don's present address so we have had to put a temporary address-panel entry until a suitable correction can be made.

The third Wednesday would appear to be the day to catch the **Verulam** types in their new den which is at the Cavalier Hall, Watford Road, St. Albans. There is not a very large car-park, but plenty of room exists in St. Stephen's Avenue, which is almost opposite.

The **Saltash** lads, it will be remembered, were recently taken to task for the lack of material submitted to their *Tamar Pegasus*. The rocket seems to have had the desired effect, as the hon. editor is now complaining of drowning in a sea of paper! As to the meetings, these are on November 4, the Annual General Meeting; and November 19 is given over to the Annual Dinner.

This problem of finding and holding a Clubroom is one that seems to attack all sorts and sizes of groups; it explains the recent silence from the **Bedford** crowd, who have been QRT for a couple of months seeking a new place to meet. They have now found it, at Westfield School, Queens Park, Bedford, and it is to be hoped that things are more settled for some time to come. As for the meeting dates, these are settled as the first and third Thursdays in the month; there is no indication as to the nature of the programme.

Over in **Sutton and Cheam** is a Club which sends out a monthly newsletter; reading it one senses that here is a group which is well-served by its executive types. There is a sense of well-being about the Newsletter which makes one feel that if things go wrong in this outfit it is only to provide light relief! Be that as it may, the lecture set up for November 15 is on the "Heathkit Linear Amplifier," and the speaker is none other than G2NH, who is a household name to the SSB operators because of the fame of his own Linear Amplifier design.

A new idea to project the Amateur Radio image in **Plymouth** is to come to fruition on November 4, when Barry Curnow, G3UKI, will be speaking to an open meeting in the Lecture Theatre of Plymouth Public Library, his theme being "An Introduction to Amateur Radio." The normal sessions of the gang are held at Virginia House, Bretonside, Plymouth, every Tuesday starting at 7.30 p.m.

The regular copy of *QUA* from **Southampton** is as interesting as ever, and tells us that the regular meetings are held at 20 Carlton Road, Southampton, on every Wednesday and Friday from 7 to 10 p.m. There is, as well, a laconic note at the foot of one of the pages, to say that the November meeting at the Lanchester Building will be a lecture on "Lasers and Their Possibilities," given by a member of the University staff, but the date and time are not given.

Newark Short Wave Club are pleased to find that the kitty is once again possessed of a positive existence after a period of shortage, the result of buying a petrol generator; in recent weeks they have been visited by a VK and entertained by a slide show recording the G3PXP expedition from Loughborough to Drum Mountain. They also produce a periodical called *QUA* which is now to be a quarterly effort with a newsletter each month as well. In addition, part of the programme is being "hived off" to a study of the wider, practical aspects of radio, on Thursday evenings, Mondays remaining as the Amateur Radio evening. November 14 has the intriguing title of "Fred's Museum" illustrated with slides by G2CVV; the 21st is a Film show by G3TWV; and on the 28th you are enjoined to "watch this space," presumably for something good.

Very Short Notice indeed for the next one; the **RAF-ARS** are holding the AGM at the Seymour Hall on October 29 (the Saturday of the Show, in the Show building) at 11.30, in the same room as last year. Another RAF group, this time the **RAF Germany** ARC, mention they have now got DL2ZN going again after six months' inactivity, and that as a result of their running an R.A.E. class, some new DL5 calls should be around from July onwards. The Club station is now on 20 and 80 metres from 1900 to 2100 GMT on Wednesday evenings, and on Sunday in the mornings from 0830 till 1100 GMT, using a KW Viceroy, an AR88D, and a W3DZZ aerial.

WAMRAC also have an AGM at the Show; in this case at 2.0 p.m. until 3.15. The nets, at 0830z Saturdays, and 1300 Sundays, on 3665 kc will of course be continued.

A third group to have a meeting, in this case an extraordinary general meeting, laid on for the Show is **ARMS,** who do not specify the time for theirs. The actual hour will be the subject of an announcement during the course of the afternoon. Incidentally, the September issue of the ARMS *Mobile News* contains a very good article on the use of Mobile aerials for Portable occasions, by G3BID.

A very sad time for the **RAIBC** is the subject of the editorial in *Radial* for September/October—the death of their president, John Gill, which is deeply felt by many, both in and out of RAIBC. It is understood that G2BSA has been persuaded to take over the office for the moment. In the "Acknowledgements" column this month in the RAIBC magazine we see that Leeds Gilbert and Sullivan Society have given RAIBC a donation of no less than £50, part of the profit of their recent production of "Iolanthe"—it is pleasant to realise that such a worthwhile object as this is being recognised outside the limited bounds of Amateur Radio.

The **BATC** magazine *CQ-TV* has still the format and the interesting content that it had when your scribe was a member many, many years ago; the Club has just recently held its 1966 Convention, and will, as usual, be "on show at the Show."

The **British Rail** ARS are to have their Inaugural Meeting on the Saturday of the Show, October 29, this time at British Railways Board Headquarters, 222 Marylebone Road, at 2.0 p.m. This is the result of great work by Acting Secretary, SWL Gray, and it is to be hoped that all who can will make the effort to support this inaugural meeting.

Stockport have some members who travel to distant places. One, just back from the Falklands,

Names and Addresses of Club Secretaries reporting in this issue:

ACTON, BRENTFORD & CHISWICK: W. G. Dyer, G3GEH, 188 Gunnersbury Avenue, Acton London, W.3.
A.E.R.E. (Harwell): V. J. Galpin, Building 347.3, A.E.R.E., Harwell, Didcot Berks.
A.R.M.S.: N. A. S. Fitch, G3FPK, 79 Murchison Road, London, E.10. (*Leytonstone 6700*).
BEDFORD: K. Hatton, G3VBA, 49 The Briars, Kempston, Bedford.
BRISTOL: E. J. Davis. G3SXY, 72 North View, Westbury Park, Bristol, 6.
BRITISH AMATEUR TELEVISION CLUB: D. Mann, G6OUO/T, 67 West Hill, Wembley Park, Middx.
BRITISH RAIL: H. A. J. Gray, Eleven, Swanton Drive, Eas Dereham, Norfolk.
BROMSGROVE: J. Dufrane, 44 Hazelton Road, Marlbrook, Bromsgrove, Worcs.
CAMBRIDGE UNIVERSITY: J. A. Lush, G3TGY, Queens' College, Cambridge.
CHELMSFORD: K. W. Dews, G3PMW, 14 Baddow Place Avenue, Great Baddow, Chelmsford, Essex.
CHILTERNS: J. W. Burnham, G3UJK, 304 Desborough Avenue, High Wycombe Bucks.
CHIPPENHAM: A. Hargreaves, G6NV, 20 Lords Mead, Chippenham, Wilts.
CORNISH: M. J. Harvey, Oak Farm, Carnon Downs, Truro.
CRAWLEY: R. G. B. Vaughan, G3FRV, 5 Filbert Crescent, Gossops Green, Crawley (*23359*), Sussex.
CRAY VALLEY: C. W. A. Davis, 6 Braemar Gardens, Sidcup, Kent. (*FOOlscray 5077*).
DORKING: N. Blackmore, G8ARH, 39 Dorking Road, Great Bookham, Surrey.
DYNAMICS RADIO CLUB: B. H. Twist, Hawker Siddeley Dynamics, Industrial Automation Division, Whitley, Coventry.
EAST LANCS: J. Simpson, 1 Marsh Terrace, Darwen, Lancs.
ECHELFORD: V. W. Higgs, 205 Commercial Road, Staines, Middlesex.
EDGWARE: G. S. Fitton, G3RAA, 18 Beverley Drive Edgware, Middlesex.
FAREHAM: N. Carless, G3EER, 16 Waterloo Road, Alverstoke, Gosport, Hants.
GREENOCK: R. Holt, GM3VCD, 13 Royal Street, Gourock, Renfrewshire.
GUILDFORD: M. Birch, G3KMO, Sorrento, White Lane, Ash Green, Aldershot, Hants.
HARLOW: G. O'Donald, G3TLJ, Great East, Roydon Road, Roydon, Essex.
HAVERING: P. B. Clegg, G3TTB, 148 Heath Park Road, Romford, Essex.
KEELE (University of): V. J. Reynolds, G3COY, Dept. of Communication, University of Keele, Staffs.
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ST. HELENS: B. Hardy 198 Knowsley Road, St. Helens, Lancs.
SALOP: W. Lindsay-Smith, 22 Kingswood Crescent, Copthorne, Shrewsbury.
SALTASH: D. Bowers, 95 Grenfell Avenue, Saltash, Cornwall.
SHEFFORD: D. A. Pike, G3VMI, 32 Lawrence Avenue, Letchworth, Herts.
SILVERTHORN: V. Dobbs, G3SBX, 11 Horsley Road Chingford, London, E.4.
SOUTHGATE: R. Wilkinson, G3TXA, 23 Ashridge Gardens, Palmers Green, London, N.13. (*PALmers Green 4592*).
SOUTHAMPTON: A. Partner, G3HKT, 104 Bursledon Road, Southampton.
SOUTH MANCHESTER: M. Barnsley, G3HZM, Greenways, 11 Cemetery Road, Denton, Manchester.
SOUTHPORT: N. K. Waring, c/o 33 Chestnut Street, Southport, Lancs.
SPEN VALLEY: N. Pride, 100 Raikes Lane, Birstall, nr. Leeds. (*Batley 3925*).
STOCKPORT: R. Phillips, G3FYE, 6 Ross Avenue, Davenport, Stockport, Cheshire.
SURREY: R. Morrison, G3KGA, 33 Sefton Road, Croydon, Surrey. (*AD Discombe 5982*).
SUTTON & CHEAM: P. Ball, G3HQT, 55 Maycross Avenue, Morden Surrey.
SWINDON: D. Goacher, G3LLZ, 51 Norman Road, Gorse Hill, Swindon (*21740*).
THAMES VALLEY: K. A. H. Rogers, G3AIU, 21 Links Road, Epsom, Surrey.
VERULAM: G. Slaughter, G3PAO, 6 Leggats Wood Avenue, Watford, Herts.
W.A.M.R.A.C.: Rev. A. W. Shepherd, G3NGF, 1 North Street, Crewe (*2558*).
WEST KENT: R. Trevitt, G3SSE, 28 Delves Avenue, Tunbridge Wells, Kent.
WIMBLEDON: K. Alexander, 23 Pepys Road, West Wimbledon, London, S.W.20.
WORTHING: P. J. Robinson, G6KFH/T, 46 Hillview Road, Worthing, Sussex.
YEOVIL: D. L. McLean, G3NOF, 9 Cedar Grove, Yeovil, Somerset.

