

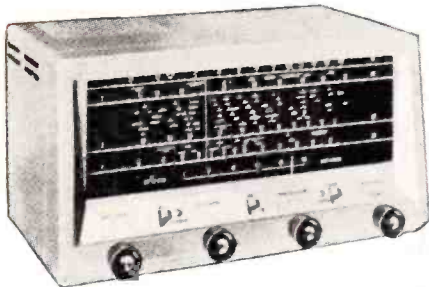
# The SHORT WAVE Magazine

VOL. XIX

AUGUST 1961

NUMBER 6

## hallicrafters S-38E receiver



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0— 10 V.	0— 100 v.	0— 10 mA
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0— 100 V.	0— 1000 v.	0— 1 A
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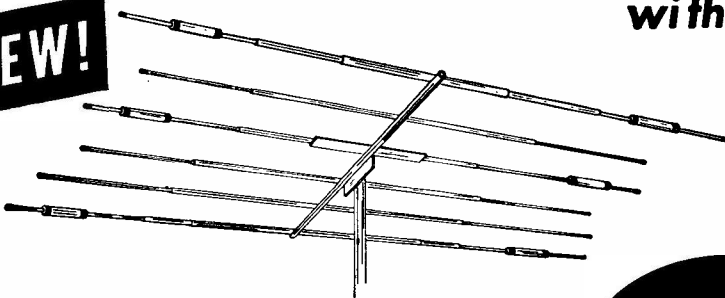
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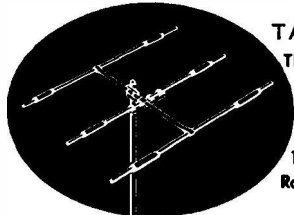
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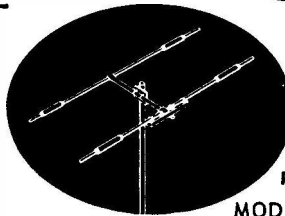
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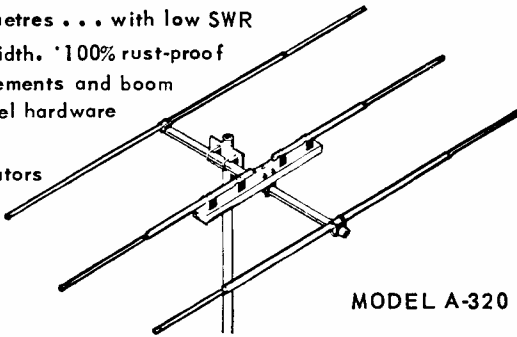


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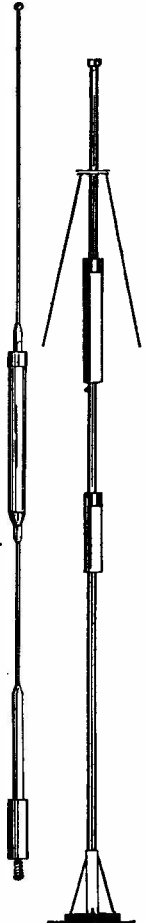
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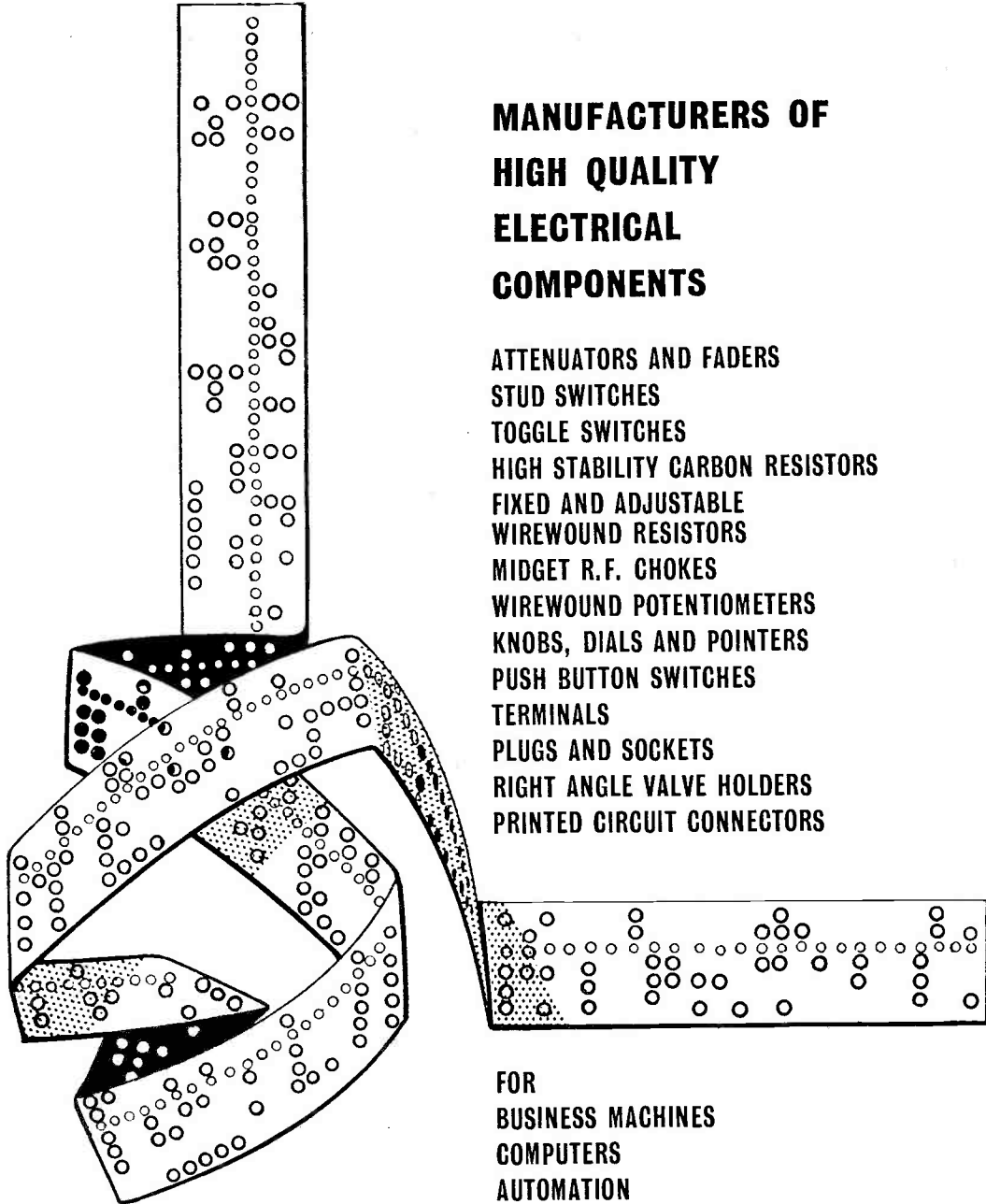
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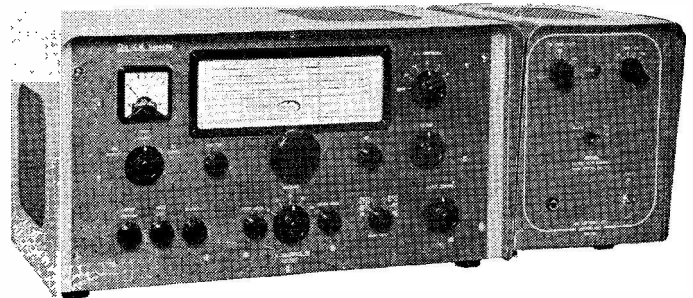
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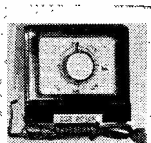
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# SHORT WAVE MAGAZINE

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AUGUST, 1961

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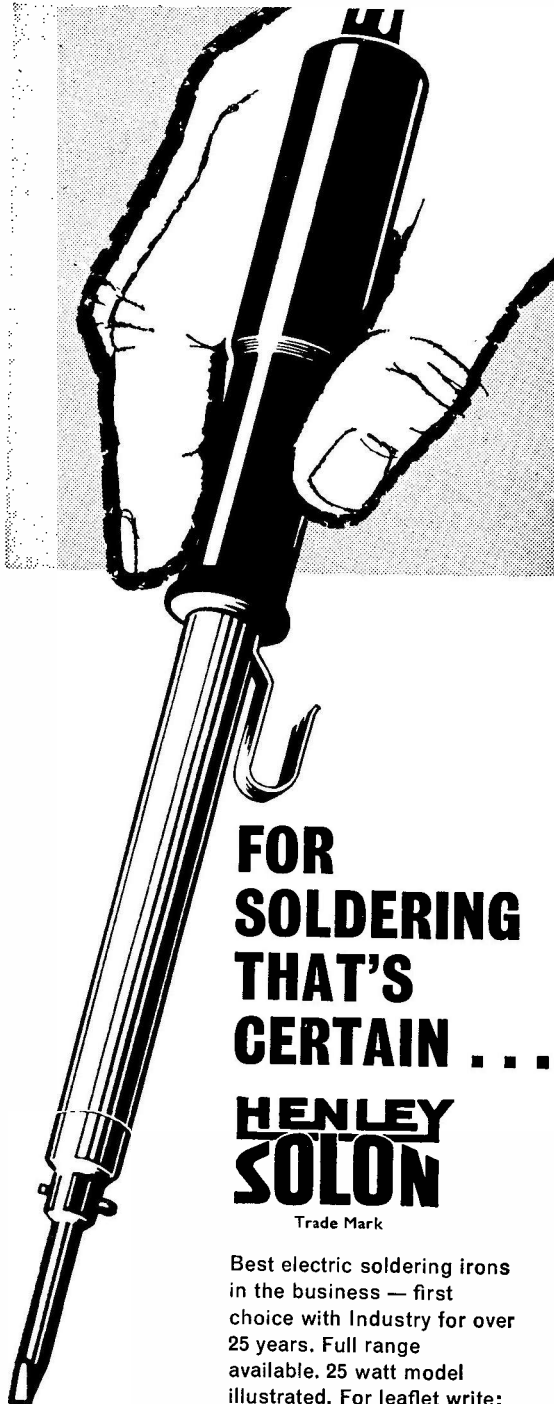
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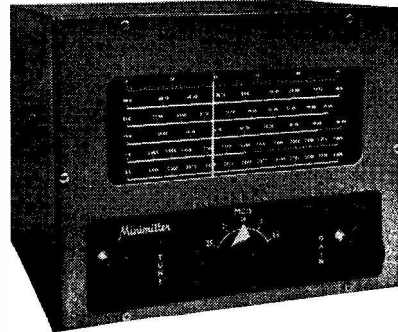
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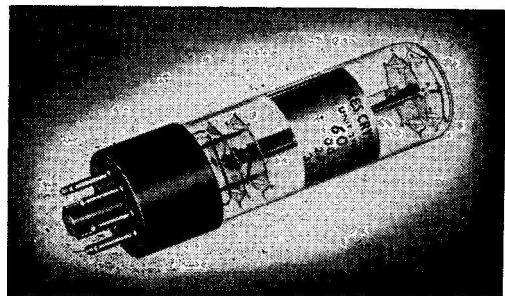
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# The SHORT-WAVE Magazine

## E D I T O R I A L

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*It is clear that these awards interest operators at all stages of DX-ability, and though DX working is by no means the ultimate objective of every active amateur, the fact remains that the quest for DX is one of the more important factors in promoting station efficiency, on any band.*

*For this reason, we feel that these awards not only give individual operators on the communication bands something at which to aim, but in the long run they help those who compete for them to attain a higher standard of operating ability. While it is not, and never has been, any part of our policy to encourage "pot hunting" as such, we do believe that the keen and friendly competitive spirit evident on all our bands is something worth encouraging. There will always be those who fall below the accepted standards of behaviour when competition is involved, but that is an element in human nature that cannot be helped and must be accepted — and, anyway, fortunately for us all the hoodlums are still very much in the minority.*

*Though it may fairly be said that there are now more than enough DX certificates for which the keen amateur can work, it is also true that our awards are among those that are well-established because they help the modest DX operator to graduate through successive stages into the top flight of DX workers.*

*Austin Foley  
G6FO.*

# Coil Design for the Mobile Whip

NEW-TYPE INDUCTOR

FOR /M INSTALLATIONS, WITH  
FULL CONSTRUCTIONAL DETAILS

T. R. SMITH (G3BMN)

*It is said that there is nothing new under the sun — here we are going back to the old basket-wound pancake type of coil for the loading inductance in the Top Band mobile aerial system. And there is no reason why such a configuration should not be entirely satisfactory, giving a lightweight, high-Q coil—neat, efficient and easy to mount. Our contributor's design, as discussed here, has been found to meet these requirements, and attracted much attention at a recent mobile rally.*  
— Editor.

WHEN the mobile rig was transferred to the new car (an Austin Mini Seven), it became apparent that the aerial would have to be scaled down to match. Having decided not to make holes in the body of the car it was found that rear bumper mounting was not practicable; so finally it was decided to clamp the aerial to the front door-pillar—see photograph p.293.

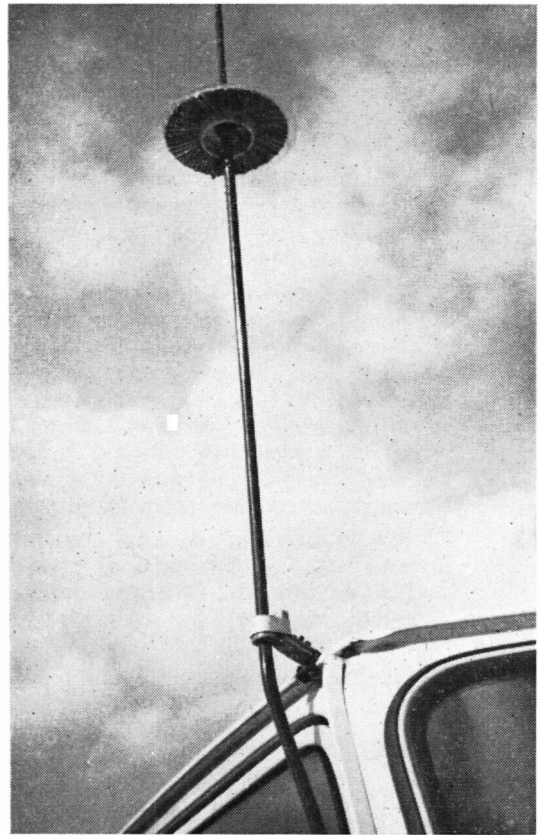
This method of fixing called for a comparatively lightweight aerial and the loading coil in use at the time—wound on  $1\frac{1}{8}$  in. Tufnol tube 18 in. long—hardly came in that category. As centre-loading was a “must” a new type of coil was needed which would be just as effective as the existing coil but much lighter and, if possible, smaller, so as to be more in proportion with the car.

Several coils were made and tried, including wave-wound, iron-dust and ferrite-cored, but none was as good as the original. The one which finally gave the required results was constructed using a method popular in the 1920's! It was *basket-wound*, and the resulting coil, some 5 inches in diameter and only  $\frac{3}{16}$  in. thick, was much smaller than the original one. In addition to these advantages, using the same top section length of whip as before, reports were generally an S-point up on the previous installation. The new coil as described and illustrated here has been in use for several months now and has given consistently good results.

## General Design

The construction may seem rather tedious but with a little patience the coil can be made in reasonable time. The basic requirements are a plastic cup—of the type used to prevent piano castors damaging carpets—and sufficient No. 12 plastic knitting needles to make 29- $1\frac{1}{2}$  in. pegs. (The needles can be chopped up quite easily using side cutters, the needle tips and knobs being discarded.)

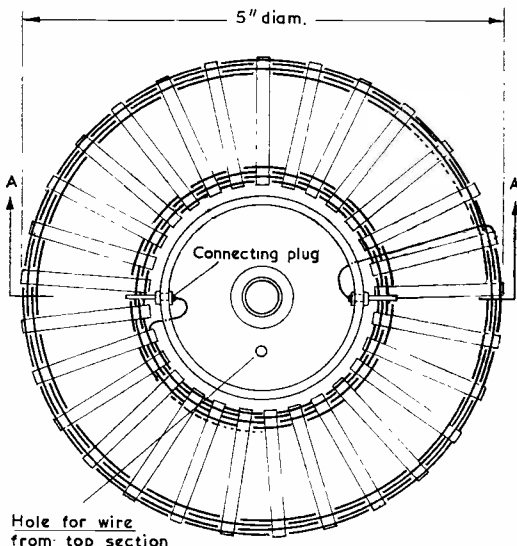
As can be seen from Fig. 1, the cup is drilled radially to a depth of about  $\frac{1}{8}$  in. with 29 holes, so that the pegs are a push fit. Before fitting the pegs, the remaining holes in the cup should be drilled, four in the skirt—two for the wire to pass through, and two for the plugs for the connections to the aerial rods. The plugs are obtained from the pins of a surplus multi-way plug and are a push fit through the skirt. The next hole is through the centre of the cup to allow it to be mounted on the aerial and this should be large enough for a  $\frac{5}{16}$  in. rubber



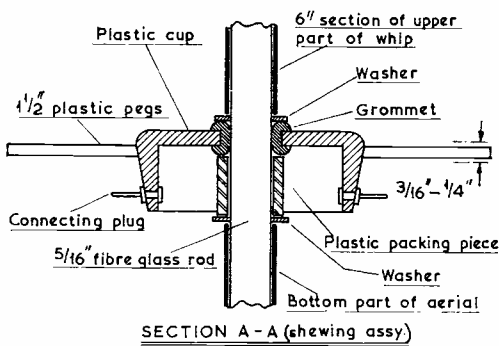
The basket-wound coil viewed from underneath, and showing the top mounting bracket on the car; this is an insulated fitting, as shown in Fig. 2.

grommet; the last hole, a small one, is by the side of the central hole to pass the wire through from the top.

