The SHORT WAVE Magazine

3/6

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INDEX TO ADVERTISERS

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(GB3SWM)

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CONTENTS

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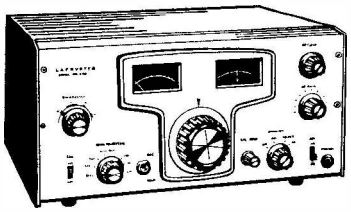
LAFAYETTE 10-80 Metre SSB/AM/CW Amateur Receiver



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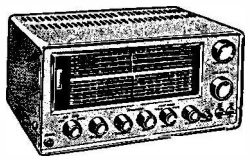

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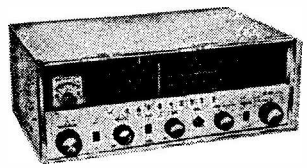

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500μA	25/–	10mA	22/6	750mA	22/6	50v DC	22/6	50v AC 22/6
50-0-50μA	29/6	20mA	22/6	1A DC	22/6	100v DC	22/6	150v AC 22/6
100-0-100μA	27/6	50mA	22/6	2A DC	22/6	150v DC	22/6	300v AC 22/6
500-0-500μA	22/6	100mA	22/6	5A DC	22/6	300v DC	22/6	500v AC 22/6
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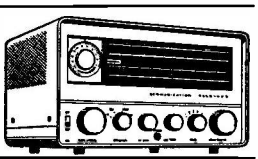

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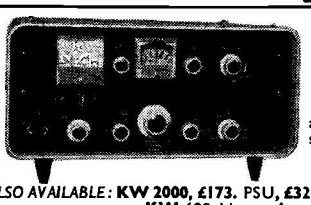

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PART EXCHANGES WELCOME

FOR THE RADIO AMATEUR AND AMATEUR RADIO

The SHORT WAVE Magazine

EDITORIAL

Mistake? *It is always a little disappointing when what seemed to be the purity of a Good Idea is sullied by an unexpected change of circumstances or the march of international events. In this space in the August issue the thought was thrown out that Amateur Radio could benefit enormously by being positively identified with UNESCO —the United Nations organisation most appropriate (for reasons explained last month) to the field in which readers of this piece would be most interested.*

Within two days of that Editorial appearing in print, one of the more intelligent and better-informed Sunday newspapers was able to show that the Communist bloc intends, at the half-yearly meeting of UNESCO to be held in Paris this month, to make a play for the ultimate control, on three broad fronts, of the United Nations Educational, Scientific and Cultural Organisation.

Of course, it is now quite unacceptable that, if this ploy were to succeed, Amateur Radio should come under even the indirect control of a politically slanted international body. At the moment of writing (as when last month's Editorial was composed) UNESCO is a strictly non-political "educational, scientific and cultural organisation." It could well be that by the end of October this might no longer be true.

And if this were not enough, we are informed by the IARU secretariat that a body known as "The Radio Sports Federation of the USSR"—one can only wonder about what sort of games they play!—is now a member-society of the Region I Division of the IARU. While membership of the IARU by countries like Russia, Poland, Czechoslovakia and Yugoslavia can only be a good thing within the meaning of last month's comment in this space, it could be a very bad thing if the Communist bloc does succeed in gaining control of UNESCO— with which, of course, within the terms of its charter Amateur Radio ought to be identified.

It could be another six months before the facts and the position become clear. In the meantime, remember that the I.T.U. (the United Nations International Telecommunications Union, which lays down the rules) can only be swayed by intelligent discussion and hard argument. It is more than doubtful whether Amateur Radio is well enough represented to make a strong case.

Austin Forsyth, G6FO.

WORLD-WIDE COMMUNICATION

GENERAL PURPOSE TEST AND MONITOR UNIT

VERSATILE INSTRUMENT GIVING CW/AM MONITORING AND COMBINING FUNCTIONS AS ABSORPTION WAVEMETER AND FIELD STRENGTH METER

D. A. HOLLINGSBEE (G3TDT)

While many experienced operators *can* use a Morse key without a monitor, there are hundreds more who can not (the writer included). Furthermore most of the inexpensive receivers at present available, including surplus models, have no means of reducing the gain to a level that permits monitoring. Of course, modification is possible, but this always lowers the resale value of equipment and is not a task to be undertaken lightly by an unskilled owner. A disadvantage of the instrument to be described is that it gives no indication of the actual quality of CW transmission. Even so, the only reliable test of quality is to ask for a critical report from another amateur—a two-letter G callsign is the first choice from the station of G3TDT.

While working on this idea, sensitive field strength and absorption wavemeters were needed to trace an intermittent TVI problem on 20 metres. So, the separate instruments were amalgamated. This instrument is very sensitive, being able to detect a re-radiated signal several feet from the offending source—in one instance, off the coax from a domestic FM/VHF receiver aerial.

It is expected that this article will be most useful to those who, like the author, have late call signs. Who knows, it may help eliminate that poor sending and those bad notes to be found on Top Band and Eighty—so that the compiler of the Miscellany column has to find something new to comment rudely upon !

* * * * *

The requirement at G3TDT was for a CW monitor with speaker output, self-powered and independent of other station equipment. This was developed first and the other facilities added. There is nothing original in these circuits and they can be omitted or modified to suit individual taste.

The heart of the instrument is the transistor switch/amplifier TR1. A signal across the RF choke is rectified by the silicon diode D1 and in part smoothed by C1, then fed at negative potential into the base TR1. This causes the transistor to conduct and switch in either the audio oscillator or the meter, depending on the position of the selector switch S1. The variable resistor RV1 serves to hold the transistor down under no signal condition and to attenuate large signals.

For all-band working an aerial should be plugged directly into SK1. This could be a short rod (telescopic perhaps) or a random length of wire. Much will depend on the frequency and the amount of RF in the shack. For use as an absorption wavemeter, or when frequency discrimination is required, the simple tuned circuit L1, VC1, is plugged into the aerial socket. It will be found that less aerial can be used with this set-up, a short probe being all that is required under many conditions. As a wavemeter, it is usual to couple direct to the coil but as a field strength meter an aerial is essential.

For AM monitoring the transistor is taken out of circuit and the rectified signal fed to a pair of high resistance headphones *via* the jack socket, J1, the phones acting as a bleed resistance for C1 and C2. It would be a simple matter to alter the circuit so that the built-in speaker could be used, but it is very difficult to judge the quality of transmission when you can hear your own voice direct—and phones make excellent ear muffs. Furthermore, there is less risk of feed-back howl, so, as monitoring is usually a short-term need, the inconvenience of phones is offset by the simplicity of the circuit.

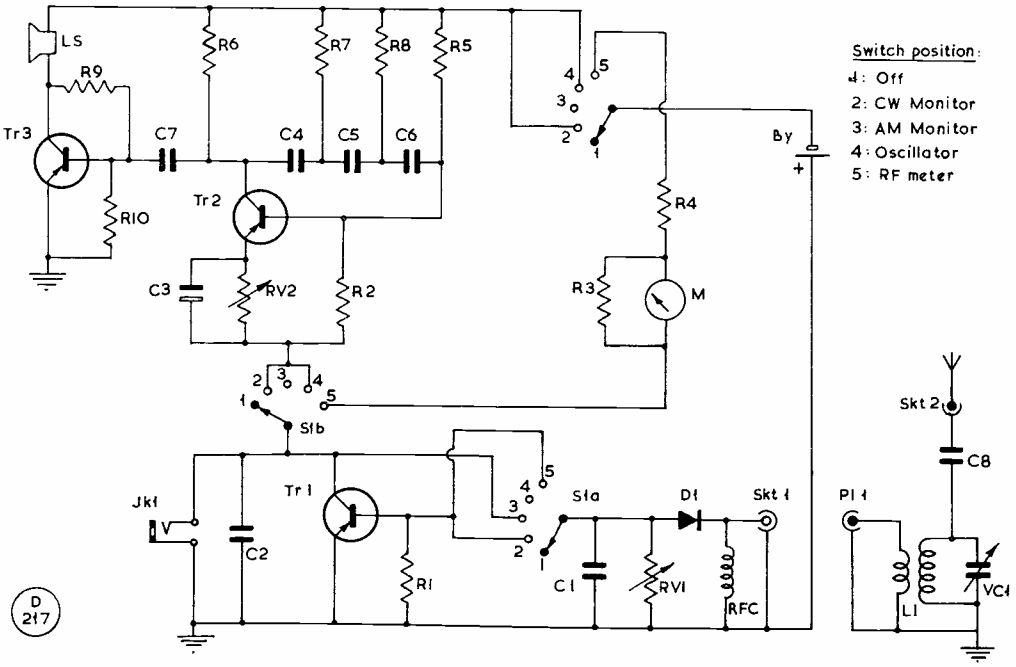
The same jack socket is used to accept a Morse key or switch when the instrument is used as a practice or test oscillator.

The Audio Oscillator

This is a conventional ladder or phase-shift oscillator, the frequency being determined by the capacitors C4, C5, C6 and the resistors R6, R7 and R8. The setting of both RV1 and RV2 will influence the final note as will the battery voltage. Although the output from the oscillator can be a near perfect sine wave, that obtained from the very simple output stage is far from it. A more sophisticated output circuit could be used if a T9 note is required for monitoring.

Components

A feature of the instrument is the very wide component tolerance and even the most humble junk box will produce many items. The diode D1 should for preference be a silicon type but it would be worth trying an OA73 or OA70 if they were to hand. The switching transistor needs to be a high gain type and, other than the industrial ACY19 used, OC84, OC83 or OC75 from the *Mullard* range would prove satisfactory. It is possible that a good OC72 will work and is worth trying. Almost any p.n.p. transistor will do for TR2 as long as it has a gain of at least 30—the low end of an OC71. RV2 can be carbon or wire wound and is set to give the most acceptable note with the key held down. A fixed resistor value could be found by trial and error and it could be beneficial to include a low-value resistor —say 47 ohms—between the emitter of TR2 and



Circuit of the General Purpose Test and Monitor Unit

the junction of RV2 and C3. If the note is too high or low, then R6, R7 and R8 should be changed for the next preferred value. Raising the value will lower the note. The output transistor, TR3, can be almost any medium power type, and once again our old pal the OC71 might work.

In the original model a balanced-armature headphone was used as a speaker, but a conventional 30-ohm speaker will do as well. Alternatively, a small transformer with a ratio between 5 and 10 to 1 could be used with a 3-ohm speaker. A word with a local repair man (or a schoolboy!) could well produce an unrepairable "Hong Kong portable" complete with speaker, transformer and transistor not to mention battery clips and maybe a case for the whole thing. The meter should have an FSD of about 5 mA, the shunt, R3, being adjusted to suit. R4 is selected to limit the current when TR1 is in the bottomed (short circuit) condition. Selecting "Field Strength" and shorting the jack socket will produce the correct conditions for setting. Resistance values quoted are for use with the Japanese MR-2P 1 mA meter but there are plenty of surplus meters, such as RF types less thermo-couple, that are a third the price and at least three times more reliable.

Almost any variable condenser can be used for

Table of Values

Circuit of the Monitor Unit

C1	= .001μF, ceramic	R10	= 10,000 ohms
C2, C8	= .01μF, paper or poly.	RV1	= 10,000 ohms
		RV2	= 500 ohms preset
C3	= 25μF, 12v. wkg. elect.	RFC	= 2.5 mH RF choke
		M	= 1 mA Meter
C4, C5		S1	= 3 pole, 5 - way switch
C6, C7	= 0.1μF, paper or poly.	Sk1.PL 1	= Coax or Phono plug and socket
VC1	= 150$\mu\mu$F variable	Sk2	= 4mm socket for probe or aerial
R1	= 1 megohm	J1	= Open jack socket
R2	= 4,700 ohms	By	= 9-volt battery
R3	= 100 ohms	D1	= OA202 Mullard
R4	= 2,200 ohms	Tr1	= ACY19 Mullard
R5, R9 R6,	= 39,000 ohms	Tr2, Tr3	= OC72 Mullard
R7, R8	= 1,000 ohms		

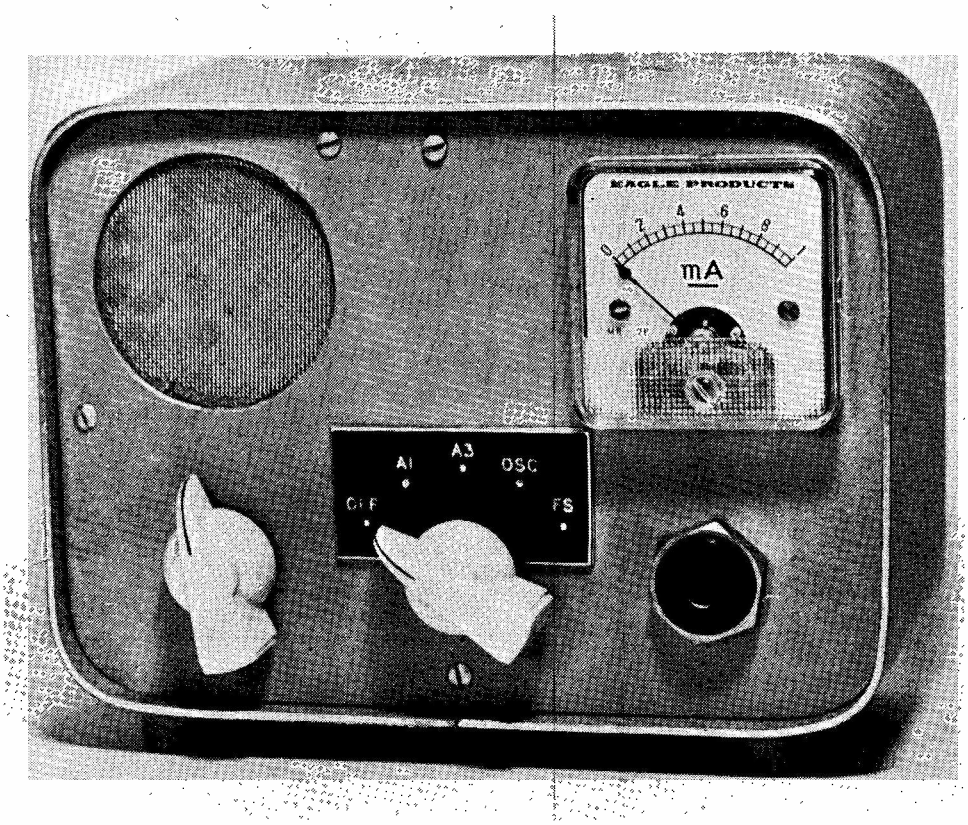
All resistors ½ watt, 10%.

WINDING DATA FOR COILS (L1)

Range	Tuned Winding	Link
1.25 to 4.0 mc	79 turns of 32 swg	6 turns
3.75 to 7.5 mc	28 turns of 22 swg	3 turns
7.25 to 30 mc	6 turns of 22 swg	2½ turns

All coils close wound on 1-⅛-in. former.
Link winding at cold end, spaced $\frac{1}{16}$ in. from tuned winding.

[*cont'd p.398*



The instrument complete as described by G3TDT. A multi-purpose test and monitor unit, it functions as a sidetone check on CW or AM transmission; as an absorption wavemeter; an audio oscillator; and as a field-strength sensor, with either headphone output or meter indication — what more could you want out of one box?

VC1 in the tuning head, with 50 $\mu\mu$F as the suggested minimum. The number of turns on the coils can be adjusted to give the required coverage. The smaller the capacitor, the more accurate the calibration but more coils will be needed for complete coverage and perhaps a fixed padding capacity across the tuned winding. The prototype uses plug-in coils made by glueing tube to old octal valve bases but as an alternative, switched commercial coils are neater and would appeal to those who do not wish to roll their own. Standard RF coils with a low impedance aerial winding, such as the *Electroniques* LZ range, would do. But remember that the input winding becomes the output link.

Calibration is best done by coupling to a signal generator or a grid dip meter, but in the absence of these instruments it is quite practical to use a general coverage receiver. The scheme is to short circuit the link coupling and to put a few turns of insulated wire over the centre of the tuned winding. Connect one end to the aerial socket of the receiver and the other end to a suitable aerial. In this case, a random length of wire is probably better than a three-element beam! Tune into a strong carrier on the band to be calibrated and adjust the variable condenser VC1 of the tuning head until you see a dip in the S-meter reading. Repeat until you cover the band. Any gaps can be "guestimated" with surprising accuracy. The process is easier than it sounds, but a word of warning: With many simple receivers it is not easy to discriminate between a genuine signal and the image (second channel) at frequencies above 10 mc.

The selector switch, S1, need only be a 4-way 3-pole as the oscillator will key in the "AM monitor" position. Finally C2, the ·01 μF capacitor across the jack socket can be adjusted (or omitted) to provide suitable click suppression—but don't make it too large or AM monitoring will suffer.

Construction

The case used measures 5½ x 3 x 4 inches high and this seems about optimum but there is nothing fussy about size or layout. If you want to copy the case, cut a strip of aluminium (about 18g.) 18½ x 3 inches wide and form it round a broom handle

to make a wrap-round cover that butts together at the bottom centre. Now make up four angle brackets ½ x ½ x 1½ inches long. Rivet or screw one across the butt joint ¼ inch or so from the front of the case and another about ⅛ inch from the back edge, with the bent up flange facing out in both positions. The other two brackets are fitted directly opposite in the top of the cover. Using the wrap as a template, cut out the back and front plates and mark which way they fit. It is most unlikely that they will be interchangeable. Secure the plates to the angle brackets with small self-tapping screws. After drilling (a fret saw will cut the meter hole) cover the wrap with a strip of wood-grained *Fablon* and paint all bare metal to match the shack curtains. Fit four rubber or p.v.c. feet (*Radiospares*) and the mechanics are complete. The construction of the tuning head will depend on the size of the variable condenser and coil socket. One neat scheme is to use two 2 oz. tobacco tins, less lids. Assemble in one tin then tack solder the other to it and, after painting, cover the joint with p.v.c. tape. The connection to the main unit must be made with screened cable.

There is nothing critical in the electrical layout and as good plan as any is to mount all the components on a piece of *Veroboard* or paxolin about three inches square and connect to the switch, meter, etc. by flexible leads. With a current consumption of about 6 mA a small battery will do, a PP3 lasting weeks.

Concluding Notes

There would seem to be no limit to the uses of this instrument. Like so many simple tools—it is not a gimcrack—you wonder how you managed without it. Extension is possible to make it even more versatile, and a VHF and a GDO head are being developed. Also an extra socket is being fitted to permit the oscillator output to be used for MCW transmission and testing.

A final word of warning: This instrument is very sensitive and even a low power driver stage could overload and burn out the first transistor. So keep the gain control well down until you are sure of setting.

Few things are the work of one man, so the writer extends his thanks to Reg Searle for developing the case; to G3IKO for testing the suggested alternative components; and to Tony Boxall for the photograph.

FULL CW BREAK-IN

ANOTHER INTERESTING CIRCUIT

R. E. BONA, Grad.I.E.R.E. (G3SGX)

IT may interest those seeking to convert their stations to full break-in on CW that this can be done very easily by means of the change-over pressurised reed relays now readily obtainable in this country. A circuit described in detail in the July 1964 issue of *QST*, and devised by VE3AU, has been constructed by the writer and has been in use now for over six months, giving excellent break-in with a Heathkit DX-40U transmitter. The circuit is easy to build and has given no sign of trouble since it was installed.

The reed relay employed is a *Hamlin* type DRG-DTH, obtainable in this country from *Flight Refuelling (Industrial Electronics Division)*, Wimborne, Dorset, who are agents for Hamlin. Cost of the relay plus actuating coil was approximately 25s. Drive required for the coil is about 30 mA at 12 volts—at G3SGX this is obtained from an old battery charger which also supplies a muting relay in the station HRO.

The complete circuit for cathode-keyed transmitters is shown in Fig. 1. The DC keying circuit of the Tx is completed through the transmitter relay contacts, with RF blocked by chokes. Hence the key is not closed, so far as the Tx is concerned, until the relay has connected the aerial to the Tx. The transmitter's keying shape on "make" prevents the RF output from rising rapidly during the short contact bounce period (quoted contact bounce period for the type DRG-DTH reed is in the region

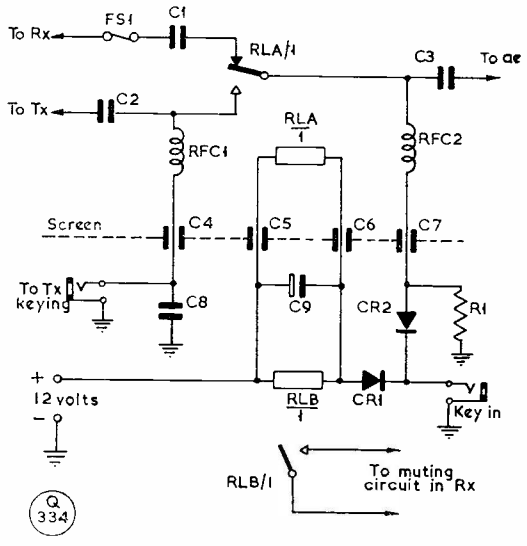


Fig. 1. Circuit of the device. Values can be: C1, .03 μF disc ceramic; C2, C3, each two .03 μF disc ceramics in parallel; C4, C5, C6, C7, .001 μF ceramic feed-through; C8, .001 μF; C9, 250 μF, 12v.; R1, 270K; CR1, CR2, silicon diodes rated 400 p.i.v., such as Hughes HS-1020; RFC's, 2.5 mH RF chokes; RLA, Hamlin DRG-DTH reed relay with actuating coil, 100 AT minimum; RLB, miniature relay with 400-ohm coil. Condensers C1, C2, C3 should be rated 1000v.

of 2mS). The purpose of R1 is to discharge C7 during the time that the reed is swinging back to "recieve" from the "transmit" position. thus preventing a click in the Rx. The 250 mA fuse protects the Rx in the event of reed failure.

The VE3AU circuit shows a 2 μF condenser in the C9 position, but this is with no other coil in shunt with the reed coil. At G3SGX the 400-ohm coil of the Rx muting relay shunts the reed coil, and a 250 μF capacitor is used. This just keeps the reed held in between letters at a speed of about 16 w.p.m. Unslugged, the reed will easily follow every single dot at 40 w.p.m.

The DRG-DTH reed has a contact rating of 10 watts DC, and is thus slightly "over-watted" when used with the DX-40 (Tx power input of 75 watts.) However, no sign of trouble has so far been experienced, and VE3AU states in his article that he used this type of relay successfully with Tx power inputs of up to *700* watts ! For those interested in QRO operation with a greater margin of safety, he describes (in a later issue of *QST*) a unit using several reeds in parallel.

The circuit shown in Fig. 1 can easily be adapted for use with a blocked-grid Tx by reversing the polarity of the DC supply, the polarity of C9, and the polarity of the diodes CR1 and CR2.

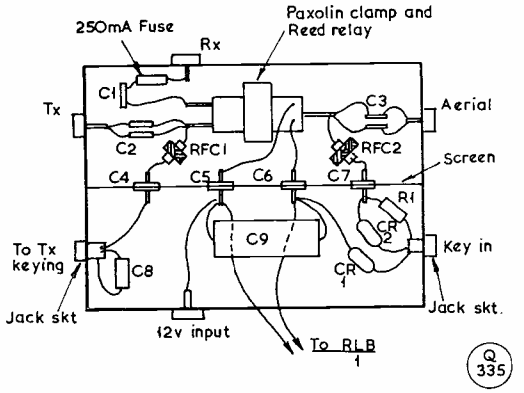


Fig. 2. A suitable layout arrangement, using an Eddystone die-cast box—see text.

Layout of the unit is not critical, except that those components carrying RF should be screened from the rest. The writer used an Eddystone diecast box of dimensions approximately 7½in. x 5in. x 3in. and layout as shown in Fig. 2, but the components could all be housed in a much smaller box.

VARIABLE HT SUPPLY

D. J. BEAN (G3TJQ)

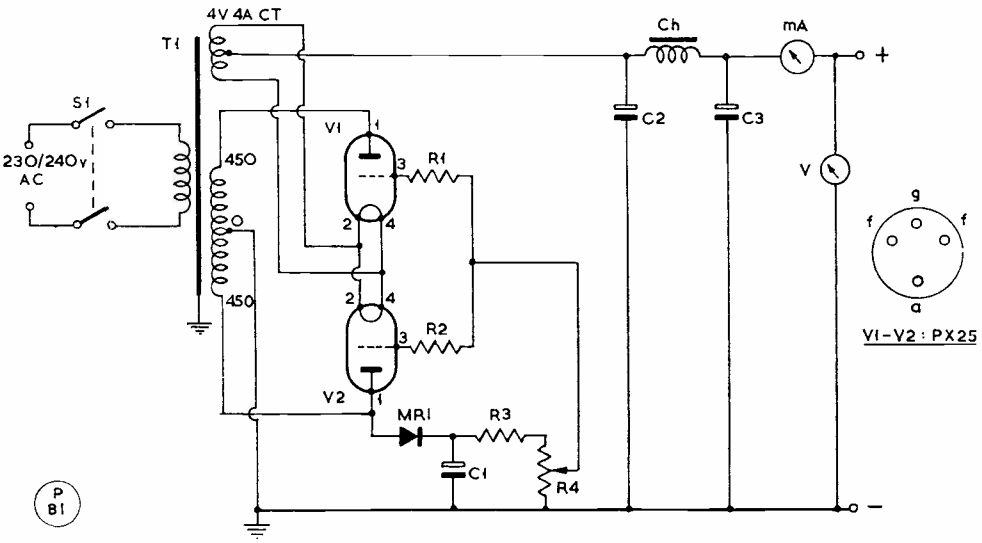


Fig. 1. Values for the circuit descussed in the text can be C1, 4 μF, 500v. electrolytic ; C2, C3, 16 μF, 450v. electrolytic ; R1, R2, 10K, half-watt ; R3, 100K, half-watt ; R4, 500K linear potentiometer ; T1, any mains xformer giving 450v. 150 mA, with 4v. 4A heater windings ; Ch., 10 Hy 100 mA smoothing choke ; MR, 1000 p.i.v. 1 mA rectifier ; voltmeter and milliammeter to suit, 500v. and 100 mA ; and valves V1, V2, can be old power triode types such as PX25, PP5/400, DO24, P27/500, PX5 or LP25, all capable of rectifying in the 50-watt range.

PRACTICAL CIRCUIT FOR USEFUL OUTPUT RANGE

HAVING need of a variable HT power supply at this QTH, various ideas were thought over and discarded, before the circuit shown here was built.

The basic form is that of the cathode follower, but with AC applied to the anode instead of DC. From the circuit it will be seen that current will only flow on the positive half cycles and furthermore, if a steady, positive, DC voltage is applied to the grid the current flow and subsequently the output voltage can be controlled by varying this DC voltage on the grid.

The circuit on p.400 is self explanatory and the layout and component values are not too critical, but C1 should not be less than 500 volts working. If this value is not readily obtainable two 8 μF 450 volts working in series could be used.