General view of the Southgate Radio Club stand at the Finchley carnival, in July, when G3SFG was put on the air on all bands, including VHF. Contacts were mainly local, through a heavy barrage of fair-ground QRM.

will be giving them a talk about it on November 16, while their ex-secretary, G3SFN, now signs VP8IU in the Antarctic. The AGM will be on December 14, at the Blossoms Hotel, Buxton Road, Stockport.

At **Crawley's** November meeting on the 23rd, G6YP will be lecturing on the "Metropolitan Police Communications Network"—we gather that this is a talk well worth hearing.

On November 2, the **Yeovil** meeting time will be taken up with a discussion on what their party saw at the Amateur Radio Exhibition. Like many other Clubs reporting this month, the Yeovil boys will be playing in MCC. Visitors are always welcome at the Wednesday evening meetings—Yeovil Youth Centre, Park Lodge, The Park.

Not often reporting—but promising to do so more regularly in the future—the **Chiltern** ARS held their AGM recently, and the new committee, headed by G5WW as president, are working out the future programme—which will include a Top Band Phone contest and a Christmas party. Meeting nights are the last Thursday each month, 7.30 p.m. at the British Legion, St. Mary Street, High Wycombe.

The hon. secretary of the British Amateur Television Club, G6ABA/T will give a talk and demonstration to the **Guildford** DRS on November 11, the subject being amateur TV. On the 25th, they hold their annual constructional contest, with a nice cup for the winner. Guildford will be in for MCC, using the Club call.

Maidenhead will in future meet on the first Monday and third Tuesday of each month, 7.30 p.m. at the Victory Hall, Cox Green, Maidenhead—Monday 7th will be informal, and on the 15th the hon. secretary will give a talk entitled "The Geography of DX."

Taking us up on the point made last month about the YL membership of Clubs, **Northern Heights** report that in due course they will have two XYL's and one YL, all in line for their own tickets. Next meetings are on November 9 (Electronics Unusual) and on the 22nd they have a Mullard film show, with a talk on Aerials by G3IBN on the 23rd.

Edgware are at present engaged on the Club Construction Competition, to be held on November 14, followed on the 28th by a lecture on the police radio system—and we would guess that this is G6YP again.

As in previous years, **Reigate** will be mounting three stations for MCC—one will be out to win, one to give it local competition, and the third will be for operator training in contest working. Their next meeting is on November 17, at the George and Dragon, Cromwell Road, Redhill, when G3JKV will be talking about Panoramic Reception.

Over at **Chelmsford,** they are devoting a good deal of time and attention to transistory and transistorisation—also to the production of a very worthy news-sheet. The president for the new session is G4VF, and the hon. secretary G3PMW, supported by a strong committee.

The **Keele University** group, always active under G3COY as hon. secretary, will be sponsoring an Army Signals exhibition in the Chancellor's Building at the University during the period November 23-26, with a lecture of special interest to amateurs on Thursday 24th at 8.15 p.m. Visitors will be welcome, especially those from outside the University. The University Radio Society will be on for MCC, as hosts to the Burslem group.

Special-Activity Stations

This month we have another one to report on, this time GB3ALT, which was put on at the Altrincham Show by the South Manchester group. A top-band rig of home-brew type was run in conjunction with an HRO, while the HF bands were covered using a KW-2000, which made an effective contrast. Noise was, as usual, a bugbear as far as 1·8 and 3·5 mc were concerned, but some very good QSO's were made on the DX bands, with an aerial which was ideal for the job, namely a Mosley TA-33 at 30ft. up. In addition to the working station a small display was to be seen and leaflets were available to hand out to visitors. The weather-man was quite well-disposed and as a result there was a constant stream of visitors. Operators G3HZM, G3SVW, G3SMT, G3UTL and G3SMM were aided with muscle-power by various SWL members and G3AOS.

LIST OF COUNTRIES BY PREFIXES, ALSO SHOWING ZONES

(Corrected to October 1966)

CURRENT PREFIXES ONLY

Prefix	*Country (Zone)*
AC	Bhutan (*22*)
AC3	Sikkim (*22*)
AC4	Tibet (*23*)
AP	East Pakistan (*22*)
AP	West Pakistan (*21*)
BV	Taiwan (*24*)
BY	China (*23*), (*24*)
CE	Chile (*12*)
CE9	Chilean bases in Antarctica and South Shetland Is. (*13*), (*12*)
CEØA	Easter Island (*12*)
CEØX	San Felix and San Ambrosio (*12*)
CEØZ	Juan Fernandez (*12*)
CM, CO	Cuba (*8*)
CN	Morocco (*33*)
CP	Bolivia (*10*)
CR3	Portuguese Guinea (*35*)
CR4	Cape Verde Is. (*35*)
CR5	Sao Tome and Principe (*36*)
CR6	Angola (*36*)
CR7	Mozambique (*37*)
CR8	Portuguese Timor (*28*)
CR9	Macao (*24*)
CT1	Portugal (*14*)
CT2	Azores Is. (*14*)
CT3	Madeira Is. (*33*)
CX	Uruguay (*13*)
DI, DJ, DK, DL, DM	Germany (*14*)
DU	Philippine Is. (*27*)
EA	Spain (*14*)
EA6	Balearic Is. (*14*)
EA8	Canary Is. (*33*)
EA9	Ceuta and Melilla (*33*)
EA9	Ifni (*33*)
EA9	Spanish Sahara (*33*)
EAØ	Rio Muni and Fernando Poo (*36*)
EI	Republic of Ireland (*14*)
EL	Liberia (*35*)
EP	Iran (*21*)
ET	Ethiopia (*37*)
F	France (*14*)
FB8 (*FB8WW*)	Crozet Is. (*39*)
FB8 (*FB8XX*)	Kerguelen Is. (*39*)
FB8 (*FB8YY*)	Adelie Land (French bases in Antarctica) (*30*)
FB8 (*FB8ZZ*)	Amsterdam and St. Paul (*39*)
FC	Corsica (*15*)
FG7	Guadeloupe (*8*)
FH8	Comoro Is. (*39*)
FK8	New Caledonia (*32*)
FL	French Somaliland (*37*)
FM7	Martinique (*8*)
FO8	French Oceania (*31*), (*32*)
FO8	Clipperton Island (*7*)
FO8	Maria Theresa (*32*)
FP8	St. Pierre and Miquelon (*5*)
FR7	Reunion (*39*)
FR7	Glorieuses Is. (*39*)
FR7	Mozambique Channel Islets (Europa, Juan de Nova, and Bassas da India) (*39*)
FR7	Tromelin (*39*)
FS7	St. Martin (*8*)
FU8	New Hebrides (*32*)
FW8	Wallis and Futuna Is. (*32*)
FY7	French Guiana (*9*)
G	England (*14*)
GB	Great Britain (*special stations*)
GC	Jersey (*14*)
GC	Channel Is. (*excluding Jersey*) (*14*)
GD	Isle of Man (*14*)
GI	Northern Ireland (*14*)
GM	Scotland (*14*)
GW	Wales (*14*)
HA	Hungary (*15*)
HB	Switzerland (*14*)
HBØ	Liechtenstein (*14*)
HC	Ecuador (*10*)
HC8	Galapagos Is. (*10*)
HG	(*see HA*)
HH	Haiti (*8*)
HI	Dominican Republic (*8*)
HK	Colombia (*9*)
HKØ	San Andres and Providencia (*7*)
HKØ	Bajo Nuevo (*8*)
HKØ	Malpelo (*9*)
HKØ	Serrana Bank (*see KS4B*)
HL, HM	Korea (*25*)
HP	Panama (*7*)
HR	Honduras (*7*)
HS	Thailand (*26*)
HV	Vatican (*15*)
HZ	Saudi Arabia (*21*)
I, ID, IR	Italy (*15*)
IC	Capri (*15*)
IE	Lipari Is. (*15*)
II	Ischia (*15*)
IL	Pelagian Is. (*33*)
IP	Pantelleria (*33*)
IS	Sardinia (*15*)
IT	Sicily (*15*)
JA, JB, JH	Japan (*25*)
JT	Mongolia (*23*)
JW	Spitzbergen (*40*)
JX	Jan Mayen (*40*)
JY	Jordan (*20*)
K	(*see W*)
KA	(*see JA*)
KB6	Baker, Howland, and American Phoenix Is. (*31*)
KC4	Navassa Island (*8*)
KC4	U.S.A. bases in Antarctica (*12*), (*13*), (*30*), (*32*)
KC6	Eastern Caroline Is. (*27*)
KC6	Western Caroline Is. (*27*)
KG4	Guantanamo Bay (*8*)
KG6	Guam (*27*)
KG6	Mariana Is. (excluding Guam) (*27*)
KG6	Marcus Island (*27*)
KG6I	Bonin and Volcano Is. and Parece Vela (*27*)
KH6	Hawaiian Is. (*31*)
KH6	Kure Island (*31*)
KJ6	Johnston Island (*31*)
KL7	Alaska (*1*)
KM6	Midway Is. (*31*)
KP4	Puerto Rico (*8*)
KP6	Jarvis Is. and Palmyra Group (*31*)
KR6, KR8	Ryukyu Is. (*25*)
KS4	Swan Is. (*7*)
KS4B	Serrana Bank (*7*)
KS6	American Samoa (*32*)
KV4	U.S. Virgin Is. (*8*)
KW6	Wake Island (*31*)
KX6	Marshall Is. (*31*)
KZ5	Canal Zone (*7*)
LA	Norway (*14*)
LA---/G	Norwegian bases in Antarctica (*38*), (*12*), (*39*)
LH	Bouvet Island (*38*)
LU	Argentina (*13*)
LU-Z	Argentine bases in Antarctica, South Orkney Is., South Shetland Is. and South Sandwich Is. (*13*)
LX	Luxembourg (*14*)
LZ	Bulgaria (*20*)