The pegs can now be fitted and should be glued and pressed into the holes. Whilst the glue is drying, one end of the wire can be soldered to the back of one of the plugs and passed to the outside of the skirt through the small hole already drilled. Winding is now commenced, the wire being passed alternately



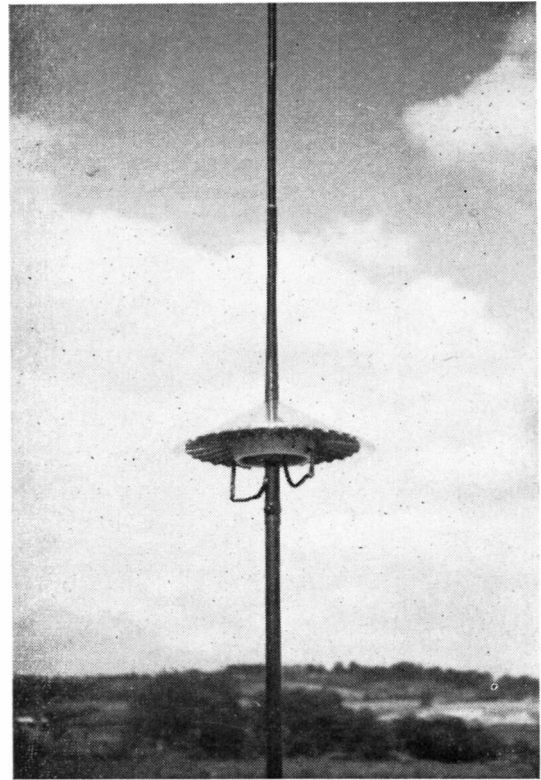
PLAN (viewed from underside).



Winding:  
 62 1/2 turns 26 swg enamelled wire, basket wound.  
 Resonates at 2mc with 4 1/8 inch top length

(A 272)

Fig. 1. Details for the construction of the basket-wound (pancake) coil devised by G3BMN as the loading inductance for his Top Band whip—see text and photographs. The merit of this design is that a very light high-Q coil is evolved, easily mounted on the whip assembly, as explained in the article.



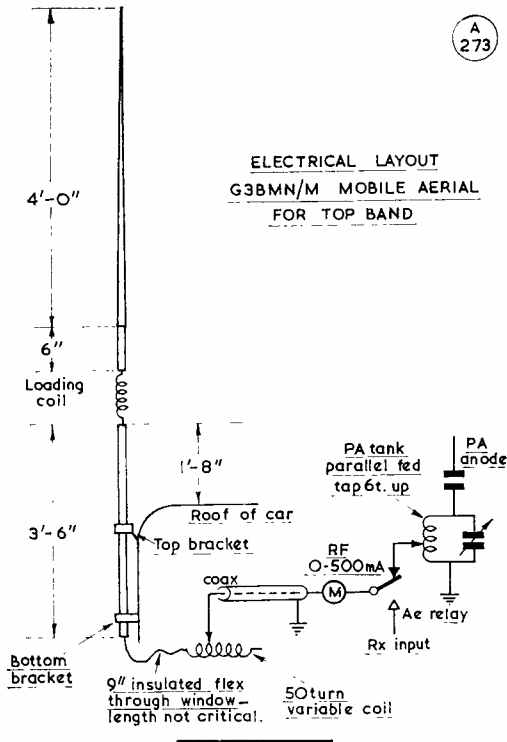
Another view of the G3BMN Top Band loading coil; the Chinese-hat effect is due to the cover of thin perspex shaped over the coil for keeping off the rain.

over and under the pegs—see sketch, Fig. 1. It is most important that the first few layers are wound on tightly and pressed well down between the pegs otherwise they will go slack as the remainder are put on. A total of 70 turns should be wound on, the end of the wire being brought radially from the outside of the coil through the other hole in the skirt and temporarily soldered to the second plug.

### Whip Sections

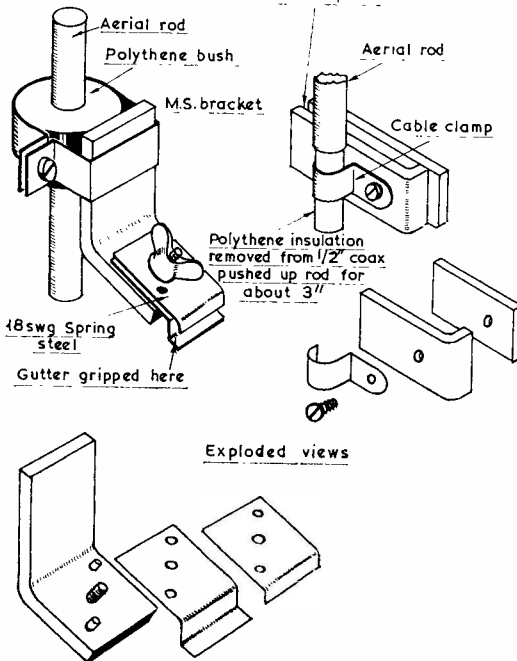
The aerial itself consists of the two top sections of an ex-Govt. tank aerial, the bottom section being cut at a point 6in. from the top—see Fig. 2. This allows the coil to be a permanent fixture whilst the top 4ft. length is still removable. The two cut parts of the bottom section are rejoined using a length of fibre-glass fishing rod which is made a tight push fit inside the aerial rod to a depth of about 4in. in each direction, leaving a gap of one inch or so of exposed fibre glass rod; it is on this that the coil is fitted. A thin rivet is now put in about 2 1/2 in. from the end of the bottom section

A  
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TOP BRACKET attached to guttering around roof

BOTTOM BRACKET attached to "turned out" seam on door pillar



BRACKET MOUNTING DETAIL

to secure the fibre glass rod. Before riveting the 6in. piece of the bottom section, the coil with washers and packing piece are slid on to the fibre glass rod and the 6in. length piece pressed up hard against the top washer to compress the rubber grommet. The second rivet can now be fitted—see Fig. 1 for general details.

**Assembly**

The electrical layout of the system is shown in the upper part of Fig. 2, with the bracket assembly (for mounting the aerial on the car) in the lower section of the drawing. The 50-turn variable coil can be a roller-coaster type of tunable inductor, as found in surplus items of various sorts.

Before tuning the aerial it should be mounted in its position on the car, the method adopted depending on personal choice and the type of car, the important thing being to keep the loading coil as high above the roof as possible—see Fig. 2, and photograph. The top section should be connected to the inside of the winding and the bottom to the outside. In the writer's version, if the connections are reversed the resonant frequency drops about 90 kc, so that if this connection were adopted it would require a few less turns on the coil; however, the saving in turns is small and the frequency shift obtained is useful for dodging about the band.

For tuning up, a small linked coil of 6 turns is connected between the base of the aerial and the body of the car, and with a GDO coupled to the link it may be found that the aerial is tuned to a frequency below the LF end of the band. Turns can now be removed from the coil until the resonant frequency is around 2000 kc. Final adjustment can only be made with the aerial coupled to the transmitter and when completed the coil can be painted with insulating varnish, and the surplus ends of the plastic spikes can be snipped off.

To tune the aerial through the band, the variable coil is used; a small slider-type inductor of this sort can be home-made, consisting of 50 turns, close wound, of 20g. enam. wire on a 1½in. former. This is connected to the base of the aerial by a short length of flex and to the transmitter by coaxial cable. If the facility of reversing connections to the aerial coil is used to shift frequency, less turns will be needed on this inductor.

Fig. 2. Above, electrical layout of the G3BMN/M aerial for Top Band, in which the pancake coil (see photographs) is above the roof-line of the car. Below, detail of the mounting brackets for securing the aerial assembly.



Showing the upper and lower bracket mountings for his Top Band aerial on G3BMN's car, an Austin Mini-7. The coil design is described in detail in the article.

In actual use the advantages of this type of loading coil are: Small size, low loss, light-weight, and unobtrusiveness. Against these the high "Q" necessitates retuning when shifting frequency and the coil *must* be absolutely protected from the rain. If it is allowed to get the slightest bit wet the whole aerial is detuned and will not resonate in the band. It can be protected by a simple conical-shaped hood made from thin clear sheet plastic. In the writer's case, it is made with a diameter slightly larger than the coil and then slid down over the top section of aerial rod and secured with plastic adhesive tape.

**CORRECTION — "TWO-METRE PORTABLE"**

In the article "Simplified Two-Metre Portable" in the July issue, G3GOP draws attention to the values of C25, C28 (which should be 25  $\mu$ F, and not as marked), and to R20, which ought to have been shown as 270K, these being in the receiver section. In the transmitter, R40 had better be 1K, while the value of Cp is not as given, but simply the capacity between lamp and panel, across the bushing. In the modulator, C67 is 500  $\mu$ F, 12v. And for best results, the IFT's T2, T3 and T4 should have 54 turns on both primary and secondary windings.

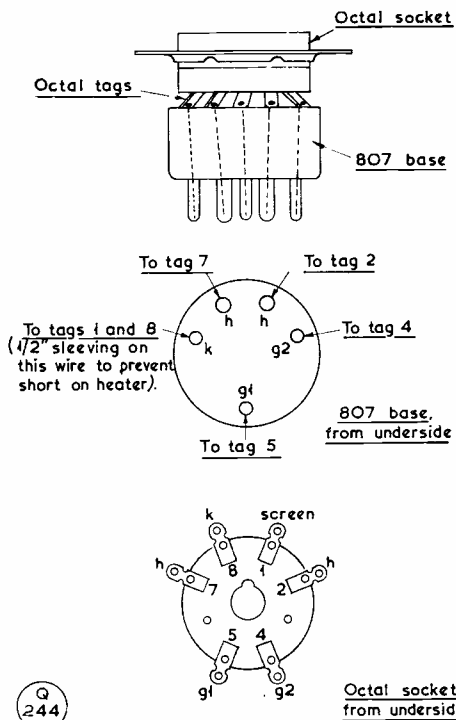
# TT21/807 ADAPTOR SOCKET

## CONVERSION WITHOUT CHASSIS ALTERATION

J. W. Cookson (G2CKU)

THE writer recently purchased a pair of TT21 valves to replace parallel 807's. It was while looking at the 807 base layout that the idea came of using an adaptor socket instead of changing the valve holders, so that either 807's or TT21's could be used. The adaptors are very easily made and the cost is practically *nil*. All that is required is a couple of blown 807's (American type with base that can be cut with a hack saw) and two amphenol type octal sockets.

Break the glass of the 807, the best way being to wrap it in a piece of cloth and then crack the bulb; remove all that remains out of the base, including the fixative compound, and you are left with two empty bases. The wires running down into the pins are easily extracted by holding a soldering iron against the pins whilst pulling on the wires. Now cut the base right through, with a hack saw, about a  $\frac{1}{4}$ in. from



These sketches, which are virtually self-explanatory, illustrate the idea put forward by G2CKU — for painless interchangeability of the 807 and TT21.

the bottom edge, *i.e.*, from where the pins are fixed. This now leaves a neat socket.

Take the two octal sockets, and break off tags 3 and 6—*see* sketch. Carefully bend the remaining tags outwards until they stand out from the socket. The idea is that they will sit on the edge of the 807 socket and prevent the octal socket falling inside. Solder some tinned copper wire into the 807 base pins, leaving about 2ins. standing up. Slip a  $\frac{1}{2}$ in. length of sleeving on to the cathode lead to prevent a short on the heater wire; now push the wires through the appropriate octal tags (*see* diagram), and press the octal socket down until the tags sit on the rim of the

sawn-off 807 base. Pull each wire tight, solder up and snip off. Test for any shorts—and then you have a neat job which can be plugged into the PA valve holder in the transmitter.

The writer has found the little gimmick described here very successful. The short lengths of extra wire for the leads have not affected the PA in any way and using the same conditions as for 807's, the rig works perfectly. The PA tank tuning may vary a little from that when using 807's. Above all, the conversion suggested here saves much time and trouble, as it is not necessary to modify the transmitter chassis in any way.

## Construction of Cubical Quads

### PRACTICAL IDEAS ABOUT DESIGN, ERECTION AND ROTATION

A. C. Edwards (G3KGN)

**T**HIS is the time of year for aerial construction, and at the writer's QTH a 10-15m. Cubical Quad has just been put together and erected. Cubical Quad beams have been described in these pages before (SHORT WAVE MAGAZINE, September 1956, October 1957, December 1957 and February 1959), and their advantages over other types of beams, together with dimension data, have been fully covered, so it is not proposed to repeat them here, but merely to give some notes on the practical considerations involved which may be of interest to other potential Quad builders.

First, if you have the space and think you can cope with the job, build the three-band version while you are about it, as you will be glad of the 20-metre section when things go a bit sour on 10 and 15 metres.

However, whether you make it three-band or two-band, it's a very good beam and so you will want it to last, until the next sunspot maximum at least!

#### Weatherproofing, and General Construction

Attention should therefore be given to the weakest part of this type of assembly—the bamboo spreaders for which, unfortunately, there is no both cheap and lightweight alternative available. The weather will eventually cause the bamboos to crack between the joints and to prevent this a few turns of tinned

copper wire should be wound round the bamboo mid-way between each joint, the ends of the wire being twisted together and the turns sweated with solder. Waterproofing the spreaders is the next step — a difficult job because of the nature of bamboo. The method adopted by the writer was to wind each pole with a layer of p.v.c. self-adhesive tape, a supply of which was bought "surplus" in 25-yard rolls. One roll of half-inch wide tape will just cover a 13 ft. pole, allowing for slight overlapping of turns.

For the X-brackets to support the spreaders, use was made of Erecto (or Dexion) mild steel slotted angle. This is lighter than the usual angle-iron bracket and requires no welding, two 2 ft. lengths being bolted together at right angles to a further 9-in. length at right angles which is in turn bolted to the tubular boom. Use sheradised nuts and bolts (obtainable at any ironmongers) to prevent rusting. Each spreader is fastened to the arm of its X-bracket with suitable size hose clamps (or strong condenser clips), fitted through the slots already in the steel angle, a few extra turns of tape being wound round the spreader where the clamp fits, to prevent biting into the bamboo.

As the Quad was made to rotate about the mast head it was not possible to provide a secondary boom to support the feed-line and stubs. Alternatively, in the case of the driven elements, an additional thin bamboo cane was suspended downwards from the X-bracket, lashed to the egg-type insulators, where it crossed them, with wire and tape and the single 80-ohm coax feed-line then soldered to the elements, and tied back up the cane and along the boom with tape.

Very satisfactory sliding "shorts" for the stubs can be made with two spring-loaded aerial terminals of the type found on some surplus equipment, *e.g.* Command Receivers and Transmitters. They have sufficient grip



to make a good connection at all times with the 14 gauge stub wires, yet, with a piece of 10 or 12 gauge wire soldered between them, can be moved up and down from the ground (or a ladder) by a long pole with a hook on the end.

These terminals should of course be threaded on to the stub wires before connection of the insulator at the open end, which in the writer's case was a 3-inch length of hard plastic moulding, as sold for table edging. This was then tied back to the boom with a length of plastic-covered clothes line.

As a final weather protection, when built but before erection, give the whole thing a liberal coating of cheap black bitumen paint.

**Erection**

For those interested in the constructional method adopted here, each "square" was first built-up in the garden, the two then being connected to the boom and 2-in. tubular aluminium mast, temporarily held away from the house on the garage roof. The whole assembly was then raised to the top of a 25 ft. scaffold pole with a pulley on it, by a rope fixed about the mast head, and the pole then "walked" to the wall of the bungalow so that the aluminium mast rested against the side chimney stack. A quick run up a ladder enabled the mast to be fixed permanently with two U-bolts to a TV lashing bracket at the top of the stack, the rope and scaffold pole being then removed—see Fig. 2.

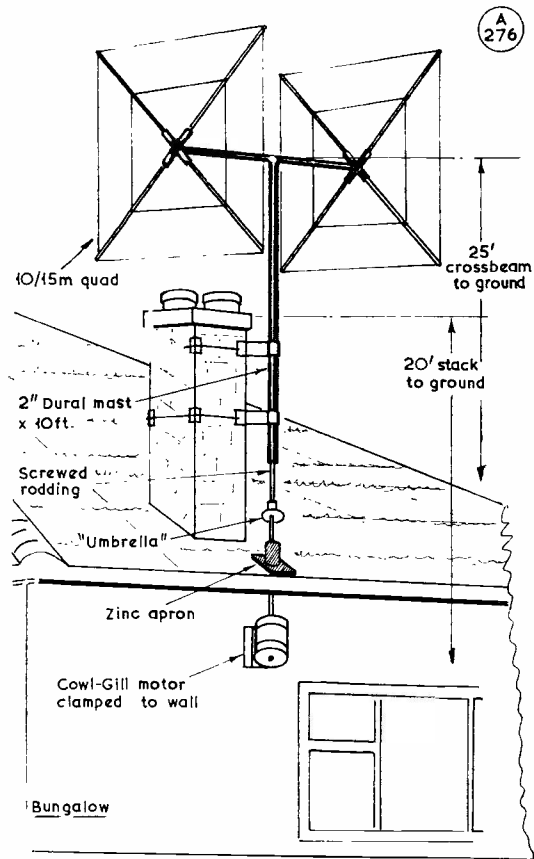


Fig. 2. General arrangement of the two-band Quad erected by G3KGN. The chimney lashings are standard TV-type and the rotary drive rod for the beam is carried up the 2-in. dural tube-mast.

**Rotary Control**

Rotation is by means of a cowl-gill motor installed under the eaves, a tile being removed and replaced with a home-made galvanized zinc apron to enable sections of 3/4-inch screw-in type aerial rods to go up the centre of the aluminium mast to turn the boom. The diagram Fig.1 shows details of the coupling of the motor to the rods, and also the coupling to the Desynn transmitter potentiometer to give remote indication back in the garden shack.