If required, additional low voltage transformers may be provided for heaters and LV circuits. The whole circuit should be kept floating, about earth, so that the PSU can be used where a negative supply is required. If a centre-tapped heater transformer is not available an artificial centre tap can be made with two resistors in the heater leads (*see* Fig. 2).

The unit as shown has been used at this QTH and found to have fairly good regulation. The voltage drop when put on load can easily be corrected by adjustment of R4. The no-load minimum volts are 30v. dropping to 15v. with 100 mA load. The maximum no-load volts are 450v. dropping to 400v. with 100 mA load.

To facilitate fine adjustment of R4 a 6 : 1 reduction drive has been incorporated. The transformer T1, a junk sale purchase of unknown origin and of unknown current rating, has 4v. CT at 2 amps. four times and would appear to have an HT rating well in excess of 100 mA. The rectifier MR is the readily obtainable half-wave pencil type.

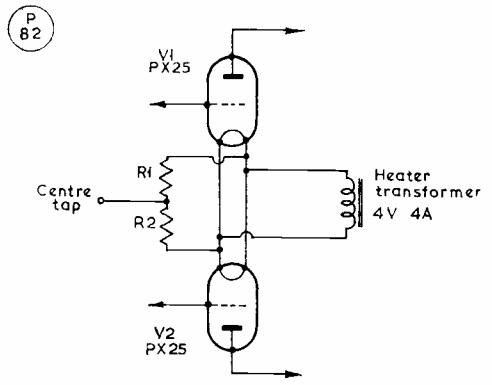


Fig. 2. Balancing the heater supply if the LT winding on the mains transformer is not centre-tapped. R1, R2 can be of 10 ohms each, rated a watt or so.

SOLDERING SIMPLIFIED

For as many years as we can conveniently remember, the firm of Multicore Solders, Ltd., have not only been producing cored solders in a variety of weights, gauges and mixes, but have been finding new ways in which solder can be used. Always with the handyman and home constructor in mind, they have now produced a new pamphlet called *Hints on Soldering*. It is short and easy to read, and can be obtained through any local dealer stocking Multicore Solder.

SMALL ADVERTISEMENT SECTION

This month's spread does not quite "beat all records". We have not had time to tally the total cash value of the for-sale items, but whatever the figure may be, what is certain is that our Readers' Small Advertisement section is now the market-place for the world of Amateur Radio, whether you are out to buy, sell or exchange. While it is true that to get in with the bargains you should have your copy of the *Magazine* right on time, it is interesting to note that this month we have heard from two readers saying that they have only just sold items offered in the April and May issues respectively—and wanting to know "Is this a record?" Well, we wouldn't know—but what it does prove is that the Small Adv. section is carefully scanned by those on the look-out for what they want at the right price.

". . . Yes, we do print our own QSL's, etc., here . . ."

• • • The Mobile Scene • • •

Since our last appearance, four Rally events have occurred, with varying weather conditions. But as yet no reports have been received covering them, and only two (Derby and Yelverton) took place on dates that could possibly have caught this issue.

What we have got is the story from *South Shields* where, on July 10, they had weather even worse than it was last year! It rained all day, instead of only for some of the time. However, South Shields had what they consider to be "a remarkable turnout, in spite of the conditions." They welcomed more than 200 people, in 75 cars, of which 30 were fitted mobile. Once again, Bill Thompson, G3MQT, made his marathon drive from Hastings. G3GEJ was another long-distance traveller, up from Letchworth, Herts. The driving competition—made even more difficult by the Wx—was won jointly by G3SZP/M and SWL Ealgh. Another contest, involving questions on safety under mobile conditions, was won by G3LEA/M with 84 out of 100 points. Other interesting competitions were a radio quiz, won by G3TDV, and judging the frequency of varying audio tones; the winner of this one was G3OGV. The talk-in stations were G3DDI on 160m., with 20 mobiles logged in spite of a high local noise level; the two-metre station, G3FSL, heard only three /M's. The day was rounded off with the usual raffle, and the prize presentations. The general feeling was that the affair had been a success, in spite of the appalling Wx, for which the South Shields boys (who always work hard to put on a good show) had the sympathy of their visitors.

Weather was again the factor for the *Worcester* Mobile Picnic on July 17—it rained for most of the day, which is thought to have "deterred some potentional visitors." Nevertheless, the event drew about 160 people, in 61 vehicles, the DX man being G3JTK/M (on 160m.) who came up the 132 miles from Portsmouth. The prizes for best distance worked /M with the talk-in stations went to G3OOQ/M, 21 miles on 160m., and to G3PXZ/M, 30 miles on two metres. The junk stall did a good trade, and particularly appreciated were the refreshments, which were provided by the wives of Worcester Club members.

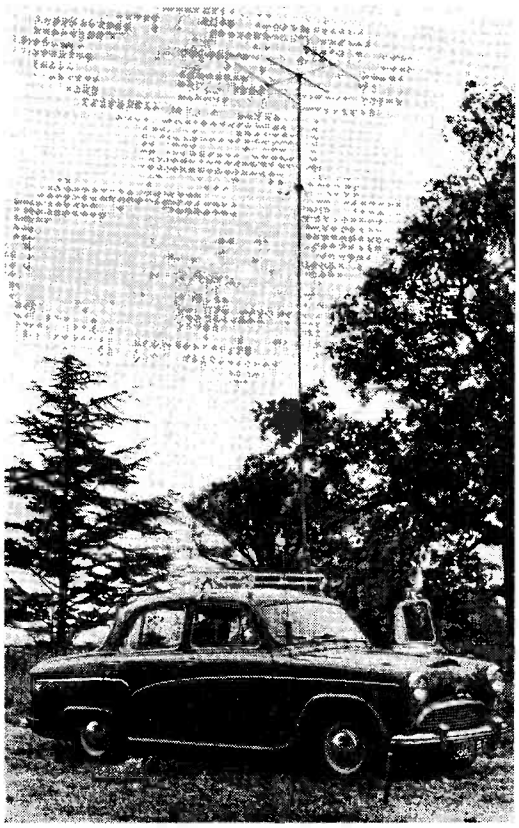
For the *Cornish* Mobile Rally on July 24, the dominant factor was again the Wx. But the final count showed that nearly 100 callsigns had registered, which meant that about 250 people must have been present. The /M rigs on the Rally site on Pentire Headland, near Newquay, ranged from small transistorised transceivers to elaborate installations filling the boot of a

[cont'd p.405

In spite of rather indifferent weather for most of the day, the sun did come out at times for the Cornish Mobile Rally at Pentire Head on July 24. The attendance, of about 150, was somewhat affected by the Wx — nevertheless, there were 25 vehicles fitted mobile, and the talk-in stations worked them on 160/80/2m. A party of 12 from Yeovil — who have now made the trip to Newquay for the Rally three years running — got a special prize. Other prize winners were G3OCC/M (Chislehurst), G3RUK/M (Birmingham) and G3TFN/M (Manchester).

Seen at the Worcester Amateur Radio Club mobile gathering on July 17, at Upton-on-Severn — left to right : G3SWT, G3NUE, G8JC and G3PXZ/M, who took the prize for the best VHF mobile contact.

The lady is Edna Cooper, G3UGO, in charge of the two-metre talk-in station for the Cornish Mobile Rally on July 24. Further down the operating table are G3TTG (Top Band) and at the far end, G8AW on 80 metres.

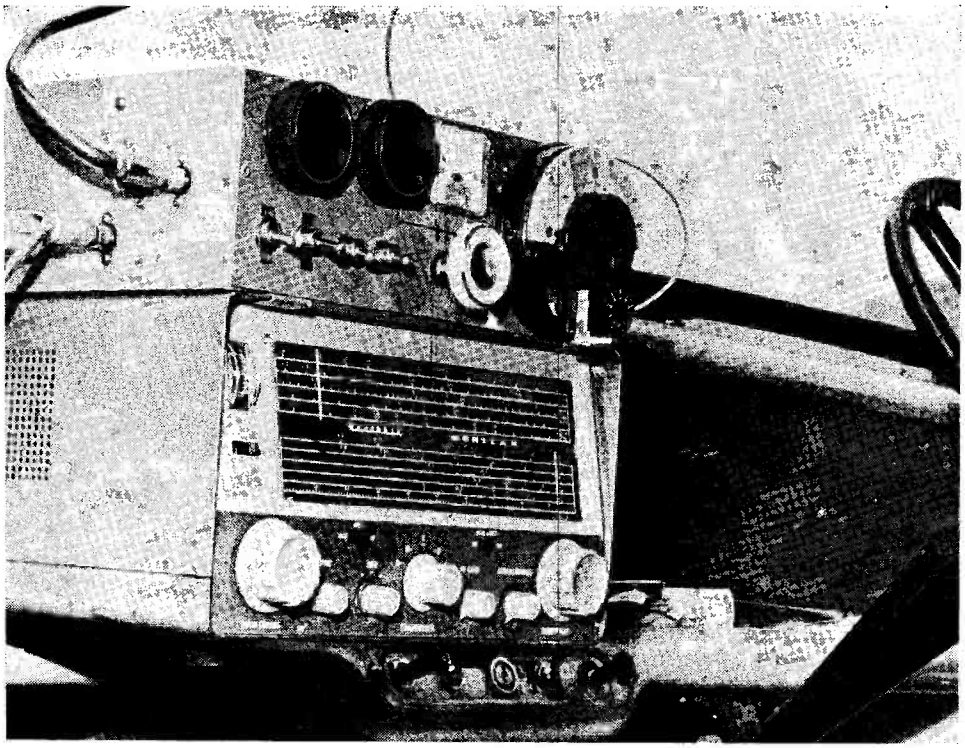


A very good example of portable/mobile — the two-metre talk-in station for the N.A.R.M.S. Mobile Rally at Harewood, near Leeds. The 3-ele beam, and the mast sections with guys and pickets, knock down to a tidy bundle that can be carried on the roof rack. This, in fact, is the way to go /P on VHF.

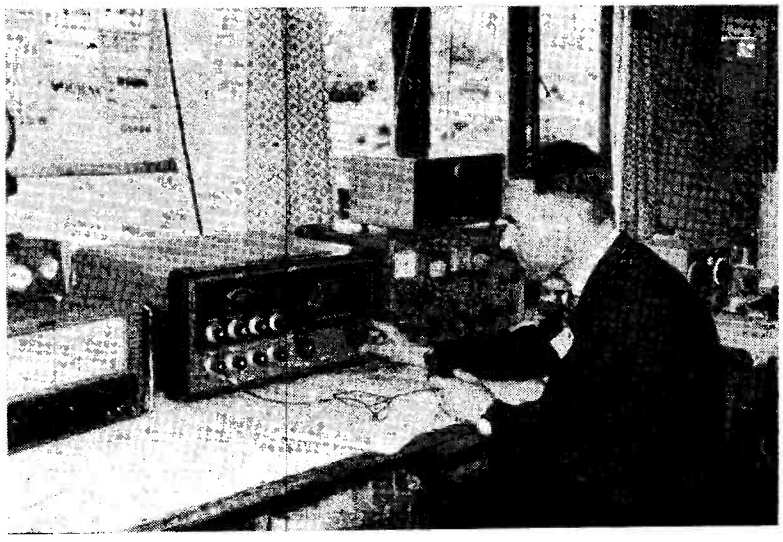
Some of the visitors, and the gear on offer, at the junk sale held for the Worcester Mobile Picnic.

CALLSIGN PLAQUES

The firm of F. W. Harris & Co., Ltd., Town Hall Chambers, Lydney, Glos. offer neat individual call-sign plaques, in various styles, at very competitive prices. If you want something to show in your wind-screen, or stand beside the gear, it is worth making an enquiry.



G3PGJ/M of Plymouth was at the Longleat Mobile Rally, with a rig consisting of a Heathkit Mohican GC-1U receiver and a 160-metre transmitter running PCF80 osc. into EL84 buffer, with another EL84 in the PA.



G3SN is president of the Saltash & D.A.R.C. and did his stint of operating GB3SAL during the Rally.

large car—and, says the report, some of the aerial systems had to be seen to be believed. (Having been to many a Rally, we can!). A much neater installation was that of a radio car shown by the local police, with the officer i/c only too pleased to demonstrate his rig and talk about police mobile radio. This is the sort of thing that should be a more regular feature of Mobile Rallies.

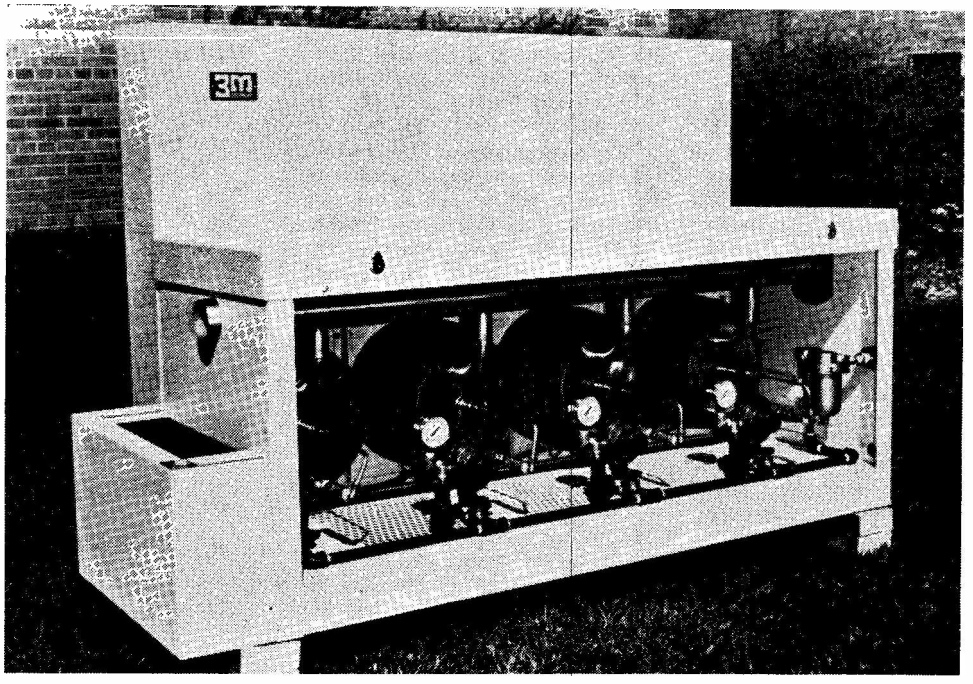
Here is the next list of fixtures, the last we shall publish this year:

September 4: Swindon & District Amateur Radio Club Mobile Picnic at Lydiard Park, about two miles west of Swindon, just off the A.420 to Chippenham, map reference 157/100842, and sign-posted. Lydiard House, ancestral home of the Bolingbroke family, is a show place and will be open. Talk-in by G3LLZ/P on 1920 kc, and by G3JOT/P on 70·2 mc, both on the air from 12 noon. Events will include a raffle and a bring-and-buy sale. A picnic meal should be brought if required, though light refreshments will be available on site. An advance notification of attendance would be appreciated, to: I. S. Partridge, G3PRR, 104 Grange Drive, Stratton St. Margaret, Swindon, Wilts.

September 11: RSGB Mobile Rally, at Woburn Abbey, near Luton, Beds., the well-known show place, grounds and zoo park maintained by the Duke of Bedford—where you can roam over 3,000 acres inhabited by 2,000 animals, and see the state apartments of the Abbey. The Rally will be in a reserved area, with talk-in by stations GB2VHF and GB3RS on the following channels: 1940 kc, 3750 kc (SSB), 70·26 mc and 144·86 mc. There are restaurants and snack bars in the grounds, and events for Rally visitors will include a pedestrian D/F hunt (that's what it says!), a junk sale, a trade exhibition, and a grand raffle. This is always one of the big Rally events of the year and, given a sunny afternoon, it should be as well supported as ever. There is an admission charge to the Park, which can come to quite a lot for a carful.

September 16-18: Second International Amateur Convention and Mobile Rally at Knocke-le-Zoute, near Ostend, Belgium, to be attended by radio amateurs and (X)YL's from several countries. A three-day, Friday-Sunday, programme has been arranged, at an inclusive charge of £10 a head, covering meals and accommodation and including the special convention lunch on Saturday, 17th. As explained here last month, bookings should have been effected by now. Some last-minute information could probably be obtained from: J. C. Foster, G2JF, Wye College, Ashford, Kent.

September 25: Harlow Mobile Rally *(no details provided).*



Nothing to do with mobile, though much used in remote locations as a source of low-voltage power—the new 3M thermo-electric generators operating off propane, butane or natural gas and giving either 100 watts (Model 530M) or 200 watts (Model 540) at 6, 12 or 24 volts DC. Designed for continuous unattended operation under all possible climatic conditions—from desert heat to arctic cold—the only attention required is the periodical replenishment of the gas supply, which can come in high-pressure cylinders. Some practical applications of such generators are for providing cathodic protection for underground pipe-lines and powering unattended relay stations, marine buoys and similar installations.

VHF BANDS

A. J. DEVON

IT was not until towards the end of the period covered by this report that a real uplift in conditions began to develop, with a large anti-cyclonic area becoming stabilised in a general south-westerly direction, towards the Azores. This took in most of the southerly part of the British Isles but, as has so often happened in the past under similar met. conditions, the GM's were out of it. In fact, in round terms VHF propagation in the DX sense followed the pattern of the weather. And this period of better conditions only lasted about a week. Indeed, so far this year we have not had much of a break with the EDX—but there is time yet. At the moment of writing, it is too early to know much of individual results during the late-August opening.

However, as so often happens when VHF seems otherwise quiet, there is much to discuss. On the meteor-scatter front, there has been a good deal of activity, some of it abortive, but much else very productive. During the *Perseids* shower, August 10-14, G3LTF (Chelmsford) had a two-metre sked with SV1AB, which Peter reports as having been "fully negative"! But he heard HB1ADT/P on the 11th. On the other hand, EI2A/OK2WCG had a MS contact on the 12th, 0001-0230z, with good signals both ways; Ivo of OK2WCG also heard OE5XXL in QSO with an SM, and others heard or known to be on for this *Perseids* session were DM2BEL, ON4TQ and UR2CQ.

In an interesting report about MS working, EA4AO (Madrid) records sked contacts with F8DO (Drace, Rhone Vy.) on August 10 and 14, with very strong signals, up to S8 and S9+, in bursts of more than a minute. A schedule with UB5KDO over the same period failed but on the 13th and 14th EA4AO had an exciting experience with the new EDX station PA6MB (note the c/s) formed by a consortium of PAØ's for E-M-E and MS operations, specially licensed for 1 kW, and at present using an 8-over-8 system on two metres. Martin in Madrid was copying PA6MB at up to S9+ with bursts of *three* minutes, 0600-0900z — just like a local station, as EA4AO puts it. So the *Perseids* gave rather well on this occasion — congratulations to all concerned on being able to make full use of the opportunity. Earlier, the *Aquarids* gave EA4AO a good QSO with OE5XXL in Linz, another station specially licensed for advanced VHF experimental work—they run a kilowatt input, with a 15-ele long-Yagi, producing S7 signals in Madrid. And this was a two-metre "First" for EA/OE.

The next meteoric appearances of interest are the *Giacobinids*, October 9, but forecast as not very intense; the *Orionids*, October 18-23, often very useful; the *Leonids*, November 14-15; and the *Geminids*, December 10-13, which have given very good results in the past. It is certain that the exponents of EDX by MS will be looking for further opportunities, which involves the making of tight schedules, with very accurate frequency setting at both ends. Some frequencies reliably known are: EA4AO, 144·100 mc; OE5XXL, 144·298 mc; F8DO, 144·002 mc; EA3KS, 144·001 mc; and PA6MB, 145·008 mc. EA4AO also has an alternative frequency at 144·900 mc. This list is by courtesy of Martin, EA4AO, now one of the leading European operators in the MS mode, and always there when the meteor showers are about. Other stations mentioned in this context are LZ1AB, SP2RO and YO7US—which also reminds us to say that Peter, G3LTF, would be glad to fix MS skeds with suitable co-operators in areas like I1, CT1, YO, UC and UQ.

* * *

Turning now to other DX and EDX results, G3LTF had some

SEVENTY CENTIMETRES

ALL-TIME COUNTIES WORKED

Starting Figure, 4

Worked	Station
49	G2XV
42	G2CIW
38	G3BNL
36	G3JMA
35	G3KPT, *G6NF*
33	G3JHM/A, G3LTF, G8ADC
32	G3LHA, G3LQR, GW3ATM
31	G3JWQ, G5YV
30	G3EDD, G3KEQ
28	G3HAZ, G3HBW, G3NNG
27	G3PTM
26	G3KQF, GW2ADZ
24	G3AHB, G8ACB
23	G3BKQ, G6NB, G5UM (169)
22	G3HRH, G3OBD
21	G3AYC, G3FIJ, G3IOO, G5FK
20	G4AC
19	G3OWA
18	G2OI
17	EI2W, G3BA, G3MPS, G5QA, G8ADS, G8AKI
16	G2DDD, G3BYY, G3MED
15	G4RO
14	G2BDX, G2HDZ, G3FAN, G3HWR, G5DS
13	*G6XA*
12	G3NJO/T, *G5BD*
11	G2AXI, G3EKP
10	G3IRW, G3LZN, G8ACK
7	G2HDY, G3JHM, G6AX/P
6	G3KHA, G3WW
5	G3FUL, G3IRA, G3IUD, G3LTN, G5ML, GC2FZC
4	G3JGY

On working four Counties or more on the 70-Centimetre band, a list showing stations and counties should be sent in for this Table, and thereafter new counties worked notified as they accrue.

interesting experiences on 70 cm. and *23 centimetres* during the mid-August opening (which for us, of course, was "late in the period, near the deadline"). The best of these was hearing OZ7SP on 23 cm., S3-4 on August 17, when he was also worked on 70 cm. This being the second time Peter had heard OZ7SP on 1296 mc, it was a disappointment that the OZ could not find him; during this same spell, all 70/23 cm. signals heard around East Anglia were very strong, G3LQR at 60 miles blocking the G3LTF Rx on 23 cm. By the 18th, conditions had changed somewhat, and though G3LTF worked OZ5AH and OZ7SP on 70 cm. and heard OZ6OV, all at 59+, the 1296 mc band had gone dead again. Peter also mentions F3KT/P and G3OBD/P, but it is not quite clear on which band these were heard or worked.

Writing from Canterbury, G8AJC describes what was a very effective, though probably rather localised, 70 cm. opening to PAØ and ON4 on August 12, during which he worked eight PAØ's and two ON4's, all with very strong signals; in terms of distance, his best DX was PAØHMS at 250 miles. This opening was from early evening until after midnight, when a couple of F's were still coming in—but the general activity was low; in fact, G8AJC worked all the stations he heard. His Tx consists of a QQV03-20A as a tripler-amplifier taking 32w.; the Rx is AF139 pre-amp. into two 6CW4's with a CR-100 as main receiver; and the beam assembly is a pair of 6/6's at 30 feet.

In sending in some claims for the Tables, and discussing VHF results up there generally, GM3FYB (Dunfermline) remarks that though he has been on 70 cm. since 1948, in that 18 years he has only worked 46 different stations in 12 countries; most of these have been accounted for in the last four years, the average distance being about 230 miles, with SM6ANR at 580 miles as best DX. As Harry says, the GM's have to get out a long way for their VHF contacts; this in turn means that there are very few stations in Scotland on the 430 mc band—only GM3EGW, GM5VG and himself GM3FYB being ready-to-go at a moment's notice, *i.e.*, can switch on, warm up and be on the air as soon as a QSO is asked for or an opportunity occurs. Such gave possibly the GM/GD "First" on 70 centimetres, when GM3FYB encountered GD8AGY/P up Snaefell on August 5. Harry's totals listing brings out the interesting fact that though he has worked 22 different G's on 70 cm., his GM tally is only twelve stations (in 18 years!)

More News Items

That teleprinter mechanism we talked about last time reached Sark safely—and we might have mentioned that G3TEY is a touch-typist—one immediate result being an RTTY "first" for G/GC on both four and two metres; these QSO's were made by G5ZT (Plymouth) on August 18, on Two, with GC3OUF at the other end, and on the 19th on Four, signing GC3OHH from Sark. It was "landline copy" with RS-59 signals both ways. Before joining the party, G3OHH (Macclesfield) was able to get a straight CW contact on four metres with GC3OUF, on August 15—but it was rather a difficult QSO, the distance being a good 260 miles and conditions not too helpful. By August 20, using 15w. and a 4/4, the 4-metre score from GC3OHH (Sark) was 24 stations worked all over England, with the Manchester boys G3PMJ / G3SMU and G3RIK/P in Rochdale as the best DX.

The Sark two-metre station signed GC3OUF, and ran 60w. to a 10/10. By August 20, about 80 stations had been worked, G2WS and G3BA in the Midlands being the most distant.

Another sort of expedition, on 4 metres during the latter part of September, is being undertaken by G3UZW/G8ARH of the Dorking Club group, who will be journeying into the fastnesses of Wales with /P gear. Being new boys themselves, they hope to be able to give some of the others new to the VHF air a chance with a few of the rarer Welsh counties.

Still in Wales, we are asked to announce that the first meeting of

TWO METRES

COUNTRIES WORKED

Starting Figure, 8

28 G5YV (DL, EA, EI, F, G, GC, GD, GI, GM, GW, HB, HG, I, LA, LX, OE, OH, OK, ON, OZ, PA, SM, SP, UA, UP, UQ, UR, YU)

27 ON4FG (DL, EA, EI, F, G, GC, GI, GM, GW, HB, HG, LA, LX, LZ, OE, OH, OK, ON, OZ, PA, SM, SP, UA, UC, UP, UR, YU)

27 G3LTF (DL, EA, EI, F, G, GC, GD, GI, GM, GW, HB, HG, LA, LX, LZ, OE, OH, OK, ON, OZ, PA, SM, SP, UA, UP, UR, YU)

26 UA1DZ (DL, DM, G, HB, HG, LA, LX, LZ, OE, OH, OHØ, OK, ON, OZ, PA, SM, SP, UA, UB, UC, UO, UP, UQ, UR, YO, YU)

24 G2JF, OK2WCG, UP2ON

23 G3CCH

22 G3LAS

21 F8DO, G3HBW, OKIDE

20 G3BLP, OK1VR

19 G3EDD, G6RH, PAØFB

18 G2CIW, G5MA, G6NB, ON4BZ

17 G2XV, G3BNL, G3HRH, G3RST

16 G3AYC, G3BA, G3CO, G3GHO, G3KEQ, G3PTM, G6XM

15 G3DKF, G3FIJ, G3FZL, G3KQF, G3OBD, G3RMB, G4MW, GM3EGW, UR2CQ

14 G2AXI, G2FJR, G2HDZ, G3AOS, G3AOX, G3FAN, G3HAZ, G3IOO, G3JAM, G3JWQ, G3KPT, G3NUE, G3PBV, G3SAR, G3TLB, G3WS, G4LU, *G5BD*, G5DS, G6LI, G8OU, G8VZ

13 EI2W, G2CDX, G2HIF, G2HOP, G3DMU, G3DVK, G3EHY, *G3GPT*, G3GWL, G3IIT, G3LHA, G3NNG, G3OHD, G3PSL, G6XX, GC2FZC

12 EI2A, F8MX, G2BJY, G3AHB, G3BNC, G3BOC, G3FNM, G3GFD, G3GHI, G3GSO, G3JLA, G3JXN, G3OWA, G3WW, G5CP, G5JU, G5ML, G8DR, GW2HIY, GW3MFY

11 G2AJ, G2CZS, G3ABA, G3BDQ, G3IUD, G3JHM/A, G3JYP, G3JZN, *G3KUH*, G4RO, G4SA, G5UD, G5UM, G6XA, PAØVDZ

10 G2AHP, G2DHV, G2FQP, G3BK, G3DLU, G3GSE, G3LAR, G3LRP, G3LTN, G3MED, G3OSA, G3RTF, G3UFA, G3XD/A, G5MR, G5TN, G8IC, GW3ATM, GW5MQ

9 G2BHN, G2DVD, G2FCL, G3BYY, G3FUR, G3OJY, G3SXK, G4LX, G8GP, GC3EBK, GI3ONF, GM3DIQ, GM3LDU

8 G2BDX, G2DDD, G2XC, G3AEP, G3AGS, G3CCA, G3EKX, *G3GBO*, G3HCU, G3HWJ, G3KHA, G3PKT, G3MPS, G3UFQ, G3VM, G5BM, G5BY, G8SB, GM3JFG

the South Wales VHF Group will be held on Tuesday, September 27, at the QTH of GW4CG, 20 Austin Avenue, Porthcawl. May it succeed and prosper—and mount some DX-peditions round its own country.