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Prefix	Country (Zone)
M1	(*see 9A*)
MP4B	Bahrein Is. (*21*)
MP4D	Das Island (*21*)
MP4M	Sultanate of Muscat and Oman (*21*)
MP4Q	Qatar (*21*)
MP4T	Trucial Oman (*21*)
OA	Peru (*10*)
OD	Lebanon (*20*)
OE	Austria (*15*)
OH	Finland (*15*)
OHØ	Aland Is. (*15*)
OK, OL	Czechoslovakia (*15*)
ON	Belgium (*14*)
OR	Belgian bases in Antarctica (*38*)
OX	Greenland (*40*)
OY	Faroe Is. (*14*)
OZ	Denmark (*14*)
PA, PE, PI	Netherlands (*14*)
PJ-A, PJ-B, PJ-C	Netherlands Antilles (Aruba, Bonaire, Curacao) (*9*)
PJ-E, PJ-M, PJ-S	Netherlands Antilles, (St. Eustatius, Sint Maarten, Saba) (*8*)
PX	Andorra (*14*)
PY	Brazil (*11*)
PY	Fernando de Noronha (*11*)
PYØ	St. Peter and St. Paul Rocks (*11*)
PYØ	Trindade and Martin Vaz Is. (*11*)
PZ	Surinam (*9*)
SM, SL	Sweden (*14*)
SM1	Gotland (*14*)
SP	Poland (*15*)
ST	Sudan (*34*)
SU	United Arab Republic (*34*)
SV	Greece (*20*)
SV	Crete (*20*)
SV	Dodecanese Is. (*20*)
TA	Turkey (*20*)
TF	Iceland (*40*)
TG	Guatemala (*7*)
TI	Costa Rica (*7*)
TI9	Cocos Island (*7*)
TJ	Republic of Cameroon (*36*)
TL	Central African Republic (*36*)
TN	Congo Republic (*36*)
TR	Republic of Gabon (*36*)
TT	Tchad Republic (*36*)
TU	Ivory Coast Republic (*35*)
TY	Republic of Dahomey (*35*)
TZ	Mali Republic (*35*)
U	U.S.S.R. (*special stations*)
UA1 (*UA1KAE*)	U.S.S.R. bases in Antarctica (*29*), (*38*), (*39*)
UA1 (*UA1KED*)	Franz Josef Land (*40*)
UA1, 3, 4, 6, 9	U.S.S.R. (Europe) (*16*)
UA2	Kaliningradsk (*15*)
UA9, UAØ	U.S.S.R. (Asia) (*17*), (*18*), (*19*), (*23*), (*25*)
UB5	Ukraine (*16*)
UC2	White Russia (*16*)
UD6	Azerbaijan (*21*)
UF6	Georgia (*21*)
UG6	Armenia (*21*)
UH8	Turkoman (*17*)
UI8	Uzbek (*17*)
UJ8	Tadzhik (*17*)
UL7	Kazakh (*17*)
UM8	Kirghiz (*17*)
UN1	Karelo - Finnish Republic (*16*)
UO5	Moldavia (*16*)
UP2	Lithuania (*15*)
UQ2	Latvia (*15*)
UR2	Estonia (*15*)
UT5	(*see UB5*)
UV, UW	(*see UA*)
UY5	(*see UB5*)
VE	Canada (*1*), (*2*), (*3*), (*4*), (*5*)
VK	Australia (*29*), (*30*)
VK	Lord Howe Island (*30*)
VK	Willis Is. (*30*)
VK7	Tasmania (*30*)
VK9	Christmas Island (*29*)
VK9	Cocos - Keeling Is. (*29*)
VK9	Nauru (*31*)
VK9	Norfolk Island (*32*)
VK9	New Guinea Territory (*28*)
VK9	Papua Territory (*28*)
VKØ	Heard Island (*39*)
VKØ	Macquarie Is. (*30*)
VKØ	Australian bases in Antarctica (*29*), (*30*), (*39*)
VO1	Newfoundland (*5*)
VO2	Labrador (*2*)
VP1	British Honduras (*7*)
VP2	Anguilla (*8*)
VP2A	Antigua and Barbuda (*8*)
VP2D	Dominica (*8*)
VP2G	Grenada (*8*)
VP2K	St. Kitts and Nevis (*8*)
VP2L	St. Lucia (*8*)
VP2M	Montserrat (*8*)
VP2S	St. Vincent (*8*)
VP2V	British Virgin Is. (*8*)
VP3	Guyana (*9*)
VP5	Turks and Caicos Is. (*8*)
VP6	Barbados (*8*)
VP7	Bahama Is. (*8*)
VP8	Falkland Is. (*13*)
VP8	South Georgia (*13*)
VP8	South Orkney Is. (*13*)
VP8	South Sandwich Is. (*13*)
VP8	South Shetland Is. (*13*)
VP8	British bases in Antarctica (*13*), (*12*), (*38*)
VP9	Bermuda (*5*)
VQ8	Mauritius (*39*)
VQ8	Agalega Is. and Cargados Carajos Shoals (*39*)
VQ8	Chagos Is. (*39*)
VQ8	Rodriguez (*39*)
VQ9	Seychelles (*39*)
VQ9	Aldabra Is. (*39*)
VQ9	Desroches Island (*39*)
VQ9	Farquhar Group (*39*)
VR1	British Phoenix Is. (*31*)
VR1	Gilbert and Ellice Is. (*31*)
VR2	Fiji Is. (*32*)
VR3	Fanning and Christmas Island (*31*)
VR4	Solomon Is. (*28*)
VR5	Tonga (*32*)
VR6	Pitcairn (*32*)
VS5	Brunei (*28*)
VS6	Hong Kong (*24*)
VS9A	South Arabian Federation (*21*)
VS9H	Kuria Muria Is. (*21*)
VS9K	Kamaran (*21*)
VS9M	Maldive Is. (*22*),(*39*)
VS9O	(*see MP4M*)
VS9P	Perim (*21*)
VS9S	Socotra (*37*)
VU	India (*22*)
VU	Andaman and Nicobar Is. (*26*)
VU	Laccadive Is. (*22*)
W, WA, WB, WN, WV	U.S.A. (*3*), (*4*), (*5*)
WG6	(*see KG6*)
WL7	(*see KL7*)
WP4	(*see KP4*)
WS6	(*see KS6*)
XE, XF	Mexico (*6*)
XE	Revilla Gigedo Is. (*6*)
XP	(*see OX*)
XT	Republic of Upper Volta (*35*)
XU	Cambodia (*26*)
XV	(*see 3W*)
XW	Laos (*26*)
XZ	Burma (*26*)
YA	Afghanistan (*21*)
YI	Iraq (*21*)
YJ	(*see FU8*)
YK	Syria (*20*)
YN	Nicaragua (*7*)
YO	Roumania (*20*)
YS	El Salvador (*7*)
YU	Yugoslavia (*15*)

PREFIX—COUNTRY/ZONE LIST (*cont'd*)

Prefix	*Country (Zone)*
YV	Venezuela (*9*)
YVØ	Aves Island (*8*)
ZA	Albania (*15*)
ZB2	Gibraltar (*14*)
ZC4	British bases in Cyprus (*see 5B*) (*20*)
ZD3	Gambia (*35*)
ZD5	Swaziland (*38*)
ZD7	St. Helena (*36*)
ZD8	Ascension Island (*36*)
ZD9	Tristan da Cunha and Gough Island (*38*)
ZE	Rhodesia (*38*)
ZF	Cayman Is. (*8*)
ZK1	Cook Is. (*32*)
ZK1	Northern Cook Is. (*32*)
ZK2	Niue (*32*)
ZL	New Zealand (*32*)
ZL	Campbell Island (*32*)
ZL	Chatham Is. (*32*)
ZL	Kermadec Is. (*32*)
ZL5	New Zealand bases in Antarctica (*30*), (*32*)
ZM7	Tokelau Is. (*31*)
ZP	Paraguay (*11*)
ZS1, 2, 4, 5, 6	Republic of South Africa (*38*)
ZS (*ZS2MI*)	Prince Edward and Marion Island (*38*)
ZS---/ANT	South African bases in Antarctica (*38*)
ZS3	South-West Africa (*38*)
ZS8	Lesotho (*38*)
ZS9	Botswana (Bechuanaland) (*38*)
1M	Minerva Reefs (*32*)
IS	Spratly Island and Reefs (*26*)
3A	Monaco (*14*)
3B	Special VO prefix for *1967* Centennial Year only
3C	As above, for VE stations
3V	Tunisia (*33*)
3W	Vietnam (*26*)
4M	(*see YV*)
4S	Ceylon (*22*)
4U	United Nations bases
4W	Yemen (*21*)
4X	Israel (*20*)
4X1	Israeli/Palestine Neutral Zone (*20*)
5A	Libya (*34*)
5B	Cyprus (*20*)
5H	Tanzania (*37*)
5J	(*see HK*)
5N	Nigeria (*35*)
5R	Malagasy Republic (*39*)
5T	Republic of Mauritania (*35*)
5U	Republic of Niger (*35*)
5V	Togoland (*35*)
5W	Western Samoa (*32*)
5X	Uganda (*37*)
5Z	Kenya (*37*)
6O	Somali Republic (*37*)
6W	Senegal Republic (*35*)
6Y	Jamaica (*8*)
7G	Republic of Guinea (*35*)
7Q	Malawi (*37*)
7X2	Algeria (*33*)
7XØ	French Sahara (*33*) (*see HZ*)
7Z	(*see HZ*)
8F1, 8F2, 8F3	Java (*28*)
8F3	Lesser Sunda Is. (*28*)
8F4	Sumatra (*28*)
8F5	Borneo (*28*)
8F6	Celebes and Molucca Is. (*28*)
8F6	West Irian (*28*)
8J	Japanese bases in Antarctica (*39*)
8Z4	Iraq/Saudi Neutral Zone (*21*)
8Z5	Kuwait/Saudi Neutral Zone (*21*)
9A	San Marino (*15*)
9E, 9F	(*see ET*)
9G	Ghana (*35*)
9H	Malta (*15*)
9J	Zambia (*36*)
9K2	Kuwait (*21*)
9K3	(*see 8Z5*)
9L	Sierra Leone (*35*)
9M2	Malaysia, W. (*28*)
9M6	Sabah (*28*)
9M8	Sarawak (*28*)
9N	Nepal (*22*)
9Q	Republic of the Congo (*36*)
9U	Burundi (*36*)
9V	Singapore (*28*)
9X	Rwanda (*36*)
9Y	Trinidad and Tobago (*9*)

(NOTE: This List of Countries is solely for checking the location of Amateur Radio stations. It is thus a gazetteer and not a claims check.)

The Zone areas, given in ( ) after each country or prefix, can be located exactly from our "DX Zone Map." Another useful guide is the "Amateur Radio Map of the World" (Mercator projection).

Listings on pp.561-566 here are available as a separate reprint at 6d. post free (with large s.a.e.). This booklet is included free of charge with all orders for the "DX Zone Map"—price 14s. 9d. post free, as described on p.576 of this issue—and thus brings the Map right up to date.