**Some General Notes**

The beam having now been up for nearly four months, the writer can state that the assembly stands up well to the weather, including gale-force winds; naturally, the bamboo spreaders do bend a bit in a strong wind, but nothing to worry about. The torque of the cowl-gill motor is sufficient to resist any

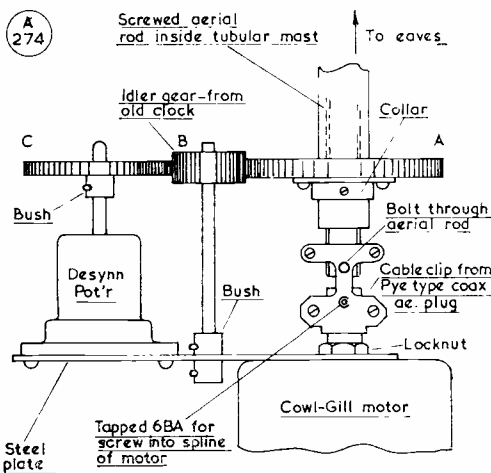


Fig. 1. Cowl-gill motor drive layout to the Quad assembly described by G3KGN. It also has a remote-control potentiometer for beam directivity indication.

turning of the beam due to wind, and a lock to hold the beam into wind has not been found necessary.

However, as screw-in type rodding (five sections in all) is used for the actual rotating member, there is a small amount of free twist, in spite of the fact that the joints between each rod section are overlapped with tubing sleeves, bolted on; this is in any case necessary to prevent the rod sections unscrewing themselves when the drive is in that direction. For anyone working to the general constructional plan outlined here, it would probably be better to use a continuous length of thicker-walled tubing for the vertical rotating member—gas or water piping would do admirably.

Mast-head rotation could be about a thrust bearing made from the steering member of an old bicycle front fork, with the boom welded into the space between the forks, and surplus lengths of fork then cut off. The rotary drive could be applied to the handlebar end of the bearing unit, mounted "upside down" in the supporting mast section. The writer himself was able to find, in a local scrap-metal yard, a bearing (of unknown origin) which has served the purpose in the way the "bicycle front fork" idea would have done.

And so, having taken longer than the proverbial "couple of week-ends" to construct and erect, it is hoped that this Quad, built on the lines explained here, will still be up in 1969!

## Diversity Unit for the G3BST RTTY Converter

FUNCTIONING OF THE CIRCUIT—SETTING UP, AND RESULTS

### Part II

J. B. TUKE (G3BST)

*The first part of this very interesting article appeared in the July issue of SHORT WAVE MAGAZINE, and discussed the author's approach to the problem of keeping the printer copying on one channel—either "mark" or "space" in the usual FSK system—with the other put out of action by either fading or interference. The circuit of a practical diversity unit capable of doing just this was given, and this concluding part of his article should be read with the July contribution.—Editor.*

LOOKING back to the circuit Fig. 3 on p. 241 of the July issue, we have on the output sides of C8 and C9 two complementary trigger voltages — which have been shown along lines F and G in Fig. 4 — and these are applied simultaneously to the grids of V3A and V3B. Note at this point that the absence of "mark" does not upset the action. The signal shown in the centre portion of the Fig. 4

waveforms has no marking voltage. However, the action of the AC coupling in the amplifier, together with the differentiating action of V2, produces trigger voltages which are both positive and negative going even though part of the original signal is missing. It will be observed from Fig. 4 that the trigger voltages produced while one signal is absent are rather smaller than those resulting from the complete signal. This is of no importance, the action of the multivibrator being unaffected by the *amplitude* of the trigger signals—providing they are above a certain minimum figure, and this is arranged to be so.

### Further Circuit Analysis

Study of Fig. 4 may seem to indicate that the unit is unnecessarily complicated, since the differentiation of the signal from V1A or V1B alone will produce the necessary trigger spikes. This is so—except that under certain transient conditions such as illustrated in the right-hand part of the waveforms in Fig. 4. Here we have a condition when there is a critical pause between two signals, which allows the condensers coupling V1 to V2 almost to run down (but not quite), followed by a signal which lacks a "space" voltage. The trigger produced by V2B at the commencement of the new signal must be very small, since its capacitor voltage is in a critical condition where it is almost zero. The trigger spike resulting from this small change may well be too small to operate the multivibrator—but the condenser coupling V2A has no "run down" time, since it was never charged in the first place (due to the action of its diode), and so it can develop a correct amplitude of trigger spike and hence the multivibrator will operate correctly. The use, therefore, of "half the circuit" can result in misprinting under certain voltage-time conditions, and it is accordingly necessary to use the full circuit to guard against this contingency.

Another point in design which may require further

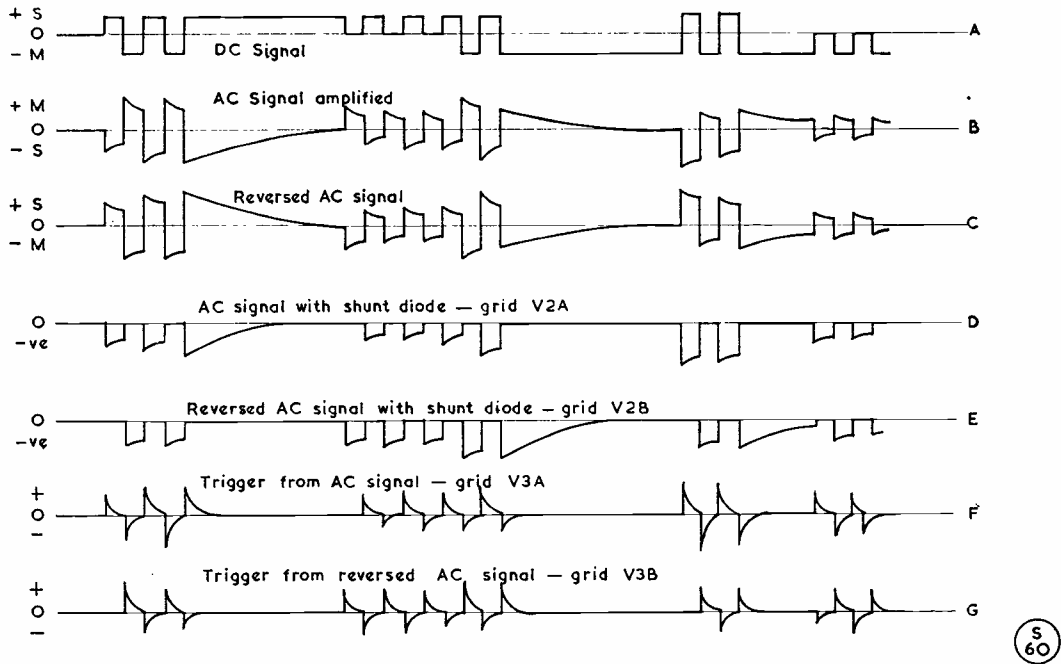


Fig. 4. The output waveforms obtained from the circuit of Fig. 3 under different conditions, as discussed and explained in the text.

explanation is the exceptionally long time constant of the components used for coupling V1 to V2. This is necessary in order to prevent any appreciable loss of amplitude of the square-wave signals before they reach V2. Although the action of the diodes is such as to ensure one trigger spike even when the capacitors have run down, it is undesirable that this action should be continuous in between the actual signals forming a letter. The time constant is such that, for all practical purposes, the amplified waveform is the same as the DC original, except for long periods of time between characters. The longest individual T/P signal will be 130 ms.—this is a series of letter-shift characters consisting of the 20 ms. starting signal (space) followed by 5 marks and 1½ marks (stop). As the time constant coupling V1 and V2 (both sections) is one second ( $T = CR$ ,  $C = 1 \mu F$ ,  $R = 1$  megohm), the loss of potential across the capacitor in 130 ms. will be quite small, and that resulting in normal signalling will be completely negligible.

It is also important to understand why the diodes are connected in the manner shown. The initial trigger spikes fed to the multivibrator are always positive-going, and this is arranged deliberately, since these signals must always be of the largest amplitude. The triggers resulting from the removal of a signal may be slightly smaller, due to the rundown time of C5 and C6—and these are always the negative-going ones. The multivibrator circuit used requires rather larger positive- than negative-going trigger signals, and, by using the positive signals as the initial ones, it is ensured that any following negative ones (which

may be slightly smaller) are of sufficient amplitude to operate the circuit correctly.

**Practical Considerations**

So much for studying the circuit generally, now to put theory into practice. The voltage required at the grids of V2 is of the order of 9 volts—rather more than that delivered by the original terminal unit. Also, in order to ensure the formation of proper trigger “spikes” by the differentiating components following V2, the signal at the grid of V2 must have a reasonably

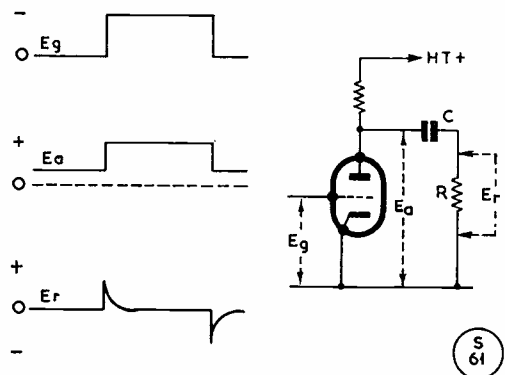


Fig. 5. Showing the action of V2 in Fig. 3, applicable to either section. This is explained by G3BST on p. 241, July.

sharp leading edge, *i.e.* must be of squarish shape. This shape is not realised at the discriminator load.

V1 does both jobs simultaneously. It provides the limited amount of amplification required and (because this amplification is so small) it can also be used to square up the signal. In reality, the actual waveshape at the discriminator load bears little resemblance to Fig. 4, line A—it will be fluctuating in value to some degree in spite of the limiter, and due to the selectivity of the audio circuits, the change over from "mark" to "space" will be anything but square! By operating V1A with very much reduced anode voltage, and, at the same time feeding the signal to it *via* R1, the output voltage is severely limited in both directions—which is the same thing as squaring it in shape. The circuit will, in fact, produce quite satisfactory square waves from sinusoidal input!

As can be seen from the diagram, V1A is one half of a 12AT7. It is fed from the potentiometer VR1, which, as discussed later, is for the purpose of setting the minimum signal level. The signal output from V1A is then passed on to V2A and V1B simultaneously—the latter for the purpose of phase reversal.

To make the adjustment for unity gain in V1B easier, the larger part of the input signal is lost across R5 and R6 in series before being applied to the input potentiometer VR2. It is possible to replace R5, R6 and VR2 with fixed resistors, if desired, after experimenting to find the correct values but this will not enable adjustments to be made at a later date to take account of valve ageing or component changes.

V2 (A and B) is another 12AT7, and the circuitry associated with it is quite straightforward. The use of cathode bias looks after the valve operating conditions, while the returning of the diode cathodes directly to earth prevents this bias appearing across them as well. Do not be tempted to leave out the diodes and operate the 12AT7 in zero-bias conditions as the grid-cathode impedance of this valve is too high to ensure satisfactory removal of the positive-going signals. V3 is a 12AU7 connected as a multivibrator which indirectly controls the current through the teleprinter coils. It does this by providing DC voltages which are applied directly to the grids of the 6K6 valves in the original converter. With the component values shown, the valves will operate correctly without any alteration to their cathode resistors. The writer has not done away with the original keying device in the

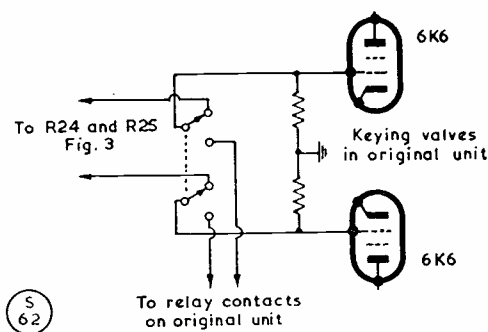


Fig. 6. Circuit to change over from original keying arrangement to new keying system.

converter but has arranged for optional switch-over from the relay circuit to the new one as shown in Fig. 6.

Operation of the switch changes over the 6K6 grids from the relay contacts to the multivibrator output. If, however, it is decided to replace the relay system entirely by the electronic system, then the 0.5 megohm resistors from the 6K6 grids to earth should be *left in circuit*. There is one other advantage in retaining the 6AK5 and relay even though it is not used — it provides the metering for correct tuning.

### Construction

The writer's unit is built on a tinplate chassis measuring 8 ins. by 5 ins. by 2 ins. Tag board assembly has been used in order to keep things tidy. No power supply is included as the small requirements are met satisfactorily from the original converter. The input to the unit is obtained from the discriminator load *via* a P.O. type plug which fits into the socket provided for alignment purposes on the original unit.

### Setting Up

Alignment is straightforward—but it is pretty well essential to use a 'scope. While a VTVM could provide the average voltage indications, only a 'scope can indicate whether the waveforms are correct or not, and the setting-up procedure, which is really quite simple, could become very involved without visual presentation. The initial adjustment is best done with pure DC reversals obtained either from a square-wave generator running at 25 c/s, or from a teleprinter keyboard on which some kind of assistant (the XYL perhaps?) is pounding out an endless succession of RYRYRYRYRY. . . .

Whichever method is used, the signal should

first be applied to the top of VR1—that is, past the LC filter—and, with the 'scope connected to the anode of V1A, VR1 should be advanced until a nice square wave is obtained. The 'scope is now transferred to the anode of V1B, and VR2 advanced until the size of signal shown is exactly the same as that at the anode of V1A. If the 'scope is now connected to the grid of V2 (A or B section) the same signal should be seen, only it should consist of negative-going signals only — the positive portions having been almost entirely suppressed by the diodes. (*N.B.* If the 'scope in use does not respond to DC this test cannot be made as the AC coupling in the 'scope will make it appear as though both positive and negative signals are present. This, however, is not of much importance since nothing much can go wrong with the circuit at this point unless the diodes themselves are faulty.)

If the 'scope is now transferred to the grid of V3 (A or B) *with V3 removed*, the differentiated spike signals should be plainly visible. The triggers at the A and B sections should be the same size—if they are not, VR2 should be adjusted to correct this—the fault being due to unequal amplification in the different halves of V2. If V3 is now plugged in, the amplitude of the positive-going spikes will be seen to fall considerably—this is quite normal and is due to the low impedance between grid and cathode of the 12AU7 to positive-going signals. If the 'scope is now transferred to the outer ends of R24 and R25, a series of almost perfect square waves should be seen. If the input signal is being derived from a printer key-board (and the XYL has not given up), the output can be connected to the 6K6's, when the circuit should print.

### Input Control Setting

The final adjustment is the correct setting VR1. In order to do this, the peak-to-peak voltage available from the discriminator load should be noted on the 'scope (only a comparative

figure is needed and a physical measurement of the height of the trace under given Y-amplifier conditions will suffice). The locally generated signal (square wave genny or XYL-derived RY'S) should now be adjusted by a temporary potentiometer network to exactly half the discriminator output. Having done this, it should be applied to the input point of the diversity unit and VR1 adjusted back from maximum until either printing becomes faulty, or (with the square wave generator) the 'scope indicates that the multivibrator is not triggering correctly. VR1 should then be advanced slightly until operation is *just* satisfactory—and left in that position. The reason for fixing half-amplitude signals as the critical setting is that under a mark-only or space-only condition, the keyer will be functioning with half the maximum available voltage. If VR1 is set at this point signals weaker than half-amplitude will not operate the multivibrator which means that noise, etc., will not cause faulty printing.

### Final Test

If the circuit is being tested from a T/P keyboard, it should now be possible to disconnect *either* mark or space alone without upsetting the printing. If the input terminal is now connected to the discriminator load, the circuit may be tested on external signals. To show that the diversity action is functioning correctly, the switch in the original G3BST unit which was used for temporarily shorting out mark or space signals should be set first in one position and then the other, *during which time printing should continue uninterrupted*.

While the original G3BST unit was, when correctly adjusted, capable of printing signals suffering from appreciable interference and fading, it is considered that the addition of the Diversity Unit now enables the serious RTTY user to cope with even more unfavourable conditions.



### LATE FLASH—R.A.E. PASS FIGURES

Just as this issue was going to press, we received official intimation from the City & Guilds of London Institute that for the Radio Amateurs' Examination held in May last, 866 candidates passed out of the 1,251 who sat, giving a failure rate of 31%. This figure is distinctly better than last year's (reported in the November 1960 issue of SHORT WAVE MAGAZINE) when only 735 passed out of the 1,333 who sat, representing a failure of nearly 45%. Whether or not this year's candidates were "a brighter lot," we shall never know, but at least they seem to have done themselves and their instructors credit.

## SIDEBAND MATTERS

### SSB CONVERTER FOR TOP BAND— THE G2MA LINEAR—NEW TENDENCIES ON THE BANDS

By "VOX"

IT is surprising that more use is not made of SSB on the Top Band. To start with, phone operation is now getting tremendously popular on 160 metres, with the resultant heterodyne QRM that one would expect. And also—that 10-watt limit makes the advantages of SSB very noticeable indeed, for ten watts of SSB produces a really outstanding signal compared with the average ten watts of AM.

The most probable reason for the dearth of sideband on One-Sixty must be that not many operators feel it worth their while to build a completely separate outfit for one band; and—let's face it—the Top Band *is* a case for separate gear. Very few have efficient transmitters for the HF bands which will also reduce themselves to ten watts and cover One-Sixty as well.

Those who have not yet tackled SSB on the other bands could not do better than build themselves G3BDQ's excellent "Natterbox"—described in full on pp. 178-185 of the June 1961 issue of *SHORT WAVE MAGAZINE*. Nothing could be simpler, and yet it is as effective as any other form of SSB transmitter, bearing in mind the power limitation.

However, those who already use SSB on the other bands probably feel that they can't be bothered to build a completely new rig for Top Band operation, particularly if they already have a separate AM and CW outfit taking up some of the bench space.

For these types, an easy and straightforward approach is to build a simple *converter*, whereby lower-sideband transmissions can be produced on 160m. simply by beating a suitable oscillator with their existing SSB output on some other band.

#### Converting from Forty

We first tackled this small problem (which proved to be no problem at all!) by converting from Forty to Top Band. Actually, the 40-metre rig was a K.W. "Viceroy," which radiates *upper* sideband on Forty.