By courtesy of G3LAS (Berkhamstead), we now have a list of VHF beacons and their frequencies. He shows no less than 15 on the two-metre band—fortunately, as John says, we are never likely to hear them all at once!—and three on 70 mc. As there are even now a few more to come, we are holding his list for the time being, for appearance in due course. A particularly interesting one he gives is 9H1MB, Malta, on 70·100 mc, which ought to be audible under the right conditions (as on the evening of August 19). To this, G3JHM adds ZB2VHF, on 70·26 mc, to operate continuously from the top of the Rock of Gibraltar, starting up about the end of September. The Tx gives 15-20w. output, into a 4-ele J-Beam. As G3JHM says, this new beacon should be very useful for checking on MS and spor-E effects.

The Tabular Matter

Since the year-end scores to August 31 cannot yet be in, and the new annual runs do not start till about the day this should be in your hands, we are taking the space and the opportunity to give some of the All-Time tables an airing. It is interesting to note that Gerry, G2XV, is still firmly in front in the 70 cm., and Louis, G3EHY, on 4 metres. Both are specialists on their respective bands, and for years have kept steadily at it. And it is also interesting to see how 4m. has overtaken Seventycems in terms of counties-available-to-work. There is no question that as things are now, the 70 mc band is more populated and active than the 70cm., though not so long ago the very reverse was the case. All movements claimed to date, about 20 altogether, have been taken into Two-Metre Countries, the main changes being around the mid-part of that Table.

Don't forget that w.e.f. September 1 we kick off again with a new series of Annuals—the Three-Band VHF, the Two-Metre and the 70-Centimetre, this latter being an addition to the Annuals, which run from September 1 to August 31. So get to work, and let us have your scores to start the Tables as soon as possible. Remember, also, that in the Annuals, even those new to VHF have a good chance of coming out well at the end of the year's work—it is simply a matter of regular activity and watching for the openings.

Some Quick Comments

EI2W is on 432·6 mc nightly, 1900-2300z; has been keeping a very successful sked with GM3FYB (220m.), and made the EI/GD "first" for 70 cm. with GD8AGY/P on July 30 . . . G4AC (Woodbridge) runs but 3w. to a 4/4 on 70 cm. and has a nice Rx using transistors in a G3BKQ-type cavity mixer . . . G8APR (Rochdale) took the R.A.E. 15 years ago, has been an active VHF listener for 20 years, and is now on 433·56 mc . . . G8AKQ operates from Barnsley and also from the BBC Club station G3PPG at Evesham, on 434·06 mc, running 100 watts or so, from a good QTH; skeds are invited (G3PPG, *QTHR*) . . . G6SDB/T (Dudley, *QTHR*), on 432·56 mc, likewise asks for skeds and would also like

TWO-METRE BAND PLAN—U.K.

Effective August 1st, 1966

Zone 1	144.0–144.1 mc	*CW only*, for any district.
Zone 2	144.1–144.25 mc	Cornwall, Devon, Somerset, Berkshire, Dorset, Hampshire, Wiltshire, Channel Islands.
Zone 3	144.25–144.5 mc	Brecon, Cardigan, Carmarthen, Glamorgan, Gloucester, Hereford, Monmouth, Pembroke, Radnor, Worcester.
Zone 4	144.5–144.7 mc	Kent, Surrey, Sussex.
Zone 5	144.7–145.1 mc	Bedford, Buckingham, Essex, Hertford, London GLC, Middlesex.
Zone 6	145.1–145.3 mc	Cambridge, Huntingdon, Leicester, Norfolk, Northampton, Oxford, Rutland, Suffolk, Warwick.
	145.41 mc	*SSB Spot Frequency*, any district.
Zone 7	145.3–145.5 mc	Anglesey, Carnarvon, Cheshire, Denbigh, Flint, Merioneth, Montgomery, Shropshire, Stafford.
Zone 8	145.5–145.8 mc	Derby, Lancashire, Lincoln, Nottingham, Yorkshire.
Zone 9	145.8–146.0 mc	All Scotland, Northern Ireland, Isle of Man, Cumberland, Co. Durham, Northumberland, Westmorland.

Notes: Zone 1 area is for CW exclusively, all districts, but A1 can also be used in own Zone. The SSB allocation is in accordance with Continental practice and thus becomes the international SSB channel. Stations using VFO can net outside their Zone when answering CQ calls—but should always call their CQ's in the correct Zone and then listen first on their own frequency. Beacon stations and guard channels must be avoided when changing frequency.

FOUR METRES

ALL-TIME COUNTIES WORKED LIST

Starting Figure, 8

From Home QTH Only

Worked	Station
60	G3EHY
57	G3SKR
56	G3OHH
52	G3IUD
50	EI2W
42	G3MOT
41	G3OWA (444)
40	G2OI
39	G3PJK
38	G3JHM/A
36	G3FDW
35	G3BOC, G3PMJ, G5FK (346)
34	G3LAS, G3TCT (253)
33	G2BJY, *G5JU*
32	G3NUE
31	G3PPG
30	G3BNL, GM3EGW
29	G3AYT
28	G3OJE, G3UYB (200), GC3OBM
27	G3RDQ
26	G3LQR, G3LZN, GI3HXV
25	G3FIJ, G3HRH
24	G2AXI
23	G3HWR (281), G5UM (238)
20	G3EKP
17	G5CP
16	G3BJR, G3TOT (100)
14	G3OKJ
13	G3UUT
12	G3TKQ, G5DS
11	G3LHA, G3PRQ, G3SNA
10	G2BDX, G3ICO
9	G2DHV, GM3FYB
8	G3NNO, G3TLB, G3UOR, G8VN

This table records Counties Worked on Four Metres, on an all-time basis. Claims can be made as for the other Tables, e.g. a list of counties with the stations worked for them, added to from time to time as more counties accrue. QSL cards or other confirmations are not required. Totals in excess of 100 different stations worked can be claimed and will be shown in brackets after the call.

The GM5UM/P set-up for two-metre operation during his recent safari. The aerial mast is a tight fit through a hole in a flat dural plate clamped to the roof-rack by wing nuts, and the butt end of the mast goes through the central hole of one of those large wooden reels on which wire is wound; this makes a firm base, and the beam is easily turned. During the trip, May 29 to June 9, 23 contacts were made on 145.8 mc, from Argyll and Wigtown shires, running 9w. on CW and 7 watts on telephony.

to hear from anyone with the appropriate vision receiving facility . . . New on the 4-metre band is GM3ULP (Wishaw), running 40w. with a home-built Tx, a T.W. converter, and a 4-ele Yagi; CW-only at the moment and always on the look-out . . . GC3OBM (Guernsey) runs a 4-metre sked with G3JHM (Worthing), 1800z daily; he would also like to hear from a GM willing to try a 4m. sked *(QTHR);* GC3OBM has other schedules, with EI6AS, GI3HCG and G3OHH, all long-haul on four metres . . . Newer comers to VHF making good progress include G3UUT (York) and G3UYB (Bromley), both batting steadily on 4m. . . . G3FDW has moved to a new QTH in Retford, Notts., and has not only got going for the Three-Band Annual, but also puts in a useful claim of 36C for the 4m. All-Time; he keeps around 70·14-70·16 mc, and uses all modes AM/FM/SSB/MCW/CW, which suggests that he must have a pretty comprehensive Tx/Rx set-up under his gamma-matched 6-ele Yagi . . . G3TLB (Tunbridge Wells) writes: "You *(meaning A.J.D.)* say call CQ if the band sounds dead; try two or three times again if you don't get a reply to your first call —and *what happens?* You don't get a reply to your third call!" Oh well, for years it has been a proven fact that your A.J.D. can never win!

Till Next Time

When once again we shall try to get it right. All the gen., pse, by **Monday, September 26,** latest, to: A.J.D., SHORT WAVE MAGAZINE, BUCKINGHAM—a sufficient QTH from anywhere in the world if you just add "England." Assuming all goes well, CUAGN on October 7. *Urs as ever, A.J.D.*

COMMUNICATION and DX NEWS

AT the time of writing this piece, your scribe has just realised that through most of the period under review he has, for one reason or another, been either minus transmitter, or, worse, minus both transmitter and receiver—and has, as a result, relied entirely upon reports sent in, except for one excursion on Forty (when things looked rather better than expected) and four very brief sessions on Twenty in the late evening, when, as always happens, the band was positively crawling with DX, and, oddly enough, with very little European QRM.

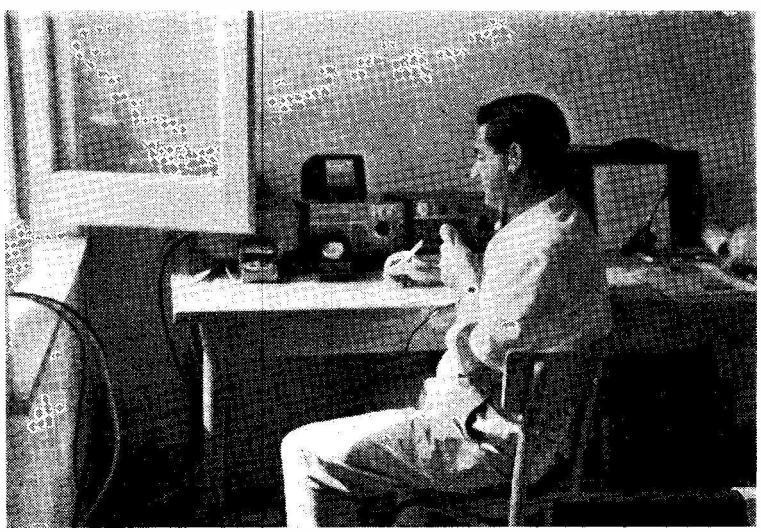
Being thus reduced to "watching the Box" it was irritating in the extreme when the picture disappeared under a shower of white flashes every few minutes as one or other of the local folk switched on an electric drill, or a thermostat failed to make up its mind as to which way it wanted to go on a heating system. The last straw was to look at a paper which revealed details of the prosecution of an unlicensed (but nevertheless genuine) ex-amateur U.K. licence holder for causing TVI by operating on Twenty under what had been his own callsign.

Leaving out the ethics of the case, there is no doubt whatever that any amateur *should* be able to operate one band or another free of TVI if he applies the lesson given in the R.A.E. course—and all bands if he adds to that a bit of plain commonsense in the application of that lesson. It is a plain fact that the advent of TVI and SSB have caused a more or less general tendency to go to commercial equipment; thus the user of the home-brew transmitter almost expects TVI, and accepts fatalistically the first complaint from the neighbour: he then either goes QRT or carries on regardless, and if the latter course is chosen then the stock of Amateur Radio in that area will slump to zero, and that *does* matter. Your neighbour may be a local magistrate, an M.P., or a Minister of the Crown, and then the area of conflict will widen. Your conductor once found himself in digs. where his neighbour at that time, well within TVI range, later in fact did become a Minister; if the gear used in those days had been let loose in the digs., then Amateur Radio would have obtained an opponent indeed.

Tackling TVI

Much is done at national level, in the interference context, to keep the "image polished"; however, it seems there is room for more work at a more humble level. Would it not be a good thing if local Club organisations were to set up a committee of those best suited, by experience and qualification, to give practical help and advice; more amateurs would be able to come on the air in TV hours, and probably the level of interference to TV by amateurs would reduce to an even lower level than it now is.

Having done this, would it not then be pertinent to enquire about the non-amateur pests that invade our so-called "exclusive" bands, the failure to enforce reasonable modulation and signal quality upon the other services who operate in our shared bands, and, who knows, the idea might catch



An impression of the IP1AA set-up at Pantelleria, with IT1GAI on the rig. Whoever of the party did the operating used his own call letters with the IP1 prefix — hence the confusion about callsigns heard and reported. When G5BZ took over the CW stint, he signed IP1AA/G5BZ — and had a very nice time at it, too. All by chance encounter on a holiday!

on with the authorities, in such a way that T2 operators are *made* to be T9 operators all over the world ?

Having thus looked into Utopia, let us now seek out life with the warts on, and survey the bands in order, from Top Band through to Ten, as revealed by your letters.

Top Band—and DX

G3TRO (Spalding), G3TMA and G4OO joined forces to have a weekend in Rutland, and seem to have had a whale of a time. As a balloon aerial was to be put into use, the operation commenced by the seeking of permission to use this from the Ministry of Aviation ; they eventually found the right phone number to call *(Hayes 6171)*, and discovered that permission was only needed if a height in excess of 200 feet was to be used. They eventually set off with no less than a mile of wire, the balloon, a brace of hydrogen cylinders, all the gear, and of course the tents, sleeping bags and grubstake.

G2NJ has been getting in among the GM stations from Peterborough, and has brought his Phone score up to 71 with their aid. He mentions GM3RIM/P, GM3TQD/P, GB2NI, GW3TB/P, G3UQD/A, and an interesting one in GM3JIJ/M in Ross-shire, this last being on CW.

W1BB writes that he is going to be away from October 1 until February 1 next year, and specially asks that no correspondence is directed at him during the period of his absence. After February 1, 1967, however, it will be a case of " business as usual." He has a lot of news of interest to the addicts of DX-the-Hard-Way ; CX3BH worked on June 26 for an all-time " first " on 160m., JA back on the band, now with an allocation from 1907·5 to 1912·5 kc rather than a spot frequency ; and we gather that W8DGP will be going to Alaska, and proposes to operate on Top Band from Shemyo Is., not far from the Loran station on Attu. Between September 1 and October 15, VK5KO will be on daily during 2000-2100z, listening for calls in the *even* five-minute periods of the hour, between 1800 and 1860 kc.

On a more local note, we have another nice long letter in from Fred, GM3SVK (Unst), who has now got steam raised well and truly on this band, to the tune of 44 counties in five weeks, in spite of erratic conditions and the usual summer static that frustrated several promising contacts with the South of England.

GM3SVK mentions also hearing W1BB/1 on a few occasions at 579, but laments that Stew has not been hooked as yet. He also says that he is willing to arrange skeds with anyone wanting a QSO : just drop him a line at RAF Saxa Vord, Haroldswick, Unst, Shetland.

G3TKN is another to write in and mention resumed activity, in his case due to examinations. During July, he had two good Phone contacts, the first with EI4BF/M in Dublin, at 59 each way, this one occurring at midday, which only goes to show the effect a few gallons of water can have on the path ! The other was again with a /M station, this time in Devon, at 599 both ways. Contacts such as these from Wallasey just go to show what a good signal can be radiated by a mobile whip, given that it is truly on-the-nose and has a coil with a good Q-factor.

A most interesting first report from G3UJS (Snettisham, Norfolk), who has discarded a 625ft. long-wire in favour of a V-aerial, a full wavelength in each leg, fed at the eastern end and around 40ft. up in the air. A first trial on the night of August 6/7, when the far ends were still not erected, brought in reports of 589, 599, and similar, from eight successive contacts with OK stations around Brno and Gottwaldov. Dave voices a gripe about the " big boys " who have not QSL'd, and says his return is only about 20 per cent.

Incidentally there seems to be a mite of confusion about the Top

FIVE-BAND DX TABLE

(New Cycle)

Starting date: January 1, 1966

Station	Countries	28 mc	21 mc	14 mc	7 mc	3.5 mc
G3IGW	100	1	48	55	44	42
GM3KLA	80	11	62	22	37	38
G3IAR	108	28	64	67	39	32
G3UML	169	55	69	145	26	29
G3UBI	49	2	10	26	5	25
G3RJB	51	—	—	49	—	24
G3PQF	69	20	6	18	56	24
9V1LP	35	14	22	24	21	21
G3UDR	76	5	20	46	2	18
G3LZQ	141	6	52	120	29	18
G3VDL	76	8	26	59	28	10
G3VDW	87	13	57	52	24	9
GI3GTR	22	1	6	14	10	9
GM3RFR	101	7	56	67	44	6
GM3SVK	110	17	101	31	43	4
VP8HJ	67	3	8	65	5	1
G3NMH	187	48	93	177	—	—

Note: Placings for this month are based on " 3.5 mc " column.

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
G3SWH	70	80
G3PPE	68	83
GW3PMR	67	76
G3UBW	65	83
G3SVW	57	75
G3IDG	55	59
GW3TLW	55	70
G3SHY	53	71
G3TSS	43	53
G3UVR	42	63
G3KPT	41	70
G3SQX	34	64
Phone only		
G2NJ	65	71
G3PLQ	55	58
G3MDW	44	64
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.)

Band Ladders. For the G3T/G3U Ladder, all that is needed is a statement of your Counties and Countries Worked score, with a list, followed up by a regular "topping-up" as you raise the score. For Top Band Counties, a list of those worked and those confirmed, and a claimed score in each case, again followed up by the topping-up routine. In this case it is required that a report be sent at least every three months if you are to remain in the Table, but it should be noted that a nil report is acceptable if activity is low but interest is not lost. Thus we can delete from the Tables the stations that lose interest.

G3UBW has lost interest to some extent, and it is clear in which direction *his* mind is turning . . . "DX conditions poor on August 7—W2IU only 229!"

Eighty Metres

G2VV (Sunbury-on-Thames) has been having daily skeds at the unearthly hour of 0600 GMT with G3TFS/A, who has been enjoying a holiday in Cornwall. G3TFS/A is using 8 watts to a 68ft. end fed aerial. As Jim says, "A change from 21 mc DX!"

G3PEU says he is drowning in a sea of waste QSL cards. It seems that some character has been signing ZD7BW on this band, since December last year, and dishing out 59 for U.K. SSB contacts. Gerry points out that though he was ZD7BW, it was from August to November of 1963 *only*, anything outside that period being NG. The surprising thing about this is that there are optimists about who are prepared to accept a 59 from such a call on Eighty without any odour of stinking fish.

GM3SVK has plans to put up a Vee for this band, and in the same sentence makes oblique mention of a 90ft. lattice mast, from which we deduce that he Means Business. He reports hearing PY1BTX on 80m. at 0410.

Forty Metres

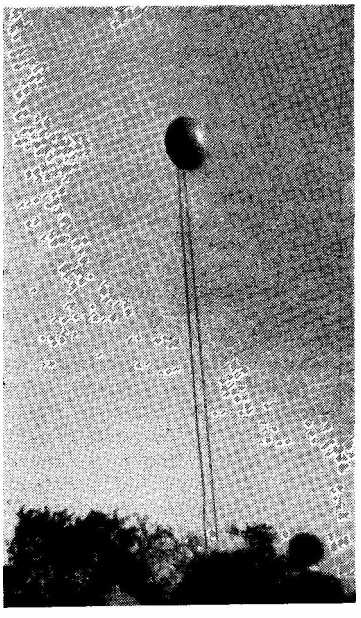
Not a great deal in the way of reports, although there is DX on this band and there are takers for it. GM3SVK mentions that he worked MP4BBA early in the period under review, and in addition, 9Q5CZ, HBØSJ, CN8AW, VE2LI/2 and DK1CU, all on the key.

Your scribe has been *sans* transmitter during the period under review, and only checked over the band once (to show an SWL visitor that the receiver worked in spite of its aged look), and was rewarded by hearing lots of the stuff, and only one layer down under the EU/QRM at that. There is a growing suspicion in his mind that not only is there good DX going begging on Forty, but that it is there a lot more consistently than most people are ready to admit. And, of course, there is the added incentive of freedom from TVI if you are in a Channel I TV fringe area where the only other band that can be worked in safety is Top Band.

The only other mention of 7 mc is one from G3IAR, who hooked W0GTA/8F4, both on 40 metres and Fifteen.

The HF Bands

There is so much meat in the pie that it is hard to know where to start; perhaps we should kick off with the interesting card about Ten metres, from G3PHS, which may serve to remind us older-timers what the band *can* do, the while whetting the appetite of those readers (and there are many) who have never known what Ten can be like at its best. G3PHS, from his new QTH at Coulsdon, heard SM4DXL on his 100ft. wire and CR100; nothing in that, you say, but here comes the punch-line . . . the wire was uncoupled from the CR100, and hooked to a transistor walky-talky, straight on to the whip, no ATU, and the SM



When the Spalding group (G3TMA, G3TRO and G4OO) went to Pickworth in Rutland in July, they put up a 160m. vertical aerial, carried aloft by a met. balloon using hydrogen for lift. The second line in the picture is a nylon tether. Fortunately, they had fine Wx, with no-wind conditions. G3TRO, who sent the photograph, mentions (very usefully) that official permission is not required to fly a balloon below 200ft., but that if you want to go higher, the phone number of the authority to apply to for permission is Hayes 6171.

The IP1AA group at Pantelleria, encountered by chance by G5BZ (extreme right) when he was there on holiday with his family. The men in the picture are the ops., standing, left to right: I1JT and I1AA; sitting, left to right, I1GMP and IT1GAI. It was George, G5BZ, who gave the expedition its CW flavour — using an old pump-handle key borrowed from the local post office; the I1 boys had come without one! G5BZ is, of course, a confirmed CW/DX man.

Reporting the HF Bands

was called. He came back to the first call, and reported RS-56. This sort of thing can just as easily happen on real DX when the sunspots are doing their stuff, and the old saying about the world on 50 watts and a bit of wet string is awfully near the truth.

G2DC (Ringwood) makes no mention of real DX on the band, although Jack says that weekends often produce the odd African contact or W, and there has been no shortage of the shortskip openings when the band is filled with S9 signals from DL.

G3PQF (Cove) reports 9J2's in quantity, 9H1AB, plus Europeans, in spite of the aerial farm referred to elsewhere in this piece. Over in Basingstoke, G3IDG reports hearing 27 countries on ten metres, including CR6EI, ZC4GB, ZD7IP, 4X4HK, 7Q7RM, 9H1AI and 9Q5LJ.

GM3SVK tried CW on Ten Metres, and reports contacts with CR7IZ, ZC4GB, 9J2BC, 9Q5LJ and PY5ASN. Most of the time, though, it was a case of Europeans or nothing.

Fifteen Metres

A gripe from G2VV appears on the top of the clip; Jim was in QSO with ZD7IP, who was 459 to him, and when he went over he was annoyed to have first an OK and then a UA swooshing down on the frequency, tuning up, and announcing they were "QRX on the frequency"—at S9 plus, of course. As a result Jim lost 85 per cent of his contact with ZD7IP, who is an old personal friend and is G8IP. He wonders whether some of these "radio amateurs" should not take some time out to learn how to be amateur gentlemen. Reverting to the matter of the general behaviour of 15 metres, G2VV remarks on the erratic conditions, but noted that the band was nearly always apparently dead in the early morning. One morning he got up early and tried to wake the band up as well; after 45 minutes of fruitless CQ, SU1AR came back to him, and then the SU was called by a JA. After all this excitement the band subsided into its trance again and 20 minutes later Jim gave up and crawled back into bed!

G3VDW has been bumping up his 21 mc CW score to no mean effect. ZD7, FP8, HV1AA, KH6AFS, CX1, VR2, XE1AX and others appear in his log, along with shoals of W's and such. Another user of the key was G3VDL, who was not very active but managed HBØUP and ZE1AS, both new ones to him.

Henry, G3GIQ, has been breaking his vow to give up chasing the stuff when he made the target figure of 200 countries. The cause of his weakening appears to be the new rig and new aerial, and if the list he sends is anything to go by he has well and truly fallen. On SSB, FL8, ZD8's, FH8, KR6, KH6CH/KW6, KG4, VP2, all appear in the first line, and there are several lines of similar quality. 9U5 and TN8AA were, regrettably, able to slip off

the hook and escape.

The report from G2DC is of great interest, as it always is, and gives a general picture of the bands. Jack found Fifteen a bit erratic but much more activity was to be noted; from about 0700z until long after dark on occasions the band has been "giving," and around 2230 VK and ZL have been worked over the long path, when the W stations had lost some of their punch. During the day, the band was dominated to some extent by the JA signals, but VU, 9M and 9V1 were all on and not too hard to raise. Early evenings produced ZD7, ZD8, together with all the W's and a smattering of South Americans.

No arm-length list this month from GM3SVK; Europeans were to be had on most days, with occasional openings to the East, South America and South Africa. PY2GDB, 7Z3AB, HK3AHA, 5N2AAF and ZE1AA all yielded to him on the key, while a nice AM QSO was enjoyed with HP1AC (Panama City) at 2310z.

Twenty Metres

A regular correspondent to the old "DX Commentary" was G5BZ (Caterham), who remarks that for him Amateur Radio has had to take a back seat of late years due to other commitments. It is not, however, to say that he has lost either in interest or, indeed, in the basic skills of the game. George accidentally put his holiday to good use when he found himself on Pantelleria at the same time as the IP1 DX-pedition which consisted of four fine SSB operators with nary a sign of a key between them. When persuaded by G5BZ, the local Post Office came across with an elderly key which was wielded by G5BZ to no mean effect in the few hours that G5BZ could spare.

G3VDL offers HI8XAL, KH6WU, MP4BEU, TF2WJW, VS9ADF, 5A3TT, and comments that each of these represents, to him, another new country. He also mentions RAEM as being around on 14 mc; as he says, hardly DX but interesting nevertheless.

FIVE-BAND DX TABLE

(All Time)

Station	Countries	28 mc	21 mc	14 mc	7 mc	3.5 mc
G2DC	330	170	291	318	170	112
GI3IVJ	325	181	263	319	103	83
G3IGW	195	123	133	157	119	74
G3KMQ	237	10	99	212	101	55
G3PQF	99	25	25	46	74	46
G8DI	163	68	104	143	74	43
GM3KLA	96	11	62	29	73	40
G3NOF	288	132	194	272	34	39
G3UDR	152	29	76	122	4	38
G3UML	220	59	107	205	50	33
G3LZQ	202	58	122	170	57	29
G3RJB	123	11	26	116	50	24
G3UBI	103	10	26	113	50	22
G3IDG	104	61	73	54	27	18
GM3RFR	136	11	73	109	53	15
VP8HJ	178	8	57	174	26	11

Note: Placings this month are based on "3.5 mc" column.