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ALPHABETICAL LIST OF COUNTRIES, ALSO SHOWING ZONES

(Current Prefixes — Corrected to October 1966)

Country	*Prefix (Zone)*
**Adelie Land* (*see Antarctica*)	
**Aden* (*South Arabian Federation*)	*VS9A (21)*
Afghanistan	**YA** (*21*)
Agalega Is. and Cargados Carajos	**VQ8** (*39*)
Aland Is.	**OHØ** (*15*)
Alaska	**KL7, WL7** (*1*)
Albania	**ZA** (*15*)
Aldabra Is.	**VQ9** (*39*)
Algeria and French Sahara	**7X2, 7XØ** (*33*)
Amsterdam, and St. Paul Island	**FB8** (*FB8ZZ*) (*39*)
Andaman and Nicobar Is.	**VU** (*26*)
Andorra	**PX** (*14*)
Angola	**CR6** (*36*)
Anguilla	**VP2** (*8*)
Antarctica (*all the following bases count just as the one DXCC country*, Antarctica)	
Argentine	*LU-Z (13)*
Australia (*Davis, Mawson*)	*VKØ (39)*
	VKØ (30)
(*Wilkes*)	*VKØ (29)*
Belgium	*OR (38)*
Chile	*CE9 (13), (12)*
France (*Adelie Land*)	*(FB8YY) (30)*
Great Britain	*VP8 (13), (12), (38)*
Japan	*8J (39)*
New Zealand	*ZL5 (30), (32)*
Norway	*LA---/G (38), (12), (39)*
South Africa	*ZS----/ANT (38)*
U.S.A.	*KC4 (KC4AAE, KC4USB.K) (12)*
	KC4 (KC4USP) (13)
	KC4 (KC4USV.X) (30)
	KC4 (KC4USH.L.N.Z.) (32)
U.S.S.R.	*UA1 (UA1KAE) (29), (38), (39)*
Antigua and Barbuda	**VP2A** (*8*)
Argentina	**LU** (*13*)
Armenia	**UG6** (*21*)
**Aruba* (*Netherland Antilles*)	*PJ-A (9)*
Ascension Island	**ZD8** (*36*)
Australia and Tasmania	**VK** (*29*), (*30*)
Austria	**OE** (*15*)
Aves Island	**YVØ** (*8*)
Azerbaijan	**UD6** (*21*)
Azores Is.	**CT2** (*14*)
Bahama Is.	**VP7** (*8*)
Bahrein Is.	**MP4B** (*21*)
Bajo Nuevo	**HKØ** (*8*)
**Baker Island* (*Amer. Phoenix Is.*)	*KB6 (31)*
Balearic Is.	**EA6** (*14*)
Barbados	**VP6** (*8*)
**Bassas da India* (*Juan de Nova*)	*FR7 (39)*
**Basutoland* (*see Lesotho*)	
**Bear Island* (*see Svalbard*)	
Bechuanaland(*see Botswana*)	**ZS9** (*38*)
Belgium	**ON** (*14*)
Bermuda	**VP9** (*5*)
Bhutan	**AC** (*22*)
Bolivia	**CP** (*10*)
**Bonaire* (*Netherlands Antilles*)	*PJ-B (9)*
Bonin and Volcano Is.	**KG6I** (*27*)
**Borneo* (*Indonesia*)	*8F5 (28)*
Botswana (*Bechuanaland*)	**ZS9** (*38*)
Bouvet Island	**LH** (*38*)
Brazil	**PY** (*11*)
Brunei	**VS5** (*28*)
Bulgaria	**LZ** (*20*)
Burma	**XZ** (*26*)
Burundi	**9U** (*36*)
**Caicos Is.* (*see Turks Is.*)	
Cambodia	**XU** (*26*)
Cameroon Republic	**TJ** (*36*)
Campbell Island	**ZL** (*32*)
Canada (*including Labrador and Newfoundland*)	**VE (3C), VO (3B)** (*1*), (*2*), (*3*), (*4*), (*5*)
Canal Zone	**KZ5** (*7*)
Canary Is.	**EA8** (*33*)
**Canton Island* (*see Amer. Phoenix Is.*)	
Cape Verde Is.	**CR4** (*35*)
**Capri* (*Italy*)	*IC (15)*
**Cargados Carajos* (*see Agalega Is.*)	
Caroline Is., Eastern	**KC6** (*27*)
Caroline Is., Western	**KC6** (*27*)
Cayman Is.	**ZF** (*8*)
**Celebes, and Molucca Is.* (*Indonesia*)	*8F6 (28)*
Central African Republic	**TL** (*36*)
Ceuta and Melilla (*Spanish Morocco*)	**EA9** (*33*)
Ceylon	**4S** (*22*)
Chagos Is.	**VQ8** (*39*)
Channel Is. (*excluding Jersey*)	**GC** (*14*)
Chatham Is.	**ZL** (*32*)
Chile	**CE** (*12*)
China	**BY** (*23*), (*24*)
Christmas Island	**VK9** (*29*)
Christmas, and Fanning Island	**VR3** (*31*)
Clipperton Island	**FO8** (*7*)
Cocos Island	**TI9** (*7*)
Cocos-Keeling Is.	**VK9** (*29*)
Colombia	**HK, 5J** (*9*)
Comoro Is.	**FH8** (*39*)
Congo Republic	**TN** (*36*)
Congo, Republic of the	**9Q** (*36*)
Cook Is.	**ZK1** (*32*)
Cook Is., Northern	**ZK1** (*32*)
**Cormoran Reef* (*see W. Caroline Is.*)	
Corsica	**FC** (*15*)
Costa Rica	**TI** (*7*)
Crete	**SV** (*20*)
Crozet Is.	**FB8** (*FB8WW*) (*39*)
Cuba	**CM, CO** (*8*)
**Curacao* (*Netherlands Antilles*)	*PJ-C (9)*
Cyprus	**ZC4, 5B** (*20*)
Czechoslovakia	**OK, OL** (*15*)
Dahomey Republic	**TY** (*35*)
**Das Island* (*Trucial Oman*)	*MP4D (21)*
Denmark	**OZ** (*14*)
Desroches Island	**VQ9** (*39*)
**Desventurados Is.* (*see San Felix*)	
Dodecanese Is.	**SV** (*20*)
Dominica	**VP2D** (*8*)
Dominican Republic	**HI** (*8*)
Easter Island	**CEØA** (*12*)
**Ebon Atoll* (*see Marshall Is.*)	
Ecuador	**HC** (*10*)
**Egypt* (*see United Arab Republic*)	
**Eire* (*see Irish Republic*)	
**Ellice Is.* (*see Gilbert Is.*)	
El Salvador	**YS** (*7*)
England	**G** (*14*)
Estonia	**UR2** (*15*)
Ethiopia	**ET, 9E, 9F** (*37*)
**Europa* (*Juan de Nova*)	*FR7 (39)*
Falkland Is.	**VP8** (*13*)
**Fanning Island* (*see Christmas Island*)	
Faroe Is.	**OY** (*14*)
Farquhar Group	**VQ9** (*39*)
Fernando de Noronha	**PY** (*11*)
Fiji Is.	**VR2** (*32*)
Finland	**OH** (*15*)
**Formosa* (*see Taiwan*)	
France	**F** (*14*)
Franz Josef Land	**UA1** (*UA1KED*) (*40*)
French Oceania	**FO8** (*31*), (*32*)
Gabon Republic	**TR** (*36*)
Galapagos Is.	**HC8** (*10*)
Gambia	**ZD3** (*35*)
Georgia	**UF6** (*21*)
Germany	**DI, DJ, DK, DL, DM** (*14*)
Ghana	**9G** (*35*)
Gibraltar	**ZB2** (*14*)
Gilbert and Ellice Is. and Ocean Island	**VR1** (*31*)
Glorieuses Is.	**FR7** (*39*)
**Gough Island* (*see Tristan da Cunha*)	
Greece	**SV** (*20*)
Greenland	**OX, XP** (*40*)
Grenada	**VP2G** (*8*)
Guadeloupe	**FG7** (*8*)
Guam	**KG6, WG6** (*27*)
Guantanamo Bay	**KG4** (*8*)
Guatemala	**TG** (*7*)
**Guiana, British* (*see Guyana*)	
**Guiana, Dutch* (*see Surinam*)	
Guiana, French	**FY7** (*9*)
Guinea, Portuguese	**CR3** (*35*)
Guinea, Republic of	**7G** (*35*)
**Guinea, Spanish* (*see Rio Muni*)	
Guyana	**VP3** (*9*)
Haiti	**HH** (*8*)
Hawaiian Is. (*excluding Kure*)	**KH6** (*31*)