The prescription is as follows: Rig up a 9.0 mc oscillator (crystal or otherwise) and feed its output into a simple mixer. Into this mixer stage, feed the merest whiff of the Viceroy's output on Forty, when tuning the latter from 7.0 to 7.2 mc will give full coverage from 2.0 to 1.8 mc—either CW or lower sideband. The two frequencies being mixed, 9 mc and 7 mc, are sufficiently far away from Top Band to render any form of filter, or even a balanced modulator, unnecessary; the simplest form of mixer, with its output circuit of reasonably high Q covering the 2.0 to 1.8 mc band, will cope, and no trace of either 7 mc or 9 mc will be radiated.

Those who do not use a Viceroy, but have another commercial rig or a home-built transmitter giving

*lower* sideband on 7 mc, will need to use an oscillator in the region of 5.0 mc, so as to obtain the lower sideband on Top Band. A 5.2 mc crystal oscillator, for instance, is excellent; tuning the forty-metre transmitter from 7.0 to 7.2 mc will then cover the Top Band. But as we started off with the 9.0 mc idea, we will stick to that in this short description.

The first lash-up consisted simply of a 9.0 mc crystal oscillator, using a 6AG7 in the simplest possible circuit—crystal across grid and cathode, tuned anode circuit—driving a 6V6 stage. The latter, instead of being wired as a conventional buffer amplifier, was given a 2 mc tuned circuit in the anode department, while provision was made to inject the 7 mc SSB signal between cathode and earth.

Various mixing arrangements were tried, but this proved to be the simplest and most efficient. A small amount of cathode bias was provided and, in series with the bias resistor, was wired a co-ax socket, into which the sideband signal could be injected. To provide a DC path, this was shunted by an RF choke (a 200-ohm 1-watt resistor was tried at first, but it was too easy to burn this out by shouting!)

On the preliminary test the output from the mixer was link-coupled directly to the aerial, and local stations gave S9 reports although the RF output was of the order of one quarter of a watt.

Nothing could be simpler than to boost this with a straightforward grounded-grid amplifier; a suitable stage was built, separately, and proved to work first time. So, on the rebuild that followed, it was incorporated on the same chassis, and the final circuit of the whole set-up looked like Fig. 1, opposite.

The valves quoted (6AG7, 6V6 and 2E26) were chosen simply because of their immediate availability. Also tried in the grounded-grid stage were a 6V6, a 6L6, and two 6V6's in parallel, all of which worked just as one would expect. So do not be deterred by the non-availability of a 2E26—it just happens to be a nice valve for the job, and one which will handle up to 30 watts without flinching.

Referring to Fig. 1, then, we have the 6AG7 CO, capacity coupled to the 6V6 mixer, having cathode injection for the sideband signal, and link coupling from its anode side into the cathode circuit of the grounded-grid amplifier. Two power supplies will be needed if the full ten watts input is desired, one giving about 200 or 250 volts for the CO and mixer, and another giving 500 to 600 volts for the final.

Fig. 2 shows the actual layout used, but it is emphasised again that this was governed by expediency; a chassis was available, with valveholders ready mounted, and this dictated the layout of a somewhat hurried job. Now that it is known that the scheme is trouble-free and very easy to put into operation, a much smaller version using miniature valves will be built, probably using a 12AT7 mixer and a 5763 grounded-grid stage; for the crystal oscillator almost anything will do!

#### Setting-Up

The initial switch-on being, as always, the critical moment, two milliammeters were used—one to check the anode current of the CO and the other that of the

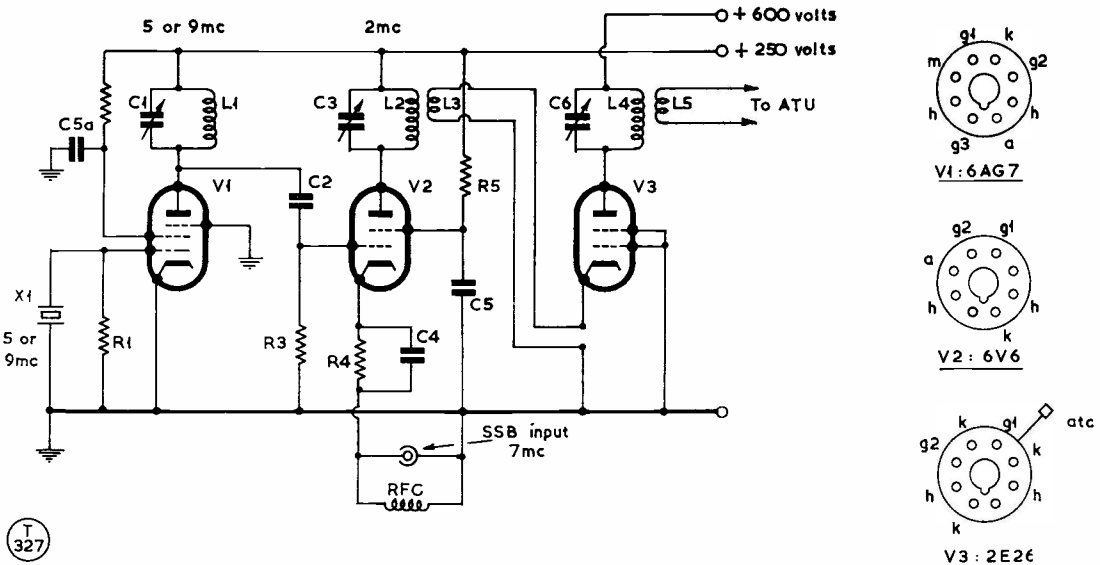


Fig. 1. Circuit of the Top Band SSB Converter, as described in the text. Using very low input from a Sideband transmitter in the 7 mc band — in this case a K.W. "Viceroy" — the crystal X1 should have a frequency of 9 mc if the upper sideband is used, or 5.2 mc for lower sideband. Either condition will give lower sideband output over the range 1.8-2.0 mc. This converter represents a very easy way to get on Top Band for anyone already having a Sideband transmitter on the HF ranges. Note: Resistor at C5a is R2.

mixer. The receiver was tuned to 9 mc and the usual anxiety took charge for a few moments while C1 was being swung (was L1 the right size?) But all was well, with a healthy signal at 9 mc and a dip on the milliammeter coinciding. V2 was now drawing current, but there was, of course, no anode-current dip as C3 was rotated. At least, this proved the absence of parasitics and unwanted resonances.

Next, a very low-power CW signal was injected from the SSB transmitter, tuned to 7 mc precisely. A look at 2 mc on the receiver, indeed, revealed that things were happening, and at once the resonant point of L2/C3 was found. This circuit peaked sharply, as evidenced both by the anode current milliammeter and by the receiver check. A small bulb tightly coupled to the coil could just be made to glow, the combination of low input and low efficiency giving a very small output indeed. However, when the carrier from the SSB transmitter was suppressed, an input of less than one watt sufficed to light the same bulb on speech peaks, and it was this arrangement that was link-coupled to the aerial and given S9 reports from "locals."

At this stage the Viceroy was being run with the HT switch on the 250-volt position and the audio gain less than a quarter of the way up. Later, it was found that, with a separate external power supply, the voltage to the final stage of the Viceroy could be reduced to 100 volts, with excellent SSB still coming from the mixer on Top Band.

Early results having indicated that nothing was wrong, the grounded-grid amplifier was added, its cathode being driven from a link winding coupled to L2. With the SSB rig used as for CW, the input to the single 2E26 was just about 10 watts with 600 volts

**Table of Values**

Fig. 1. Circuit of the Top Band SSB Converter

- C1, C3, C6 = 150  $\mu\mu\text{F}$  variable
- C2 = 230  $\mu\mu\text{F}$  tubular ceramic
- C4, C5, C5a = 0.1  $\mu\text{F}$  "Metal-mite"
- R1, R3 = 50,000 ohms
- R2, R5 = 10,000 ohms
- R4 = 1,000 ohms
- RFC = 2.5 mH
- L1 = 18 turns 22g. spaced one diam. on  $\frac{1}{2}$ -in. former (for 9.0 mc crystal)
- L2, L4 = 40 turns 22g. close-wound on  $1\frac{1}{2}$ -in. former
- L3, L5 = 5-turn link windings at cold ends of L2 and L4
- X1 = FT-243 type crystal (see text and Table I)
- V1 = 6AG7
- V2 = 6V6G
- V3 = 2E26 (or 6V6 or 6L6 — see text)

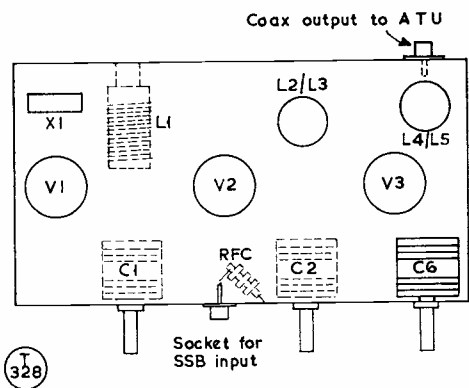


Fig. 2. Suggested layout of parts for the Top Band Sideband Converter described in the text, as first tried out. While it is not important that this should be duplicated, it is desirable that L1, C1 and C2 be kept below chassis.

on the anode. When the carrier was suppressed, the standing current was 2 or 3 mA, rising to 10-15 mA on speech peaks.

Results, to date, have indicated a very considerable gain over ten watts of AM phone, although more tests have been carried out on dummy load and with very local stations than over GDX paths. However, some very gratifying reports from 200 miles and over have been received.

#### Adaptability

It was never intended to present this as a finalised design, but rather as an idea worth following up. Whatever your SSB transmitter, you can certainly steer it on to Top Band by a suitable conversion done along these lines. The only difficult case we can visualise is that of a home-built 80-metre-only transmitter, operating lower sideband only. To get this on to Top Band would indeed be a tricky business, since the beat oscillator would have to be virtually on Top Band itself. However, an 80-metre rig capable of being switched to upper sideband presents no problem at all; its output could be mixed with a crystal oscillator on 5.6 mc, and then the range from 3.8 to 3.6 mc would give lower sideband on 1.8 to 2.0 mc.

SSB transmitters built for the HF bands only are easy enough to deal with, since 14 mc upper sideband can be mixed with a 16 mc CO to give the required coverage. It seems, though, that the 7 mc case is probably the easiest to deal with, using either the 9 mc or 5 mc CO according to whether the normal output is lower or upper sideband. (To clarify all this, a table is appended giving the necessary beat frequencies for all the different conditions.) Note that L1 must be designed to suit the crystal frequency chosen. The details given in the Table of Values for Fig. 1 relate to 9.0 mc only.

#### THE G2MA LINEAR

In Part IV of "Sideband from the Start," on p.203 of the June 1961 issue of the *Magazine*, we referred somewhat tongue-in-cheek to "Class-C Linears" and suggested that the purists should leave us at that point. This they undoubtedly did, since we have received no comment except a very friendly one from G2MA himself.

He writes to the effect that this term "Class-C Linear" is a misnomer which has arisen in connection with his circuit, has been perpetrated in several American periodicals and publications, and has quite rightly been viewed by many readers with scepticism. He adds: "I certainly don't know of any Linear amplifier which could be operated in this mode."

As G2MA says, many tetrodes will work well in the circuit by which he is so well known, without the use of control-grid bias, provided that the idling

TABLE I

SSB TRANSMITTER RANGE	SIDEBAND USED	CRYSTAL FREQUENCY TO BEAT TO 1.8-2.0 mc, LSB
7000- 7200 kc	Upper	9000 kc
7000- 7200 kc	Lower	5200 kc
14200-14400 kc	Upper	16200 kc
3600- 3800 kc	Upper	5600 kc
3600- 3800 kc	Lower	Impracticable (see text)

anode current keeps the dissipation down to 20-50 per cent of the normal rating. Under such conditions, the control grid will be drawing current during the whole of the positive half-cycle, and the unit will be operating in Class-B. Certain valves with a high screen amplification factor will require a few volts of negative bias from a low-impedance source, and the mode could then be called Class-AB2. Any attempts to run the valve in genuine Class-C conditions would inevitably produce a large amount of distortion.

Signing off, G2MA says "the idea behind the original development was to retain the high power sensitivity of a tetrode, without the necessity for three power supplies, and this object, I think, has been achieved."

#### On the Bands—Whither SSB?

Sideband, being our newest mode of operation, is not going to settle down to a steady state just yet. Those who assumed that 3780-3800 kc was a kind of sacred territory for SSB nets have already been disillusioned, a tremendous amount of QRM having been unleashed at that end of the band, and it is already customary to find plenty of SSB activity in the neighbourhood of 3700-3710 kc.

Similarly with the 14 mc band. Most of the sideband operation does still take place between 14300 and 14350 kc, it is true, but a strong faction has now laid claim to the territory around 14150 kc, and any European sideband station wishing to work Canadians without interference from the States need only set himself up in that region to produce results.

Now the ARRL has come out officially with the suggestion (*QST*, July) that the top 15 kc of Twenty should be sacred to DX (that is to say, non-USA); ARRL urges all American amateurs to avoid transmitting in the band 14335-14350 kc, and suggests that any Americans heard operating there should be gently told that they are "in the DX section." Further, and more effectively, they advise foreign amateurs *not* to work *any* American amateur who is transmitting in "the top fifteen." Possibly the plan does not go far

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enough, but if everyone gives it a fair trial it may be that some benefit will result.

Sideband operation is now sufficiently emancipated to take its place anywhere on the phone bands, and it is spreading steadily downwards from 14300 kc—DX stations may be heard around 14250 and 14275, and the little faction around 14150 kc consists mainly of VE's and Europeans working them.

And that, for the time being, brings this regular SSB feature to a close—it is being "rested" for a while, and will be resumed as and when opportunity offers or the demand requires. Because more general-interest Sideband material is becoming available, a regular feature is not thought necessary for the present.

### BBC TRANSMITTERS FOR EXTERNAL SERVICES

The BBC has placed an order with Marconi's Wireless Telegraph Co., Ltd., for two more 100 kW twin-channel short-wave transmitters. This is a further stage in the work of modernising and re-equipping the short-wave transmitting stations of its External Services, where most of the installations have been in operation since the early days of the last war. These new transmitters, together with two more of the same type already on order, are for the Daventry station, which was the BBC's first short-wave outlet for the Empire Service, opened in 1932.

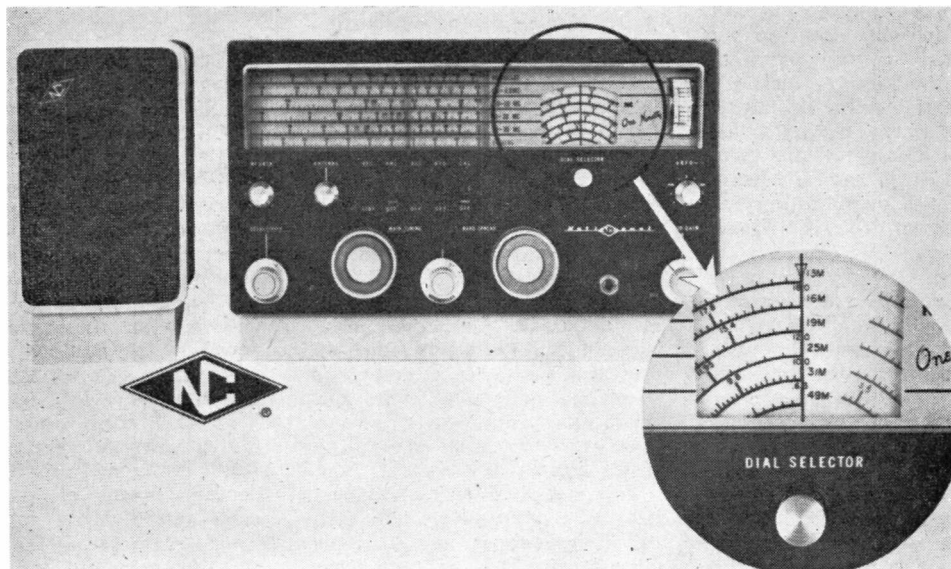
New features in the design of these transmitters include the use of English Electric vapour cooled valves

instead of the conventional water cooling for the valves in the modulator and in the penultimate and final RF stages. Vapour cooling saves both plant and space; the heat from the valves is transferred to water jackets to produce steam; this is carried by convection to an air-cooled condenser, which re-converts it to water for return by gravity feed to the water jackets.

Rapid frequency changing, now an essential requirement of short-wave broadcasting, is made possible by providing two radio-frequency amplifiers for each transmitter. These amplifiers, contained in separate interlocked cabinets, are located on each side of a common modulator which can be switched to either. Thus while one RF amplifier is on the air, the other can be set up on a different frequency ready for the next scheduled frequency change, which can then be made almost instantaneously. The overall efficiency of these new Marconi transmitters is nearly twice that of the old equipment, thereby giving an appreciable economy in operating costs. The contract value for this new Daventry installation is £80,000 per transmitter.

### BECOMING A REGULAR READER

To be sure of SHORT WAVE MAGAZINE every month, give your newsagent a firm order. If you want to receive the *Magazine* by post on the first Friday of each month, the subscription rate is 33s. post free for a year of twelve issues. Just remit direct to us, saying with what month you wish to begin the subscription.



The new National NC-190 is a general coverage short-wave receiver, with the dial selector device enabling either calibrated bandspread over the amateur bands, or the broadcast bands, to be selected; the coverage is 540 kc to 30 mc in five ranges, with SSB reception by a separate product detector and USB/LSB BFO control. The circuit is double-conversion, with ferrite filter giving choice of 5 kc, 3 kc or 600-cycle selectivity. The edgewise S-meter follows under all reception conditions, CW/AM/SSB and SSB/CW AVC as well as AM/AVC, and the oscillators are voltage regulated. The American list price of the National NC-190 (or 190X in the 115-230v. model) is 200 dollars.

# DX COMMENTARY

L. H. THOMAS, M.B.E. (G6QB)

## TEN METRES

Why leave 1700 kc of band-space unoccupied? Use Ten for local contacts, and make use of short-skip conditions for European working, relieving QRM on the other bands.