Bill, G3UOL, describes his list as a "bit of news" to add to the general pile. A closer look at its contents reveals a list as long as any seen, all choice specimens, together with a list of the "usuals," most of the latter being places your scribe would be only too pleased to see as entries in his log. The machinery to produce this interesting result was a Viceroy Mk. IIIA, a Geloso G209R, and a KW trap dipole. A small selection from Bill's offering includes HC8JG, HK0AI, M1, PJ's, PX1IE, VP2KX, and many other items of interest.

Over to G3GIQ (Ealing), who worked VU2TS, HV1CN, and UJ8AR on CW, and added to that the following on SSB: I1ARI/M1, HR1KS, K3SWW/KG6, KR6LL.

G3NWT (Risley) notices that when the filming was going on at Castle Combe, the 20th Century Fox people had all the locals take down their TV aerials, the substitute offered being a piped TV system. He wonders what would have happened if there had been a local amateur equipped with an 80ft. tower and, at its top, a Quad for the HF bands and a Yagi for 7 mc, all of course rotatable, covered by planning permissions to secure the position, and that amateur had refused to remove the thing so that his DX could be piped to his shack from the middle of a wood out of sight. Who would have won? Would the film people have abandoned their new multi-million dollar soporific epic, or would the amateur have let them get away with it?

When G2DC got his beam put back up he naturally lost no time in looking at things, and he remarks how much the bands can change in a fortnight. However, by August 5, things had begun to settle down again; August 10 was a very good morning for VK2 over the long path, and Jack worked seven on the run, and followed up with VK3, VK4, VK5, ZL, OA, LU, and PY to round off. One tends to gain the impression the band was at least trying!

GM3SVK has now got an aerial up for 20 metres, from which he expects great things, but by the time of writing Fred had not had a chance to try it out properly.

Station of Madame Amy Jenk, HB9YL, wife of the well-known DX man HB9TT, but running a rig in her own right, and on 160 metres, too — and she has worked W1BB/1 across the Atlantic! So has her OM, but as W1BB says, there are not many XYL's working CW/DX on Top Band. He quotes the only other one known as ZS2KZ, but surely we have a G/YL on 160-metre CW? Forward, pse.

G3IAR has been on holiday, and wrote a brief line from Sevenoaks *just* to beat the deadline. Mike offers XU2HB as his prize catch of the month. G3TTG is another holiday-maker, who has been to ZB2 and has much to tell; however, in the context of the "business in hand" we note LA1EE/P (Spitzbergen), HV1CN, VP2, ZD7 and ZD8, and a couple of PX1's.

ZB2AJ has things to say about the "Wilson Effect" which, as mentioned elsewhere, is having disastrous results on the Amateur Radio population of the Rock. He mentions the problem of the QSL bureau, and says that although the R.A.F. Club has acted as the bureau, and will be effectively non-existent in the fairly near future, arrangements are in hand to maintain the flow of cards; in the meantime apologies are offered for some small slowing down in the traffic.

TOP BAND LADDER

(G3T-- and G3U-- stations only)

Starting Date, January 1, 1966

Station	Counties	Countries
G3UTS	79	11
G3UAN	72	13
G3UBW	69	17
G3TXZ	55	11
G3TTK	43	12
G3USE	40	8
G3UMK	39	7
G3UCS	36	?

Here and There

We hear from G5PM that the policy adopted in dealing with the allocation of call-signs in Germany has been altered. In July 1965, it was agreed by British Forces Hq. in Germany that the DL2 series call signs would be released from exclusive B.A.O.R. use for issue to German nationals. Service applicants for calls in Germany are therefore being issued with DL4 and DL5 series call-signs. As an instance, G5PM quotes his own case; he previously held DL2ER, but on re-applying to have his old call re-activated was given DL5XR. It is understood that the release procedure is one of wastage rather than re-allocation, and in fact the R.A.F. Club station is still DL2ZN, for which DL5XR is the licenced holder.

Amateur Radio in the Faroes is booming, to judge by the current issue of the *FRA Newsletter*, which comes to us by courtesy of Martin, OY7ML. The list of members includes no less than 34 OY calls, including two YL's, out of a total of 73 in the Faroese Society.

G3TKN wants us to organise a Top Band Daylight Test, similar to the one laid on some time back, as he has been quite surprised to find what can be worked in daylight of late. As far as we are concerned, Vincent, if there is any sign of interest from others in this idea, we should be only too pleased to do the necessary.

Aerial Matters

The remark by G3PQF last month about an invisible aerial and your scribe's attempt to be helpful, were a little out of phase; what Dave really wants is an invisible ten-metre beam. He already has in his garden a couple of 7 mc dipoles, a 21 mc one, a Joymast, and a Mosley vertical, plus a ZL Special up in the loft. All this seems to prove the truth of the Confucian proverb "The more light shut out of the garden by the aerial system, the better the DX."

The recent absence of G2DC

from these pages is explained by the fact that Jack's Quad had been taken down for an overhaul after two years— *see* p.427 for a picture of it. It is now in good shape for another couple of years of good work, after a few coats of varnish and a general tidy-up. Jack specially mentions the invaluable help of the members of the Lymington Club who helped in the labour of getting it up and down.

When a beam and rotation system are not available for one reason or another, it is a good thing to cultivate appropriate attitudes of mind towards operating. As Bill, G3UOL, puts it so neatly ". . . the delight of having HC8JG come back to my CQ makes it so worth while, only using a wire antenna and modest power! "

When G2HKU (Isle of Sheppey) went over to Holland to spend a holiday with his old friend PAØPN (Middelburg), he found rather an interesting station set-up. Shown here is PAØPN's remote operating position, controlling all the Tx gear (in another part of the house) through coax line. Active on 160m., his Rx is ex-German Army, all the rest of the gear being home-built. At one time, PAØPN specialised on VHF, and is the holder of several " Firsts " with U.K. stations. G2HKU on the right in this picture.

Gibraltar Situation

A hurried note comes in from ZB2AM, to give us information of the impact of the present Government policy on Amateur Radio in Gibraltar. It seems that many of the ZB2 calls will be QRT by the end of the year; the Club station of ZB2A will remain in existence, but it is not known whether there will be relief operators for the present crowd in the future. ZB2AM himself expects in due course to be QRT from Gibraltar.

Contest Activity

The *CQ* " World-wide DX Contest " is coming up fairly soon, the dates being October 22-23 for the Phone sessions and November 26-27 the CW half. The rules are the same as for last year and appear in the current issue of *CQ*. It is interesting to note that for the European contestant there is the additional bait of a couple of new trophies, given respectively by W3MSK and W4BVV. It is to be hoped that these will stimulate more European activity, in particular from the U.K. contingent who have been rather thin on ground in the past.

We understand that ARRL are allowing Jerusalem to have Country status apart from the rest of 4X4, due to its being in a Neutral Zone.

George, ZD7IP, has a V-beam aimed at the U.K., with which he has a pretty potent signal here on the HF bands. Both ZD7IP and 9V1NV are giving serious thought to the question of working Eighty this coming winter.

DX-Peditions

By the time this reaches print W9WNV will have arrived on St. Peter and St. Paul Rocks signing PYØXA, but at the moment of writing this there would seem to be some element of doubt as to the date, and rumours of technical hitches. After the PYØXA operation, it is understood that Don would be going to the KS4 area.

Lloyd and Iris duly arrived at ZB2, and operated as planned but less the big linear, because its main transformer went sick. In the absence of favourable replies to their letters applying for permits in some of the rarer parts of Europe, Africa will be on the list next.

ZL4CH is on the lookout for U.K. contacts around 14025 kc, between 0600 and 0700z. On the other hand VU2DIA prefers W QSO's on 14040 kc and can be heard most afternoons around tea-time. It *is* possible to get a contact, but one has to have a pretty big signal to do so.

Only one Top Band effort to report this time, by G3UZW and G8ARH, who hope to activate several Welsh counties for the benefit of the newer stations who want them for the ladders. Incidentally it is believed they will be also doing their stuff on Eighty. No exact dates are given, but we understand from the wording that the last two weeks in September are the ones to watch.

And that, sad though it is, is the lot. Thanks for all the letters, from the old-timers to the newest calls, and keep in touch. Deadline for the next one is **Monday, September 19,** addressed as usual to " Communication and DX News," SHORT WAVE MAGAZINE, BUCKINGHAM, England. 73, es gd DX.

E.P.E.

DISCUSSING SINGLE SIDEBAND

ANCILLARY CIRCUITS — VOX AND ALC—IDEAS FOR SLICK SIDEBAND OPERATING — COMPRESSION — TRANSVERTERS AND CONVERTERS

Part IX

B. A. WATLING (G3RNL)

THE effectiveness and ease of operation of any SSB transmitter can be quite easily improved by the addition of various ancillaries. The most common accessory is a VOX unit, short for "voice operated switch." This is useful for fast break-in, nets or rag chews where constructional work can be carried out while in QSO because both hands are free. There are a lot of people who do not like VOX operation; the reason being that they can hear the change-over relay drop out between phrases. But this is the idea of it. Going are the days where each station in a QSO makes a speech, each unrelated, and by the time it gets round to you everything that everyone has said has been forgotten. It takes far longer to exchange information using long-over QSO's, therefore the quicker one can complete these rubber-stamp QSO's the more room there is on the band for more useful ones. On the other hand, with technical-discussion QSO's, and there are still some going on (!), much more information can be transferred by working fast break-in. It's no good, when using VOX, holding the relay in with *Aaahs* and *Ers* coupled with coughs and splutters. The chap you are working, who is attempting to get in some remarks, is going frantic. The same applies to PTT ("press-to-talk") operation. Many a time the writer, and many other stations he has heard, have doubled with another station in the QSO because he has asked a question yet still keeps his finger on the button.

* * * *

Let us consider some VOX circuits. The object is to operate a relay when you talk into the microphone and to allow it to release when you stop talking. Some delay must be introduced into the release time to prevent the relay dropping out between syllables. The operating time must be very fast to prevent the beginning of the first word from being clipped. A relay connected in series with a valve is generally used. With the valve biased to cut-off the relay will be de-energised. A positive voltage applied to the grid of the valve will cause it to conduct and hence operate the relay. The positive voltage may be derived by rectifying the amplified audio signal. To increase the usefulness of a VOX circuit it is advisable to add "anti-trip." This allows loudspeaker operation with voice controlled break-in without the sounds emitting from the loudspeaker operating the relay. This is achieved by rectifying the output from the receiver and feeding into the circuit a voltage of opposite polarity to the rectified speech signal. This means that any signal

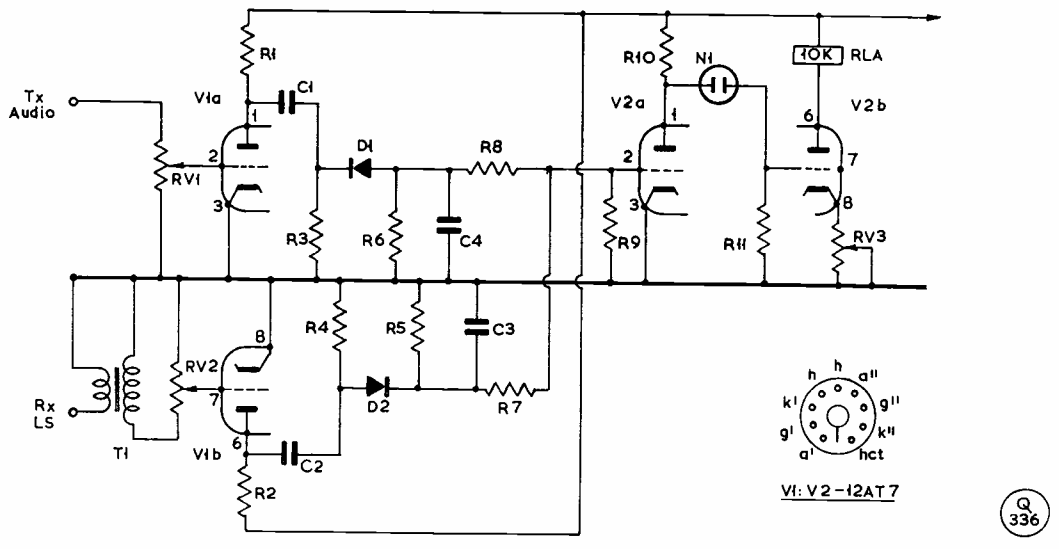


Fig. 1. A typical Vox circuit, for which values could be: C1, C2, C3, 0·1 μF; C4, 0·5 μF; R1, R2, R3, R4, R10, 100K; R5, R6, 47K; R7, R8, 10K; R9, 2 megohms; RV1, RV2, 1 meg. potentiometers; RV3, 5K potentiometer; N1, 90v. neon; D1, D2, OA79; and V1, V2, 12AT7. RV1 is the Vox sensitivity control (see text), and T1 a low-to-high impedance transformer.

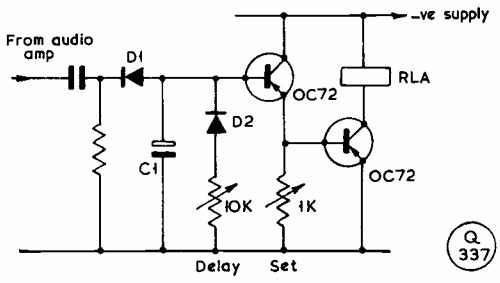


Fig. 2. Delay and relay drive circuit for a transistorised Vox unit — see text.

which appears simultaneously from both the receiver and the microphone will cancel and therefore will not operate the relay. Fig. 1 shows a circuit of a typical VOX circuit with anti-trip. V1A amplifies the microphone signal and also acts as an isolating stage so that the non-linear rectifying action of D1 does not introduce distortion in the Tx audio chain. A convenient point to tap off the audio from the Tx is at the audio gain control—*not* off the wiper but from the top of the track, so that the Tx audio gain adjustments do not affect the VOX circuit. RV1 acts as the VOX sensitivity control.

V1B is the Rx signal audio amplifier and again acts as an isolating stage. T1 effects impedance transformation from the low impedance of the speaker to the high impedance input of the valve. This transformer may be dispensed with if the Rx audio is tapped off at a high-impedance point. Then, however, it must be after the volume control.

D1 rectifies the audio to produce a negative DC to apply to the grid of V2a *via* R8. As the grid is driven negative the valve will conduct less so that the anode potential will rise until the voltage across the neon N1 will be sufficient to cause it to strike. When this occurs the grid of V2b will be taken positive causing that valve to conduct, hence operating the relay. Delaying the release of the relay is achieved by R6 and C4. The time constant may be varied by changing the value of C4 or alternatively making R6 variable.

Anti-trip is effected by rectifying the amplified Rx audio with D2 and applying this *via* R7 to the grid of V2A, where it will oppose any signals from the microphone circuit. Setting up this circuit is achieved by first adjusting RV3 until the relay operates, then backing it off until the relay *just* releases. Adjust RV1 so that when speaking into the microphone at your normal level the relay operates. Tune in a signal on the receiver and turn up the audio gain to a fairly high level. Adjust RV2 so that the receiver signal does not trip-in the relay.

Suitable Transistor Circuit

Transistors can be used to make a very compact VOX circuit. The delay network used at G3RNL is slightly different from the valve circuit. It was found that the drop-out time varied, depending how long one spoke into the microphone. This is due to the capacitor charging to a greater voltage the longer the DC appears on it. This is overcome by using a limiter D2 and 10K variable following the diode rectifier D1, thereby fixing the voltage level to which the capacitor C1 can charge. Fig. 2 shows how this is achieved, together with the relay drive transistors.

For those of you who still operate CW full break-in operation can be achieved using a VOX circuit by keying a tone into the microphone socket. To add this facility to an existing Tx or to build it into a new one the first audio stage can be switched to form a phase shift oscillator. Keying is probably best achieved on the VOX amplifier, as shown in Fig. 3 below.

Automatic Level Control

VOX and full break-in keying eases the operation of the rig but how about improving its effectiveness? This can be achieved simply by means of circuitry to control the level of signal appearing at the input of the PA. This will raise the average level of signal without overdriving the PA. Automatic Level Control or ALC this is generally termed. Its effect can be an apparent increase in signal strength of about one S-point. You can get more than that but it doesn't sound too good, thereby reducing readability instead of improving it. A simple but very effective circuit (Fig. 4) which requires no adjustment and one used very successfully by the writer uses only two diodes, two capacitors and one resistor. It can, in its simplest form, only be used with Class-AB1 PA's. The AB1 PA will be driven to maximum output without distortion just to the point where grid current occurs.

If one were to sense the onset of grid current and reduce the gain of previous stages when this starts, then a form of compression results. This circuit has a delayed action because nothing happens until grid current occurs. All signals which are lower

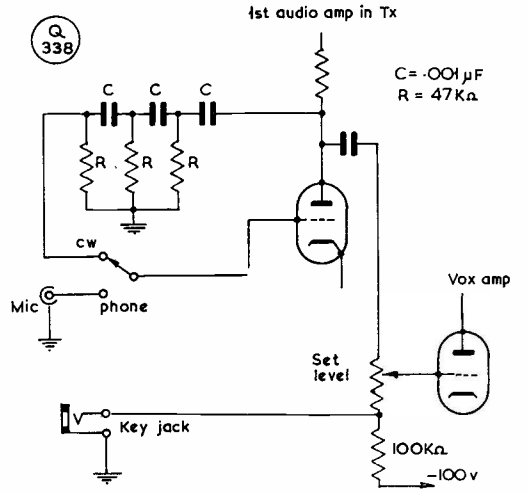


Fig. 3. Method of tone-keying an SSB Tx for full break-in CW working — see text.

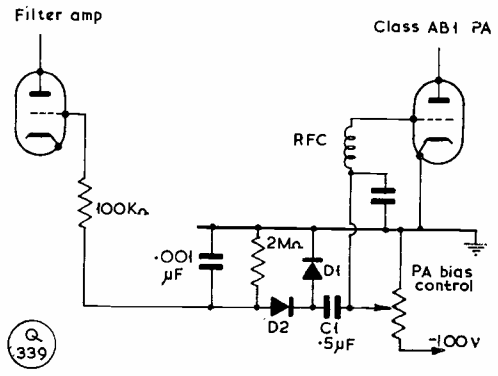


Fig. 4. Showing an ALC (" automatic level control ") circuit for use with a PA in Class-AB1. The diodes D1, D2, should have a p.i.v. rating of about 150v.

than the level required to drive the PA into grid current are unaffected. Only when a signal appears that would overdrive the PA will the Tx gain be reduced. The onset of grid current is detected by " looking " at the grid of the PA. As soon as this goes from negative to positive then grid current flows. If the positive voltage peaks that occur on the grid are processed by reversing their polarity and voltage doubling, the resultant negative voltage can be used to control the gain of an early stage (or stages) of the Tx. Fig. 4 is the basis of the ALC circuit, so described. D1 and D2, with C1, form a conventional voltage doubler circuit connected for negative voltage output. The point where C1 is connected to sample the grid voltage must be at a point where no RF appears. If not then as the RF appears on the grid of the PA the ALC voltage will increase proportionally. Also the negative bias on the grid of the PA must be smooth. Any ripple will be voltage doubled by C1, D1 and D2, and appear as a standing negative voltage on the ALC rail. The most convenient point to pick off this grid voltage is on the wiper of the potentiometer used for setting the negative bias for the PA grid.

As previously mentioned, the circuit of Fig. 4 may only be used with PA's operating in Class-AB1. It is a handy arrangement and can be expanded upon so that it may be used with any PA. In this case a diode must be provided which does the same as the diode formed by the grid and cathode in an AB1 PA. By providing an adjustable bias to the diode, the p.e.p. output can be set and will not be exceeded (unless you try to push it really hard). Fig. 5 details the circuitry for this type of ALC circuit.

Driver Control

The effectiveness of these circuits can be improved upon by applying the ALC voltage to the driver as well as the filter amplifier. (Collins and one or two other companies do this with varying time constants for the two stages.) Some even go to the extreme of amplifying the ALC to provide greater control. However, experience at G3RNL has been that only the filter amplifier being controlled gives more than adequate results. One point here is that the Tx must have gain in hand before this circuit can be usefully incorporated. If gain is lacking then the filter amplifier, if it is either an EF89, EF85 or similar relatively low slope variable-*mu* valve, could be changed for an EF183 which has a very high slope.

Compression—RF or Audio

One word of warning when using any form of compression whether it be RF compression as previously described or audio compression which may be used to advantage but requires more circuitry than the RF version : Be careful not to exceed the PA ratings. With the higher average input to the PA substantial decrease in valve life can result if the valve is not designed to take it. The final word on compression is that the writer prefers this RF arrangement because one does not need to switch it in and out. Just turn up the audio gain to make it operate. Back off the audio gain to make it inoperative. When checking these circuits out you'll find, if it's working correctly, that when turning up the audio gain control while monitoring grid current (in an AB1 PA) the meter will not kick up more than 100 μA to 200 μA. If, when at this level, you short circuit the ALC line to earth the grid current meter will slam against the FSD stop. It will be obvious then that not only does this form of compression improve the effectiveness of the Tx but also it prevents overdriving the PA, hence reducing the possibility of non-linearity which would cause distortion and the dreaded TVI !

So much for easing operation and improving the effectiveness of a rig, now let's see how to increase the versatility.

Other Ideas

Quite a few stations have either home-brew or commercial rigs which do not cover all bands. The owners of the commercial rigs are loath to get inside the gear to make mods. because the resale value of the rig might decrease. The home-brew owners have similar views because while the mods. are being carried out they are off the air. Both types do not view the prospect of building a complete new Tx for these other bands with much enthusiasm. Some form

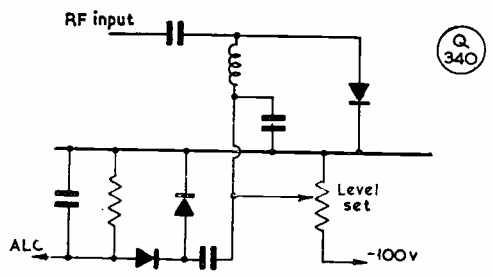


Fig. 5. Circuit of Fig. 4 modified for use with a Class-AB2 or Class-B RF power amplifier stage.

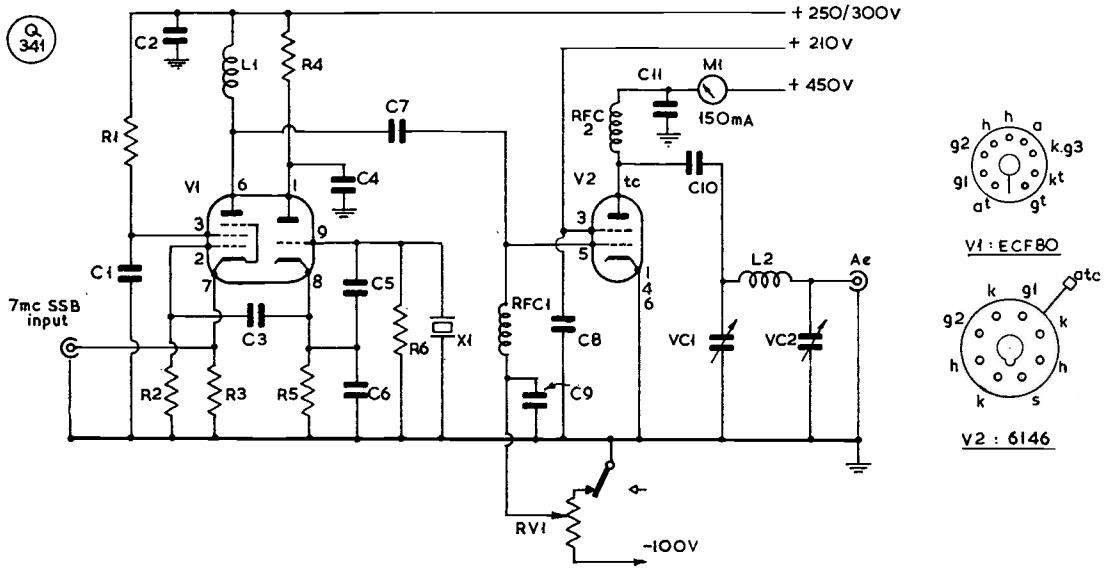


Fig. 6. Circuit arrangement for a converter suitable for getting on to 160 metres with a 7 mc Sideband input — see text. Values can be taken as : C1, C2, C4, C8, C9, C11, ·01 μF ; C3, C7, 100 μμF ; C5, 22 μμF ; C6, 250 μμF ; C10, ·001 μF ; R1, R6, 27K ; R2, 100K ; R3, 50- or 75-ohm, minimum rating 5w., to suit output impedance of Tx ; R4, 10K ; R5, 1K ; RV1, 10K ; VC1, 365 μμF ; VC2, 3/500 μμF ; xtal, 5·2 mc ; V1, ECF80 ; V2, 6146 ; RFC's, 2·5 mH.

of high level conversion then is the answer. An SSB signal from one of the bands covered can be heterodyned to the required band. Care must be taken though in choosing the band to use and the heterodyning frequency so that unwanted spurious signals do not occur and that the final output is on the correct sideband.

Let's consider the owner of a Tx covering 80 metres to 10 metres. If 160m. is required then the best arrangement is to use the 7 mc to 7·2 mc LSB output of the Tx and subtract from this an oscillator signal at 5·2 mc, giving 1·8 mc to 2 mc LSB.

Some amateurs, in order to get a low level 7 mc output from the Tx, tap off the output from the driver and disable the PA for 160m. operation. But for those who really are against getting inside the

The station shown here (GB3LST, Scunthorpe, on a special occasion), was using modern SSB equipment of British manufacture—a KW-2000A, left and under the hand of G3TMC, and the matching KW-600 linear amplifier (right). At centre is the PSU, with speaker incorporated, for the KW-2000A all-band transceiver. The KW-600 has its own built-in PSU and does not cover 160 metres.

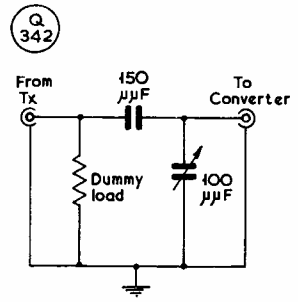


Fig. 7: Method of reducing the signal applied to a converter.

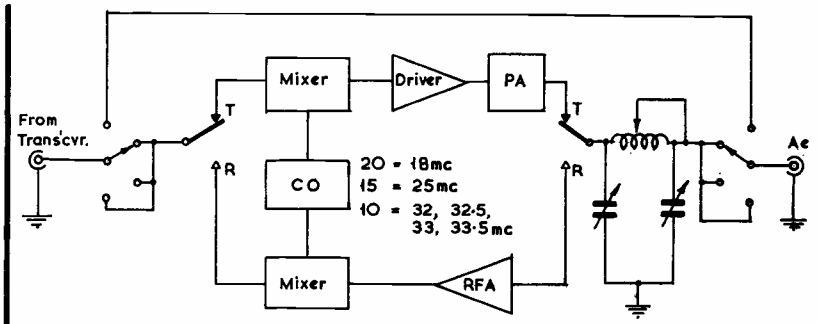


Fig. 8: Block diagram of Transverter for 20, 15 and 10 metres from 80 metre input. Ten metres is covered in four 500 kc steps.

rig this is not absolutely necessary. You can use the high level output from the aerial socket to drive the converter. This can mean, however, that the Tx PA is running more input than the 160m. PA in use! This need only be so if it is awkward to reduce the output of the main transmitter by use of a drive control. Fig. 6 is the circuit for a 160-metre converter. For those who cannot reduce the output of the exciter by the required amount, use the method shown in Fig. 7.