Country	*Prefix (Zone)*
Heard Island	VKØ (39)
Honduras, British	VP1 (7)
Honduras, Republic of	HR (7)
Hong Kong	VS6 (24)
**Howland Island (Amer. Phoenix Is.)*	KB6 (31)
Hungary	HA, HG (15)
Iceland	TF (40)
Ifni	EA9 (33)
India	VU (22)
Indonesia	8F (28)
Iran	EP (21)
Iraq	YI (21)
Iraq/Saudi Neutral Zone	8Z4 (21)
Ireland, Northern	GI (14)
Ireland, Republic of	EI (14)
**Ischia (Italy)*	II (15)
Isle of Man	GD (14)
Israel	4X (20)
Israeli/Palestine Neutral Zone	4X1 (20)
Italy	I (15)
Ivory Coast Republic	TU (35)
Jamaica	6Y (8)
Jan Mayen	JX (40)
Japan	JA, JB, JH, KA (25)
Jarvis Is. and Palmyra Group	KP6 (31)
**Java (Indonesia) 8F1, 8F2, 8F3*	(28)
Jersey	GC (14)
Johnston Island	KJ6 (31)
Jordan	JY (20)
Juan de Nova, Europa, Bassas da India	FR7 (39)
Juan Fernandez Archipelago	CEØZ (12)
Kaliningradsk	UA2 (15)
Kamaran	VS9K (21)
**Karelo-Finnish Republic (U.S.S.R. Europe)*	UN1 (16)
Kazakh	UL7 (17)
Kenya	5Z (37)
Kerguelen Is.	FB8 (FB8XX) (39)
Kermadec Is.	ZL (32)
Kirghiz	UM8 (17)
Korea	HL, HM (25)
Kure Island	KH6 (31)
Kuria Muria Is.	VS9H (21)
Kuwait	9K2 (21)
Kuwait/Saudi Neutral Zone	8Z5, 9K3 (21)
**Labrador (Canada)*	VO2 (3B2) (2)
Laccadive Is.	VU (22)
Laos	XW (26)
Latvia	UQ2 (15)
Lebanon	OD (20)
Lesotho (*Basutoland*)	ZS8 (38)
**Lesser Sunda Is. (Indonesia)*	8F3 (28)
Liberia	EL (35)
Libya	5A (34)
Liechtenstein	HBØ (14)
**Lipari Is. (Italy)*	IE (15)
Lithuania	UP2 (15)
Lord Howe Island	VK (30)
Luxembourg	LX (14)
Macao	CR9 (24)
Macquarie Is.	VKØ (30)
**Madagascar (see Malagasy Republic)*	
Madeira Is.	CT3 (33)
Malagasy Republic	5R (39)
Malawi	7Q (37)
Malaysia, E. and W.	9M2, 9M6, 9M8 (28)
Maldive Is.	VS9M (22), (39)
Mali Republic	TZ (35)
Malpelo Island	HKØ (9)
Malta	9H (15)
**Manihiki Is. (see Northern Cook Is.)*	
Marcus Island	KG6 (27)
Mariana Is. (*excluding Guam*)	KG6 (27)
Maria Theresa	FO8 (32)
**Marion Island (see Prince Edward Island)*	
**Marquesas Is. (French Oceania)*	FO8 (31)
Marshall Is.	KX6 (31)
Martinique	FM7 (8)
Mauritania Republic	5T (35)
Mauritius	VQ8 (39)
**Melilla (see Ceuta and Melilla)*	
Mexico	XE, XF (6)
Midway Is.	KM6 (31)
Minerva Reefs	1M (32)
Moldavia	UO5 (16)
Monaco	3A (14)
Mongolia	JT (23)
Montserrat	VP2M (8)
Morocco, Kingdom of	CN (33)
**Morocco, Spanish (see Ceuta and Melilla)*	
Mozambique	CR7 (37)
**Mozambique Channel Islets (see Juan de Nova)*	
Muscat and Oman, Sultanate of	MP4M, VS9O (21)
Nauru	VK9 (31)
Navassa Island	KC4 (8)
Nepal	9N (22)
Netherlands	PA, PE, PI (14)
Netherlands Antilles, Windward (*Aruba, Bonaire, Curacao*)	PJ-A, PJ-B, PJ-C (9)
**Netherlands Antilles, Leeward (see Sint Maarten)*	
**Nevis (see St. Kitts)*	
New Caledonia	FK8 (32)
**Newfoundland (Canada)*	VO1 (3B1) (5)
New Guinea Territory	VK9 (28)
New Hebrides	FU8, YJ (32)
New Zealand	ZL (32)
Nicaragua	YN (7)
**Nicobar Is. (see Andaman Is.)*	
Nigeria	5N (35)
Niger Republic	5U (35)
Niue	ZK2 (32)
Norfolk Island	VK9 (32)
**North Borneo, British (see Sabah)*	
Norway	LA (14)
**Ocean Island (see Gilbert Is.)*	
**Okinawa (see Ryukyu Is.)*	
**Oman (see Muscat and Oman, also Trucial Oman)*	
Pakistan, East	AP (22)
Pakistan, West	AP (21)
**Palau Is. (see W. Caroline Is.)*	
**Palestine (see Israeli/Palestine Neutral Zone)*	
**Palmyra Group (see Jarvis Is.)*	
**Panama Canal Zone (see Canal Zone)*	
Panama, Republic of	HP (7)
**Pantelleria (Italy)*	IP (33)
Papua Territory	VK9 (28)
Paraguay	ZP (11)
**Parece Vela (see Bonin Is.)*	
**Pelagian Is. (Italy)*	IL (33)
**Perim (South Arabian Federation)*	VS9P (21)
Peru	OA (10)
Philippine Is.	DU (27)
Phoenix Is., American	KB6 (31)
Phoenix Is., British	VR1 (31)
Pitcairn	VR6 (32)
Poland	SP (15)
Portugal	CT1 (14)
Prince Edward, and Marion Island	ZS (ZS2MI), (38)
Puerto Rico	KP4, WP4 (8)
Qatar	MP4Q (21)
Reunion Island	FR7 (39)
Revilla Gigedo Is.	XE (6)
**Rhodes (see Dodecanese Is.)*	
Rhodesia	ZE (38)
**Rio de Oro (see Spanish Sahara)*	
Rio Muni and Fernando Poo (*Spanish Guinea*)	EAØ (36)
Rodriguez Island	VQ8 (39)
Roumania	YO (20)
Rwanda	9X (36)
Ryukyu Is.	KR6, KR8 (25)
**Saba (Sint Maarten)*	PJ-S (8)
**Sabah (Malaysia, East)*	9M6 (28)
**Sahara, French (Algeria)*	7XØ (33)
Sahara, Spanish (*Rio de Oro.*)	EA9 (33)
**St. Brandon (see Agalega Is.)*	
**St. Eustatius (Sint Maarten)*	PJ-E (8)
St. Helena	ZD7 (36)
St. Kitts, and Nevis	VP2K (8)
St. Lucia	VP2L (8)
St. Martin	FS7 (8)
St. Peter and St. Paul Rocks	PYØ (11
St. Pierre, and Miquelon	FP8 (5
St. Vincent	VP2S (8)
**Salvador (see El Salvador)*	
Samoa, American	KS6, WS6 (32)
Samoa, Western	5W (32)
San Andres, and Providencia	HKØ (7)
San Felix and San Ambrosio	CEØX (12)
San Marino	M1, 9A (15)
Sao Tome, and Principe	CR5 (36)
**Sarawak (Malaysia, East)*	9M8 (28)
Sardinia	IS (15)
Saudi Arabia	HZ, 7Z (21)
Scotland	GM (14)
Senegal Republic	6W (35)
Serrana Bank and Roncador Cay	HKØ, KS4B (7)
Seychelles	VQ9 (39)
**Siam (see Thailand)*	
**Sicily (Italy)*	IT (15)
Sierra Leone	9L (35)
Sikkim	AC3 (22)
Singapore	9V (28)
Sint Maarten, Saba, St. Eustatius	PJ-M, PJ-S, PJ-E (8)

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COUNTRY—PREFIX/ZONE LIST (*cont'd*)

Country	*Prefix (Zone)*
**Society Is.* (*see French Oceania*)	
**Socorro Island* (*see Revilla Gigedo Is.*)	
**Socotra Island* (*South Arabian Federation*)	*VS9S* (*37*)
Solomon Is.	**VR4** (*28*)
Somaliland, French	**FL** (*37*)
Somali Republic	**6O** (*37*)
South Africa, Republic of	**ZS1, 2, 4, 5, 6** (*38*)
South Arabian Federation (*Aden, etc.*)	**VS9A, VS9P, VS9S** (*21*), (*37*)
South Georgia	**VP8** (*13*)
South Orkney Is.	**VP8, LU-Z** (*13*)
South Sandwich Is.	**VP8, LU-Z** (*13*)
South Shetland Is.	**VP8, CE9, LU-Z** (*13*)
South-West Africa	**ZS3** (*38*)
Spain	**EA** (*14*)
**Spitzbergen* (*see Svalbard*)	
Spratly Island and Reefs	**1S** (*26*)
Sudan	**ST** (*34*)
**Sumatra* (*Indonesia*)	*8F4* (*28*)
Surinam	**PZ** (*9*)
Svalbard (*Spitzbergen and Bear Island*)	**JW** (*40*)
Swan Is.	**KS4** (*7*)
Swaziland	**ZD5** (*38*)
Sweden	**SM, SL** (*14*)
Switzerland	**HB** (*14*)
Syria	**YK** (*20*)
Tadzhik	**UJ8** (*17*)
**Tahiti* (*see French Oceania*)	
Taiwan	**BV** (*24*)
Tanzania	**5H** (*37*)
**Tasmania* (*Australia*)	*VK7* (*30*)
Tchad Republic	**TT** (*36*)
Thailand	**HS** (*26*)
Tibet	**AC4** (*23*)
Timor, Portuguese	**CR8** (*28*)
Togo Republic	**5V** (*35*)
Tokelau Is.	**ZM7** (*31*)
Tonga	**VR5** (*32*)
Trindade, and Martin Vaz Is.	**PYØ** (*11*)
Trinidad and Tobago	**9Y** (*9*)
Tristan da Cunha, and Gough Island	**ZD9** (*38*)
Tromelin	**FR7** (*39*)
Trucial Oman	**MP4T, MP4D** (*21*)
Tunisia	**3V** (*33*)
Turkey	**TA** (*20*)
Turkoman	**UH8** (*17*)
Turks and Caicos Is.	**VP5** (*8*)
Uganda	*5X* (*37*)
Ukraine	**UB5, UT5, UY5** (*16*)
United Arab Republic (*Egypt*)	**SU** (*34*)
United Nations (*Geneva Hq. only*)	**4U** (*14*)
Upper Volta Republic	**XT** (*35*)
Uruguay	**CX** (*13*)
U.S.A.	**K, W, WA, WB, WN WV** (*3*), (*4*), (*5*)
U.S.S.R. Europe	**UA1, 3, 4, 6, 9** (*16*) **UN1 UV1, 3, 4, 6, 9 UW1, 3, 4, 6, 9**
U.S.S.R. Asia	**UA9, UAØ** (*17*), (*18*), (*19*), (*23*), (*25*) **UV9, UVØ UW9, UWØ**
Uzbek	**UI8** (*17*)
Vatican	**HV** (*15*)
Venezuela	**YV, 4M** (*9*)
Vietnam	**XV, 3W** (*26*)
Virgin Is., British	**VP2V** (*8*)
Virgin Is., U.S.A.	**KV4** (*8*)
**Volcano Is.* (*see Bonin Is.*)	
Wake Island	**KW6** (*31*)
Wales	**GW** (*14*)
Wallis and Futuna Is.	**FW8** (*32*)
**West Irian* (*Indonesia*)	*8F6* (*28*)
White Russia	**UC2** (*16*)
Willis Is.	**VK** (*30*)
Yemen	**4W** (*21*)
Yugoslavia	**YU** (*15*)
Zambia	**9J** (*36*)
**Zanzibar* (*see Tanzania*)	

(NOTE: All Countries listed here count separately for the DXCC Award, with the exception of those marked with an asterisk. These score the same as the DXCC country given in brackets.)