## SSB ON TWENTY

SSB operators are not forced to remain in the congested area between 14300 and 14350 kc. More and more DX stations are using the 14125-14150 region. Why not join them there? This might well become the accepted part of the band for all non-W DX contacts. Get in the habit of using it.



VE1ABM

## CALLS HEARD, WORKED and QSL'd

THERE'S no lack of news, but the total volume of DX worked is definitely down on last month. This is due more to summer conditions, including holidays and general inactivity, than to the overall change in the state of the ionosphere, and there is no doubt at all that the autumn and winter will provide plenty of interest on all bands, except probably Ten.

Regarding *Ten*, by the way, please do assimilate the remarks on that subject in a later paragraph. Much use could be made of it for purposes other than DX—and are we really in such a prosperous position regarding frequency allocations that we can afford to leave 1700 kilocycles completely untenanted? It's time we got organised.

DX-peditions continue, and so do the wrangles about countries and non-countries. As someone remarks in a letter, half the QRM on the DX bands could be cured by making QSL cards illegal! However, we know the views of the fraternity on *that* subject, and

it's too hot to handle . . .

Queer things have been happening in the way of short sharp fade-outs; and especially interesting is this phenomenon of a band that is dead except for *one* station (and that often a goodish piece of DX). On July 14, around 1500 GMT, we found 21 mc completely unpopulated except for 5U7AC calling "CQ Asia" and coming in at a good 589. On another occasion (July 12) the bands faded out around 1030, with a very loud solar hiss noticeable on 14 mc. Again, just one or two stations came through with abnormally strong signals.

This sort of thing makes times like these more interesting than the long periods of good or normal conditions, and the more bands you use, the more chance you have of running into something remarkable or strange. Even Eighty and Top Band do the most extraordinary things over short periods.

The main thing is not to be depressed by the overall deterioration in conditions. A shortage of *easy* DX may be just the sort of spur we need to buck our ideas up, and who can say that 1961 operating techniques are the last word in efficiency? Much can be done to improve the state of the art; and quite a lot of it necessitates no changes in the gear, but only in ideas. If the days of the casual "CQ," resulting in several replies from different DX stations, are over for a while—then we must find some other way of getting what we want.

It is very good to see our correspondents sending along more and more newsy items, rather than bare statements of DX worked, and this alone can add a lot of interest to the general goings-on, whatever conditions may do to us.

For various reasons (all of which we think are good ones!) we are now going back to segregation of reports by *bands*, not by

modes of transmission. But we will still list the DX worked (for each band) under the separate headings of SSB, AM and CW. By this means we hope to foster a little more interest in Eighty, Forty . . . and Ten!

### DX Gossip

*Norfolk Island*, represented by VK9GP, is on every day, 14 mc CW, around 0530 GMT; battery power all through . . . *Lord Howe Island* also difficult to come by, as VK2FR has left . . . *Nauru* seems to be available only on phone (14 mc AM); VK9AM operates 0600-1200 most days.

There was talk of a *Dahomey* sortie by 5N2AMS—probably signing TD8AMS—early in July, but no one seems to have come across him . . . *Monaco* was very busy for a while, with both 3A2BP and 3A2DA around (the latter on SSB at times) . . . OHØA from *Aland Islands* was an unusual call, but genuine . . . *Kure Island*—KH6EDY continues operation, but is pretty hard to come by; his QSL's will come via VE7ZM.

*Vatican City*—HV1CN, the one-and-only, had a spell of operation from July 4 onwards, using both CW and SSB on 14 mc . . . *New Caledonia*—some operation was promised by a visiting VK, proposing to sign both FK8AU and YJ1JB; no sign of him over here at time of writing. And if you hear YJ1MA, it could be G3JFF/MM on a survey visit . . . HKØTU QSL's are promised shortly; it counts for DXCC as from August 1.

### Super DX-pedition

Gus Browning of W4BPD, whose mammoth tour last winter was so successful, now promises an even more super affair; he and W4ECI plan to start next January or thereabouts, and to visit some 75 DX spots! The preliminary organisation has started already, and the proposed list of calls reads like a gazetteer. The trip may last as long as one year, and seems to include most of the rare spots in Africa, the Middle East and Asia "and perhaps some Pacific Islands on the way home." All the prominent DX-chasers are asked

to contact W4BPD if they have any useful information concerning rare places and the inhabitants thereof, as the preliminary planning is even more difficult than the actual organisation when on the move.

Just a few samples from this super-DX-pedition's suggested itinerary: FF7, 6W8, CR5, TD8, 5U7, FE8, TN8, VQ1, VQ7-8-9, all the MP4's, 9K, CR8, 9N1, AC3-4-5, AP and CR10. Information leading to good connections, either with local amateurs or with people of influence in any of these places, will be more than welcome.

*Swan Island*—KS4BC is due to operate for the first two weeks in August, with WA2MEQ, K4DWU and K4PUS in command . . . *Maldives*—VS9MB may be on SSB shortly. Other countries due to show up on the same mode include *Mongolia* (JT1AF) and *Niger Republic* (5U7AH).

Surprising number of stations in the new African republics: TN8 calls run from TN8AA to TN8BA; then we have TT8AA to TT8AH, TR8AA and 8AB, TL8AB and 8AC.

### Ins and Outs

The complications of keeping up-to-date with the DXCC countries list continue, and odd prefixes keep changing. Madagascar, we are now told, becomes 5R8, but what happens to all the other countries that have been signing FB8 hitherto, we don't know. The Ghana-Guinea-Mali affair may well remove a prefix or two from the list. Meanwhile, two new countries have been added—Damao and Diu—both of which are Portuguese territories (ever heard of them?) on the West Coast of India, separate from Goa but allotted the prefix CR8. (W4BPD will doubtless be hitting these two on his next sortie.)

### Operating Notes

Nearly everyone to whom the finer points of snappy operating are not a closed book will agree that "tail-ending" a QSO is a polite and efficient method of trying to get in on the act with the minimum of time-wasting and QRM. "Tail-ending" is *not* breaking-in; it is carried out

when a QSO finishes. But the onus is on all operators to sign "SK" only when they mean it . . . the abbreviation, on CW, means "end of QSO," and anyone else should therefore be able to chip in quickly. Too often we hear a DX station signing-off with "SK" and then going back to listen to all the love-and-kisses stuff and four lots of good-byes from the other end (all of which should already have been included in the final 73 on the previous over).

Tail-ending can be dangerous,

### P & Z TABLE

STATION	PREFIXES WORKED	ZONES WORKED
<i>CW Only</i>		
G2DC	452	40
G13NPP	438	40
G3HZL	379	40
G3WP	378	36
G3ABG	336	40
G2BLA	327	39
GW3CBY	280	23
G3LZF	238	34
G3IDG	236	27
G2BP	228	31
ZC4CT	223	29
VK6AJ	199	36
GW3MLU	198	31
ZC4SG	146	27
G3OQK	145	17
G2HLU	135	24
<i>Phone Only</i>		
G3DO	639	40
MP4BBW	458	40
G3GHE	400	39
G3NWT	372	39
GB2SM	370	37
G3MCN	352	38
G3LKJ	347	38
G3BHJ	326	37
G3NFV	292	37
G3ABG	261	32
G3HZL	140	26
GW3MLU	138	26
G2BLA	115	21
G2FQW	99	6
G3WP	80	25

though, as a certain K4 has found out. Because he did it by signing "de K4 . . ." without giving the call-sign of the other station involved, he has received a violation notice from the FCC. (He called 9K3TL off-and-on for 20 minutes this way, and the FCC monitor taped the lot!) FCC rules say that one must transmit the *complete* call-sign of the station being called or worked, and that's that. Our own regulations are interpreted in a similar manner. So . . . if you are a tail-ender, do it in full. (We must admit to having grabbed a rare one, in the past, by sending "de QB" and nothing else . . . but not again.)

Quite different from tail-ending is this awful "break-break" business, whereby anyone using SSB seems to think that he has as much right to get in on a QSO as have the two operators who have created it in the first place. A polite attempt to let two stations in QSO know that you are on the frequency *and* *QRX* is one thing; but that peremptory "break-break-let-me-in-can't-you" is quite another. Let us quote K6CQM, editor of the NCDXC's *The DXer*: "The incessant 'breaky-breaky-break' of the buttinskies wanting to jump into your private QSO's makes operating on SSB a real challenge. If I saw two strangers standing on a street corner talking, I sure the heck wouldn't have the nerve to go up, tap them on the shoulder, and say 'Can I get into this conversation, too?' Why do they insist on this practice on SSB?"

Of course, it isn't only on SSB that it happens. Call any rare station on CW and you will set off a chain-reaction; signals of all shapes and sizes will be there on the frequency, calling when he's sending, when he's listening, and after he has announced that he is definitely going QRT. Ever tried clearing some of them into one part of the band by calling a rare DX-er that you haven't even heard? You can turn a particular spot into a shambles for about ten minutes—if you send slowly enough and have a loud enough signal all over Europe.

Final thought: Don't worry too

much about the annoyance caused by butters-in and breakers-up if you are addicted to the practice yourself! So just have a good think before "having a go" next time . . . but if the other man has sent "SK" or said "signing off," then you are in the clear and any resulting mess is strictly *his* fault.

### Top People

In the DXCC Honour Roll (July *QST*) we find W3GHD at the top with a score of 311, W4DQH with 310, and W2AGW, W6AM and PY2CK all equal at 309. The lowest score now quoted in the honours bracket is 302! Perhaps the most notable fact is that PY2CK also scores 309 on telephony only . . . a pretty incredible performance. Top-scoring G's are G3AAM and G4CP, both on 300. Those of us who "retired" at 200 are pretty small beer these days.

### Oldest Old Timer?

W3AX (Washington, D.C.) recently sent a card to W7OE on which was written: "Back on the job after 40 years' absence as a ham," and his past calls were shown as HN (1899), HNM (1908), 3UO (1916) and 3XV (1922). The 1899 bracket beats anything we have heard of up to now, and Tom Appleby of W3AX may well be the only living amateur among the few who operated "wireless communication apparatus" in the nineteenth century. He now works with 20 watts in the two-metre band. (Thanks to the *Western Radio Amateur* for the above.)

On the subject of Old Timers: your conductor is a relative babe, having been issued with 6QB (*six q b*, as they put it then) in 1923. So when stations with the general aura of Old Timers about them are worked, enquiries are often made about "vintage." W2WS was encountered recently, and he said that he started up in 1914 at the age of *eight!* We should be interested to know who is now the oldest Old Timer in the U.K.

### News from Overseas

ON4QX and his group left Antwerp for Luxembourg on July 12, and were due to be operating LX3QX and LX3DX, all bands,

CW only, with twelve operators. This, unfortunately, will be happening between the time this leaves us and the time it reaches you—but we hope everyone found them . . . and that LX3 prefix should have delighted WPX-hunters.

Bryan Bisley (we can't pin a call-sign on that man any longer!) reports that he and the other ops. netted 311 contacts from 9K3TL, and 1554 from 9K3TL/NZ. After leaving the Neutral Zone he operated from Bahrein (MP4BDA), Qatar (MP4QAO), Sheikdom of Sharjah (MP4TAE) and Sheikdom of Abu Dhabi (MP4DAC). Because of sandstorms he was unable to go to MP4MAB (Muscat and Oman), but he will include it in his round trip later this summer. Rundy, OD5CT, was also due to visit MP4QAQ (Qatar) for a few days.

They have written to the ARRL submitting evidence supporting separate country status for 9K3/NZ in the Kuwaiti-Saudi Neutral Zone, and also for the Sheikdom of Abu Dhabi, which has never been on the air before. Mean-

### L F BANDS TABLE

(Countries Worked)

Station	7 mc	3.5 mc	1.8 mc
G3FXB	152	78	9
G3FPQ	134	85	19
G2DC	128	94	12
G3IGW	95	51	1
G2YS	93	73	20
G3HZL	81	44	8
G2BLA	70	39	9
G4JA	57	40	7
GW3CBY	50	29	14
G3DRN	42	13	1
G2DHF	33	25	1
G2FQW	33	4	1
G3NFV	27	12	15
G3NYA	25	22	9
G3NNO	24	23	10
G3NYQ	24	4	11
G3OQK	23	5	7
G3NPB	21	8	9
G3IDG	20	16	9

This Table derives from *Countries Worked*. Order is based on band in first column, changed monthly.

while, Bryan awaits his OD5 call and has also applied for licences in VS9 and ZC4. All contacts have been on 14 mc SSB, using his KWM-2.

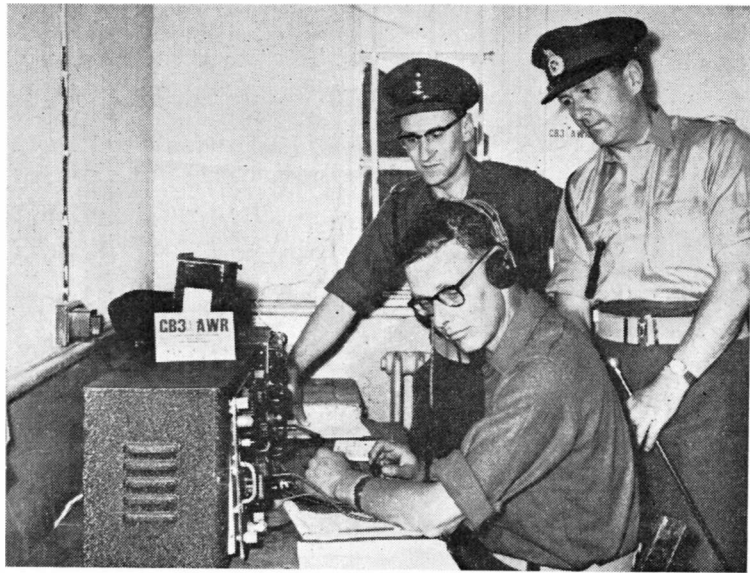
ZC4CT reports activity after being QRT for three months, and has been working CW and SSB on 14 and 21 mc. He is now fixed up with a new receiver (a G-209R) and hopes to keep really active.

ZC4SG formerly operated from the club station ZC4SS, but now has his own call; he is Pete Hainsworth, 9th Signals Regt., BFPO 53; CW only, and just starting on real DX-chasing, he enters our P & Z Table with a score of 146 and 27, all made since he was licensed on May 25. Although at present active only on 14 and 21 mc, he promises to have a go at Top Band later in the year.

MP4BBW (Awali) is in full cry once more, and sends his usual colossal list of 14 mc SSB contacts. He doesn't think much of the ARRL's "gift" of the top 15 kc to DX sideband operators, and hopes there will be plenty of support for the much better scheme of using 14100-14125 kc, where one can, if necessary, work DX-to-DX contacts on one frequency without any interference from the USA. We are strongly in favour of this, and hope that sideband operators will make more and more use of it, using the 14300-14350 section only when they want to work W's. To quote 'BBW: "We feel that the W's made their own bed by taking the top 50 kc just over a year ago, and now they can darn well lie on it."

He adds that SSB operational tactics from Europe have reached a new low, mainly because newcomers to the mode use the accepted AM phone trick—just try to out-shout everyone else. So we must put our own house in order before criticising the W's for inundating some poor defenceless rare DX station in the same manner.

G3JFF/M, exploring the Sunny South Pacific in the Admiralty survey ship, H.M.S. *Cook*, should have appeared as VR2EA from Naduri, Vanua Levu, by the time you see this. Then they go off to the Gilbert and Ellice group, whence G3JFF/MM hopes to



GB3AWR, club callsign of 404 Sqdn., Royal Signals, A.E.R., was on the air from their summer training camp at Blandford, Dorset. Maj. Gen. R. A. Fyffe (right) watching W/O H. J. Hodgkins, G3EJF, operating the amateur band gear brought to camp by Major J. Bladon, G3FDU, standing behind. 404 Squadron, of which G3FDU is C.O., is a Royal Signals reserve unit manned almost entirely by radio amateurs — and a darn good time they have, too!

come on as VR1M. The ship has already been to the New Hebrides, but there is the possibility of a return visit, in which case YJ1MA may show up. Operation will be CW on 14020 and 21020 kc from VR1M, opening during the first week in September, and the same will apply if and when YJ1MA appears. All U.K. QSL's are being handled by GW3LQP.

Incidentally, Mike remarks that there would be more activity from YJ if the local inhabitant, YJIDL, had not been "pushed off the air by bad-mannered QRO types"; he has offered G3JFF/MM the use of his station during his visit, to see how *he* gets on with them. Conditions for /MM working from *Cook* have been very poor since the ship has been south of the equator, the 10-metre band only being available to him for this. (British /MM's are licensed for 10 metres only—fine when the band is open, but a bit frustrating in the trough of the sunspot cycle!)

ZB1VJ, in the R.A.F. medical service, is also G3NJK and, having just collected that Jurby posting, will be signing GD3NJK before very long; during the month of

August, however, he will be back in Malta, on 21/28 mc and looking for U.K. stations.

#### Around the DX Bands

So here we go once more on a conducted tour of six bands, each of which has something to offer us. True, nobody seems to have any use at the moment for *Ten*, so that is one of the things to be talked about.

With a band 1700 kc wide, and many hundreds of transmitters and receivers spread around the country which are obviously capable of doing good work thereon, the total sum of activity is just about *nil*. One or two correspondents report the odd QSO with Africa or South America, but even they hardly spend any time on the band.