How about transceivers, though? This can also be extended in band coverage with the use of an outboard converter. For those who own something like an NCX3 or even one of the single-band transceivers from *Heathkit*, a transmitter-receiver converter (let's call it a transverter from now on) can be constructed to maintain the full facilities and advantages of the basic transceiver. Fig. 8 is a block diagram of a transverter to convert an 80-metre signal to 20m., 15m. and 10m., and act as a crystal-controlled front end using 80m. on the receiver side as a tunable IF.

The frequency conversions shown in Fig. 8 are OK for 80-metre output, but if you have, say, a rig without 80m. included, then using either the 20m. or 40m. output two conversions are required. Table I at left details the frequencies for the conversion oscillators for either a 40m. or 20m. input. The first conversion from 7 mc produces an IF at the neutral frequency 5 mc to 5·5 mc. This is then converted, by mixing with the signal from the second crystal oscillator, to the required amateur bands. For a 20m. input mixing to 5 mc to 5·5 mc is undesirable, therefore the first conversion is to 80m. Other bands are as per the 80m. input converter.

TABLE 1

Input	1st Conversion Oscillator	IF	2nd Conversion Oscillator								
			160	80	40	20	15	10	10	10	10
7 mc to 7·5 mc	2 mc	5 mc to 5·5 mc USB	7 mc	9 mc	—	9 mc	16 mc	23 mc	23·5 mc	24 mc	24·5 mc
14 mc to 14·5 mc	18 mc	3·5 to 4 mc LSB	—	none	3·3 mc		25 mc	32 mc	32·5 mc	33 mc	33·5 mc

" . . . It reminds me to give my callsign every fifteen minutes . . . "

• • • SWL • • •

SHORT WAVE LISTENER FEATURE

POINTS ON RECEIVER EVALUATION—THE HPX RULES—NEWS FROM READERS—NEXT SLP—COMMENTS OF INTEREST FROM ALL QUARTERS—SUCCESSES IN THE R.A.E.

ONE of the interesting facets of the SWL game is the variation in the receiving equipment in use, as shown by the different stations who report to this feature, and the various approaches to the problem of making the station more efficient.

There does seem, however, to be some confusion in the minds of readers as to the factors that affect the choice of equipment, technically speaking. These can be summed up as Price, Sensitivity, Selectivity, Stability, Resetting Accuracy, and, of course, Bandspread.

Bandspread and *Selectivity* are often confused; the latter can be regarded as the ability to separate signals on adjacent frequencies, while Bandspread is the measure of the rate at which the receiver tuning moves across the band per degree of tuning dial rotation. The thing that matters here is that the best bandspread in the world will not improve the ability to separate stations given by the selectivity of the receiver, but will make it a lot easier to settle quickly and easily on to a signal. Often lack of bandspread is made up for by a sensitive touch, but lack of selectivity may well mean a wanted signal being "swamped" under other stuff, no matter how carefully one tunes.

Sensitivity is a measure of the absolute limit of the receiver ability to resolve a signal on a clear channel. This limit is set when the wanted signal drops into the noise; on the LF bands much of the noise is external, but on the HF and VHF bands the limit is set by the noise generated in the receiver. As the mixer is the noisiest stage in the receiver, a quiet RF stage is used to amplify the incoming signal to a point where it is large enough to override the mixer noise completely. However, it is essential that there should be an absolute minimum of gain in front of the mixer if cross-modulation is to be kept to an acceptable level. Practically speaking, there is not a scrap of justification for having more than one RF stage if modern valves are in use—and a lot to say against it.

As for *Stability*, all that needs to be said is that if reception of SSB is to be a pleasure and not a chore on the worst band it should be better than 100 c/s in any hour of operation after a warm-up period of about 30 minutes at the most. This is quite a tall order for a receiver using a VFO-type local oscillator, and few can meet it much over 10 mc, which is the reason for the trend to crystal-controlled front-ends in the last few years. Hand-in-hand with Stability goes *Resetting Accuracy*, and this is a quality few indeed possess in the shack. An ideal to aim for is ability to reset to the same accuracy in cycles as the bandwidth of the IF to the 6 dB points; this will ensure that you can in fact reset close enough to guarantee that the wanted signal will be somewhere in the receiver passband. Remember that to be fair you must change the bandswitch position before resetting, if you try this test.

As to price, they are all too darned expensive! And, of course, any commercial receiver is designed to please the maximum number of buyers, and hence is a compromise which never meets the exact requirements of an individual purchaser.

Aerials and Things

Trevor Lucas (Leeds) has returned to the fold after 15 years of absence, using an Eagle SR-550, which he finds very good; however, he has the old problem of a tiny plot of garden in which to erect effective aerials for the HF bands. If all else fails, Trevor, put up the best piece of wire you can, as high as possible, use a good earth (most important, this), and make up an ATU to resonate the wire to the desired bands. If you can run to it, a better system is the coax fed ground-plane arrangement, which can be cut for the favoured band, while using the ground-plane support as mast to hold up the random wire also; thus on the favoured band you have two aerials from which to choose.

Anthony Legg (Sutton, Surrey) is a newcomer to the fold who is having a lot of troubles with aerials falling down and getting him the blame for all the local TV interference. He is rather surprised that no-one in this country makes a rotary beam for SWL use, and comments that they are easily obtained in the States. True enough, but don't forget the W's have a very much larger home market than we have here, which makes a lot of difference to the economics of the thing. Anyway, Anthony, why not spend the cash on getting a decent support that stays up, and homebrew the actual aerial . . . maybe it would get rid of some of the TVI complaints, too.

Other Modes

From *R. E. Oxley (Maidstone)* we hear that he uses an Eddystone 840C receiver; he enquires as to why we do not cater for the BC listeners. All we can say here is that we cater for all aspects of the hobby of Amateur Radio (meaning amateur telecommunications), but have to draw a line which will tend to exclude the "grey areas" which still come

under the broad heading of electronics — and BC/SWL is on the wrong side of the line.

Over to *Leighton Davies (Bridgend)* who spotted the RTTY picture in the July "SWL" feature, and writes to point out that in BARTG there are about 60 SWL members. Leighton has a very well equipped RTTY station and is waiting for the R.A.E. pass to come about so that he can hook up his gear to the aerial farm belonging to his father, who is GW3FSP.

Another variation on the theme is TV/DX, and on this subject we have letters from *Dennis Boniface (Ripon)* and *D. H. Foster (Rainham).* Dennis reports reception of TV on Band I, Band III and Band V. On the UHF side, he mentions reception of Lille, Crystal Palace and Belmont, the latter being an all-time new one to bring the total to 24 countries and 101 stations. An oddity was a signal on R1 and R2 channels, showing a clock face at 11.40, when the time here was 1800 BST. Dennis thinks that this one may have originated in Central Russia and awaits identification. D. H. Foster is holidaying in Wales at the time of writing and says he has received considerable help in the field from Dennis, by way of information on the modification of the Bush TV63 receiver, which they both use. Incidentally, it will be noticed that SWL Foster is an all-rounder; he has entries in both the HPX Tables as well as the TV activity.

Radio Amateurs' Examination

David Rollitt (Lincoln) mentions that there is a possibility of running an R.A.E. class in his area, but they are a wee bit short on numbers. The thing here, David, is to make sure you get the class into the prospectus of the local College, and to see if you can get the local paper to mention it as well; anyone interested in that area should contact G3BCA for details. Incidentally, your scribe is in the same boat this year in Harlow, so anyone within the Harlow area who wants to have a go at the R.A.E. should make a point of getting the College prospectus and enrolling.

Here and There

D. J. Mortimer (Gloucester) wonders about the next SLP, along with several other correspondents, and we are pleased to set his mind at rest. The date has been selected to give time for making up logs before the deadline whilst leaving adequate time after publication date for all to be ready. Incidentally, SWL Mortimer suggests that an SLP arranged for the early morning period would be interesting and your scribe heartily agrees. Perhaps enough indications of support would be forthcoming to make it worth laying something like this on a future SLP.

A brief note from *A. G. Scott (Liverpool)* who remarks that he has heard his first-ever JA stations due to a change in listening times. He uses a modified HE-80 and a Joystick in the roof space.

John Butler (Bargoed) has been bending the laws of nature . . . 25 hours a day, 8 days a week, studying for the R.A.E. and the Morse test.

G. Taylor (Wolverhampton) questions the crop of new ID1, IP1, IR1, IC1 prefixes—all quite sound, OM, they are rather on the lines of our GB calls, usually, or for off-shore islands. The XP1 call, in the absence of more detail, would seem to be a misreading, but what of, is not easy to define.

W. Felton (Lincoln) is a natural for the proposed Lincoln R.A.E. class mentioned elsewhere. Bill is a devotee of the vertical aerial, although he has a dipole for 20m. as well, and a lot of his letter is taken up with an interesting discussion of the relative behaviour of the two devices.

David Fitzgerald (Dublin) has been lured forth by an erroneous statement that summer was here. However, he must have nipped back again fairly smartly, because the rest of his letter deals with TV/DX and HPX in some detail.

Over in the West Country, *Trevor Pinch (Plymouth)* is very upset at the note from J. Baxter in the last piece about the Tottenham net changing over to Ten Metres. Trevor holds to the view that the natter nets should be on VHF, and appeals for common sense. Fair enough, OM, but on the other hand Ten is not often open at the time of day in question, apart from short-skip openings, even at the peak of the sunspot cycle, and anything which has the effect of increasing the band occupancy in the "dead" times is to be encouraged, lest we lose some more of the band to the commercials.

H. M. Graham is yet another one who uses a Joystick indoors to some effect, as his loggings show. The secret with all of the shortened aerials is the correct use of the ATU or other matching devices, because the "Q" of the aerial is so high and hence bandwidth is so low. Retuning the ATU for almost every change of frequency seems to be necessary, certainly on the LF bands.

R. Glaister writes in with his first HPX claim, and various queries, which we solve by referring to the HPX rules, which are being reprinted in this issue (*see* p.425).

According to *L. Case (Widnes)* there would seem to be a shortage of SWL's in his locality. He would welcome any letters or personal calls (115 Stewards Ave., Widnes).

Pete Cayless (Exeter) has been transferring his affections to the CW ends of the bands, as his HPX entry shows. The interesting thing about this is that

SET LISTENING PERIOD

Sunday, September 18, 1966

14 mc Band, CW or Telephony

1500-1800 GMT

Listen to everything you can hear on either Phone or CW, during this period, and send in your list of stations heard with your next letter to "SWL." Do not log Europe, and include Time GMT, Station Heard, RS or RST report, and Station being called (or CQ). Send separate lists for CW and Phone, and write all callsigns clearly. Mark the log plainly "Third SLP" and address it to "SWL," SHORT WAVE MAGAZINE, BUCKINGHAM, to arrive by Friday, September 30, *latest.*

Pete is entirely self-taught, and after four years of SWL operation, he is finding that CW is giving all the old thrill again. This of course is quite a point . . . your scribe has always been of the opinion that the clamour for abolition of the Morse test always come from those who are too lazy to learn, and too dim to realise what they are missing.

Stuart Swain (Hayling Island) is an 18-year-old reader of this piece, who used the whip aerial of his Heathkit Mohican for most of his score, although he has recently acquired a Joystick with which more prefixes will be roped in if all goes well. We shall be interested to see the score next time round.

Charles Harrington (Hounslow) sends his usual card with a revised HPX score of 606 in the keying mode. This is the mode that appeals to *Steve Blaber (Haywards Heath)* although at the time of his writing he was still trying to get over the 7 w.p.m. level. Don't be downhearted if you seem to stick at or near this speed for quite a while, as there is a learning process here, and you will break the barrier suddenly; progress will be rapid then to the next natural barrier which comes about 16 w.p.m. A lot of amateurs never break that one, but those who take the trouble to do so can then progress to a limit set only by the brain or the ability to write it down.

John Hodgson (Gainsborough) modified his HPX score, by the simple process of adding in the GM-prefixes that he had previously overlooked. He had a day at the Gringley-on-the-Hill Traction Engine Rally, where he met G3TJO, G3HRP, and an SWL from Lincoln. And he never even mentions the Traction Engines in his letter! Your scribe feels he is missing something here—have you never thought of /M, using the canopy as the support for a ground-plane, and adequate supplies of hot water for tea always on tap?

Stewart Foster (Lincoln) has passed his finals and is now B.A., for which congratulations are very much in order from all of us. Stewart has the remarkable score of 239 countries verified out of 251 heard.

Hail and farewell to *Andrew McCudden*, who writes for the first time to stake a claim in the Tables, and to tell us he has already taken the R.A.E. and is nearly there with the Morse. The receiver is an HA-230, with a home-brew preselector and a thoroughly unorthodox dipole cut for "about 20 metres." As his name would suggest, Andrew reports from Glasgow.

M. R. Warburton (Sale) is another one chasing a degree, in his case M.Sc., to the detriment of the HPX score, but nevertheless he has managed to push it up above 300, using the PCR-3 receiver, which is quite an achievement.

The note last month from *Richard de Buis* about his Trio receiver, brought forth replies asking for further information, all of which we have passed on for direct correspondence.

Geoff Cowling (Goole) has jacked up his score quite a bit, but the period was made for him by the capture of FP8CV on an otherwise completely dead band. Geoff is in the hunt for his ticket and has been spending time on building the 160/80m. Transmitter from the March '66 issue of SHORT WAVE MAGAZINE, ready for the great day.

Les Carpenter is serving in the Navy, at *H.M.S. Collingwood*, Fareham, whence he has been posted after a spell in the Far East. During his time abroad he met Mike Byrne, 9M2BM, who well and truly indoctrinated him in the ways of Amateur Radio, and having done so, set to work to give practical help as well, for all of which Les is grateful, indeed.

M. Woolin (Leeds) thinks 14 mc is in nearly as bad a state as Forty, and seldom spends time there, preferring to while away the idle hours on 21 mc where the prefixes abound. One could take issue with this line of thought as being against the facts, but, on the other hand, the aerial system in use may have something to do with it.

HPX LADDER

(Starting January 1, 1960)

Qualifying Score 200

SWL	PREFIXES
PHONE ONLY	
T. R. Popham (Exeter)	933
D. Douglas (Dundee)	915
P. Cayless (Exeter)	914
A. W. Nielson (Glasgow)	737
S. Foster (Lincoln)	706
J. Singleton (Hull)	578
R. G. Preston (Norwich)	575
P. Milloy (Doncaster)	573
G. S. Taylor (Wolverhampton)	562
E. R. Chivers (Lydney)	552
D. Rollitt (Navenby)	552
C. Squires (Saltash)	543
D. Poulter (Morden)	543
J. Hart (Leeds)	539
A. Niblock (Ilkeston)	533
M. Woollin (Leeds)	532
A. Huggett (Lamberhurst)	528
W. Felton (Lincoln)	525
C. Morris (Tenbury Wells)	498
K. C. Staddon (Stroud)	491
G. Wyllie (Johnstone)	477
W. Moncrieff (Hampton)	477
D. Cooke (Nottingham)	475
C. Edwards (Warwick)	472
W. Smith (West Bromwich)	466
J. Fitzgerald (Great Missenden)	465
P. Baxter (Winchester)	460
S. Blaber (Haywards Heath)	452
T. Pinch (Plymouth)	451
D. Fitzgerald (Dublin)	445
C. Martin (Chertsey)	442
A. D. Jones (Chertsey)	440
C. Sparrow (Mill Hill)	440
P. Cayless (Exeter) *(AM only)*	429
S. Wilson (Ossett)	429
R. Coates (Lancaster)	428
S. Hardisty (Accrington)	417
A. Scott (Liverpool)	416
J. Butler (Bargoed)	401
D. G. Evans (Neath)	398
D. Foster (Rainham)	395
W. Chaffer (Edgware)	393
A. Parker (Chesham)	391
J. Tozer (Plymouth)	382
B. Cullen (Dublin)	375
P. Crust (Loughborough)	375
J. Dixon (Barrow)	370
L. Case (Widnes)	367
G. Watson (Sheffield)	361
D. Parker (Redditch)	357
D. Mortimer (Gloucester)	357
H. Graham (Harefield)	348
B. Turner (Westcliff)	346
Mrs. M. Worbey (Dartford)	345
J. Thompson (Tollerton)	342
A. Jones (Chertsey)	334
B. Macklin (Winchester)	330
D. Edwards (Coalville)	327
Miss P. Longbone (Hull)	325
J. Hodgson (Gainsborough)	320
E. K. Law (Walsall)	307
G. Cowling (Goole)	304
M. Warburton (Sale)	304
C. Freeman (Nuthall)	303
G. Bowden (Crawley)	302
P. Freeman (Chessington)	286
A. Jones (Cardiff)	283
D. Poulter (Morden) *(AM only)*	273
K. Ballinger (Worcester)	272
R. Wyatt (Basildon)	270
R. Glaister (Haywards Heath)	264
D. Nichols	263
K. Evans (Shepperton)	261
A. P. Legg (Sutton, Surrey)	260
S. Swain (Hayling Island)	257
J. Miller (Cheltenham)	255
Mrs. J. Davis (Strood)	253
B. Walker (Doncaster)	250
A. McCudden (Glasgow)	234
A. Marriott (Bishops Stortford)	231
P. Milloy (Doncaster)	223
R. Sutton (Birmingham)	219
S. Shaw (Stockport)	218
T. Bailey (Burgess Hill)	216
N. Bradley (Stevenage)	216
P. Smith (Linby)	213
A. Niblock (Ilkeston) *(AM only)*	208
P. Ashton (Stowmarket)	205
CW ONLY	
C. Harrington (Hounslow)	606
S. Wilson (Ossett)	606
D. Douglas (Dundee)	601
P. Lennard (Worthing)	599
R. de Buis (Felixstowe)	450
D. Foster (Rainham)	401
M. Woollin (Leeds)	375
P. Etheridge (Hull)	303
B. Smith (Ruislip Manor)	300
G. Wyllie (Johnstone)	215
L. Allwood (Horsham)	214
J. Miller (Cheltenham)	211
N. Bradley (Stevenage)	207
P. Cayless (Exeter)	202

(NOTE: *Listings include only recent claims. Failure to report for two consecutive issues of "SWL" will entail removal from the table. Next list, November issue, for which the deadline will be September 30.*)

Over in *Hull,* we have the next episode in the SWL affairs of *John Singleton* and *Pat Longbone.* After your scribe's little side-swipe at them last time, they reply by congratulating him on his promotion from semi-conductor! In more serious vein, John has changed his job and now works in Goole, so he has been scanning the bands in the early morning periods (0500-0630), with a consequent rise in his total, while Pat has only been able to get a few hours on the air in the evenings. The receiver is a modified Eddystone S.640, with an Eddystone dipole aerial on 135ft. of feeder, with a Z-match ATU. As the result of a letter in the May issue of SHORT WAVE MAGAZINE, from Iain Paterson in Carstairs Hospital, Pat and John are now in regular correspondence with Iain, and helping him to prepare his HPX score, so that we can expect a letter from Carstairs in the near future.

HPX RULES

(1) The object of the exercise is to hear and log as many *prefixes* as possible; a prefix can only count once for any list, whatever band it is heard on.

(2) The /M and /MM suffixes create a new series, thus G3SWM, G3SWM/M and G3SWM/MM all count as prefixes and, where it is known to be legal, /AM also.

(3) Where a suffix determines *location,* the *suffix* shall be the deciding factor, thus W1ZZZ/W4 counts as W4.

(4) When a prefix is changed, both the old and the new may be counted; thus, VQ4 and 5Z4 both count.

(5) The object is to hear prefixes, not countries, thus there is no discrimination between, say, MP48 - - and MP4K - -, which count as one prefix.

(6) Only calls issued for Amateur Radio operation may be counted. Undercover and pirate callsigns will not be credited.

(7) G2, G3, G4, etc., all count, as do GW2, GW3, GW4, etc., and in the same way, K2, W2, WA2, WB2, WN2, all count even though they may be in the same street.

(8) Send your HPX list, in alphabetical and numerical order, with a total claimed score clearly marked; with subsequent lists it is sufficient to quote the last claimed score, the new lists of prefixes, and the new claimed score, with your name and address in all cases, to "SWL," SHORT WAVE MAGAZINE, BUCKINGHAM, to arrive *before* the SWL deadline for that particular month.

(9) Failure to report for two consecutive listings will result in deletion from the Table, although there is no objection to a "Nil" report—in order to hold your place.

(10) **Starting score 200.** Phone Table is mixed AM/SSB but AM-only claims will be shown as such if requested. No mixed Phone/CW Table; CW-only Table will be run given enough support.

(11) Lists will be based on those shown in the current issue of the *Callbook Magazine* for Countries/Prefixes.

Popular "Joystick"

Another Joystick user is *R. Coates (Lancaster),* who has built a Q-Multiplier and sends in curves to show the improvement in IF selectivity thus gained. SWL Coates is another of the RTTY gang and is at the moment seeing what makes the innards of a Creed 3X 'printer tick. He also mentions the opening on Ten on July 15, when all EU was represented.

Phil Ashton (Stowmarket) has hard words to offer the transmitting brigade. As he hopes soon to get his own ticket, he has been watching the procedures used on the band, so that he will know what to do when he himself comes on. Phil is particularly hard on these characters who give an R5 report and then follow up with a request for repeat of name or QTH. Perhaps next time you write, chaps, you would care to offer your contribution to the "comic of the year" collection.

A first letter from a long-time follower of this piece is *John Miller (Cheltenham),* who plans to take the R.A.E. this autumn (best of luck from us all, John) and in the meantime is chasing prefixes. Receiver at present is an AR88, after working through Eddystone 840, BC-348, HE-30 and HRO since starting. John works shifts and hence can come on at odd hours, as his log shows up very clearly.

G3IGW has a younger brother, whom he has thoroughly infected with the Amateur Radio bug, as the letter from *Dave Whittaker (Harrogate)* shows. Dave has been looking closely into the statistics of Ten since the turn of the year; he finds reports of 105 countries being worked on the band during this period, of which he has heard 44. However, as Dave points out, often the skip is such that stations down south are working stuff which is completely inaudible up there.

J. Dixon (Barrow-in-Furness) has a short entry, a short letter, and a short comment on your scribe's efforts . . . no complaints, *so far!*

Les Allwood (Horsham) finds being an SWL is a bit hard on the ears owing to the presence of three active amateurs within a couple of hundred yards. At the time of writing Les was awaiting the result of the R.A.E., and one would imagine that he will be on the air by the time this appears in print if all goes well, as his HPX list is all CW. Anyway, best of luck, Les.

T. R. Popham writes in from *Exeter* with a list to keep him at or near the top of the list, and denies the ownership of crystal-filter ears. In that case, there *must* be something in the Exeter air that does it.

Congratulations to *Allan Carr* on leaving us and becoming G3VKA; for the past year he has been in Bahrein and held the calls MP4BFL and VS9AAD. Allan also points out that the detail of the Morse Test procedure given by G3UXA in the March 1966 *Magazine* is now slightly altered, in that the test

uses different equipment and is held in a different room.

Back on the R.A.E. theme, this time from *Martin Goldman (Leeds)*, who would like anyone interested in the exam or Morse practice in the Leeds area to get in touch with him with a view to getting something started. Martin uses the R.107 receiver, and wonders about ways and means of improving the performance of elderly receivers, by way of add-on units, converters and the like. Too late for this month, but we will try and cover this one in the next offering, although all we can do is to generalise.

Richard Allisett is the son of GC3NDX, and seems to be following in father's footsteps. He is rather stuck on Forty AM insofar as the receiver is a BC set but there are hopes of a TCS ere long and no doubt then we shall see the score expanding significantly.

In the excitement of preparing to go on holiday, *Peter Smith (Linby, Notts.)* forgot to sign his letter, and had to write a second one to identify the first. Not to worry Peter, if that is all you forget before going on holiday you are doing all right. (Last time your scribe went away for a fortnight he forgot to turn off the heat, and forgot to take various things regarded as essential, including the speaker for the /M gear). Peter has three calls on the query list, all of which would seem to the writer to be either phonies or, more likely, a misread letter in a genuine call.

Nicholas Bradley writes from *Stevenage* to bring his HPX score up-to-date, and mentions that he has been lent a CR-100 receiver, which, in conjunction with a ground-plane aerial, has boosted things somewhat. It is nice to see the entries for the CW Table coming in.

One of the surprising things is the number of correspondents who are using, building, or thinking about the G3HTA receiver described in the December 1964 issue of SHORT WAVE MAGAZINE. One such is *Tony Bailey*, who had more than his fair share of teething troubles, and would be glad therefore to offer his help to any constructor of the receiver who cares to write to 5 Erin Way, Burgess Hill, Sussex.

Richard de Buis (Felixstowe) has a 100% return on QSLs . . . he has sent out two in the last two years! The policy is only to send a report to a station if that station is either getting no response whatever, or no reply from the area they are calling. While this does reduce the output, as Richard says, the cards that are sent are known to be of use to the operator to whom they are addressed.

Passes in The R.A.E.

Congratulations are due to *Steve Wilson (Ossett)* who adds a PS to his letter to say he has just had a *pass* in the R.A.E. and a *pass* in the Morse; the rest of us can imagine that behind those italics there is a strong feeling of triumph and pleasure . . . and so there should be. Steve has the biggest aerial for Top Band that has ever come to notice in this piece, with 70ft. of vertical, counterpoises, capacity hat, and quarter-wave radials; the pole also props up the middle of a centre-fed system.

C. P. Martin (Chertsey) is about to leave us, for the best of all reasons. His new call is G3VLW, but he still has an entry in the HPX Table which we have been pleased to take in.

Still another to be congratulated is *Andrew Niblock (Ilkeston)* who adds a PS to his letter to say he, too, clicked with the R.A.E. In the waiting time we rather gather that Andrew has been making sure all is ready to receive the transmitting licence, painting the shack and so on, rather than just listening.