The Zone areas, given in ( ) after each country or prefix, can be located exactly from our "DX Zone Map." Another useful guide is the "Amateur Radio Map of the World" (Mercator projection).

Listings on pp.561-566 here are available as a separate reprint at 6d. post free (with large s.a.e.). This booklet is included free of charge with all orders for the "DX Zone Map"—price 14s. 9d. post free, as described on p.576 of this issue—and thus brings the Map right up to date.

NEW QTH's

This space is available for the publication of the addresses of all holders of new U.K. callsigns, as issued, or changes of address of transmitters already licensed. All addresses published here are reprinted in the U.K. section of the "RADIO AMATEUR CALL BOOK" in preparation. QTH's are inserted as they are received, up to the limit of the space allowance each month. Please write clearly and address on a separate slip to QTH Section.

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THE HERTZ—The KiloHertz and the MegaHertz

Plagued by innovators and those who advocate change for its own sake, the literature of radio, nationally and internationally, is being pressured to change from kilocycles and megacycles to kilo-Hertz (kHz) and megaHertz (mHz). For years, we have used, exclusively, *kc* and *mc*, as being clearly understood and fully expressive. While the desirability of an international nomenclature is agreed, and the desire to perpetuate the great name of Hertz is understood, what about Marconi? It would seem just as proper to suggest that the Mc symbol should represent the name Marconi—who did as much of the pioneer work as anybody!

BBC MOBILE OB's

Whenever there is some emergency situation requiring immediate news-report coverage, the BBC's "mobile radio car" is on the spot, with a commentator giving the eye-witness treatment. While one admires the slickness of the operation, the quality of these OB's is usually pretty poor, while until quite recently this BBC radio car had what was obviously a "dirty" microphone lead, setting up a crackle-ackle—which always had to be apologised for by Jack de Manio, or whoever was handling the studio end of the broadcast. Though the BBC has now put that right, during their coverage of the Shepherds Bush police murders, a new fault showed up on their radio car—what sounded like pronounced generator hum, as a sort of gurgling background to the commentator's report.

Surely the BBC, of all the authorities using mobile radio, have the engineering know-how to produce a clean speech transmission from a stationary vehicle. We would, in fact, expect them to be able to do it from a radio car travelling at the legal limit of 70 m.p.h.

"MCC"—MAGAZINE CLUB CONTEST

The idea of an inter-Club event, as a Top Band exercise, was first thought up, more than 20 years ago, by your A.J.F. Over the years, the rules and conditions have changed to keep MCC a practical and realistic amateur-band contest in tune with the times. The emphasis has always been on operating in the CW mode and now MCC as a competitive event demands a very high standard of those Clubs aspiring to a lead position. To get into the first five places—out of the 70 or 80 Clubs who will eventually send in log entries for this 21st MCC—means that a well-drilled operating team will have to be supported by members whose most important function is to make the tea and check the logging. If this sounds as if the event is altogether too intense and exacting, the fact is that the great majority of Clubs will enter this year's MCC simply for the fun of it, without worrying about how they come out in the final scoring. MCC is essentially a Club event. If as a club you have a competitor, it is some friendly group in the same zone (whom you hope to beat in the final listing).

Rules and Club identification letters appeared on pp.493-495 of the October issue of SHORT WAVE MAGAZINE. Those 160m. operators, not being Club members but who enjoy really snappy CW working, are invited to join in under Rules (6) and (7)—*see* p.493, October.

SMALL ADVERTISEMENTS

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RESISTORS: 2d. EACH, by return post. Half-watt 5% carbon-film. Brand-new, not surplus. Any quantity. All preferred values, 10 ohms to 910,000 ohms, in stock. Cash with order; for orders under 20s., include 1s. postage. Send s.a.e. for free sample resistor.—Brensal Electronics, Ltd., Dept. S1, Charles Street, Bristol, 1.

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QSL Cards: In two colours and printed both sides to your design. Only £4 per thousand. Send for samples.—McHenry, GI3NSM, 54 Orby Road, Belfast, 5, Northern Ireland.

"GUIDE To Surplus Communication Receivers." This is a detailed guide to the 30-odd surplus receivers available in the U.K. since 1960. Limited number at 7s. 6d. per copy, postage 1s. By post only, please.—Adkins, 72 Courtenay Avenue, Harrow, Middlesex.

RECEIVERS GALORE! Our latest list of over 50 (yes, 50) Communication Receivers is yours for an s.a.e.—R.T. & I. Electronics, Ltd., Ashville Old Hall, Ashville Road, London, E.11. (Tel. Leytonstone 4986).

OFFERING: Eddystone 888A, in mint condition, with mounting blocks, £70. Eddystone EC-10, mint, £35. National HRO-MS, as new, with nine GC coils and PSU, £22 10s. HRO-MX, with five coils and PSU, £17 10s. Brand new and fully guaranteed Honda E(IV)300 petrol generating set, giving 220v. AC, 300 watts at 50 c/s and 12v. 6 amps. DC, bargain at £63 (normally £73). National NCX-D Power Supply, new, £40 (normally £57 2s.). Write or call, evenings/weekends.—Moxey, G3MOE, 11 Westbury Road, Cheltenham (24217), Glos.

LOOK! If you have an ambitious project, or you are a Club member, or you have any other reason for wishing to buy small components in moderate quantities, you cannot do better than send an s.a.e. to us for our sample price list. Come to that, our one-off prices are about the lowest. Try us. — Radiomatics. 140 Oak Street, Norwich (22390), Norfolk. NOR.83.K.

READERS' ADVERTISEMENTS

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FOR SALE: As new Lafayette HE-30, with manual, £20 or near offer.—Wardley, 24 Salmond Street, Kinloss, Morayshire, Scotland.

SMALL ADVERTISEMENTS, READERS—*continued*

SALE: Bound and Unbound, "QST," "Short Wave Magazine," "CQ." RSGB "Bulletins," "Practical Wireless," "Radio Constructor," "Wireless World," "Short Wave News," "Short Wave Listener," 1939-'63. Offers in quantity, or 2s. 6d. each, plus postage; send s.a.e.—Allen, 118 Atlantic Road, Kingstanding, Birmingham, 22C. (Tel. ERDington 5501.)

OFFERING: Eddystone S.640 Rx, good condition, price £16. Accept £8 plus R.107, 52 Set, or what-have-you? (S/W Lancs.)—Box No. 4380, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

SELLING: Lafayette HE-30 Communications Receiver, 550 kc to 30 mc, £25.—Pryse, 36 Hart Road, Byfleet, Weybridge, Surrey.

EXCHANGE: Marconi CR-300 eight-band receiver, 50 kc to 26 mc coverage FOR amateur-band converter; must collect.—McGregor, 26 Union Road, West Lothian, Scotland.

HAVING PASSED Morse Test, selling complete G3HSC Course; new in August; price 50s.—Perks, 65 Grange Road, Dudley, Worcs.

WANTED: Urgently, 7094 tube. Could be replaced in four weeks' time if desired.—McGowan, GM3DPK, Old Manse Farm, Banff, Scotland. (Tel. Whitehills 207.)

SALE: Collins Mechanical Filter, F-455-K21, 2·1 kc pass-band, with matching crystals, USB and LSB, by Quartz Crystal Co., £12. Seven off 832's, and two 829's, 10s. each, or near offer. List s.a.e. for meters, transmitting valves, transformers, etc.—Martin, G6MN, Bridge Street, Worksop, Notts.

OFFER: A Heathkit Mohican Rx for £20 (or near offer) of EXCHANGE for Withers two-metre mobile gear. (Birmingham area.)—Box No. 4379, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

SALE: Green Mk. V two-metre converter and CTX-2, both one month old, in immaculate condition, the two £17.—Cowdery, G3UKB, 275 Church Road, Hayes, Middlesex. (Tel. NUF 9369.)

SURPLUS: Since obtaining Transceiver—Home-built filter-type SSB Tx, switched through five bands, triple conversion, Vox-operated, ten xtals, 11/BY-100, bargain to collect for £25. RF-26 Unit, valved, 20s. Pair magslips, unusued, 50v. 50 c/s, 25s. Four HRO IFT'S, one BFO coil, 2s. 6d. each. Half-lattice CW filter, 465 kc, 300-cycle, 20s. PSU giving 620v./310v. 200 mA each side, with bias and heater supplies. 30s. PSU/Mod. 400v. 150 mA, 6·3v., with driver and mod. xformers, ex-S.440B VHF Tx, 25s. Parmeko choke, 4 Hy 300 mA, 15s. Transformers: mains, 350-0-350v. 250 mA, 6·3v. 4A twice, 20s.; ex/BC-640, similar SCR-522 mod., suitable two Class-B drivers, pair 6V6 to pair 811, or two 6V6 or 6L6 to pair 807 in Class-B zero bias, or as mod. xformer for pair EL84 into QQV03-10, price 3s. 6d. each; Collins 25w. mod. xformer, 10s.; output xformers, BC-453, 600-ohm, 5s.; mains, as Lynx TV spec., 15s. Microphones: Acos 22, 15s.; throat Type T30R, with harness, 3s. 6d. Two Siemens high-speed relays, 4s. each. Variable condensers: Three-gang, 2s. 6d.; five-gang, 2s. 6d.; Eddystone split-stator, wide-spaced PA type, 5s. For following items, enquire s.a.e.: Valves: 6L6, 807, 1625, 5U4, 5R4, TT11, and 12v. octals (see p.124, April "Short Wave Magazine"). Crystals: FT-243, 5675 to 8000 kc (but no 40m.). HV smoothing capacitors, 600v., 1500v. and 2000v. working 4 to 32 mF. Post/packing extra on priced items.—Charles, G3KVG, QTHR, Sheffield 55307.

SALE: Mullard High-Speed Valve Tester. with cards, accessories and instruction book, £30. Buyer collects (Newcastle area).—Box No. 4381, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

OFFERING: Heathkit HW-32, modified to cover 14·10 to 14·35 mc, 7·0 to 7·1 mc, and 3·7 to 3·8 mc, with suitable PSU, price £70 or near offer.—Ring Gunnell, Churchdown (Glos.) 2394.

SMALL ADVERTISEMENTS, READERS—*continued*

FOR SALE: R.206 Rx and PSU, £20. Also R.1155 Rx, with built-in PSU and S-meter, new panel, realigned for Top Band, price £8, or EXCHANGE general-coverage receiver. Buyer to pay carriage.—Cole, 4 Baldwin Street, Hawcoat, Barrow-in-Furness, Lancs.