What should we do about it? Surely we should try to open it up as a medium for *some* form of communication? And here we quote GW3IJE (Pontypool), who writes: "I really can't understand why some of the local nets don't move down to ten metres, away from all the teleprinters, heterodynes, service stations and so on, to say nothing of the other nets

## 21 mc DX WORKED

- CW
- ZC4SG:** 7G1A, HI8DGC, CE1AD, CX2AZ, CR7IZ, 5N2LKZ, VP2AD, VS6EC, OA8A.
- ZC4CT:** CR7IZ, EA8DL, EL4YL, EP2BB, EL0M/MM, ET2US, FR7ZD, TN8AT, VSIKY, VS9AAC, 9ARC, VU2JA, W6DKD/MM, ZD6RM, ZE3JO, 5N2LKZ, 5U7AC, 7G1A.
- G3LPS:** CX1FB, VS9MB, 6W8BF, VQ3HL, KZ5MQ, VU2JA, CE1AD, LA8YF/M.
- G2DC:** CE3RG, 4EC, FR7ZD, HK1AAK, 7ZT, JA2AEN, KX6BU, MP4DAS, PY7LJ, VU2XG, VS6CL, 6EC, VS9AAI, 9ACS, 9MB VK 2-3-4-5, VQ 2-3-4-5-6, ZD6RM, ZL, ZS3D, ZP5CF, 5LS, 5U7AC, 5U7AMS/P, 6W8BF, 9M2FS, 7G1A.
- G3OQK:** VS1KP, VS9AAC, 9APH, YV5AKM, VQ3HZ, ZE4JE, ZD6RM.
- G3NOQ:** VS1FH, EP2AP, UA9, 0, 9K3TL/NZ.
- G5BZ:** ELIP, IP1TAI, JA's, KV4CE, PYSMX, 5U7AC, TI2WA, VS9ARC, W6ECP.
- G2VV:** HK1AAK, OH0A, TI2LA, VQ4HY, VQ5IB, ZD6RM, 5A3TQ (all with indoor aerial).
- SSB
- G3NOF:** K5RYB/MM, W4WYI/MM, W's.
- G3NWT:** CR6CA, VQ2AB, 2BK, FB8CM, 6O1DRS, MP4TAE, HA9OZ, PY, VQ4, ZS.
- AM PHONE
- G3NWT:** VP3RW, VQ3PBD, FB8XX, HR2MT, TT8AD, LU8KO, MP4QAO, 4TAE, EP2BD, TL8AB, YV8AS, VS9APH, VSIHT, ZS3AH.
- G3BHJ:** OD5CW, HP1SB, VP2AR, 2DE, 2DQ, VP6HR, 6PV, 6WR, VS9APH, 9ARC, 9MB, YV4DU, 6AR/2, 5A3TQ, 5N2AMS.
- G3NOF:** HK4PX, IP1TAI, KG4AO, KP4AAQ, MP4BDC, SM5BUG/9Q5, VP9DL, VSIJX, VS9ARC, 9MB, YV1AK, 1DU, ZC4SG, ZS, 4X4HI, 4KJ, 4NL, 5N2AMS, 9Q5CI, 9U3DS, 5PD.
- G3OQK:** VS9MB, EP2BD, VS9APH, 5N2AMS, VQ2IE.

## 14 mc DX WORKED

- CW
- G5BZ:** DU7SV, FG7XF, FP8BR, IP1TAI, JA1AB, 1CJN, 2HO, 2XW, 7JU, KL7's, U8AZ, VP2AD, 2VJ, VS6EM, YV5AFR, ZD7SE.
- G3NOQ:** UI8AU, UH8BI, OY8RJ, 3A2AD, YK2LA (?).
- G2DC:** CP3EN, CR7IZ, CR9AH, ET2US, FO8AC, HV1CN, JA 1-2-3-7, KL7's, KH6FAH, OA8D, UA0BB, 0UC, UM8KAB, UL7AW, 7LE, VP2AD, VK 2-3-4-5, XE1RY, ZK1AK, 1AR, ZL, 5U7AC, 9K3TL/NZ, ZA2KBC.
- G3LPS:** EP2AF, UI8AZ, TF5TP, HK1HV, 3AH, 7ZT, VS6EC, KZ5TS, EA9CK, ZP5AW, 5N2IND, 2LKZ, SM5CBC/MM/ZS1,

- DM2XLO/XZ2, VK's.
- G3WP:** 5U7AC, HP1SB, SP0ZHP.
- ZC4SG:** HK1QQ, HP1SB, CN8MB.
- ZC4CT:** ET3AZ, FP8BR, ZA2KBC, HV1CN, KR6KS, VQ5FS, ZS3E.

## SSB

- MP4QAO:** JY1NZK, 2NZK, EP2AG, 2AJ, 2BB, 2BE, EA8BA, 8CT, 3A2AD, 2BP, PK1SX, 9M2GA, VQ5FS, AP2AD, LZ1WD, MP4QAI, HV1CN, SV0WT, HC1FG, OH0A, UA0BP, UH8DA.
- MP4BBW:** 9K3TL, LX3MA, JY2NZK, PK1SX, KH6's, KL7's, ZS7F, JA's, 9G1CY, CR7CR, CR9AH, 9N1SM, HS1X, HK2YO, PZ1AP, 1AX, XE2FL, PJ2AA, KC6AY, KW6DG, VK8TB, KG6's, 3A2AD, 2BF, 9M2GA, KM6BU, HC1FG, MP4DAC, KW6DF, OH0A, 6O1DRS, ZS3E, 9M2DB.

- G3NWT:** OH0A, 0NC, 3A2BP, 2AD, MP4QAO, 4BDA, JY2NZK, W2LNP/SP, XE1DE, SV0WT, VQ4DT, YN0NZ, ITAT, YV6BR, UH8DA.
- G3NOF:** EL2G, HC1KA, HH9DS, HI8GA, HV1CN, KZ5LC, MP4QAO, OA4BN, 4DI, OH0A, TG9AL, TI2RFT, UA9DT, UH8DA, UQ2AN, VE3BQQ/SU, VP7BV, VU2RX, YN0NWO, 0NZ, 3A2BP, 9M2DB.
- GM3JDR:** BV1US, CR7CR, EA0AC, EL6E, EP2AG, 2BB, HH9DL, HI8GA, HV1CN, HZ1AB, JY2NZK, KG1's, KR6KS, KV4ZC, KZ5LC, MP4QAO, OD5CN, OH0A, 0NC, OY7ML, PK1SX, PJ2AA, PZ1AX, VESMQ/SU, SV0WT, TF2's, UH8DA, UA9DT, VP2AB, VP7BV, VQ 2-3-4, VU2NR, 2RX, XE1TJ, 1CV, YN0NWO, YV1EL, 5ADZ, 5ALC, ZK1BS, ZS3E, 3A2AD, 3BP, 4X4CW, 5A2TZ, 9K3TL/NZ.

four layers deep on the same frequency . . . The aerial situation is easier, too—16 feet fits the average garden a lot better than 132 feet, and this applies to mobiles, too. WABC for ten metres is a good idea—perhaps you could start it off with a small contest one week-end, or suggest an Activity Night . . . Short-range propagation conditions on ten metres have never been properly explored."

And here is G3NOQ (Tyne-mouth): "If ten metres remains in its present state, virtually unused, for the next five years or so, there is always the possibility that non-AT services are going to get their eyes on the band. To carry any weight at all in band negotiations we must show the authorities that amateurs are making good use of their allotted frequencies."

So . . . don't treat Ten as a band sacred to DX, even when none is available. Get cracking, and work whatever you can find there, near or far. We don't like over-organising anything, but we will gladly fix up some form of contest on the band, if only ten or twelve people promise support and interest. *We have a band 1700 kc wide which we do not use . . . let's do something about it now.*

## Fifteen Metres

Although nothing like Ten for inactivity, Fifteen is getting mighty quiet at times when there *should*

be some DX around. On weekday afternoons, when we have been able to snatch a half-hour or so, we have invariably found some Asian DX on 21 mc—either VS1 or JA or VS6 or something of the sort. And, of course, the faithful VS9MB, whether on phone or CW, seems to put in a cracking signal practically every day.

G5BZ (Croydon) mentions working W6ECP, "who was the only signal on the band and was S8"; GW3IJE says that two friends, having a "cross-town QSO on a "dead" band, were broken into by a 9M2 station. G3NWT (Sandiacre) heard ZS9A, FB8XX and FB8ZZ all working phone on the band.

The lists of CW, AM and SSB DX on Fifteen tell their own story—the band is one of the most interesting of them all, even now. Dig yourselves out of that 20-metre QRM and have a go at Fifteen, even if it doesn't sound all that good at the first swing round.

## Twenty Metres

And what can one say about Twenty, except that everyone seems to be on it all the time? Throughout the day, unfortunately, it is pretty exasperating. The countries with the highest percentage of Lids appear to be those that come in best, and one can't call even a short "CQ DX" without attracting them like moths round a candle. (We don't often call CQ, but a recent short one

brought in some of the most seductive T6 creepy-crawlies we have ever heard . . . and they keep on and on, through a QSO, after it is over, and for all we know after one has pulled switches).

Never mind, there's lots of DX there in the evenings and also, for those who can wake up, in the early mornings. The 0730-0830 period is not nearly so good these days as in the spring, but 0630 is reputed to be excellent.

Late at night we recently struck a period in which neither the W's nor the South Americans were there—it was all Central America and the Caribbean, and most interesting. Wonderful signals from TG, TI, HR, HH, VP2 and the like—and hardly any QRM from anywhere else. (Next night it was *terrible!*)

#### Forty Metres

As always, a shortage of reports about *Forty*, which is no longer taken seriously as a DX band. What can you do with 100 kc and all that lot packed in? (Forgive us for harping, but there *is* 1700-kc of unused space higher up!)

G3LPS (Blackburn), the erstwhile 40-metre specialist, proved that *he* can still do it by working TI2LA and PY2, 4 and 7. The TI was busy giving 589 reports to East Coast W's, but broke off for a 579 both ways with G3LPS.

G3NYA (Sutton Coldfield) heard FP8BR on the band, July 1 at 0400, but he was working the States and didn't come back to G3NYA's call; however, he did raise VE3DUS for a new country on the band, and also heard CX6CB.

About *Eighty* (DX-wise) there's even less to be said, so we won't bother to say it.

#### Top Band Topics

Surprise packet of the month comes from G3NXJ (Worcester), who was at work during June on a new Top Band transmitter. He finished the job at 0230 GMT on June 18, and put out a tentative CQ on 1820-kc CW. Back came VE1ZZ! Static was grim, but they managed a 100 per cent QSO, 349 and peaking 459 both ways. G3NXJ has a full-wave aerial (which must help!) with a 50-foot vertical section in the first high-current part; there is also an insulator in the centre which can be shorted or opened, and at the time of the contact he had it

open, using a half-wave only. Many cards received lately for 80, 40 and even 160 do not check with G3NXJ's log . . . but when one arrives from VE1ZZ it will be welcomed.

G3OLB (Bristol) having tired of trying to radiate a decent signal from his home station, is going portable during the first two weeks in August. He will be heading north and may possibly operate from North Wales; the general idea will be to put as many rare counties on the air as possible.

G3APA (Coventry) boosted his score with Alderney and Jersey, both confirmed, during June. He recently expressed his dislike of the NATO alphabet and said one ought to stick to G.P.O. Coastal Station usage—then, next thing, he hears Anglesey Radio spelling out ships' names with the NATO affair! He's now very despondent over the whole business.

GM3OM (Larbert) went portable in Peebles and Berwick during June and July, and hopes to have been in Kinross, Aberdeen and Kincardine by the time this appears. He made his own first phone QSO with Inverness-shire by working GM5PP/P in the Isle of Skye, and a personal meeting followed as they passed through Larbert. GM3AVA, using the same equipment, went 1400 ft. up in Kincardine and gave a new one to many of the chasers. Quite a lot of new ones are promised from GM-land in the near future, but GM3OM says it's essential to be able to pick a night with a good static level, otherwise it can be nerve-racking. And if the signal once penetrates far enough south, pile-ups are the result — so GM3OM adopts the rule of picking the loudest one first and working down from that.

G3NBT (Sidcup) reports slow but sure progress up the ladder, and was glad to hook GM3AVA/P (Peebles) . . . G3FS (also Sidcup) raised the same station in both Peebles and Kincardine, also GM5PP/M in Inverness and GM3OM/P in Berwick . . . G2CZU (Bath) worked GM5PP/M in East Lothian and wonders whether he counts as a genuine GM5 towards the WAGM Certificate. (We

### TOP BAND COUNTIES LADDER

Station	Confirmed	Worked
<i>CW and Phone</i>		
G2NJ	98	98
GM3OM	97	98
G6VC	96	97
G3APA	91	92
GM3COV	87	92
G2CZU	86	89
G2DF	81	81
G3NFV	79	79
G3NNO	76	86
G3MXJ	76	80
GM2HIK	76	77
G3LWQ	74	86
G3NVO	73	82
G3NPB	73	79
G3OGI	66	73
G3OHX	65	66
G3OAG	61	64
G3NXQ	61	63
G3NJQ	61	62
G3NNF	57	61
G3IDG	43	48
GW3CBBY	42	54
G4JA	33	42
<i>Phone only</i>		
GM3OM	85	86
GM3AVA	83	84
GM2UU	80	81
G3FS	75	80
G2CZU	69	69
G3NBT	66	69
G3NPB	60	65
G3NAA	56	60
G3NNF	49	51
G3NOW	42	45
G3NNO	39	61

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

certainly don't see why not.) GM3FDW (Dumfries) was another new one, and G2CZU now scores 89, with 86 confirmed.

Incidentally, the increased activity on Top Band CW lately is most gratifying, and many G's are working quite long hauls throughout the summer, which wouldn't have been thought possible a few years ago. If they're *there*, you can work 'em, as A.O. remarked some time back.

G3MBL (Finchley) reports that he was heard by an SWL in Zurich, 5 & 7 during the Grafton Phone Contest; G3NFV and G3NMZ were also heard—good going.

During May 16-26, when GM3AXX/A was operating from Drumadroit in Inverness-shire, he used modified Command transmitters, with a common power supply-modulator unit, and an HQ-120 Rx, the aerial being 85 ft. end-on. Incidentally, all this gear, including the aerial and ATU, came from SHORT WAVE MAGAZINE articles. GM3AXX reports that he had many interesting contacts, including EIØAB, the EI expedition to the Aran Is. (see p.141, May issue) and GM3FSV who, says GM3AXX, puts out a beautiful SSB signal on 1.8 mc. So far as GDX was concerned, things were made a little difficult for GM3AXX/A because—in strict conformity with Murphy's Law—the noise from a leaky HV grid transformer peaked on 1850 kc exactly!

#### Our Heading Photograph (p.304)

From 91, Harbourview Drive, in Sydney, Nova Scotia, Canada, VE1ABM is kept on the air by Seymour Harrison, with the enthusiastic co-operation of his charming xyl Norma—who, because VE1ABM is a member of the Rag-Chewers' and two other Amateur Radio clubs, refers to him (in the delightful way that affectionate wives have) as "Awful Blabber Mouth." (The only remedy would be for VE1ABM to give up phone and stick to the key.) The gear consists of a B & W 5100B transmitter running 125w. and, since the photograph was taken, the Radiovision "Commander" receiver

has been replaced by a Collins 75S-1; the aerials are a 20-metre beam and a long wire. VE1ABM was licensed in 1956 and is always on the look-out for U.K. contacts; during the war years he served with No. 6 (R.C.A.F.) Group, Bomber Command, and was stationed at Topcliffe in Yorkshire.

#### Miscellany

G3OGO (Croydon) is unfortunately horizontalised in hospital after a motor-bike accident which caused a broken leg and other troubles. However, he says that numerous visits and piles of correspondence have done a lot to show that the "Ham spirit" really exists . . . it's almost *tangible!*

G3LPS (Blackburn) had some VFO trouble and *knew* his note was only T8 . . . however, all reports on 14 mc gave him T9 and 90 per cent of them on 21 mc likewise. He says "I presume you must be T5 before people will give you regular T8 reports." (Our own idea of the current T-code runs something like this: T9—You have just about the average type of note heard on the air; T8—Your note is not quite so good as all the T9 ones on the band; T7—Your note is a disgrace to Amateur Radio and you should either rebuild or sell up; T6 downwards—not used.)

G3NOQ (Tynemouth), with three friends all eagerly awaiting R.A.E. results, are going to operate GB3GM from the Island of Egg for a fortnight starting August 27. Power will be taken from the generator used to supply the island's doctor's house, so operation will be about eight hours a day, probably 1500-2300. All bands, Top to Ten, with a Heath kit DX-40 for the HF bands. All ops. are at the Newcastle Royal Grammar School, and GB3GM is being run in conjunction with the school's annual survey camp on the island. Mainly CW, but a little AM and a little SSB (possibly) on Top Band. Full report promised.

G3NWT (Sandiacre), who says he listens at least four hours for every hour's transmitting, remarks that there is increasing pleasure in listening to the well-known charac-

ters on the bands, who do not *all* talk tripe (as some of the Superior Ones suggest). And, referring back to the Hancock affair, he thinks it a great pity that with so many uproariously funny things about Amateur Radio, he should not have been told about them. There should be a panel of amateurs to help the BBC out over things like this! (In fact, there are many licensed amateurs in BBC employment, and not all in the engineering departments.—*Editor.*)

#### Quotes

"In May I became licensed as ZC4SG. Now, a keen CW man. I've taken to DX chasing—the bug's bitten." . . . (ZC4SG). "I find there is very little 80-metre CW activity at week-ends, regardless of propagation conditions, which seem to be very good during daylight for up to 100 miles with quite low power. It would be ideal for middle-distance working for the average 50-75 watt CW station—phone boys manage it. anyway . . . (G3NYA).

"Moving QTH on August 1 (London, S.W.12 to Basingstoke), and hope to make a quick re-start on all bands, CW only" . . . (G3IDG). "Add to the gaiety of nations the rare DX operators who wind up with 'off and clear and by for your final': you know what happens!" . . . (G3BHJ); "From the way some folk carry on you would think the be-all and end-all of life was Amateur Radio. What's wrong with an hour or two in the garden or the local, or taking the dog for a walk?" . . . (G5BZ, referring to moans about contests ruining the bands at week-ends).