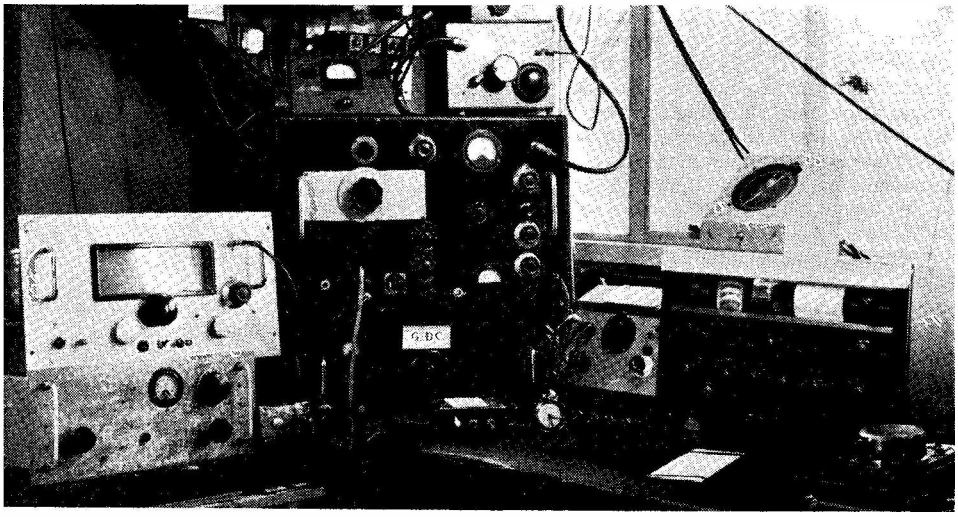
E. K. Law has been listening to the SSB nets on Twenty with considerable success, as his Table placing clearly shows, the QTH being *Brownhills, Staffs.* Another Midland station is that of *Colin Morris (Tenbury Wells)* who prefers to hear his DX by certificate-hunting and Contest listening; Colin is another of the G3HTA builders, and says the old rig is due for "demolition" when the beast is finally complete.

A long letter and a long list from *Geoff Bowden (Crawley)*, who remarks that the HPX Table entry last time round has aroused much enthusiasm for SWL in his son Philip. It is tough going finding prefixes with a PCR-3. One of the queries in Geoff's list is an odd one, VK9AB calling CN8VB, at 1855 GMT, 26 July, and claiming to be in Tasmania. VK7 is the usual prefix for Tasmania but on the other hand it may be a misreading, as the time is about right.

Geoff has lots of queries about the souping-up of his PCR-3. Adjacent-channel selectivity is the first requirement, and is obtained by means of a "Q-5'er" which is another name for the BC-453, a surplus receiver having 85 kc IF and an input frequency of 190-550 kc. In use, it is coupled through a couple of $\mu\mu$F to one of the main receiver IF stages, tuned to the main receiver IF, and there you are! Other ways of improving the adjacent-channel selectivity in a receiver are the use of a Q-Multiplier, or controllable reaction of one of the IF stages, the latter being only acceptable as a last resort. A pre-amplifier or pre-selector serves to increase the sensitivity and image rejection of an insensitive main receiver, while a "converter" is a device which enables the frequency coverage of the main receiver to be extended. Incidentally, the BC-453 was dealt with at some length in the *Magazine* (November 1956), and another way of achieving the same end is described in SHORT WAVE MAGAZINE of February this year as part of G3KFE's article on the HRO.

Sign-Off

And that about wraps up the mail for this issue; we hope you have enjoyed writing and reading as much as we have enjoyed putting it together. Deadline for the next "SWL" is September 30, and in the meantime, don't forget the SLP, look after yourselves, see you next time round. Don't forget the address is "SWL", SHORT WAVE MAGAZINE, BUCKINGHAM. And mark that deadline again—September 30.



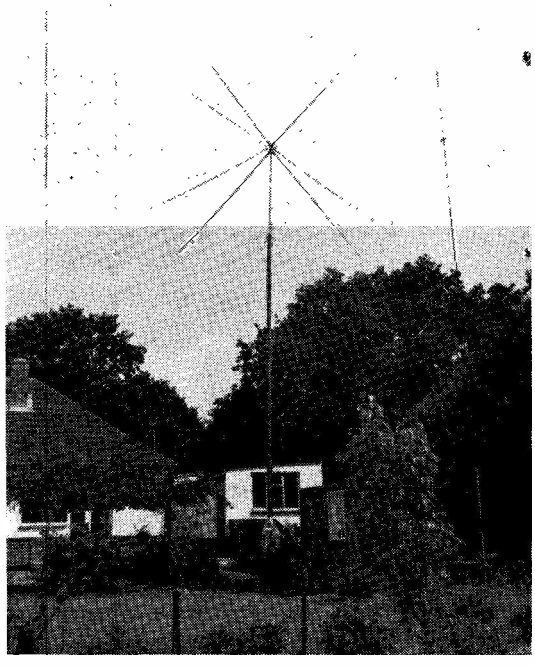
THE OTHER MAN'S STATION

G2DC

THIS time we feature the station of a very well-known DX operator, who has been on the air many years and from those parts of the world where the British Army could be found in the mid-war period—Major Jack Drudge-Coates, G2DC, of Morseden, Hightown Hill, Ringwood, Hants., who is ex-Royal Signals.

He first became interested in radio in 1920 and in Amateur Radio in 1923, when stationed in India. The first short-wave receiver was built in Razmak, up in the North-West Frontier, on the borders of Afghanistan. Although in R. Signals at the time, copper wire was not available (even the telegraph route was galvanised iron wire), so the tuning coil for the Hartley Rx circuit had to be wound with a thinnish binding wire normally used for baling *bhoosa*—a straw feed for mules. The first circuit, the conventional O-V-1 using a V24 as the detector and an R-valve as the LF, with dry battery HT, worked very well. The first amateur signal heard was SMTN, later to become a very well known SM DX'er. On returning to civilisation (Rawalpindi in this case) no time was lost in making up a Tx, a simple TPTG; this used an AT50 valve which, for the times, gave reasonable results and using the callsign Y-DCR many excellent QSO's were made with all parts of the world on wavelengths between 30 and 100 metres. In 1926, the prefix for Indian radio amateurs became AI and Y-DCR changed to A12KX. The amateur wavebands were officially allotted, 20 and 40 metres being the DX channels.

Home to the U.K. from India in 1928 but not for long, as in 1929 came a posting to British Somaliland to join a Boundary Commission, which was to carry out the demarcation of the Somaliland boundary. Some bits and pieces were of course taken and on arrival at Berbera, the PMG in person was



found to be available. However, the answer was that not even a permit for a receiver was permissible "on security grounds." At the time, apart from a small marine valve transmitter at Berbera, all the other radio communication was carried out using 1½ kW rotary spark transmitters and anyone with a knowledge of Morse could sit a hundred yards away from one of the transmitters and read aurally all the transmissions made! Some of the traffic was intercepted by this method and the PMG confronted with the evidence—at first he was a little icy but gradually warmed up and when it was pointed out to him that for the first time ever, it would be possible to monitor his internal communication system from all the remote corners of the country and let him have reception reports, he thawed out. A single TPTG transmitter was knocked up and initial test QSO's were made with the R.A.F. at Aden. The call 2DCR was at first used, and then VQ6DCR. The hinterland of British Somaliland is one vast plateau with heights varying from 3000 to 5000ft. so reception was excellent and at nights during winter, the G's used to come in on a simple O-V-1 receiver. Unfortunately, the only PSU available was a small petrol driven generator, and as all supplies had to come by camel convoy, taking several weeks to get up from the coast, only very limited transmission was possible on the amateur bands.

Back to the U.K. in 1930 and the first G ticket taken out, with G2DC established at Farnborough, Hants. A move to Liverpool came in 1935 where apart from the normal DX bands, a lot of 56 mc work was carried out and in 1937 what was then a record 5-metre QSO was made from near Buxton to the Isle of Man, with GW6AA at the Snaefell end.

Early 1939 saw G2DC back East once again, this time in Central India, at Jubbulpore, where no time was lost in setting up as VU2FO, with much activity on the DX bands up until the outbreak of Hitler's War. February 1944 till April 1945 was spent in Rangoon Jail as a p.o.w. of the Japanese. In 1946 came a posting to Japan with the Occupation Forces, and once again a new call was allotted—this time it was J4AAC, the DX bands being activated until return to the U.K. in August 1947. Then from Bulford Camp in Wiltshire, G2DC was once again to be heard as usual mainly on the DX bands, and the station remained quite active until yet again a move was made, this time to Germany where in Hamburg, DL2RO was put on the air and kept busy until returning once more to the U.K. in 1955, and again back to Bulford and G2DC. Retiring from the Army in 1957, after much searching the present location was found and once the station (and the garden) had been set up, a real look round on all the LF and HF bands could be made at leisure.

The main interests at G2DC are DX chasing and competition work but a ragchew with old friends is always enjoyed and a number of schedules are maintained. All the transmitting gear is home built, the main transmitter covering 3·5 to 28 mc and consisting of a Tesla VFO/xtal mixer on 3·5 mc, wide band coupled doublers, BA and *pi*-tuned PA, input to the latter being 130 watts; a separate Tx, again Tesla VFO and *pi*-tuned PA, is used for Top Band. The main receiver is a hotted up AR88D with a preamp. tuner using the *Magazine* circuit. On the antenna side, extensive systems have been employed over the past few years, for all-band operation. Especially in contest work it is very essential to have as perfect an aerial set-up as possible. After a lot of trials the systems now in use include a two-element Quad for 28-21-14 mc, at a boom height of 40 feet, and for 7 mc a ground-plane is used. For 3·5 and 1·8 mc an end-fed wire 265 feet in length at an average height of 38 feet is available. Up to date, 330 "Countries" have been worked, with fair success in most of the major CW operating contests.

* * * * *

We feel sure that this brief account of G2DC's long experience on the amateur bands will have been of great interest to many readers. Now retired after years of service in distant places, he is able to settle down to his Amateur Radio, enjoying it and making the most of his opportunities—which, when you come to read his story, is just what he has been doing for about the last 45 years!

COURSES FOR THE R.A.E.

Second List of Tuition Centres

Carrying on from p.372 of the August issue of the *Magazine,* we now have a further list of centres at which a course of instruction is offered for the Radio Amateurs' Examination, which is set by the City & Guilds of London Institute, and is known as "Subject No. 55" in their examination syllabus, under the heading of Electrical Engineering, Section G.

Copies of the last three years' question papers are available as one set, price 2s. A copy of the syllabus for Subject No. 55 can also be obtained for 1s. 6d. Prices are post free, and orders, with remittance by P.O., should be sent to: Sales Section, City & Guilds of London Institute, 76 Portland Place, London, W.1, quoting (and this *is* important) "Subject No. 55." City & Guilds run literally hundreds of technical and professional examinations, and their Sales Section is not organised to deal with vague enquiries from people who do not make their requirements absolutely clear.

For the information of instructors who might feel that their class would do better if they studied the syllabus and looked over the previous year's question papers—a discount is offered for bulk orders. Apply

to the Sales Section (address as already given) for the appropriate order form.

Following are the tuition centres notified since the August list was prepared :

Aldridge, Staffs : At the Evening Institute, Tynings Lane, commencing on Monday, September 12, at 7.30 p.m. Morse instruction will also be given and the course will be conducted by N. H. Hyde, G3PJM.

Brighton : At the Technical College, Richmond Terrace, in the Engineering Dept., under F. R. Canning, G6YJ, and including a course in Morse. Apply immediately to the Head of the Dept. of Engineering.

Brooklands (Weybridge, Surrey) : At the County Technical College, Heath Road, on Mondays 6.30-9.0 p.m., starting on September 19, enrolment at the College September 12/13. The lecturer will be G3GLB, and further information can be obtained on application to the College or by ringing *Byfleet 46485.*

Cannock, Staffs : At the Cannock Chase Mining and Technical College, on Tuesday and Friday evenings, commencing shortly. Full details from : C. J. Morris, G3ABG, School House, 24 Walhouse Street, Cannock, Staffs.

Corbridge, Northumberland : At the Evening Institute starting mid-September. Write : V. Allison, G3TNX, 14 Silverdale Drive, Winlaton, Blaydon-on-Tyne, Co. Durham, for further information.

Croydon, Surrey : At the Technical College, Fairfield, with enrolment during September. Apply to the Director of Electrical Engineering, at the College, or to the instructor : S. W. Law, G3PAZ, 11 Chisholm Road, Croydon.

Derby : At the College of Technology, Kedleston Road, commencing September 26, Tuesdays 7.0-9.0 p.m. for R.A.E. Theory, and Fridays same time for Practical work. Enrolment September 15 and 19, 6.0-8.0 p.m., at the College. Course fee for one evening a week, £3 ; for both evenings, £4. Lecturer F. C. Ward, G2CVV.

Glasgow : At Allan Glens School, Cathedral Street, on Tuesdays, 7.0-9.30 p.m. (Theory) and Thursdays same time (Practical and Morse), course fee 20s. Enrolment at the School, September 5-8, 7.30 p.m. Course instructors A. M. Fraser, GM3AXX, D. Rossi and A. H. Mason, GM6MS.

Leicester : At the Regional College of Technology, The Newarke, on Wednesdays 6.30-9.15 p.m., in two sessions for R.A.E. Theory and Morse practice. An amateur station signing G3SDC is available for practical work. Apply to the Registrar's Office for entry form. R.A.E. course lecturer, N. Booth, G2DSF.

Liverpool : At the Riversdale Technical College, in R.A.E. Theory and Morse, starting in September. For details apply : A. G. Brown, Head of Radio Department, Riversdale Technical College, Riversdale Road, Aigburth, Liverpool, 19. A number of other part-time and full-time courses in radio and radar are also offered.

London (Chingford) : At the Community Centre, Friday Hill House, Simmons Lane, on Monday evenings, 7.30 to 9.30 p.m. Application for enrolment should be made to the Centre during week commencing September 19. Lecturer in charge : J. Johnson, G2HR.

London (Islington) : Booster course at Debeauvoir Evening Institute, Tottenham Road, Balls Pond Road, Islington, N.1, evenings 7.30-9.30 p.m. Full details from F. Barns, G3AGP, 40 Park Ridings, Hornsey, London, N.8.

London (Wembley) : At the Evening Institute, Copland School, High Road, on Mondays 7.0 to 10.0 p.m., in two sessions, for Morse and Theory. Enrolment at the School, evenings September 12-15, 7.0 to 9.0 p.m. Classes start on Monday, September 19, and the course instructor will be A. J. Bayliss, B.Sc., G8PD—who has been taking this R.A.E. class for many years, with a high success ratio.

Peterborough : At the Technical College, Eastfield Road. Apply to D. Byrne, G3KPO, Jersey House, Eye, Peterborough, Northants, for full details.

Porthcawl, Glam : If a sufficient number of students come forward, an R.A.E. course could be arranged in this area. Apply : H. G. Hughes, GW4CG, 20 Austin Avenue, Porthcawl.

West Suffolk : At the College of Further Education, Out Risbygate, Bury St. Edmunds, enrolment commencing on September 5. Enquiries to the Principal, Electrical Engineering Dept., at the College.

Because in the main R.A.E. Courses will be well under way by the time the October issue of SHORT WAVE MAGAZINE appears, we shall not be publishing further lists of centres of instruction—unless specially requested for any late starters. Readers wishing to take an R.A.E. course, and not finding their locality mentioned either here or in the August listing (*see* pp.372-373) are advised to enquire at the office of their local Education Authority, quoting "Subject No. 55, City & Guilds."

NOT VERY EDIFYING

On the Midland BBC News one morning recently, there was one of those turgid question-and-answer interviews with a "ham," discussing some very ordinary DX. Apart from the generally fatuous nature of the piece (largely due, of course, to the complete ignorance of the BBC interviewer) some of the statements made were calculated to make Post Office eyebrows twitch. For years, we have been advising licensed amateurs to be very careful about discussing Amateur Radio with the press, which includes the BBC. If you must give an interview, first indoctrinate the interviewer and make sure he is going to ask the right sort of questions.

THE MONTH WITH THE CLUBS

By "Club Secretary"

(Deadline for October Issue: September 16)

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

THE remarks made by your scribe last month in his preamble to this piece caused a slight lift of the brow here and there and quite an interesting crop of letters. In general, as was more or less to be expected, they tended to cancel each other out, but one point that was made that seems to be very valid is that the Clubroom *must* be warm enough to be attractive, the landlord must be a complaisant sort of type, and if the Clubroom is on licensed premises there must be a separate way in for the Junior members; the implication here being that any members who wish to indulge in a spot of "elbow-lifting" must do so out of the Clubroom.

The only other point that seems to arise from all the letters is that the Hon. Sec. must be the sort of chap who is prepared to put in a lot of time in getting the programme organised, and not be put off by the seemingly impossible task of getting any sort of order out of the chaos. It is noticeable that in lots of cases Clubs that have thrived for years with one secretary seem to lose all their impetus when a new incumbent takes over—which just shows how important the job is.

One of the things that gets the regular flow of new faces going is the publicity angle. A point here is that the regular note in this *Magazine* will catch the eye of most of the licensed amateurs in the area; but it has to be realised that often it misses the raw beginners altogether. These chaps are best contacted by regular publicity of the right type in the local papers, and by way of a stand at the local Flower Show or similar event. One of the best patronised Clubs your conductor has ever belonged to seemed to have a knack of getting a front-page billing in the local press quite frequently, and every time this occurred the pay-off was in the list of new members. It is, however, not easy to see just how this particular trick is turned, as the publicity has to be of the right type, and it is fatally easy for a reporter to make a mess of reporting a Club activity unless he is well briefed. But there is no doubt at all that some most unlikely-looking type in the local group will turn out to have a flair for this sort of thing.

And, of course, the more raw beginners you can rope in, the better chance you have of getting enough members to justify the running of an R.A.E. class in the local evening Institute, a perfect subject for an interesting note in the local paper, and so the whole thing will grow and blossom. Your conductor would remark that in his view there is no more rewarding activity than taking an R.A.E. class and seeing beginners blossom out into full-blown amateurs capable themselves of giving interesting lectures on their specialities at the Club.

MCC—November 12-13

And now to a change of subject, to a matter of moment for the Autumn programme of most Clubs; to the Magazine Club Contest (MCC) for this year, in fact. This will serve as a preliminary notice that the date will be the weekend of November 12-13. We will be publishing the rules in this column next month, but for the moment all you need to worry about is getting a Top Band rig set out somewhere, and some aerials organised, together with a posse of operators, and a *good* tea-boy.

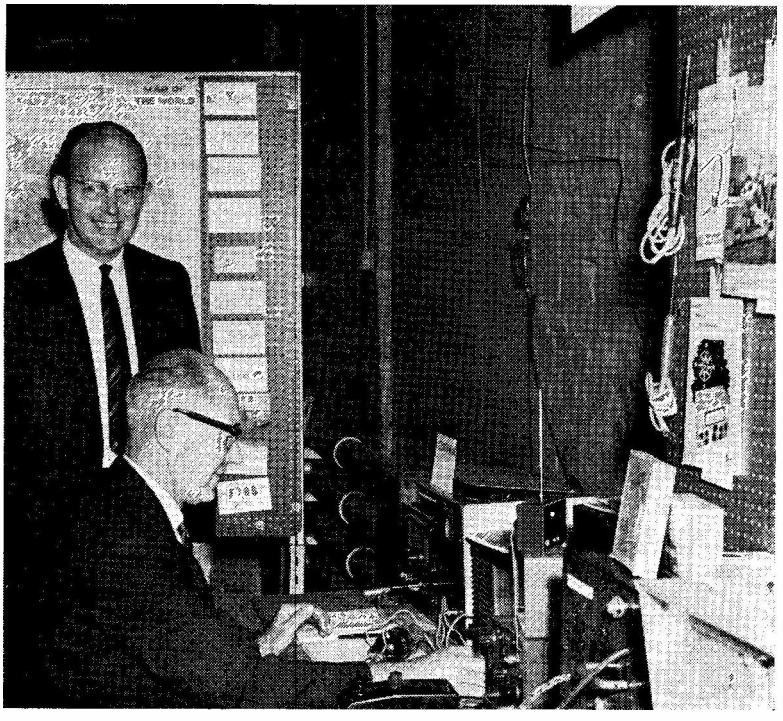
ACTIVITY REPORTS

Now to the reports, and the first one on the clip comes from **Clifton ARS,** who have their being in London, S.E.14. The September business is firstly the AGM, on the 16th, and on the last day of the month that old standby for the meeting following the AGM, a Junk Sale. This seems to be quite a favourite way for the outgoing committee to ensure something is on the programme and yet give the new officers time to tee-up the rest of the programme for the year themselves. And after all, has anyone ever heard of a Junk Sale that was *not* a success?

At **Southgate,** an important commitment recently was the Club's participation in the Finchley Carnival, July 22-23, for which they had an all-band station set up—Top Band to two metres—signing their own call, G3SFG. An elaborate aerial system went with this, including a quarter-wave wire for 160m., a full *and* a half-size G5RV-type, and suitable antennae for the VHF bands. Contacts had to be effected through a background of very strong QRM, but they were made, and on the Saturday they had quite a good public response. And by the time this appears Southgate will have repeated the performance at Broomhill Park, Palmers Green.

Nice to hear again from the Radio Club of **Nottingham,** where they have their own call G3EKW, now active on 4 metres, with a base station on 70·26 mc and four members who can go /P, /M on the band. Their next meeting is on September 13, for a technical film show, by G3RDJ.

One of the very active and well organised London Club groups is **Harrow,** now with 110 members, of whom nearly 50 hold transmitting licences—which



York Amateur Radio Society ran G3HWW/A at the recent Hobbies and Industries fair locally. G3FTS (seated) and G3DTA kept the station on the air for a week, making a great many QSO's using a Panda Cub and an Eddystone S.640. Much interest was shown in G3HWW/A, it being the first time that most visitors had seen an amateur station in action.

makes a nice balance between transmitters and SWL's. Their meetings are weekly, Fridays at 8.0 p.m., in the Science Lab., Roxeth Manor School, Eastcote Lane, except that for September there is no meeting on the 9th.

Torbay get together monthly, on the last Saturday (94 Belgrave Road, Torquay) and some time in September they will be giving a farewell party for G3NCC, a valued member of the Club for a long time, who is off to America to take up a new job. G3NCC was their R.A.E. lecturer and has done a great deal for the SWL members.

Plymouth have plans for more local publicity, one of the projects being a public lecture in the Plymouth Central Library, with the Club's activities fully covered, together with a display of equipment. They hold their meetings weekly on Tuesdays, 7.30 p.m., at Virgina House, Palace Street (near the central bus station) and, needless to say, visitors and prospective members are always welcome.

One of the snags associated with the use of a pub or hotel for Club meetings is the question of the younger members, and possible parental disapproval; **Bury & Rossendale RS** specially mention that although they get together at the Old Boars Head Hotel, the Rock, Bury, they have a private room, and all are therefore welcome, including interested youngsters. At the session on September 13, they have a lecture and demonstration by a commercial organisation, and in October, a Home Construction Competition.

At **Northern Heights,** on September 14, a visit is laid on to Process Units at Halifax; a D/F event on the 18th, on the 21st a discussion regarding the Scout Jamboree, with G8CB demonstrating and discussing Simple Two-Metre Gear to round off the month of the 28th.

Crawley will have had their "next meeting" by the time this reaches print, but on September 28, a talk is promised on an Audio subject, the speaker being Mr. D. Birt, of "Class-D Amplifier" fame.

Surrey Radio Contact Club send their *Newsletter,* from which we gather that the September event is a Sale of surplus gear; the date is not given, unfortunately, but no doubt a telephone call to the secretary (*see* panel) will obtain the information for anyone contemplating a visit.

Echelford ARS are quite definite about the date of their September lecture: the 28th it is, at the Links Hotel, Fordbridge Road, Ashford, Middlesex, and the topic "Soldering," by Mr. Thwaites of the Tin Research Institute. This one starts at 8 p.m. and should be of absorbing interest to all. In addition, there is the mid-monthly R.A.E. class, starting at

MCC, 1966

The 21st MCC, the annual Magazine Top Band Club Contest, will take place during the weekend November 12-13. It is a CW-only affair, open to all Clubs able to put a contest station on the 160-metre band. Rules, which will be much as last year, will appear in the next issue. In the meantime, start the planning and check up on last year's results—see January, 1966, issue.

7.30 on the 14th, the venue for which is The Grammar School, Ashford. Visitors will be welcomed at both meetings.

At **Stratford-upon-Avon** a new Hon. Sec. takes office, and writes in specially to ask all interested people in the area to write to him giving names and addresses, in order that a new mailing list may be made up. The Clubroom is adjacent to the Masons Arms, in Santus Road, and visitors are always welcomed, every Friday evening. For the summer, the meetings are informal, but a full programme of events is being organised for the autumn.

Another Friday evening session is the one held each week at **Peterborough.** Although they have ATV installed in their Clubroom at the Windmill behind the Peacock Inn on the London Road, the two-metre beam for the Club station is rotated by the "Handraulic" system, and brawny visitors are therefore at a premium. It has to be realised that the beam is rotated from three floors down, hence the need for muscle!

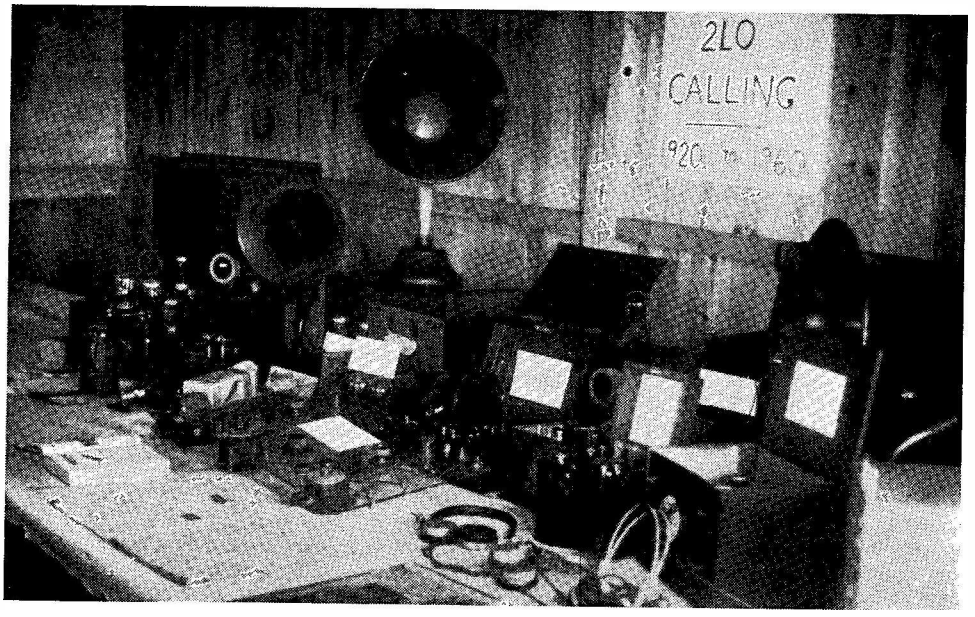
G3PZK is in the "hot seat" at **Acton, Brentford & Chiswick,** on Tuesday, September 20, when the theme will be his new All-band Transmitter, and the venue, the Club Hq. at 66 High Road, Chiswick.

The three members of S.A.R.A., **Wimbledon, South London Mobile** and **Purley,** co-operate in several ways. Both Wimbledon and Purley meet on September 9, the former to hear G3LXN talk about his Mobile rig, and the latter for a lecture by G3RKK on receivers. North London Mobile will be attending the Woburn Rally on September 11, and meet for a ragchew on the 24th. However, the news from the three clubs shows up a discrepancy in the dates, so it may be as well to check with the secretary of the one of your choice before setting off, in case we have not got the discrepancy sorted out right!