SALE: Self-contained AM/CW Tx, 60-watt, coverage 10 to 80m., comprising Geloso 4/104 drive unit into 5B254M PA, switching for use as linear; size 19in. x 8in. x 13in.—Mapplebeck, G3GXN, 39 The Osiers, Kingsway, Leicester (825439).

WANTED: Receivers Eddystone 770R and R.216. Good price paid. All letters answered, and buyer will collect within 150 miles of South Coast.—Box No. 4382, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

OFFERED: Mint Collins 32S-1, in original packing. Price £220.—Foulkes, G3UFZ, 16 Blue Waters Drive, Paignton, Devon. (Tel. Churston 2630.)

SALE: K.W. Vanguard, coverage 10m. to 160m.; also National HRO-MX, fully aligned and in excellent condition, with BS coils for 10, 20, 40, 80m. and GC 15m. and 160m. The two for £60 together, or offers for each separately.—Gooch, G3RRU, 77 Halsburg Road East, Northolt Park, Middlesex.

SELLING: Modified Command Rx, coverage 520 to 1500 kc, £5 10s. TCS-12 receiver, with S-meter, recently overhauled, price £7 10s., or very near offer. Carriage extra.—Smith, 18 Plowden Road, Wythenshawe, Manchester, 22.

WANTED: Code Practice Oscillator, AC mains operated, incorporating speaker and headphone outputs, with volume control, also suitable headphones. Details and price.—Box No. 4387, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

SALE: AR88LF receiver, in perfect condition, £23. LG.300, brand-new 600v. PSU, CW only, £25. Top Band Tx, in good order, £4. Labgear LPF, perfect, £3.—Norman, 1 Burton Close, Haverhill, Suffolk.

COMPLETE Station for Sale: SR.550 receiver (new), LG.50 transmitter, Class-D wavemeter, plus a large box of good parts, valves, chokes, transformers, etc., etc., price £55 the lot. WANTED: Low-power marine radiotelephone equipment, any condition.—Cain, G3DVF, 18 Oaky Balks, Alnwick (2487), Northumberland.

FOR SALE: Hammarlund HQ-145X, in FB condition and little used; gives SSB reception; £60 to £70 asked.—Box No. 4388, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

SELLING: An NCX-3, in immaculate condition, with NCX-A PSU, microphone and spares. See photograph p.99 April "Short Wave Magazine." A complete station for £100. — Dunn, MP4TBM, 260 Dyke Road, Brighton, Sussex.

FOR The December issue, publishing on Nov. 25, send your single-copy 4s. postal order by Wednesday 23rd.—Circulation Dept., Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

FOR SALE: UHF Receiver Type R.1619, coverage 1250 to 5000 megacycles, with directly calibrated dial, £7 10s. Marconi Type H.16 4-metre mobile Tx/Rx, 12-volt, £3. Ceramic coil formers, 2in. dia. by 5in. long, 2s. Ceramic ATU switches, 6-way, 2s. 3000 valves, tested and boxed, 1s. each. Or EXCHANGE for back issues "73," "QST" and "CQ" magazines.—Briscoe, 335 Eton Road, Ilford, Essex. (Tel. TREvelyan 8141.)

WANTED: AR77 receiver, need not be mint, but complete, with circuit or manual.—Handy, 105 Humber Avenue, Coventry, Warks.

FOR SALE: K.W. Vanguard, Mk.II, coverage 10 to 160m., in mint condition, with circuit, etc., price £50.—Hill, 23 Dene Path, South Ockendon, Essex.

SMALL ADVERTISEMENTS, READERS—*continued*

S.O.S.! Wish to contact someone in this district for mutual help in attaining 12 w.p.m. Morse. Also require AVO-7 in perfect condition. — Pryse, 36 Hart Road, Byfleet, Surrey.

SALE: **Eddystone EC-10** transistorised communications receiver, recent model, little used, quite as new. Price £35, preferably collected near London.—Box No. 4389, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

SELLING: Heathkit Mohican receiver, factory built, 18 months old. Reasonable offer.—10 Pears Avenue, Grange Farm, Upper Halliford Road, Shepperton, Middlesex.

FOR SALE: AR88, a good one, with speaker and manual, £32. HRO Senior, eleven coils. four BS, with preselector, PSU and manual. £18. HRO Junior, also eleven coils, four BS, with PSU and manual. £12. ARR-3, good and clean, 25s. Lafayette 63A and speaker, brand new in original case, 7-valve set, £18. Canadian 52 Set, power pack, brand new, with manual, £8. RF-25 and RF-26 units. 40s. the two. Plenty of other gear for sale to callers.—Port, 11 Bournewood. Ham Street, Kent.

WAVEMETERS: Brand new Class-D, £3; W.1991, eight switched bands, £4; Type 10, 50s.; LM-14 (Navy BC-221), £5; all with circuits and manuals. Signal Generator, 5 to 55 mc, 7-valve precision model, with stab. PSU, 90s. Megger in leather case, £10. Post/carriage extra. EXCHANGES W.H.Y.? Wanted, a GDO and two-metre Converter. — Thorburn, 27 Banklands, Workington, Cumberland.

SALE: Two transistor PSU's on chassis, with relays, £5. MCR-1 receiver with all coils, £5. TR.1986 VHF Tx/Rx, with handbook, £6. Six numeral indicating tubes, 10s. each. Six OC35 transistors, 5s. each. Coax relay, 20s. K.W. Valiant six-band Tx/Rx, 10-160m., £20. Mains PSU for Valiant, £5. — Chapman, G3NGK, Tel. Medway (OME-4) 52518.

SALE: 19 Set Rx only, with internal PSU and Z12 AF, price £5 10s. Details s.a.e. — Potter, 8 Standon, Hursley, Winchester, Hants.

SALE: Lafayette HA-230, little used, in original box, with manual, price £20, no offers.—Kearey, 99 Mill Farm Close, Pinner, Middlesex. (Tel. Field End 4023.)

OFFERING: Heathkit DX-100U and SB-10U, SSB Adaptor, both recently purchased and professionally built, in first-class condition, £90 together (easy payments arranged). WANTED: An S-meter for AR88D.—G3OFK, QTHR.

WANTED: BC-453 (Q5'er).—Bunney, G3VLX, 234 Halfway Street, Sidcup, Kent. (Tel. ELTham 6945.)

SELLING: An SSB Tx, coverage 10 to 80m., 40w. p.e.p., 450 kc xtal filter. Eddystone 898 dial, PSU, etc., price £20 or near offer. Eddystone 840A receiver, 500 kc to 30 mc, in good condition, £17 or offer. R.107 Rx, £7. Prefer buyers collect.—Hardman, 2 Woodstock Avenue, London, N.W.11. (Tel. 01-458-6254, evenings.)

WANTED: Collins mechanical filter, 2·1 kc. SALE: Collins 32V-3 150w. CW/AM transmitter. TVI-proof and as new, £97 10s. — Ussher, GD3TIU, Crosby, Isle of Man.

WANTED: Beam Rotator, must be 100%. OFFERING: 4X150/250 bases; Type 26BT blower; Marconi CR-100/2; B.44 Mk.III VHF Tx/Rx; Four-metre commercial quarter-wave mobile whip; Heathkit balun; pair unused 805's; pair boxed German side-stable telegraph relays; Vibroplex key. All good value; s.a.e. for details.—Airey, G3GEJ, 14 Brandles Road, Letchworth, Herts.

WANTED: Eddystone EC-10 or similar transistor Rx, also 4m. or 2m. transistor converter. Details and price.—Box No. 4391, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

SMALL ADVERTISEMENTS, READERS—*continued*

FOR SALE: Xtals, 464 and 466 kc, £3 the pair; 465 kc xtal, 30s.; several others, s.a.e. for list. Transistorised DC/DC Converters, 75w., 12v. input. 300/350v. output. QQV06-40A's, 30s.; QQV06-20A's, 20s.; QQV03-10's, 15s. Send s.a.e. for list of Tx and Rx valves. WANTED: Electroniques amateur-band coil packs.—Brealy, G3TSE, 85 Station Road, Keyham, Plymouth, Devon.

WANTED: VHF or UHF communications receiver, with continuous tuning. Details, please—Box No. 4390, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

OFFERING: Hammarlund HQ-170A, with speaker. little used and in original packing, also a Withers two-metre converter to go with the HQ-170A, cost together £165. Best offer over £100 secures.—Holmes, 8 Hall Lane, Kettering, Northants.

EXCHANGE: Cine Camera, 8mm. Bolex B8L with Yvar f 2·5 standard lens and 36mm. f 2·8 Cassarit telephoto FOR Transmitter, AM or SSB, Vanguard or W.H.Y.?—Box No. 4392, Short Wave Magazine. Ltd., 55 Victoria Street, London, S.W.1.

SELLING: Advance Signal Generator, 100 kc to 100 mc, as new, £16. Dynamic microphone, Type UD19HL. unused (unwanted gift), cost 12 gns., price £8. Eagle TK.20A multimeter, new, 46s. Johnson variable condenser, 500 mmF, ·08in. gap, rated 3·5 kV, unused. 30s. Ceramic variable, 260 mmF, ·065in. gap, 12s. Codar pi-network coil Type 7150, 12s. Resistance substitution box. 20s. Capacity substitution box, 15s. Eddystone 598 dial, new, 25s. Pair TT21's, new, 20s. each. Books: "Transistor Inverters and Converters," cost 42s., unmarked, 20s.; "Basic Electronics" (Technical Press), cost 85s., unmarked. 40s. Carriage extra all items.—Thompson, G3RCZ, 134 Royal Oak Road, Manchester, 23. (Tel. Wythenshawe 2897.)

WANTED: TCS type Tx. Will pay £8 and collect within 100 miles of home QTH. — Critchley. G3VKG, 42 St. David's Road, St. Annes, Lancs.

EXCHANGE or SELL: A rather tatty AR88D, with its manual, price £26. Labgear LG.50 Tx, £23. Buyer collects. WANTED: Smaller Tx, also 160m. and VHF gear.—Taylor, G3UFK, 48 Garfield Road, Enfield, Middlesex.

WANTED: Octal-base 1000 kc xtal for LM-13 Frequency Meter.—Horsey, G3TTP, 7 Wares Lane, Wembdon, Bridgwater, Somerset.

SELLING: Lafayette HE-30, twelve months old, with a few mods. First offer £20 secures, with delivery to 20 miles.—Martin, G3VES, 1 Cades Lane, Luton. Beds.