"I am in the frustrating position of needing one more contact for several operating awards, and with conditions on the decline I feel that it's not going to be easy" . . . (G3LPS); "Seems to be some healthy MC-resistance with one or two recent DX-peditions, especially to the W who says 'I've got 485 of my pals on the frequency and if you'll just stand by, I'll help you out with them'" . . . (G3NWT).

*Yasme III* now prepared for sea and may set forth about September 1. Danny Weil hopes to have



two crew members capable of handling *Yasme* or the rig. Marquesas first main objective, possibly Clipperton on the way... KH6EDY (Kure) active around 14008, 0700-0800, mostly long-winded chatting with W's and not interested in Europe... JA1EEB reported active from Marcus Is. . . . ZD6RM promises activity on 7 and 3.5 mc... VK2QJ may be opening up from FK8 by the end of July; also ZK1KS from the northern Cook Islands... KS4BC from Swan Island, starting August 2, working all bands... UA1KED is *not* very active and is a very tough customer to nail. (All these from G2DC.)

Norwegian prefixes now include LF, LJ and LH, LB being extinct. "/M" means Maritime Mobile, /MM being forbidden... 5R8 is Madagascar, w.e.f. July 1... The Gaza Strip became /4U for a week, but reverted to SU... YN1EDA and 1EDB have gone to Turkey and hope to operate thence... Great excitement caused by a ship with its four-letter call (which we will refrain from quoting) entering the 15-metre

band to try out its stand-by Tx; contrast between amateur and marine procedure interesting, also the legal aspects!... CR6CA says the CR5 expedition cost him a lot more than expected, and he won't be able to afford another one... There are now four YNØ's, one being a Club call... UA2AO on SSB from August 22... YN1TAT is HH2P from September 1. (All these from G3NWT.)

Hoping to operate from Iran during the whole of August, if licence arrangement comes off. CW, 14 mc and possibly 7 mc... G3LZQ (Hull). M1B is on the air again, 14 mc AM... G3BID (Abbotsbury).

#### Late Flashes

The Kuwait / Saudi Arabia Neutral Zone has been accepted as a DXCC country—credit from November 1... *Mauritania* now has a new prefix—changed from FF7 to 6T5... The FCC are permitting W's to work K3HVN/PK, but not for message-handling... VR1B promises frequent operation on SSB, AM

and CW... VQ8AP will be showing up as VQ8APB, Brandon Island, from August 1 for a few weeks.

The ZL3DX Expedition promises the following plan of operation: August 8-11, FK8AM; August 11-18, YJ1ZZ; August 23-September 5, VR4CC. Frequencies, 14040, 21040 kc CW; 14348, 21406 and 21448 kc SSB. (Thanks to *WGDXC Bulletin* for above news.)

And so we sign off once more, with the usual salutations to all our sources of information, which include the *WGDXC Bulletins*, W4KVX's *DX*, the NCDXC's *DX-er*, the *Western Radio Amateur* and all our correspondents. No shortage of activity or news these days, and we hope to keep it that way. All next month's offerings, please, by the deadline—**first post on Friday, August 11**. For the issue following, it will be *September 15*—overseas correspondents, please note. Address everything to "DX Commentary," *Short Wave Magazine*, 55 Victoria Street, London, S.W.1. So, for now, good DX-ing, 73 and --- BCNU.

#### ROYAL SIGNALS AMATEUR RADIO SOCIETY

Plans have now been completed for the formation of an Amateur Radio Society affiliated directly to the Army—to be known as the Royal Signals Amateur Radio Society. Membership is open to all past and present members of the Royal Signals, whether regular, reserve or Territorial Army, and also to Army Amateur Clubs not connected with Royal Signals. An Hq. station, G3C10, is being established for regular operation from Catterick Camp, Yorkshire. All interested in joining the R.S.A.R.S. are invited to write to: Capt. J. E. Philp, R.Sigs., G3NJM, hon. general secretary, Royal Signals A.R.S., 11 Signal Regt. (Depot), Vimy Lines, Catterick Camp, Yorkshire.

#### RADIO TELESCOPE FOR D.S.I.R.

A fully-steerable radio telescope is to be built at a site near Crowthorne, Berkshire, by the Ministry of Works for the Radio Research Station of the Department of Scientific and Industrial Research. It is expected to be completed and in operation towards the end of 1963; the estimated overall cost is £250,000, including buildings, equipment and site services. The radio telescope, which will have a parabolic aerial (dish) about 80 ft. in diameter, will have high accuracy and a faster tracking speed than the 250 ft. radio telescope at Jodrell Bank, the latter being an essential requirement for following earth

satellites and determining orbital data. It will be used to receive weak signals from distant space vehicles transmitting on UHF.

In the field of radio astronomy, an application of the telescope will be a study of radio noise from the sun, including sudden increases in emission which are related to disruption (Dellinger Effect) in short-wave communications; also of interest is the radio noise from planets. The telescope will be valuable in extending investigations of the properties of the upper and lower atmospheres which are important in both terrestrial and space communications. This feature will assume even greater significance in the next few years when satellites for communication, as well as for research purposes, are likely to come into use.

In considering this project for D.S.I.R., the Council for Scientific and Industrial Research had as its advisers Professor Sir Bernard Lovell, F.R.S.; Professor Martin Ryle, F.R.S. (Cambridge University); and Dr. J. S. Hey, of R.R.E., Malvern.

#### MOSLEY CONVERSION KITS

It is pointed out by Mosley Electronics, Ltd. that their aerials TA-31Jr., TA-32Jr. and TA-33Jr. are so designed that, by means of conversion kits, the TA-31Jr. can be modified into either a 2-element or a 3-element beam. This means that an original investment in a rotary Tri-Band Trap Dipole TA-31Jr. is not lost when progressing to more advanced beam assemblies.

CREED MODEL 3		CREED MODEL 7		TELETYPE		PERFORATED TAPE				
Lower case	Upper case	Lower case	Upper case	Lower case	Upper case	Code		Elements		
						1	2	3	4	5
A	WHO ARE YOU	A	—	A	—	●	●	○		
B	?	B	?	B	?	●		○	●	●
C	(	C	:	C	:		●	○	●	●
D	2	D	WHO ARE YOU	D	\$	●		○		●
E	3	E	3	E	3	●		○		
F	1/	F	%	F	!	●		○	●	●
G	3/	G	@	G	&		●	○		●
H	5/	H	£	H	£ OR STOP			○	●	●
I	8	I	8	I	8	●		○	●	
J	7/	J	BELL	J	,	●	●	○		●
K	9/	K	(	K	(	●	●	○	●	●
L	+	L	)	L	)		●	○		●
M	,	M	.	M	.			○	●	●
N	—	N	,	N	,			○	●	●
O	9	O	9	O	9			○		●
P	Ø	P	Ø	P	Ø		●	○	●	●
Q	1	Q	1	Q	1	●	●	○	●	●
R	4	R	4	R	4		●	○		●
S	1	S	,	S	BELL	●		○	●	
T	5	T	5	T	5			○		●
U	7	U	7	U	7	●	●	○	●	
V	)	V	=	V	;		●	○	●	●
W	2	W	2	W	2	●	●	○		●
X	£	X	/	X	/	●		○	●	●
Y	6	Y	6	Y	6	●		○	●	●
Z	.	Z	+	Z	"	●		○		●
—	=	Carriage Return		Carriage Return				○		●
/	/	Line Feed		Line Feed			●	○		
*	*	Letters		Letters		●	●	○	●	●
Figures and Space		Figures		Figures		●	●	○		●
Letters and Space		Space		Space				○	●	
Not Used		Not Used		Not Used				○		

The keyboard layout on three different types of teleprinter machine, of which the Creeds are the best known in this country, the "Teletype" being an American machine made by the Teletype Corporation. The Creed Model 7 is likely to be most used in AT stations in the U.K., as explained in the June issue. In teleprinter parlance, "lower case" means (capital) letters and "upper case" figures and punctuation marks and procedure signals. Signalling speeds are normally much too fast for the T/P code to be learnt by memorising the mark-space rhythm.

● Represents a "Mark" element. The smaller holes in the perforated tape are the Sprocket Feed holes.

## RTTY Topics

AUTOMATIC FREQUENCY  
CONTROL - AGREED CALLING  
FREQUENCIES - RECONCILING  
MACHINE SPEEDS --  
NOTES AND NEWS

W. M. Brennan (G3CQE)

*This series of articles, appearing in alternate months, on radio teleprinter operation on the amateur bands, started with the April 1961 issue of SHORT WAVE MAGAZINE. The Creed Model 7 teleprinter was described in the June issue. The next article in this series will be in October.—*

*Editor.*

THE holiday season is upon us and, of course, at this time of the year how much time is spent in the shack is determined for most of us by the weather and the number of odd jobs requiring attention. In spite of these distractions, the mail indicates that on-the-air RTTY activity has fallen only slightly; it also shows that a lot of planning for the autumn is taking place while people are on holiday. G2FUD is no exception when he takes a few RTTY books away with him: G3FHL is visiting Denmark and taking time off to see OZ5EL and OZ9DR, both of whom are RTTY and Hellscriber operators. GM8FM leaves his development work on an automatic carriage return and line-feed mechanism for his Model Seven in favour of a trip to Spain—but he says he is going to try to rouse some RTTY activity from EA! It seems that the holiday season does not actually reduce RTTY activity—it merely changes its nature for a while!

G3LMR writes to say that some "High Speed Recording Units Type 6" are available in Leicester, and that he would like to contact anyone who has a circuit diagram of these units or any information on their use as an RTTY converter. He is at present using both the G3BST and a modified W2PAT converter, and finds that both units (being very selective) are sensitive to slight drift in either the Tx or Rx frequency. G3LMR says he would like to see an article on a T.U. that employs some form of AFC (Automatic Frequency Control) to correct for any drift in frequency. Of course, several commercial systems use AFC, and there are obvious advantages in so doing. However, apart from the additional circuitry required, there is one *disadvantage* in the use of AFC for amateur purposes: On our crowded bands a strong interfering signal falling in the discriminator passband will take over the AFC and cause the receiver to be tuned in favour of the interfering signal. Moreover, although it is a simple matter to provide an AFC disabling switch, congestion on the HF bands is such that the operator could spend a great deal of time switching the AFC in and out

(and retuning the receiver) as the QRM waxes and wanes! Of course, Sideband gear is less tolerant of drift than any RTTY equipment is and, as more stations make use of frequency-mixing for carrier generation, AFC will become less and less important. Meanwhile, it is an interesting technique which can be useful when copying press broadcasts over long periods, and it has found favour in the U.S.A., where in some of the larger cities groups of amateurs have an arrangement on VHF for the unattended reception of messages at pre-arranged times during the day. It would be interesting to hear others readers' views on the use of AFC.

### Band Allocations

The recent changes in the U.K. amateur band allocation for 40 metres put the international RTTY channel outside our part of the band. Accordingly, a review of all the RTTY frequencies was made by the various RTTY societies in the U.S.A., and the opinions of many active DX stations were sought as to which frequencies would now be the most suitable for DX work. The general view was that only the 40-metre channel needed changing, and so the suggested international RTTY calling frequencies are now 21090, 14090, 7040 and 3620 kc. Although the new frequency for Forty has only been in use for a short time, already the change has resulted in some excellent QSO's between the U.K. and the U.S.A.

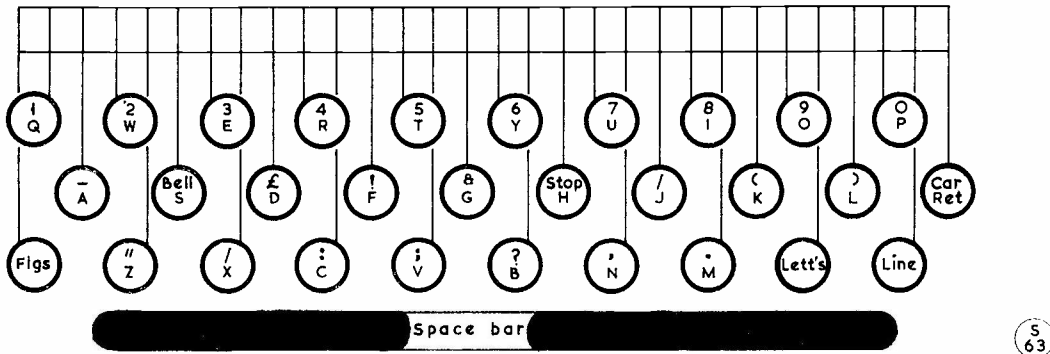
From VK3KF comes the news that all Australian amateurs can now use RTTY on all bands. In the past, the licence was limited to individual amateurs who were allowed to operate radio T/P mainly on 15 and 20 metres. Several VK newcomers to RTTY are making their appearance, but the lack of machines at suitable prices appears to be the limiting factor.

Some machines have been unearthed in Norway, according to PAØFB. A letter from LA1NF gave the news that 29 Lorenz Type T36LO T/P's were released by the Norwegian Army, and they will be sold to Norwegian amateurs at something less than the equivalent of 50s.; the T36LO is a tape printer similar to the American Teletype Model 14. The Norwegian authorities have granted full licence facilities for RTTY, and LA1NF already has his machine on the air; he intends to be really active in the autumn; this is indeed good news.

In Singapore, VS1KS and VS1KQ are hunting for a T/P in order to add RTTY to the facilities at the R.A.F. Changi Club station. VS1GZ; VS1KS is the local secretary, and he says that although machines are pretty scarce in Singapore, in the past a few have

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*RTTY operators and all interested in the subject are invited to write in for this feature, the next appearance of which is in the October issue. Photographs of RTTY stations are also welcome, and those used are paid for on appearance. Address to "RTTY Topics," c/o The Editor, Short Wave Magazine, 55 Victoria Street, London, S.W.1., to arrive by August 31.*



Teleprinter keyboards are usually three-bank, and it should be noted that they mark in capital letters only; therefore, the shift is not from small letters to capitals, as on an ordinary typewriter, but from letters to figures, punctuation marks and certain procedure signals used on teleprinter circuits. The layout above is representative of most keyboards, though there are variations in detail as between British and American types.

found their way into the Chinese scrapyards, where they were promptly stripped down! He has hopes of rescuing one from a similar fate in the future.

VE7KX is the man who really triggered off RTTY activity in this country, and several RTTY and CW operators have asked what has happened to him recently. Jim has been off the air for some months, mainly due to a change of QTH; he is now back on again from his new home, which sounds like an amateur's dream. It is located on a hilltop which is the highest point for many miles; his present aerial is 320 ft. long and is strung between two trees at a height of 120 feet! It seems that even with a set up such as this there are some disadvantages, for VE7KX has been having some trouble with lightning! Anyway, he is looking forward to working old friends again and will be on 14090 kc every night during August with that idea in mind.

### RTTY DX Working

On the DX side of things, RTTY activity has moved more to twenty metres recently. Some late-night operation has been necessary for contacts with North and South America. A rather unwieldy multi-way took place recently at 0030 GMT between PY1KU, K3GIF, GM8FM, G3GNR and G3CQE. G3BST reports that he called K3GIF "along with several others" on 7040 kc at 0200 GMT. It seems we all burn the midnight oil once in a while!

There are now three PY stations running radio T/P on 20 metres; they are PY1KU, PY1LM and PY1JB. PY1KU is a particularly good signal over here, and he is anxious to work Europeans on 20 and 40 metres. KM6BU on Midway Island has been very active at week-ends on 14090 kc, from 0400 GMT onwards, and although he has been heard in Europe, he has not yet been worked. ZS6CR writes to say that he has been using his 15-metre "ZL Special" for so long now that he had forgotten that there were any other bands; so he has put up a dipole for 20m, and is looking for the U.K. on that band. KR6MF (Okinawa) is a new one on RTTY who has been supplying some long-awaited contacts with Asia; several U.S.A. stations have worked him

and received cards from him already.

### Speed Calculations

Finally, a word about machine speeds. The Creed Model 7 normally has a motor speed of 3000 r.p.m., transmitting characters at the rate of 400 per minute using a code pulse length of 20 milliseconds. The stop-pulse has a length of 30 millisees. The total length of one character is therefore 150 millisees.—a start-pulse of 20 millisees, plus five code pulses (100 ms.) and the stop-pulse. It seems that some readers have run into difficulties when working out the speed to which their motors should be adjusted for the American speed of 368 characters per minute, or 45.5 bauds\*. Off-hand, it would seem that the way to work this out is by a simple ratio (since the pulse-length is proportional to motor speed); this is true up to a point but, due to the fact that the American equipment uses a shorter stop-pulse, the wrong answer will be obtained if the ratio of either the two different character lengths or the characters-per-minute are used. The important factor is the *code element length*, and so the ratio is 20 to 22 millisees., which gives:

$$\frac{20}{22} \times 300 \text{ r.p.m.} = 2727 \text{ r.p.m.}$$

A similar piece of arithmetic will give the correct speed for the Model 3 machine, bearing in mind that it was originally intended to operate at 49 bauds (a code element length of 20.41 millisees.) at a motor speed of 2520 r.p.m. Obviously, there will be some discrepancies in the length of the stop-pulses, but in practice this appears to make little difference.

That's all for this month. Happy Holidays, and back with you in October.

\* *Baud*—a unit of circuit signalling capacity, taking all mechanical, electrical and propagation factors into account. Over a given circuit, a rating of 50 bauds would be equivalent to a signalling speed of 62.5 words per minute, the average word being taken as a 5-letter group. (*Editor.*)

# Mobile Control Box

## SWITCHING LAYOUT FOR THE /M INSTALLATION

H. W. Elsworth (G3GMN)

ON completion of the mobile transmitter described in *SHORT WAVE MAGAZINE* for May last (see "Mobile Transmitter for Six Bands," pp.123-126), some sort of comprehensive power supply and control system was thought to be necessary in order to make the most effective use of the installation, while at the same time allowing sufficient flexibility to permit possible changes and modifications. In other words, the power supply with its control unit had to perform a general-purpose function.