North Kent meet on the second and fourth Thursday of each month, at the Congregational Church Hall adjacent to the Clock Tower, Bexleyheath, at 8 p.m., but we have no knowledge of the current programme. This statement also applies to **Cornish,** which is not really surprising since the *Cornish Link* at this time of year is filled with matter pertaining to their Mobile Rally and its load of work.

Names and Addresses of Club Secretaries reporting in this issue:

ACTON, BRENTWOOD & CHISWICK: W. G. Dyer, G3GEH, 188 Gunnersbury Avenue, Acton, London, W.3.
A.E.R.E. (HARWELL): J. Galpin, Building 347.3, AERE, Harwell, Didcot, Berks.
BRIGHTON TECHNICAL COLLEGE: R. A. Bravery, G3SKI, 7 Copse Hill, Brighton, 5.
BRISTOL: E. J. Davis, G3SXY, 72 North View, Westbury Park, Bristol, 6.
BRITISH RAIL: H. A. J. Gray, Eleven Swanton Drive, East Dereham, Norfolk.
BURY & ROSSENDALE: A. Cooper, 411 Holcombe Road, Greenmount, nr. Bury, Lancs.
CAMBRIDGE: F. A. E. Porter, G2CDX, 37 Metcalfe Road, Cambridge.
CHESHAM: D. Kind, 19 Hollybush Road, Chesham, Bucks.
CLIFTON: A. J. Gould, 60 Merlin Road, Beckenham, Kent.
COVENTRY: W. F. M. Hahn, G3UOL, 11 St. Patrick's Road, Coventry.
CRAWLEY: R. G. B. Vaughan, G3FRV, 5 Filbert Crescent, Gossops Green, Crawley (*23359*), Sussex.
CRAY VALLEY: C. W. A. Davis, 6 Braemar Gardens, Sidcup (*FOOtscray 5077*), Kent.
CRYSTAL PALACE: G. M. C. Stone, G3FZL, 10 Liphook Crescent, London, S.E.23. (*FORest Hill 6940*).
EAST WORCS.: J. Bazley, G3HCT, Brooklands, Ullenhall, Solihull, Warwickshire.
ECHELFORD: A. G. Wheeler, G3RHF, 88 Village Way, Ashford (*55265*), Middx.
EDGWARE: G. S. Fitton, G3RAA, 18 Beverley Drive, Edgware, Middx.
GRAFTON: A. W. H. Wennell, G2CJN, 145 Uxendon Way, Wembley Park, Middx.
GUILDFORD: M. A. Birch, G3KMO, Sorrento, White Lane, Ash Green, Aldershot, Hants.
HARROW: R. C. Ray, G2TA, Wintons End, Springfield, Bushey Heath (*1762*), Herts.
HULL: G. G. Wray, G3MVO, 93 Wolfreton Lane, Willerby, Hull.
LICHFIELD: S. W. Williams, G3VIQ, 65 Wallfield Road, Alrewas (*491*), nr. Burton-on-Trent, Staffs.
MAIDENHEAD: E. C. Palmer, G3FVC, 37 Headington Road, Maidenhead, Berks.
MID-SUSSEX: E. J. Letts, G3RXJ, 87 Meadow Lane, Burgess Hill, Sussex.
MID-WARWICKSHIRE: K. J. Young, 180 Northumberland Court, Leamington Spa (*26426*), Warks.
NEWARK: G. Francis, G3TWV, 93 Balderton Street, Newark, Notts.
NORTHERN HEIGHTS: A. Robinson, G3MDW, Candy Cabin, Ogden, Halifax (*64329*), Yorkshire.
NORTH KENT: P. T. Baber, 64 Latham Road, Bexleyheath (*8655*), Kent.
NOTTINGHAM: N. E. Down, G3SRX, 23 Lady Bay Road, West Bridgford, Nottingham.
PATHFINDER: A. Lex-Arnold, 13 Little Road, Hemel Hempstead, Herts.
PETERBOROUGH: D. Byrne, G3KPO, Jersey House, Eye, Peterborough.
PLYMOUTH: E. Fallon, G3SGV, 8 Queens Road, Lipson, Plymouth.
PURLEY: A. Frost, G3FTQ, 62 Gonville Road, Thornton Heath, Surrey.
RADIO CLUB OF SCOTLAND: A. Barnes, GM3LTB, 7 South Park Terrace, Glasgow. (*WEStern 4080, STD 041–339–4080*).
READING: N. W. Austin, G2FQR, 20 Worcester Close, Reading, Berks.
REIGATE: D. Thom, G3NKS, 12 Willow Road, Redhill, Surrey. (*Reigate 45033*).
RODING BOYS: R. T. Marchant, 154 Essex Road, Leyton, London, E.10.
ST. HELENS: B. Hardy, 198 Knowsley Road, St. Helens, Lancs.
SALTASH: D. Bowers, 95 Grenfell Avenue, Saltash, Cornwall.
SHEFFORD: D. A. Pike, 32 Lawrence Avenue, Letchworth, Herts.
SOUTH BIRMINGHAM: A. Bishop, 40 Cecil Road, Birmingham, 29.
SOUTHGATE: R. Wilkinson, G3TXA, 23 Ashridge Gardens, Palmers Green (*4592*), London, N.13.
SOUTH LONDON MOBILE: B. Negri, G3LXN, 17 Voltaire Road, Clapham, London, S.W.4.
SOUTH MANCHESTER: M. Barnsley, G3HZM, Greenways, 11 Cemetery Road, Denton, Manchester.
SOUTH SHIELDS: D. Forster, G3KZZ, 41 Marlborough Street, South Shields, Co. Durham.
STOCKPORT: G. R. Phillips, G3FYE, 6 Ross Avenue, Davenport, Stockport, Cheshire.
STRATFORD-UPON-AVON: I. A. Cobbold, G3RPJ, 5 Avenue Road, Stratford-on-Avon.
SURREY: R. Morrison, G3KGA, 33 Sefton Road, Croydon, Surrey. (*ADDiscombe 5982*).
THAMES VALLEY: K. A. H. Rogers, G3AIU, 21 Links Road, Epsom.
TORBAY: D. T. Hind, G3VNG, 46 Thurlow Road, Upton, Torquay, Devon.
VERULAM: G. Slaughter, G3PAO, 6 Leggats Wood Avenue, Watford, Herts.
WAKEFIELD: E. Price, G3TQV, 23 Elm Road, Horbury, Wakefield, Yorks.
WIMBLEDON: K. Alexander, 23 Pepys Road, West Wimbledon, London, S.W.20.
WIRRAL: A. Seed, G3FOO, 31 Withert Avenue, Bebington, Wirral.
YEOVIL: D. L. McLean, G3NOF, 9 Cedar Grove, Yeovil, Somerset.
YORK: J. Rainbow, 14 Temple Road, Bishopthorpe, York.



Rather a fine collection of early BC receivers, dating from 1920, seen as part of the exhibit by the Peterborough Radio Society at the local Agricultural Show recently. As a somewhat similar picture appeared in the August issue, there would appear to be quite a lot of this historical equipment still about — it is of great interest for museum purposes, and should be looked after carefully.

Newark give no dates for their future programme, but we gather they have a D/F event, a talk on Computers, and a slide show on "The Canadian Rockies."

A crafty move on the part of the **Cray Valley** lads: If your copy of *QUA* is decorated with a large red cross on the front page, it tells you that you have not paid your annual sub, according to the records. This is an idea that could well be taken up by other groups as a means of saving the cost of postal reminders. The planned activity for September is the Dinner and Dance on the 17th, tickets for which should be obtained in advance from G3TCC, but there is doubtless another meeting which is not noted in the *Newsletter*.

The **Pathfinder** Radio Group organiser writes to advise us of their international affiliations, and that the title of their international organ will be *Hemel Hempstead Radio*. We understand this will be published quarterly.

The **Radio Club of Scotland** does not make any mention of the September programme in the issue of their *GM Magazine* which we have at hand. However, on October 2 they have their first Convention at the Grand Hotel in Glasgow, and weekly meetings, on Fridays, at 336 North Woodside Road, Glasgow.

The **Roding Boys Society** have moved to new Hq. in the Waltham Forest area, which give them more room to spread their range of activities; young enthusiasts in the area should contact the Leader, R. T. Marchant, 154 Essex Road, Leyton, London, E.10. Your scribe can add his own comment that anyone who joins will find himself something really worth-while.

Shefford & District announce that they have recommenced their weekly meetings, each Thursday evening at the Church Hall. Incidentally, we notice the Club secretary is now sporting his very new call, G3VMI—congratulations!

The season of Annual General Meetings is now upon us as we realise when we read the letter from **Clifton ARS.** Theirs is slated for September 16, and on the 30th, a Junk Sale will be held.

A sad note from **Coventry** tells of the passing of their vice-president, G5GR, Leslie Gardner, who will be sadly missed indeed. After the "bomb scare" reported last month, they have now returned to their quarters in the Civil Defence Hq., Drapers Fields, Coventry, with meetings each Friday at 8.0 p.m. On the 2nd, a talk and demonstration of the Viceroy Transmitter by G3RIR; on the 9th, another talk, this time by G3UOL, on his EI6BB activities; a

IMPORTANT NOTICE

Club secretaries and others concerned are reminded that the address for this feature is: Editorial Department, Short Wave Magazine, Buckingham, England, with the letter marked "Club Secretary." Reports must reach us by the date given at the head of the article each month, and must also include the QTH of the hon. secretary for the address panel. Some reports are still being sent to our London office, causing delay, and others do not give an address for the hon. secretary.

Mullard film strip lecture by G3ROD on the 16th; and on the 23rd, a lecture on "Making Electronics Think," again by G3ROD—making a pretty crowded September programme. And on top of that little lot is added the AGM, which is the matter in hand on September 30.

We have a short note from **Reading** which mentions the group activity in the 70 mc Contest on July 24, from which we gather that they had to drop the aerial in pouring rain to reconnect the feeder . . . and who says this hobby of ours is a sedentary one? The next get-together will be on September 13, to hear G3TOQ talk about SSB equipment.

Hull & District ARS are running a D/F event on September 11, to which both SWL and licensed amateurs are invited. Assemble at 1345 BST, at Church Hill, Holme-on-Spalding Moor, near Market Weighton, East Yorks. Full details can be obtained from Mike Ellis, G3PJR, at 351 Willerby Road, Hull.

Lichfield & District have written to say that the recently-issued Club callsign, G3VKP, has now been withdrawn; it is understood that another, more specific one, is to be issued shortly.

Well Organised!

As a result of the preamble to this piece last month, various comments were offered, as already discussed. One of the letters was from **Mid-Warwickshire,** who sent a copy of the printed information sheet which they put out in response to enquiries. They have, by courtesy of Leamington Town Council, two rooms at their disposal, one for lectures and general meetings, and one with workshop facilities. Into the latter they have built a shack, enclosed with fibre board, and fitted with a window in order that others may "look in" on the operators, but the noise of the rig is thus kept from being a nuisance to the workshop or meeting rooms or *vice versa.* As for meetings, these are every Monday, the "even" ones being set aside for nattering, while lectures are laid on for the "odd" weeks. Thus, on September 12 the tape lecture on Transmitters will be heard, and on the 26th, they will listen to G3BA telling them how to get going on VHF using HF gear and a Transverter.

Saltash are to listen to Steve Rance, G3WL, on the subject of "Top Band Aerials" when they foregather on September 9, and on the 23rd a visit to the BBC Television Studios in Plymouth has been arranged.

The finding of new meeting-places is a chore that Club committees have to deal with all to frequently, and we can all, therefore, feel sympathy for the **Maidenhead & District** group, who have lost the use of the East Berks College. However, we are pleased to be able to say that they have almost certainly got a replacement Hq. Anyone thinking of attending the meeting due on September 20, therefore, to hear the W1BB Tape and Slide lecture, should contact the secretary in order to confirm that the venue is indeed the Scout Hut, Furze Platt Road, Maidenhead.

Which is the excuse, were one needed, for heading northwards, and mentioning that we have word from the **Northern Heights ARS** to say that thanks to some fine work in reprinting the slides, the W1BB tape and slide lecture on "Top Band DX'ing" is once again available to Clubs. For further information on this subject, contact G3MDW, address as panel.

At the rear of 5 Bois Moor Road, Chesham, Bucks, is the Hq. of **Chesham & District,** each Friday evening being the meetings proper, while Wednesday evenings at the same venue is R.A.E. night; both kick off at 8.0 p.m. In addition to this, probably in the first week of September, it is proposed to have a field day, at Ottershaw, near Chertsey.

Cambridge & District ARC have their Hq. in Victoria Road, Cambridge, and say they have had visitors from all sorts of places to the informal meetings held during August; however, they add that the formal programme for the coming autumn and winter commences on September 16 with a quiz entitled "My Problem Is . . ." Looking forward, a "Grand Autumn Sale" is slated for October 14.

Once again this month is a full one for the members of **South Manchester.** September 7 sees them at the Altrincham Show, operating GB3ALT. September 9 at Hq. is the place to hear a lecture on Q-Multipliers by Mr. R. Smith; as for September 23, G3SMT expounds his ways of modifying the HA-350 and others at the same place. In addition to all this there is the Northern Radio Societies Convention at Belle Vue on September 3-4, and the normal "informal" and "activity" sessions on the remaining Fridays, all at Rackhouse, Daine Avenue, Northenden, Manchester. As if this were not enough there is a small matter of a National D/F contest Final to be organised on Sunday, September 18!

Over now to **Bristol,** who send a long and chatty letter from which one gathers that it is their belief that to be successful one should run a twice-weekly programme; in their case Monday and Thursday are favoured, and there is always Morse Practice and tuition available at these sessions. On September 22 comes the very important matter of the AGM, and in addition, during the month other activities may well occur out-of-doors. Incidentally, the regular meetings are convened at 43 Ducie Road, Barton Hill, Bristol.

"No Salesmanship" is the claim of the **East Worcestershire Radio Society,** and they go further and think any visitors who look in will be agreeably surprised at how nice a bunch they are. They may

MCC, 1966

The 21st MCC, the annual Magazine Top Band Club Contest, will take place during the weekend November 12-13. It is a CW-only affair, open to all Clubs able to put a contest station on the 160-metre band. Rules, which will be much as last year, will appear in the next issue. In the meantime, start the planning and check up on last year's results—see January, 1966, issue.

In the August issue we showed a picture of the transmitting members of the East Lancashire Radio Club. Here are some of their SWL members.

be found on the second Thursday of each month at the Old People's Home in Park Road, Redditch; the matter in hand for September being the Daystrom (Heathkit) lecture, and in October G3OOQ on the topic of the KW-2000A.

The season starts on September 9 for **Grafton RS,** in Montem School, Hornsey Road, Holloway, London, N.7, in Room 35. On the 23rd, it is enrolment night for the R.A.E. course, and the following Friday (30th), a Junk Sale is the main item. Incidentally, your conductor suspects Grafton have probably obtained more R.A.E. passes over the years than *any* other Club; one would think the majority of the calls in the North London area were obtained by attendance at the Grafton classes.

British Rail Amateur Radio Society are still in the process of getting on their feet, and they are glad to mention the help received from the joint secretary of the British Rail Staff Association. Will all those connected with British Rail, including Docks and Inland Waterways, the Joint Holding Companies associated with BRB, and of course Thomas Cook & Sons, all please pass their "vital statistics" to the hon. secretary in order that he may keep them posted as to how things are going. And it is hoped to organise a net, to get members together over the air.

The activity at **Yeovil** centres around a visit on September 14 to Yeovilton R.N. Air Station, which should be interesting, and later in the month the Club apparently has to "saw itself in half" so as to be at the Region 9 ORM *and* operate the Club call, G3CMH, at the Yeovil Youth Centre, on the same day. This occurrence will be on October 1.

A tale of woe from **Saltash** this month; the editor of the *Tamar Pegasus* has had to cut the size of his offering by half because of shortage of copy. From this he draws the conclusion that the licensed members are spending too much time on the air and not enough time writing for the *Newsletter*. The programme for September is reported elsewhere in this piece.

Another new group, to be known as the **Mid-Sussex ARS,** has recently been formed to serve the area around Haywards Heath and Burgess Hill. Meetings occur on first and third Wednesdays of this, and each succeeding month, at the Primary School, Lindfield, Nr. Haywards Heath. It is to be hoped that this venture will receive all support from the locals; visitors are welcomed, or of course, one can address enquiries to G3RXJ. And from us the best of luck.

The Prince of Wales, Bridge Road, East Molesey, is the home of **Thames Valley,** and the next get-together wil be on October 5, when Tony Taylor will give another instalment in his serial, "Nuclear Power." Further ahead, on November 2, a Constructional Trophy is to be fought for and won.

One of the Clubs with a regular newsletter is the **South Birmingham** group, who forgather at the Scout Hut on Pershore Road, Selly Park, Birmingham, 29, and from this we hear that Mark, G3GBS, has been bludgeoned into giving the Club a lecture, the subject being "Mobile" and the date September 21. As your scribe made his first real contact with Amateur Radio at the QTH of G3GBS years ago, his personal best wishes go out for the success of this one. Another event for South Birmingham will be the joint Mobile Rally, organised in conjunction with Sutton Coldfield, slated for September 25.

Fortnightly meetings are the rule at **St. Helens Electronics Society,** the next being an Open Night on Tuesday, September 6, at the I.V.S. Centre, 55 College Street, St. Helens. The subject for the evening of the 20th has yet to be finalised.

Not far away, **Wirral ARS** have as their subject on September 7, the Grid Dip Oscillator, the speaker on this occasion being Mr. R. Evans. G3PPE talks about a Transistor Transmitter on the 21st; both these should be of considerable interest.

The secretary of the **Wakefield & District** crowd informs us that they restart activities on September 13, at Ings Road City High School, Wakefield, with a Mullard Film Show. He also says he hopes to get a full programme sorted out, and indicates that the licensed members are going to be made to "do their stuff" in the way of giving lectures . . . and so they should.

Edgware & District offer a talk on Construction

Techniques by G3JPJ to kick off the autumn session, followed by a D/F event on the 25th, and a lecture on RTTY on the following evening.

On to **Brighton Technical College ARS,** who propose to notify members direct of their restart date; new intending members should therefore contact the secretary at the QTH given in the panel. **Guildford,** on the other hand, are in a position to be more informative, as they have a station on the air at the Guildford Model Engineers Exhibition, at Stoke Park, on September 17-18. In addition to this there is the normal activity, by way of a lecture on "Quality Electronic Components" by Mr. Childs, at the Club Hq., which is also in Stoke Park. For the future they have G2YL and G6ABA/T promised to lecture, and a Junk Sale is also on the card.

Issue No. 73 of the **Reigate** *Feedback* is in a nice shade of blue, which must be meant to mean something or other . . . however, they do not give detail on the September affairs other than to mention in the covering letter a talk with the intriguing title "Coils and Q's" on September 15, to be given by R. Wadie, G8AOD. Your scribe has been to Redhill at various time over the last twelve years but always manages to be out of phase with the meeting dates, and has never yet managed to get to one; maybe we *will* make it, in the fullness of time!

South Shields have to deal with the important business of the AGM on September 16; however, the regular meetings are every Friday, and the venue is at Trinity House Social Centre, Laygate, South Shields. It is pleasant to note that here again is a group that pays special attention to the SWL side with instruction, both in Morse and in theory, regularly available at meetings.

Crystal Palace have planned a big effort for the VHF field day weekend, with a two-metre station and another to take care of 4m. and 70 cm. It is said in their *Newsletter No. 129* that "the extensive aerial systems will require quite a lot of effort in erecting"! The next meeting is on September 17. The Palace now have their own callsign, G3VCP.

At **Stockport,** they have a surplus gear sale on September 7, and on the 21st a lecture on VHF Aerials, by G3AYT. Meetings here are fortnightly, so that the next following are on October 5 and 29.

Once a year, the **Verulam** (St. Albans) group run a special open meeting, to be something out of the ordinary. This year's will be on September 21, at the Cavalier Hall, when the lecturer is to be Dud Charman, G6CJ (except that he is described variously as "G3CJ" and "G6CL" in the *Verulam News Sheet* announcing this event!). He will be demonstrating his well-known model aerial farm, by which he is able to show what actually happens to the radiation off numerous different types of aerial. This is a most instructive and interesting lecture-demonstration, which should not be missed.

The latest issue of *QAV,* the newsletter of the **A.E.R.E., Harwell,** Amateur Radio Club, devotes a good deal of space to criticism of the "QRA Locator System," now adopted by the Region I VHF Committee as the European standard for the evaluation of distances in VHF contest working. We are entirely in agreement with the Harwell standpoint in this matter, and for the reasons they give, and some others as well, we have never thought it worth encouraging the adoption of the QRA Locator System; in fact, it has never caught on. Another interesting item in this issue of *QAV* is a penetrating comment by G5RP on the Harwell Group's recent NFD performance.

There you have it; it now remains for us to thank you for your letters and news-sheets, all of which are read from cover to cover, are thoroughly enjoyed, and also help us to spot any minor discrepancies about dates, times and places. Too many by far to acknowledge individually, but *all* appreciated, so please keep sending them.

The deadline for next month is September 16, so until then, may all your letters to prospective speakers prove exceedingly fruitful, and your programme better than ever.

SPECIALLY ON THE AIR

It is getting rather late in the year for specially organised outdoor events—nevertheless, we have a few more to notify.

G3PGU, September 3: On the air for a fête at Tiddington, near Stratford-on-Avon, organised by the Stratford-on-Avon group for the local branch of Toc H. Contacts welcomed with stations able to put in a strong AM or SSB signal. Hon. secretary: I. A. Cobbold, G3RPJ, 5 Avenue Road, Stratford-on-Avon, Warwickshire.

GB3ALT, September 7: At the Altrincham Show, put on by the South Manchester Radio Club, to operate all bands 10-160m., AM/SSB. Details from: W. M. Furness, G3SMM, 171 Woodhouse Lane East, Timperley, Altrincham, Cheshire.

G5PM, September 17: For the Royal Military Academy and Staff College Horse Show, operated by the R.M.A. Radio Club on all bands, with talk-in on 160/4/2m. Visitors welcome, for whom there will be sideshows, entertainment and refreshments. Details: M. Powell, Signals Wing, Royal Military Academy, Sandhurst, Camberley, Berks.

G3UNU, October 4: Nottingham University Radio Society will have a station on show at the Univ. Pre-Sessional Conference, operating on or near 3600 kc, 0900-1400z, with cards for all QSO's. Address for information, and about joining the Club: C. J. Doran, 89 Lennard Road, Penge, London, S.E.20.

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.

EI7BA, J. E. C. Tait, Glebe House, Inch, Whitegate, Co. Cork. *(Tel. Cork 65322.)*

G3USW, W. Clough, 32 Jackson Crescent, Rawmarsh, Rotherham, Yorkshire.

G3UXO, A. J. N. Eardley, c/o Medical Mess, Royal Naval Hospital, Plymouth, Devon.

G3UXP, R. K. While, 157 Lazy Hill, Kings Norton, Birmingham, 30.

GM3VCZ, A. McInnes, 39 Heathfield Road, Thurso, Caithness.

G3VFD, C. W. Westwood, 25 Knoll Road, Bexley, Kent. *(Tel. Crayford 22803.)*

G3VIN, R. Hewitt, 6 Kenmare Road, Wavertree, Liverpool, 15.

G3VKM, R. J. Basford, 74 Walcote Drive, West Bridgford, Nottingham. *(Tel. Nottingham 232915.)*

G3VKU, Mrs. D. Hollingsworth, 2 Thornsett Terrace, London, S.E.20.

G3VKV, G. H. S. Jones, 32 The Grove, Hales Road, Cheltenham, Glos.

G3VKX, S. F. Cummins, 18 Fitzalan Road, Harlescott Grange, Shrewsbury, Shropshire.

G3VLC, C. C. Hawkins, 14 Bishops Park Road, Norbury, London, S.W.16.

G3VLW, C. P Martin, 27 Little Green Lane, Chertsey, Surrey.

G3VLX, D. Buckley, 234 Halfway Street, Sidcup, Kent.

G3VMC, T. L. Sadler, 17 Hoyland Close, Millhouse Green, Penistone, Sheffield, Yorkshire.

GM3VMG, J. Kirkwood, 31 Morton Road, Ayr, Ayrshire.

G3VMJ, J. Peters, 3 Lacey Street, Longhoughton, Alnwick, Northumberland.

G3VMO, G. E. Fenner, 80 Larkshall Crescent, Chingford, London, E.4. *(Tel. SILverthorn 6613.)*

G8APA, P. A. Simpson, 17 The Dene, Wylam, Northumberland. *(Tel. Wylam 3302.)*

G8APX, W. H. Jarvis, Valley Farm, Witnesham, Ipswich, Suffolk.

G8AQA, P. Nickalls, 174 Erith Road, Barnehurst, Bexleyheath, Kent. *(Tel. Crayford 23344.)*

G8AQL, C. E. Burr, 7 Wellburn Close, Ovingham, Northumberland. *(Tel. Prudhoe 733.)*

G8AQR, A. Crabb, 40 Darras Road, Ponteland, Newcastle-upon-Tyne. *(Tel. Ponteland 2615.)*

G8ARE, R. G. Powell, 8 Little Baldon Farm, Nuneham Courtenay, Oxford.

CHANGE OF ADDRESS

G2BSQ, R. Andrews, 76/78 Meadrow, Godalming, Surrey.

G2CPX, W. J. A. Carlton, 3 Vicarage Lane, Upper Hale, Farnham, Surrey.

G2FLC, L. A. Yaxley, Holmlea, High Common, Morley Lane, Wymondham, Norfolk.

G3ANJ, A. J. Wall, 13 Quineys Leys, Welford-on-Avon, Warks.

G3COV, G. B. Woffinden, 10 Mellstock Avenue, Dorchester, Dorset.

G3FPC, D. Stephenson, Crown Flats, Watling Street, Stretton, Staffs.

GW3IJU, E. Briggs *(ex-G3IJU)*, 32 Dinam Road, Caergeiliog, Anglesey.

G3IUZ, H. R. Davis, 84 Tomswood Hill, Hainault, Ilford, Essex.

G3IZH, P. F. Hughes, 42 Gordon Road, Westwood, Margate, Kent.

G3IZU, D. Aveling, 9 Springcroft, Manor Drive, Hartley, Kent.

G3JCC, J. C. Cunningham, 41 Armthorpe Drive, Little Sutton, Wirral, Cheshire.

GM3JKC, C. Cooper, 28 Kippford Street, Glasgow, E.2.

G3JUZ, M. R. Dewar, *(ex-VS9AMD/DL2BH/5A1TP)*, 16 Avon Road, R.A.F. Station, Abingdon, Berks.

G3KXT, R. I. Richardson, 50 Hayes Street, Hayes, Kent.

G3LPH, K. F. Moss, 29 Delaheys Road, Hale, Altrincham, Cheshire.