SALE: A 19 Set, with built-in mains PSU, variometer, and speaker output, £7 10s. Another, unmodified, 50s. Command Rx, 190 to 550 kc, BFO, phone output, requires PSU. £4 10s. Bendix Compass Rx. BFO, mains PSU internal, £3 10s. All "or near offer."—McDonald, 6 Great Meadow, Shaw (5494), Nr. Oldham, Lancs.

BARGAIN: Hammarlund HQ-170A, two years old, cost £145, for sale at £75, no offers. If you want a first-class receiver at a bargain price, you can't afford to miss this one! Buver tests and collects.—Ring Kavanagh, Swindon 6885, evenings.

SALE: In good condition, a KW-77 receiver, price £82. ATR Inverter, input 110v. DC, output 115v. AC, 60-cycle, at 350-watt continuous rating, price £15. Buyers to collect these items. Also available, Collins mechanical filter, F-455-H31, unused bargain, £11 10s. In very good condition, 40m. and 80m. BS coils for HRO, 40s. each. New HRO items: PSU, 115/230v., 40s.; manual, 20s.; dial, 20s. BC-453, neatly modified with product detector and additional AF stage and 6v. heater valves fitted, £4 10s. Also some 70-cm. equipment, cheap, please enquire.—Dolan, 15 Ringwood Road, Headington, Oxford (63000, evenings).

SMALL ADVERTISEMENTS, READERS—*continued*

SELLING: Eddystone EC-10 receiver, £35. Heathkit RA-1 Rx, with cathode-follower T/R switch and crystal calibrator, £25. Heathkit DX-40U Tx, £20 (would also throw in Hallicrafters HA-5 mixer VFO with this). Mosley TA-31Jr. trap vertical dipole for 10-15-20m., £5 Crystal claibrator, 10/100/1000 kc, price £3. All items "or near offer"; carriage paid or arranged.—Heaton, G3UGX, Worston House, Worston, Nr. Clitheroe, Lancs.

WANTED: Cossor FM Alignment Generator, Model 1324, with manual. Price and full details, please. —Martin, 64 Green Lane, Middleton, Manchester.

SINGLE-COPY Orders, 4s. each post free, should reach us by Wednesday, November 23, for the December issue, publishing on Friday, November 25.—Circulation Dept., Short Wave Magazine, Ltd., 55 Victoria Street. London, S.W.1. (Full annual subscription is 42s. post free, year of twelve issues, starting any month, posted to any address in the world. Cheques, postal orders and money orders accepted in any negotiable currency.)

SELLING: Heathkit DX-40U, £25 or near offer? Panadaptor, Type IP-69/ALA-2, for U.K. mains, £10. New 12-volt Vibrators, Plessey Type 1214SD, 7s.; Type ZA-29586, 5s. Parmeko transformer, pair KT66 to 66/5 ohms output; TZ40, 4304CB, 2/KT8, 2/KT66, 4/U19; Vols. 1-4, R.C.M. & E. Offers? WANTED: KW-2000.—Peake, GW3SRG, 70 Higher Lane, Mumbles, Swansea, Glam.

WANTED: To buy or hire, circuit diagrams and gen. for R.206 and PSU No. 15.—Barker, 45 Shiel Road, Liverpool, 6.

MOBILES, Look! TW Topbander, £19. TW 2-metre rig, £19. TW 2-metre transistor Rx, £20. TW mobile PSU, £11, also for mains supply, £11. Only few hours use. Going Transceiver.—Gray, 6 Hillingdon Road, Whitefield, Manchester.

WANTED: Packing case for Marconi CR-100 Rx. Please state price. (London area.).—Box No. 4383, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

TRANSISTORS: AUY-10's, 25s.; OC26's, 5s.; BY-100's, 4s. Zener diodes, 1½ watt, all voltages up to 47v., 4s. Valve bases for 807, 1s. 3d. All items plus postage; send s.a.e. for list.—Hatley, 2 Fitzgerald Avenue, Seaford, Sussex.

FOR SALE: Eddystone 840C receiver, little used; price £40, no offers.—Saxton, 28 Stronsa Road, Shepherds Bush, London, W.12.

SELLING: Marconi CR-150 receiver, with PSU, in excellent condition, deliver 50 miles, price £22 or near offer. RSGB "Amateur Radio Handbook," 20s. Aerial mast extending to 20ft., with base. etc., 45s. Marconi AD-94 receiver, coverage 1·8 to 17 mc, with PSU, deliver 50 miles, price £14 or near offer? "Command Set" handbook, 7s. 6d. Top Band Command Tx, with PSU, 12v. DC working, price £4. —Twells, 15 Holywell Drive, Loughborough (4468), Leics.

EXCHANGE, or SELL: Eddystone 960 Communications Receiver, coverage 500 kc to 30 mc in six bands, 12-transistor 7-diode, with crystal filter, S-meter BFO, internal speaker and battery (8/U2's), or suitable any external 12v. DC supply, just back from maker's check, and in mint condition. Cost £135. Would sell or EXCHANGE for Eddystone 940 or EC-10 and cash. Offers?—Box No. 4384, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

FOR SALE: Newnes Servicing Manuals, 1952 to date, in sixteen volumes. Clean condition. Price £27 or near offer?—Box No. 4383, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

SELLING: Heathkit HW-30 two-metre Transceiver, complete and as new, hardly used, with mains auto-transformer, price £15 or near offer?—Mason, G3TWN, 5 St. Paul's Close, Rock Ferry, Birkenhead, Cheshire.

SMALL ADVERTISEMENTS, READERS—*continued*

SALE: in mint condition, SB-34 transistorised SSB transceiver, AC and 12v. DC PSU's, with auto-transformer, matching crystal calibrator and microphone, manual, and original packing, price £160. AR-22 beam rotator, £12. TW-2 transmitter, matching PSU, £15. TW-2 Twomobile, £15. TW-2 converter, IF 24-26 mc, £3. Aveley 12-volt transistorised PSU, £6. Wavemeter UHF No. 4, coverage 20 to 300 mc, with calibration charts, £4.—Henderson, G3LYD, Rydene, Moor End Lane, Radwell, near Bedford.

FOR SALE: R.216 Rx, coverage 30 to 157 mc, in good condition, with PSU, price £40, or would consider part EXCHANGE for Hallicrafters, Eddystone or similar general-coverage receiver, balance cash either way.—Box No. 4385, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

CLEARANCE: AR88D, working on all bands, no case but with cover, price £20 or near offer. AR88LF, working on all bands, with case and new front panel, £25 or offer. BC-639A, coverage 95 to 155 mc, with cabinet and standard PSU, price £11 o.n.o.? R.208 Rx, in working order, £6 10s. or offer. Top Band Tx, with modulator and mains PSU, £8 o.n.o.? Stacks of other gear, including Tx's, Rx's, Test equipment, etc., etc.; send s.a.e. for list. Copies of AR88D and AR88LF manuals available, 7s. 6d. each. WANTED: Mobile Top Band or 160/80m. rig, also xtals for 144·7 to 144·9 mc.—Tynan, G3SJR, 29 Elm Walk, Stevenage (51297), Herts.

OFFERING: CR-100 handbook, 7s. 6d. D.104 microphone complete, 20s. Good valves, cheap, including EL34's at 5s. Electrolytics, 64 mF 500v. working, 5s. LF choke, 120 mA, 7s. 6d., etc., etc. Please add postage.—Brand, G2ANB, 78 Broad Walk, Hockley, Essex.

WANTED: Circuits and (if possible) notes on receivers R.220, R.1392 and R.1475. Will refund postage. — Hook, 21 Peak View Road, Loundsley Green, Chesterfield, Derbyshire.

SALE: Marconi CR-100/7, with manual, speaker and added meter, recently realigned, price £12 10s. or near offer. — Downs, G3UCK, Shackleton House, Harden, Bingley, Yorkshire. (Tel. Cullingworth 3021.)

WANTED: Trawler-band R.1155. Will EXCHANGE or part exchange 52 Set, in good condition, with matching PSU.—Nolan, 50 Albert Road, Gurnard, Isle of Wight, Hants.

CLEARANCE Sale: Three only R.210 ATM Rx's, special **RTTY** reception, film scale, 2.0 to 16 mc in seven bands, appearance similar to R.216, price £35 each. **CR-100** Rx, £18. **SCR-522** Rx/Tx, 30s. each half. Power Unit Type **234A**, new, 250v. 150 mA DC, 6·3v. 5 amp. AC, price 37s. 6d. **Collins Transceiver** ARC2, 2-9 mc, 24v., manual or auto-tune, in working order, £30. **BC-342/312** Rx, ideal for spares or repair, £6. Transistors **OC36**, 4s. 6d. each. Zener diodes **OAZ222**, 3s.; 2SO12, 35s. —Ring **LABurnum** (London) 6377.

SALE: Tiger TR-150X, CW/AM 10 to 80m., running 120-150w., with TT21 PA, quality job, £50. Hallicrafters SX-24 receiver, FB condition, £20. BC-453B as Q5'er, 190 to 550 kc, £5. RF-24 Unit, £3. RF-26, £3. Watson 3in. telescope on stand, with one-inch terrestrial eye-piece, also 5/8in. and 1/5in. astro eye-pieces, £31.—Wilcock, G2FKS, 19 Cavendish Avenue, Cambridge (47220).

WANTED: High-power PA suitable for two-metre MS work. State details and price.—Box No. 4386, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

WANTED: G4ZU-type Beam, also Eddystone S.640 receiver. Will collect.—Morgan, G3MEM, Jevington. Hill Top Road, Earley, Reading, Berks. (Tel. ORE-4 62230).

SELLING: R.107 Rx, coverage 1·2 to 17·5 mc, in excellent condition, with manual, £13 10s. American 19 Set transceiver, 2·0 to 8·0 mc, excellent condition and unmodified, with instruction book and diagrams, 50s. Microphone and headset, 10s. Control box and leads, 10s. Variometer, 10s. Mains PSU, 50-watt, £4. Another RCA 19 Set, in excellent condition, needs 5 valves, 30s. PSU, 12v. Mk.III, all leads, 30s. AVO Model 40, needs repair, 40s. AVO Type D, requires attention, 30s. — Welsh, 16 Lloyd Road, Worcester Park, Surrey. (Tel. DERwent 0720.)

SALE: Rack model BC-794 receiver, with PSU, price £20, buyer to collect.—Evans, G2DFX, The Pharmacy, Eynsham, Oxford.

REFERENCE G3KFE Advertisement P.505, October, only items (5), (8), (9) now left.—G3KFE, QTHR, or ring Harlow 28144, evenings.

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