G3MFO, P. J. Elliot, 17 Weighton Road, Harrow Weald, Harrow, Middlesex. *(Tel. Underhill 3551.)*

G3MJK, J. C. Clinch, Hq. R.A.F. Germany, B.F.P.O. 40.

G3NAC, J. M. Hern, H.A.M.C., R.A.F. Station, Andover, Hants.

G3NKX, C. Waterman, 19 Wroths Path, Loughton, Essex.

G3NQO, V. T. Brown, 242 Little Wakering Road, Wakering, Essex.

GW3OIN, J. G. Nicholas, No. 2 Police House, Hanmer, Flintshire.

G3PXT, Norfolk Amateur Radio Club, Old Lakenham Hall, Mansfield Lane, Norwich, Norfolk.

G3RJH, R. J. Harding, 60 Wychall Park Grove, Kings Norton, Birmingham, 30.

G3RRN, Dr. K. E. Jones, 4 The Oval, Bicton, Shrewsbury, Salop.

G3RUS, L. Beaumont, *(ex-VS9ALB)*, Royal Signals, c/o Officers' Mess, 24th Signal Regiment, Catterick Camp, Yorkshire.

G3SBT, R. E. Snell, 64 Westway, Raynes Park, London, S.W.20.

G3TMU, C. A. Neale, 32 Oxford Road, Farnborough, Hants.

G3TOA, J. Otter, 20 Tower Avenue, Lincoln.

GD3TOH, C. P. Ford *(ex-GI3TOH)*, Kesaby, Fistard, Port St. Mary, Isle of Man.

G3TZV, P. Fry, c/o 57 Swann Lane, Cheadle Hulme, Stockport, Cheshire.

G3UFB, N. G. Brinkworth, 8 Gloucester Road, Stonehouse, Glos.

G3UGH, J. K. McHugh, 97 Foxcroft Drive, Hayes Lane, Wimborne Minster, Dorset.

G3UOV, M. B. Beck, 11 Orde Close, Pound Hill, Crawley, Sussex. *(Tel. Pound Hill 3075.)*

SMALL ADVERTISEMENTS

(" SITUATIONS " AND " TRADE ")

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ANNOUNCING That The Universal Z-Match Co., Ltd., will have the 150-watt Z-Match Unit available for immediate delivery as from September 14. Other models forward in another 14 days. A large range of colours can be supplied to special order; send us your sample colour.—Universal Z-Match Co., Ltd., 18 Queen's Road, Fareham, Hants.

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MASTS: Tubular 2in. dural, forty lengths 4ft. 8in., with mating ends, to make up to four 45ft. masts. £5 per ten lengths.—O'Connor, 4 Clandon Road, Guildford (2682, after 6.0 p.m.), Surrey.

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WANTED: Three-band Cubical Quad, also suitable rotator and remote indicator.—Details, condition and price asked: Lord, G3PHN, Newfield House, Moira, Burton-on-Trent, Staffs. (Tel. Swadlincote 7537.)

SALE: Geloso receiver 64/214, £70. Geloso VFO 4/102V, with PA coil, £4 10s. Minimitter PA stage, using two 807's, £5 10s. HRO cabinet and some spare parts. Offers for all items. Also many other pieces for sale.—Barker, 82 Main Street, Balderton, Newark, Notts.

SELLING: T.W. two-metre nuvistor converter, IF 4·5 to 6·5 mc. Offers?—Box No. 4354, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

WANTED: Labgear wide-band multiplier unit suitable for 5763's. SALE: HRO S-meter, five coils, £8. AR88LF in cabinet, some IF's missing, ideal for spares, first £10 secures. All letters answered.—Box No. 4353, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

SALE: T.W. Communicator 160m. Transceiver, practically brand new, with G3FIF mobile antenna, microphone, cables, etc., complete mobile station, vy FB, price £50. Three only: Klaxon slow-rev. motors, adjustable up to 30 r.p.m., ideal as light aerial rotator, 40s. each. Clearing out over 150 modern valves, 40s. the lot.—Clarke, G3LST, 30 Tomlyns Close, Hutton, Essex.

STAR SR.550 Communication Receivers, brand new and unused, in maker's sealed cartons, two only at £53 5s. each (listed at £61).—Avill, G3TPX, 7 Moorland Crescent, Staincross, Barnsley, Yorkshire.

FOR SALE: Transmitter, home constructed, 60-watt for 10 to 80 metres, £12. Eddystone S.640 Rx, £15. Heathkit GDO, factory built, £10. Electric drill, 5/16th in., £5. Test meter, £2. Low-pass filter, 30s.—Smith, 19 Osborne Terrace, Luddenden Foot, Halifax, Yorkshire.

OFFERING: Transistors AUY-10, 25s.; BY-100, 4s.; BY-124, 2s. 9d.; OC-26 (unmarked), 5s.; OC-35, 7s. 6d. Zener diodes, 1·5 amp., all voltages up to 40v., 4s. 813 Valves, 30s. 807 bases, 1s. 3d. All items plus postage, s.a.e. for full list.—Hatley, 2 Fitzgerald Avenue, Seaford, Sussex.

SMALL ADVERTISEMENTS, READERS—*continued*

SALE: Postal Course for the R.A.E., including "Radio Amateurs' Examination Manual" and specimen question papers, price £5. WANTED: Suitable Morse Course, disc or tape.—Westwood, 6 Ogwen Drive, Cardiff, Glam., South Wales.

SELLING: An entire two-metre rig, consisting 25-watt AM Tx, small mod. for CW, with 4/4 slot-fed beam, two-valve two-nuvistor Converter, 12v., tuning 28 to 30 mc IF, less PSU, with 28ft. of 2in. ali tubing, including rotary nylon bush and coax feeder, spare QQV03-20A PA valve, and 145·2 mc xtal, the lot for £22, or near offer. Rig can be seen operating. Buyer collects.—Targett, G3NUP, 1 Rectory Terrace, Pulham Market, Diss, Norfolk.

WANTED: For going mobile, a KW-2000. SALE: Eddystone EA-12, immaculate, price £145. Prefer buyer inspects and collects (Midlands area).—Box No. 4356, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

FOR SALE: Codar CR-66S receiver, with matching speaker cabinet, £16 or near offer?—Hardy, 522 Halifax Road, Bradford, 6, Yorkshire.

SELLING: B.46 Rx with PSU, coverage 1·5 to 15 mc. Rather an unique receiver, this, worth an s.a.e. for details. Also a Minimitter converter, amateur and BC-band version. Offers for either.—Latimer. 36 Fife Street, Barrow-in-Furness, Lancs.

EDDYSTONE 840C For Sale, new this year, little used, owner emigrating, price £45.—Parsons, Penfold House, Great Billing, Northampton. (Tel. Cogenhoe 239.)

HAVING Passed R.A.E., wish to dispose of Course; about twelve months old, cost £12. Best offer.—Box No. 4355, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

SAILING AWAY Soon and cannot take following: National NC2-40, octal valves, internal coils, with PSU, price £25. Heathkit RA-1 receiver, never used, £30. Creed 7D teleprinter, 230v. AC T.U., with PSU, £10. New Pye 25w. 4m. and 2m. units, with four xtals, £35 pair. G. & D. 4-metre converter, £5. Transistor converter for two metres, 50s. Pye Ranger, transistorised 4-metre mobile, price 50s. Commercial 5in. 'scope, 110v. AC, price £5. Signal Generator, AM/FM. Sweep, 110v. AC, £5. Crystal calibrator, 1 mc xtal, 10/100 kc points, as new, 30s. All items of commercial manufacture. Will haggle, prices at your risk. (Surrey area.).—Box No. 4357, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

FOR SALE: AR88D receiver, with manual, spare valves and cabinet speaker, also aerial tuning unit, 30ft. sectional steel mast, aerial wire and spare speaker. The lot for £35, buyer collects (Essex area).—Box No. 4358, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

WANTED URGENTLY: Valves type 832, QQV06-40A, QQVO3-20A, and 4X150A. Please state condition and price.—Wadsworth, G3NPF, 130 Ashingdon Road, Rochford, Essex.

SALE: Valves, unused Acorns type 954, 1s. 6d. each, or 15s. a doz.; 1625, 4s. each, 36s. doz.; 6B8G, ML6, 1s. each. Many other types, list free.—Box No. 4306, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

SELLING: Heath Apache and SB-10U, in excellent condition, 150-175w. CW/AM/SSB, £100. Laboratory built QRO AM modulator, 19-in. standard panel, £15. Mosley V-4-6 vertical, £4. Free delivery in London area.—Box No. 4359, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

EXCHANGE: New 12x50 binoculars, worth £25, plus £10 cash, for AR88D or similar Rx.—Critchley, G3VKG, 42 St. Davids Road, Lytham St. Annes, Lancs.

FOR SALE: KW-2000, with AC/PSU, in mint condition, price £150. KW-600 Linear Amplifier, 500 watts p.e.p., mint, £80.—Tucker, G3FTA, 4 St. Margarets Road, St. Leonards-on-Sea, Sussex.

SMALL ADVERTISEMENTS, READERS—*continued*

EXCHANGE: HRO, with coils for amateur bands, 10/40m. bandspread, with PSU, set spare valves and manufacturers' manual FOR Signal Generator or Tape Deck of similar value.—Smith, 46 Cow Heys, Dalton, Huddersfield (32280), Yorkshire. (Ring after 7.0 p.m.).

FOR SALE: Home-built all-band 60w. CW Tx, with Geloso VFO into 6146 PA, separate PSU giving 400v. 500 mA and 350v. 350 mA, efficiency 75%, price £15. Modulator, 25-watt, £2. Mosley V-4-6 vertical, £8. G4ZU 3-ele beam, £8, or near offer. Buyer collects.—Ring Mitcham 2592.

WANTED: Information on any modifications, or converters, for R.1155 receiver. Reasonable expenses refunded.—Box No. 4360, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

WANTED: Late model Hallicrafters SX-100. Also R.216 with PSU.—Beard, Orchard Close, Spring Hill, Nailsworth, Glos.

SALE: Panda Cub Tx, in good condition, £25. Buyer to collect, or would deliver locally.—Fletcher, G3TVM, 10 Cedar Walk, Bottisham (270), Cambs.

SELLING: Sphinx SSB Tx, in mint condition, £65 or near offer. Also an R.C.A. AR88LF, a good one, for £30. Going transceiver. — Edwards, G3RJB, 5 Powys Walk, Hereford.

ACCOMMODATION Wanted: Licensed amateur, now mature student (over 30), requires board and lodging for term-time in Grantham/Colsterworth area. Any offer of accommodation welcome, particularly from amateur or SWL who would like a station at home QTH and/or help for R.A.E.—Box No. 4361, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

WANTED: Mosley TA-33Jr. beam, or similar. State price and condition.—Fantham, G3TGL, 52 Calverley Road, Birmingham, 30.

WANTED: Top Band coil pack for Eddystone 358X receiver. SALE: Because of XYL trouble, eight 12ft. bamboo poles for 10-15m. Quad, 40s. TA-31Jr., radiator of TA-33, £4.—G3OOQ, QTHR.

SELLING UP: R.C.A. AR88D, with S-meter, phones, speaker and manual, £36. Five-band CW Tx, VFO and 2/807 PA, with 70w. PSU, reflectometer and change-over relays, £8. Crystal Calibrator, 100 kc and harmonics, 30s. Transformers: Mains input, 440-0-440v. 170 mA, 5v. 6A., 6.5v. 20A., oil filled, 40s.; 250-0-250v. 60 mA., 0-4·5v. 2.5A., 0-4-6.3v. 4A., 10s. PSU's: 250v. DC, 150v. stab., 80 mA., 4-5-6.3v. twice, 30s.; 12-15-20-24-30v. 2A. DC, 20s. Components for Minimitter 160m. Tx, 50s. Xtal microphone, new, 20s. Meters: 0.5 amp RF, 50 mA, 100 mA, 300 mA, DC, 7s. 6d.; 50 microamp. DC miniature, new, 20s. Jackson variables, 75 mmF split-stator, 10s. Air trimmers, 50 mmF, 3s. 6d. each. RSGB "Amateur Radio Handbook", 1963 Edn., 20s. "Short Wave Magazine" Vols. XX, XXI, XXII, XXIII, 12s. 6d. each. Send s.a.e. for sundries; carriage extra.—McCole, GM3SQI, 204 Copland Road, Glasgow.

SALE: Valves 813's, 807's, 805's, 6BA7's, and hosts of others; also small oscilloscope; remote control gear for mobile; plugs, switches, Acos mic., "Short Wave Magazine" copies—all going for an old song. —Cole, El Cid, The Green, Pitton, Nr. Salisbury, Wilts.

FOR SALE: Eddystone S.640 Rx, in very good condition, with panel handles, slope blocks, voltage regulator, separate Q-multiplier. All reasonable offers considered.—Jones, G3RRN, New Lanark, 4 The Oval, Bicton, Nr. Shrewsbury, Shropshire.

WANTED: A transmitter suitable for all bands Top to Ten. CW and AM essential, and SSB if possible. Must be stable enough for RTTY, and TVI-proof. Appearance unimportant. W.H.Y? Price and full details.—Morton, 12 Stuart Street, Millport, Isle of Cumbrae, Buteshire, Scotland.

WANTED Urgently: American receiver Type BC-1147, 1.5 to 30 mc. — Runciman, 24 Oakleigh Avenue, Bolton, Lancs.

SMALL ADVERTISEMENTS, READERS—*continued*

SELLING: Collins mechanical filter Type F455-H31, 3.1 kc bandwidth, new and unused, £10. AVO Model 7, price £8 10s. 4X150D, 15s.—Heys, G3BDQ, 418 The Ridge, St. Leonards-on-Sea, Sussex.

WANTED: By CW-only enthusiast, transmitter for 10 to 80 metres, 100 watts minimum, TVI-proof essential. — Box No. 4362, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

FOR SALE: Valves, 813, 15s.; pair new TZ40's, 20s. Type 1985 two-metre Tx/Rx, £4 plus 15s. carriage. General Radio rack-mounting BFO, 0-40 kc and 40 kc to 5 mc, bit rough but frequency-determining components as new, with output meter, for 230v. AC, £2 plus 15s. carriage. GCRE high-speed bridge, Type T13D/1, 3 meters, etc., £5 plus 15s. carriage. Three units on 7-in. rack mountings, in poly blue, new components throughout: DL6EQ T.U. with CRT monitor, less toroids and 3BP1; PSU giving 110v. DC 1A, 24v. DC 5A., 250v. DC 100 mA, 6.3v. AC; PSU, 50/250v. DC var. stab., neg-pos 300v. DC 100 mA, -2000v. 2 mA, 4v./6.3v. AC, fully metered, with all plugs and cables, £10 the lot, plus 30s. carriage. —Spence, School of Physics, The University, Newcastle-upon-Tyne, 1, Northumberland.

SELLING: Mint Codar A.T.5, with home-built PSU, £17 10s. Two-metre table-top Tx, 25-watt, QQV03-20A PA, with push-pull 6V6 modulator and PSU, price £11 plus carriage. New and unused Kokusai filter, Type MF455K-10, £7 10s. Panadaptor, 455 kc, 2-in. screen, for 115v. AC, in excellent condition, price £18 10s.—G3NMY, QTHR. Ring Cromer 2664 day, 2410 evenings.

FOR SALE: KW-160, in perfect condition, £17 or near offer. (The Tx for CW/AM Top Band). Bandspread coils for HRO, 10-20-40-80m., 20s. each. Prop pitch motor with indicator, £5. VHF beam rotator with indicator, 40s. Geloso VFO 4/101, £4.—G3RIR, QTHR (or ring Coventry, Tile Hill 66981.)

WANTED: BC-221, with charts. Also an unmodified amateur-band receiver in first-class condition.—Pryse, 36 Hart Road, Byfleet, Surrey.

PLEASE: Required circuit diagram for R.209.—Jones, G3ESY, 94 Holme Lacy Road, Hereford.

SALE: Heathkit DX-100U for 10-160 metres; SSB Tx if used with Heathkit SB-10U adaptor. This Tx has worked W6/JA1 on a "Joystick". Price £65, no offers. — Kernaghan, G3USK, 59 Seacroft Road, Mablethorpe (2234), Lincs.

FOR SALE: National HRO with eight coils and PSU. HE-40 Rx. Codar PR-30X preselector. Signal generator; valves; relays; components; chassis, etc., and other bits. The lot for £35, buyer collects.—Brown, 2 Newport Road, Wavendon, Bletchley, Bucks.

SELLING: FT-243 type xtals 6042, 7173, 7475 kc, 4s. 6d. each. VR-97 'scope tube, with base and 1000v. transformer, 40s. Shrouded LF choke, 30 Hy, 16s. PT-15 PA valve, 12s. 6d. IF strip, 9.7 mc, 6-valve, wired 12v., 25s. "Admiralty Handbook", 7s. 6d.—Line, 7 Dinmore Avenue, Northfield, Birmingham, 31.

FOR SALE: Philips Transceiver, Type DR.106/1, coverage 60 to 80 mc, in good condition, suitable for mobile operation, price £12. — Jarrett, 13 Thorney Hill Park, Catterick Camp, Yorkshire.

SMALL ADVERTISEMENTS, READERS—*continued*

SALE: Codar A.T.5 transmitter with own AC/PSU, new, £20. — Peel, G3UGU, 254 Brownhill Drive, Blackburn, Lancs.

WANTED: R.C.A. AR88D, in good condition. FOR SALE: Vox AC-30 twin; Watkins Rapier; Watkins Copicat; Fuzz Unit; and Reslo ribbon microphone, with stand. All in good condition.—Mather, 87 Howick Park Drive, Penwortham, Preston (43588), Lancs.

WANTED: Avometer Model 8. Also manufacturer's handbook for R.C.A. AR88LF receiver. Please state condition and price.—Firth, G3MFJ, 61 Heights Lane, Bradford, 9, Yorkshire.

SALE: R.206 Rx, with PSU, coverage 550 kc to 30 mc, 13 valves, turret coil unit, in good condition, £20 o.n.o. No. 18 Set Tx, with key and mic., working, 30s. Home-made 3-in. 'scope, working, 30s. Variac transformer, 0-270v. at 2A, new and unused, £5. EHT transformer, 240v. in, 0-2-4v. and 2 kV out, with U22 rectifier, 30s. Various valves, transformers, rectifiers, meters, etc. Buyer collects; view after 5 p.m.—Wigham, 6 Shaftesbury Crescent, Blackhall Colliery, West Hartlepool, Co. Durham.

WANTED: BC-221 or LM-14 Frequency Meter. Price, particulars and condition. — Wilson, 28 Plane Street, Hull (506594), Yorkshire.

WANTED: National NCX-3 Transceiver and K.W. Viceroy transmitter, also Mosley TA-32 or TA-33Jr. beam.—Box No. 4364, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

FOR SALE: Heathkit Mohican GC-1U receiver, Mk.II, in good condition, £25. Lafayette HE-30 receiver, £22. Would Part EXCHANGE for Rolleiflex camera. — Habesch, 19 High Street, Rhyl, Flintshire.

SALE: HRO bandspread coils for 10-20-40-80m., price £8.—Heathkit OS-1 'scope, £14. All as new. Buyer must collect.—Stead, 2 Cliff Road Gardens, Leeds, 6.

FOR SALE: Complete mobile installation, comprising Minimitter three-band Tx and control box, Command Rx for 160m., G3FIF mobile whip, PSU and all connecting leads, price £21.—Wyse, G3IWE, 36 Wilmslow Crescent, Warrington (64178), Lancs.

BARGAIN: Collins TCS receiver, with internal PSU, S-meter, speaker and headphones, price £7. —Hinder, G3SCB, Rangemoor, Roundhill, Radstock, Bath.

WANTED: Late model KW-77 or KW-707 receiver, also KW-500 Linear Amplifier. Please send fullest details.—Joslin, G3NPY, 13 Talbot Road, Skegness (1185), Lincs.

FOR SALE: AR88 in excellent mechanical and electrical condition, £33. Green & Davis two-metre converter, 28 to 30 mc IF, as new, £7 10s. Five-element two-metre beam, new, 35s. Parts for 20-80m. SSB Tx and 750/6.3v. PSU, £7 10s. Offers invited for Swan-350 SSB/AM/CW Transceiver, 350 watts, with AC/PSU and in mint condition.—Lord, G3PHN, Newfield House, Moira, Burton-on-Trent, Staffs. (Tel. Swadlincote 7537.)

SELLING: Hallicrafters SX-28, price £25. Two "Electroniques" DIF/II/85 plus multiplier coil, new. WANTED: Two similar 460 kc IF's.—Garlick, 135 Rookhill Road, Pontefract, Yorkshire.

FOR SALE: Lafayette HA-350 receiver, with crystal calibrator and speaker, price £55, no offers. — Simpson, G3SEE, 48 Wilmer Way, London, N.14. (Tel. ENTerprise 1343.)

SALE: Sphinx SSB Tx and Delta Control Unit, £45 o.n.o. Geloso 209R, 10 to 160 metres, £40 o.n.o.—G3OZJ, QTHR. (Tel. Nantwich 64169.)

VALVES: 832, 12s. 6d.; 832A, 20s.; 6J5, 3s. 6d.; 6L6, 5s.; 807, 3s. 6d.; 957, 958, 2s. 6d.; 6J6, 2s. 6d. Guaranteed and post paid.—G3JGJ, QTHR.

SMALL ADVERTISEMENTS, READERS—*continued*

WANTED: K.W. Viceroy, Mk.IIIA or Mk.IV. Full details, price and condition.—Harding, G3RJH, 60 Wychall Park Grove, Kings Norton, Birmingham, 30.

SELLING: **Eddystone 888A**, with S-meter and as new, price £75. **HRO Senior**, superior specimen, with noise limiter, PSU and coils GC 480-960 kc, 900 kc to 2 mc; bandspread for 10-15-20-40-80m., price £24. **Panadaptor** to suit this Rx, input 450-470 kc, 2¼-in. CRT, with manual, £23. (Or HRO/Panadaptor together, £42). **BC-348R**, with PSU, £15. **Command** receivers: Unmodified Q5'er, 190 to 550 kc, £5; 3.0-6.0 mc, £3; 6.0-9.0 mc, £3; modified medium-wave, with PSU, £5 10s. Pre-war copies "Short Wave Magazine". All items or-near-offer, carriage extra. **WANTED**: Eddystone 680X, S.750, or similar; also 770R.—Knight, Homefield, Upper Nazeing (2274), Essex. (Not available Sept. 3-17.)

FOR SALE: CR-150/3 Rx, 2.0 to 60 mc, £27. Pye car radio, long, medium and three short wave bands, incl. 40m., £5. Minifon pocket-size wire recorder, complete with spare spools and attachments, hardly used, £9. Minimitter mobile Tx for 40-80-160m., modified so that everything is in the Tx case, £7 10s. Mohican receiver, £15. Two-metre Rx/Tx, £10. Free delivery.—G3LZN, QTHR.

WANTED: AR88D, in good condition, in cabinet. Will pay up to £35. — Farlow, 49 Mount Pleasant Road, Chigwell, Essex. (Tel. 500-4546.)

SHACK CLEARANCE: Receivers are complete but do require attention. An HRO at £3; Hallicrafters, £3; R.1132, £3; fixed-freq. Rx, about 90 mc, 12-volt, £2; similar Tx, £2. Pair VHF radio telephones, freq. unknown, £2 each. Signal Generator 100-150 mc, £2. AVO Valve Tester, £3. Test Meter, £2. Transistors, new and unused: OC25, OC28, 7s. 6d. each; OC81, OC81D, AC127, OC71, 2s. 6d. each or 27s. dozen; rectifier BY-100, 3s. 9d. each or 43s. dozen; carriage 1s. 6d. on transistors. Remainder buyer collects or pays carriage.—Blackburn, 74 Shenley Avenue, Ruislip (8719), Middlesex.

FOR SALE: Hammarlund HQ-180, £120. Heavy-duty Beam Rotator, £25. K.W. Victor, £50. TCS-12, modified mains PSU, £15. Kendon all-band SSB exciter, 10-watt, with internal PSU but requires VFO, £25. All items subject to offer.—Williams, EI7AF, 5 O'Connell Street, Birr, Co. Offaly, Eire.

SELLING: Frequency Meter Type LM-14, £12 10s. Q-Max GDO, £4. Withers two-meter nuvistor converter, 90s. HRO receiver, nine coils, less cabinet, £7 10s. All plus carriage.—Eley, 14 Warmington Road, Hollywood, Birmingham.

SALE: Modulator, 50 watt, with built-in PSU, £12. Command receiver BC-454, with mobile PSU, £10. Pye Ranger two-metre Tx/Rx, 12v. DC, £8 10s. Home-built 160m. Tx, with PSU, £9 10s. — Gee, Dorjac, Henley Road Avenue, Ipswich, Suffolk.

OFFERING: A Racal RA-17 Communications Receiver, with cabinet, reconditioned and in as-new condition, works S-meter modification, with manual, price £250 or very near offer. Delivery at cost.—McCarty, 1 Baden Road, Brighton, 7, Sussex. (Ring Brighton 65132, evenings.)

SALE: Gardner transformer 1000-0-1000v. 500 mA, 6.3v. 1 amp., 40s. Two AR88 transformers, 20s. each. Two Eddystone condensers, twin-gang, 60 mmF, 4s. each. Two ceramic coil formers, 5in. long by 2½in. diam., with 5-pin bases, 4s. each. Slow-motion drive, 6in. diameter, 0-100 degrees, 4s. 6d. Carriage extra.—Buckingham, G3GZN, 16 Morningside Avenue, Porchester, Hants.

FOR SALE: 19 Set, reconditioned as new, mains PSU, two RF stages, bandspread and speaker output, £8. Regulette 35mm. camera, leather case, £8. Manimex L8b light meter, hardly used, £3 10s. — Whitemore, 12 Holland Road, Bath, Somerset.

SMALL ADVERTISEMENTS, READERS—*continued*

SELLING : Heathkit OS-1 Oscilloscope; Creed Type 3 teleprinter; KW low-pass filter and SWR meter, for 75 ohms; T.W. 6BQ7A-type converter for four metres; Dow-Key electronic aerial switch. All in FB condition. No reasonable offer refused.—Cross, 21 Lyncroft Gardens, London, N.W.6.

SALE : Eddystone EC-10 transistor receiver and Joystick Type 3 aerial complete, almost new and hardly used, £42.—Done, 84 Salisbury Road, Barry, Glam., South Wales.

WANTED : Pye PTC-703, cabinet type or similar, complete equipment for any frequency acceptable if reasonably priced. — Perkins, G3VIJ, 35 Kingstown Road, Carlisle, Cumberland.

SALE : Lafayette HA-63 communication receiver, brand new, £18.—Spashett, G3RK, Bungay (88), Suffolk.

FOR SALE : CR-100 communications receiver, in very good mechanical and electrical condition, £15 or near offer; prefer buyer collects.—Mann, Ashdown, Miles Lane, Cobham (2391), Surrey.

EXCHANGE : Cathodeon crystal 11.71 mc, for 4m. band, for xtal of similar manufacture in 8 mc range for 144.5 to 144.7 mc.—Pellett, G3RZC, 29 Jubilee Road, Bexhill-on-Sea, Sussex.

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