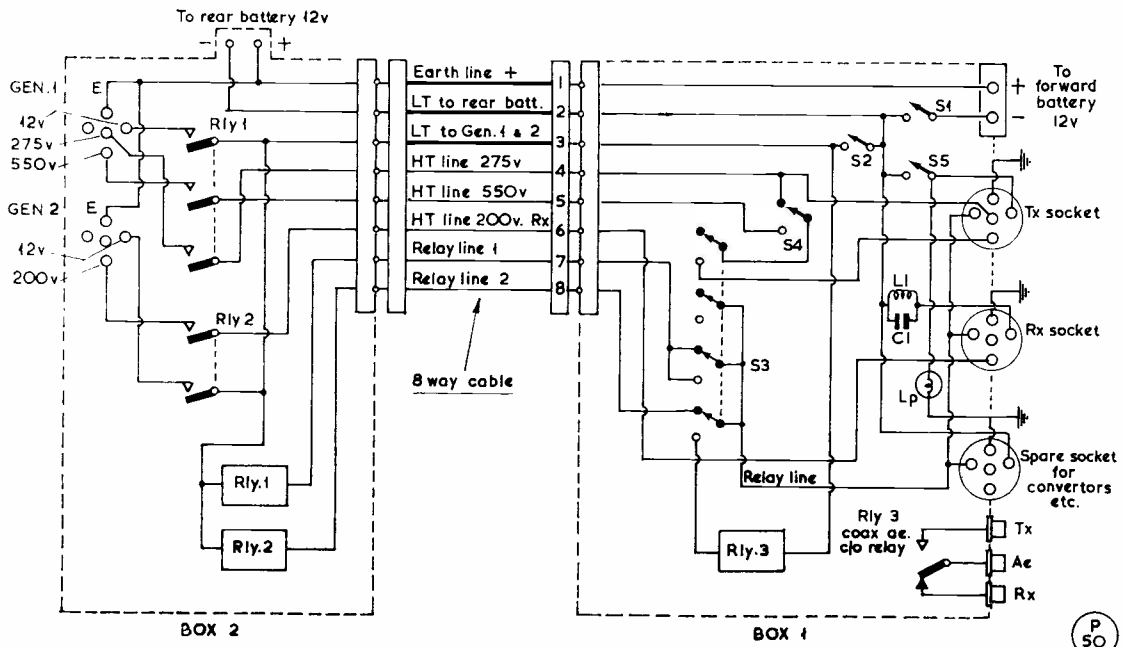
For the mobileer who may want to widen his field of activity, many possibilities suggest themselves—perhaps a special converter for the HF bands, or experimental VHF gear, or

a roughed-up transmitter and converter to explore the feasibility of /P or /M working on the 70 mc band. (Nobody is yet /PM on 4 metres, an ideal band for it.) All these undertakings are made more easily possible if the main power supply, control and change-over units are permanently installed in the vehicle and incorporate the necessary built-in variables.

From the main circuit diagram shown here-with, it will be seen that two separate "boxes" are involved, with three relay circuits. Relay No. 3 is located in the main control Box No. 1, and is the coax Ae. change-over relay; in Box No. 2 are relays 1 and 2 which switch the HT/LT supplies for the rotary converters, or transistor HT units, that may be used.

The Box No. 1 unit is the main element and can be fitted under the dash-board or in the parcel tray — or anywhere within the operator's reach. Provision is made for easy access to the side-panel for plugging in the various Tx/Rx units that may be used.

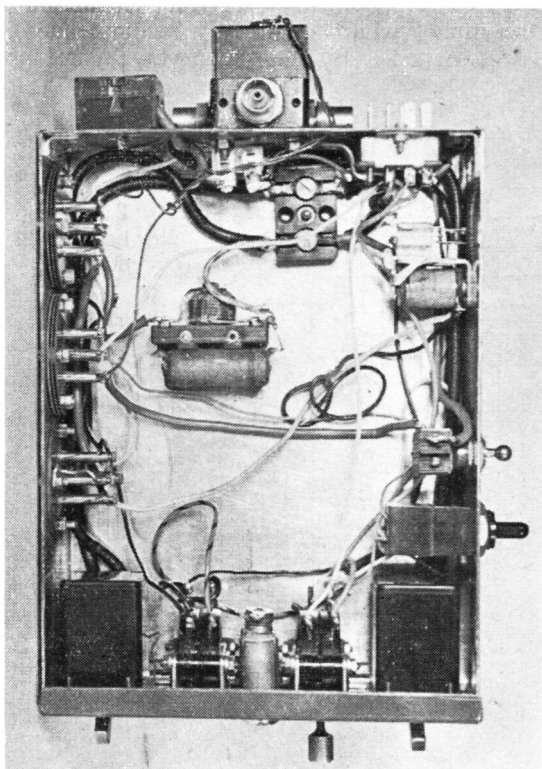
Box No. 2 is sited in the rear of the vehicle (boot, or trunk) near to the HT power supplies and the supplementary 12-volt accumulator (the use of which is strongly recommended). The two boxes are inter-connected by means



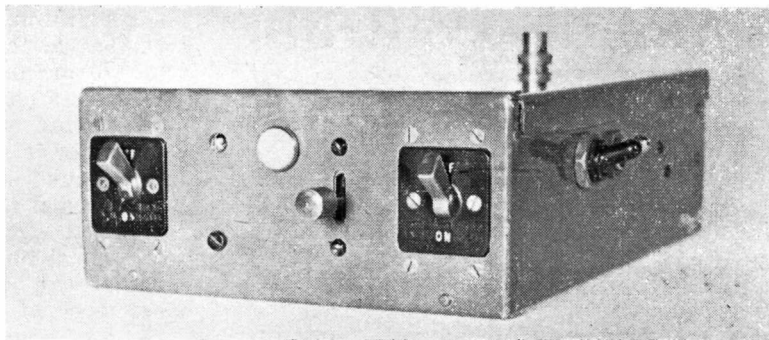
Circuit of the G3GMN/M control unit, showing all switching, and inter-connection front to rear — see text for explanation. Relay 1 is 12v. rotary with three change-over contacts each rated 30 amp., and having a low-consumption (300 mA) coil; Relay 2 is a 12v. double contact type, rated to carry 5 amps., and also having a 300 mA coil; Relay 3 is the Londex midget 75-ohm coax aerial change-over type. S1/S2 are 24v. 30 amp. single-pole toggle switches; S3 is a 4-pole Belling-Lee c/o switch; S4 is HT toggle change-over, high insulation type; and S5 is a 250v. 3 amp. toggle. C1/L1 comprise an LT hash filter in series with the Rx heater line; the coil is 50 turns of 18g. on an iron-slugged former, with a .05 μF condenser across it.

of an 8-way cable suitably terminated with plugs and sockets; three of the wires making up this cable are of a heavy stranded type with a current-carrying capacity of 30 amps.—this is necessary in order to minimise the inevitable voltage drop likely to occur on big loads.

It will be noted that S1, the battery link switch, is arranged to couple the rear (supplementary) battery to the forward (normal car) battery for charging purposes, and also to isolate the latter, when the whole of the radio equipment can be run off the supplementary accumulator alone. This leaves the car battery free for its normal function, and avoids the embarrassment of finding it flat after a long operating session. (A lot of modern cars are not even equipped with starting handles!)



Arrangement underneath of the switching Box No. 1 for the control system in the G3GMN/M installation — see circuit and notes in text. The Box No. 1 circuitry is on the right in the wiring diagram on p.315.



General view of the Box No. 1 element in the control circuitry for the G3GMN mobile installation. This unit is placed for operator control, all other sections of the power supply and change-over system being located in the boot.

The general arrangement of the front panel for Box No. 1 can be seen in the photograph. Viewed from left to right are the main power switch S2, controlling heaters, main supply to HT units, and relays, with a pilot lamp; S3, the centre switch, has three positions, net-receive-send, and operates as a pre-selector, the over-ride control being the microphone pressel switch; and S1 at extreme right, which is the battery link switch. The further two switches on the side panel are S4, hi-lo power control, which connects the PA to either the high-voltage or low-voltage HT line; and S5, used for independent switching of the transmitter heaters, considered essential in order to conserve battery power when on a lengthy listening session.

#### RESCUING THE ASTRONAUT

Part of the landing-back equipment for the American space explorers is a radio beacon, designed by Ultra Electronics, Ltd. of London, which is used for searching, rescue and homing (SARAH). This is personal survival kit, of the type used by British and Commonwealth aircrew when forced down, and ensures accurate location over long distances. The searching aircraft are fitted with a receiver suitable for homing on the SARAH beacon signals.

#### SUBJECT No. 55—ADDITIONAL EXAMINATION

We are informed by the City and Guilds of London Institute that, with effect from next year (1962), there will be two Radio Amateur Examinations, one in May and the other in November. Fuller information will be available in due course. In the meantime, the next examination for the amateur licence will be the G.P.O. one, in October (see elsewhere in this issue) followed by the City and Guilds Subject No. 55 R.A.E. in May next year.

LAST month's preamble threw out a suggestion that conditions were improving, and that things should be starting to happen—but that it could not be until now that we would be able to say anything about it. Well, the forecast proved to be correct, in that there was a marked up-lift in conditions, with some nice DX openings, over, roughly the last week of June and the first day of July. The first thing to admit is that this improvement is not shown by the barograph trace (see p.318) until about the late evening of June 27.

However, this trace is taken in the South Midlands, at about the middle of the central land-mass of England, and a survey of correspondents' reports shows that the good conditions developed mainly in the West Country and off the South Coast before June 27. After that, June 27-29 was certainly a good spell for GM3OPW/P (as suggested by the curve) journeying through the southern counties of Scotland and giving first-time GM contacts to many stations, as far down-south as the West Country and the London/Home Counties area. Louis at G3EHY (Banwell, Som.) reports that he was hearing and working GM's for seven evenings without a break; GM3OPW/P is reported by G2CIW (Birmingham) on June 27; by G5MA (Great Bookham, Sy.) on June 27; by G3BNL (Nr. Nottingham) June 26-29 inclusive, and in a different county each night; and by G6XA (Leamington Spa) on June 26-27. There are many other reports and claims based on GM3OPW/P's appearance, but those mentioned here are selected for their spread geographically.

Incidentally, all are agreed that GM3OPW/P put up a very good show on this unheralded GM tour of his, and he was rewarded by a spell of reasonable conditions, during which he was able to make a number of excellent GDX contacts.

An interesting phenomenon, reported by G3BDQ (St. Leonards, Sx.) shows how localised good EDX can be on occasions. During June 23-24, something like a duct

# VHF BANDS

A. J. DEVON

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## Trend of Conditions—

EA4URE, August 13-20—

## Contest Comment, and Another Contest—

VHF Convention, VHFCC  
Elections, First /M VHFCC—

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formed south-eastwards across the Channel from the South Coast, with the result that G3BDQ and his neighbour G3KMP (Hastings) were knocking off DJ/DL, F, ON and PA stations not even being heard in the London area or Essex, much more favourably placed for them. G3BDQ worked F8TP in the Vichy district, well south of Paris, and on June 24 G3KMP QSO'd about 30 PAØ's. On the 24th, when the duct was really forming, G3BDQ was getting F's almost as strongly as G3KMP's signal from two miles away, with some of the F stations readable on an aerial consisting of a lead pencil plus body capacity!

## EA4URE Expedition Plans

As reported here last month, the *Madrilenos* are taking a station into the mountains, to be operational on two metres over the period August 13-20 inclusive,

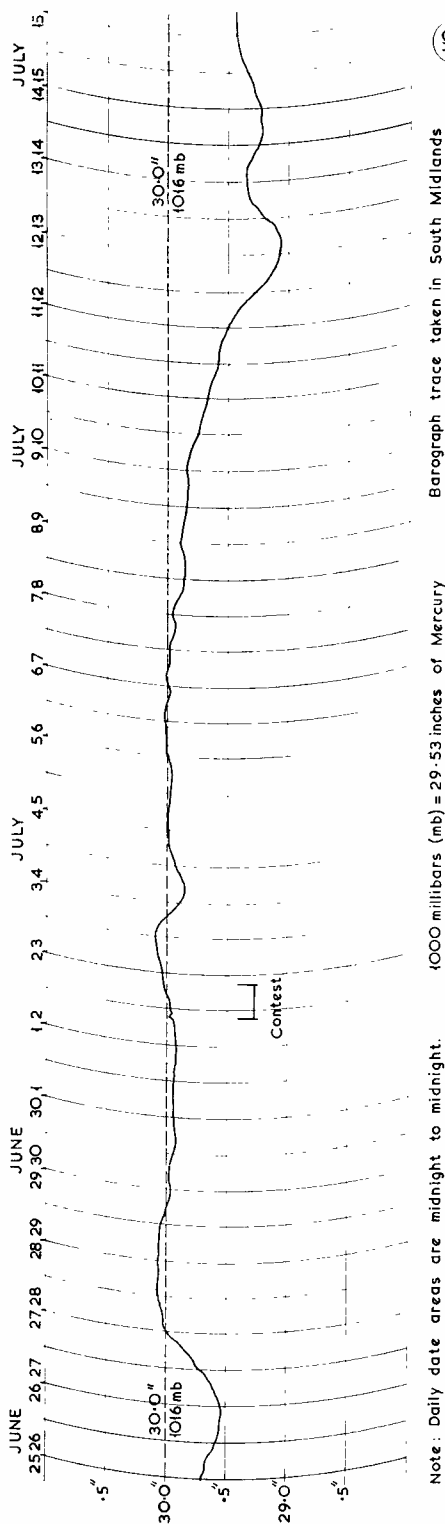
using CW mainly, and good equipment.

They will sign EA4URE (the c/s representing U.R.E., the Spanish national amateur organisation) on a frequency at the LF end of the band, and will be searching specifically for U.K. signals every evening between 1900 and 2000 GMT (8.0-9.0 p.m. clock time). This will be the regular schedule—depending upon conditions and whether the band breaks open, they will of course be on at other times and through the night, if necessary. We have suggested that they also try 7.0-8.0 a.m. clock time in the mornings, as being a period when DX conditions are very often good on the two-metre band. At the moment of writing, no reply had been received to that suggestion, so we cannot say for certain that it will be kept as a regular schedule period.

## Contest—July 2

This followed the familiar pattern for two-metre field day events, the conditions being not too good generally, the weather being awful in some places for part of the time and in others for most of the time, and there being the usual display of big signals using familiar call signs from well-known sites.

It is this factor of loud signals over longish distances (because good sites are being used) that makes it rather difficult to assess propagation conditions accurately. Certainly, there were very few long-haul QSO's, though GW3JZN/P in Caernarvonshire succeeded in working GM2FHH/P, GM3EGW and GM3HLH/A, ending up with a total of 89S in the log; the other ops. were G3KMS and G3MED, and they say they had a good day out. G3LQN/P from Inkpen Beacon, Nr. Newbury, Berks., totalled 86S worked, and by near finishing time G3AYT/P was up to 94S and G2HIF/P, near Wantage, had 95. The highest score actually noted was G3JMA/P, from a new site in mid-Bucks., who had 103 stations worked with 40 mins. to go to



the close. At that same period, G3NFA/P near Hindhead had 87S and G3FD/P 77S.

In the course of the day's activities, a good deal of frequency hopping was noticed, some /P's appearing on three different channels, from "right at the LF end" to above mid-band. There were not many takers, it was noted, for frequencies above about 145.5 mc! The general level of activity was quite high, with good backing from home-based stations. As an example of scoring rates, G3JMA/P was on 37S at 1155, 78S by 1530, and 103S at 1820 GMT, making it about 11 stations an hour worked during the mid-day period, falling to roughly 8S per hour as it got towards closing time.

Incidentally, G3JMA/P was one of the few stations heard trying for contacts on CW. Another was "the station under the patronage of G3CGQ" where they had a lot of unfortunate bother with water getting into the works: Bill was the merest shadow of his usual hearty self on these occasions, but it is promised that by next time out, this particular trouble will have been eliminated.

Some of the phone quality heard was pretty shocking, particularly from two stations understood to be using transistorised audio amplifiers with carbon microphones—evidently, the speech circuits were being heavily over-pushed, to the point of squaring-off the audio output. Yet nobody told them there was anything the matter! Some stations were noted using abbreviated procedure, e.g. "How do you copy—over," with no mention of a callsign. While snappy operating is obviously essential in contest working, it does *not* go as far as dispensing with callsigns, which is contrary to the regulations, anyway.

### I.A.R.U. Contest, Sept. 2-3

The next big two-metre event—which could be really interesting if conditions give us a break—is the Region I IARU affair over the first week-end in September, from 1800 GMT on the 2nd until 1200

GMT (mid-day) on Sunday 3rd. All bands 144-1250 mc can be used, stations may be worked once only on each band (!), any transmission mode is permitted, and scoring is on the basis of one point per kilometre, with all distances worked added up to make the total score. Stations entering can be fixed or portable. Contacts are made by exchanging RS (or RST) reports, with a serial number starting from 001, and of course exact location, for calculating the kilometres.

Though this contest is essentially an all-European event for IARU member societies only—and we acknowledge Fred Lambeth, G2AIW's, piece as the source of the information—obviously it can become an all-comers' contest, as between operators in a given area, merely by participation, whether or not an entry is sent in (through G2AIW) to the organising body—which in this case happens to be the Swedish amateur society.

Just for the fun of it, therefore, we will accept unofficial entries from anyone who cares to send them to us, with a claimed score based on the rules given here. These claimed scores will be listed in the October issue and—if we receive 25 or more such entries—the Editor (bless his old grey head—*gurr*) may be induced to consider handing out some sort of *small* encouragement or reward for the first three. If we get a really large entry (which is most unlikely, the Editor says) and conditions turn out to be such that only inter-U.K. contacts were possible, we would be prepared to split the entry into areas, listed separately, with a small prize of some sort for the area leader(s). The whole value of the idea will depend upon the number of entries we receive and, to make it worth while for everyone, it is fair to stipulate a certain minimum (25).

It should be specially noted that the entries sent to us will *not* be treated as entries for the contest proper, but only as entries for the "local" contest outlined in the foregoing paragraphs. And *don't* expect prizes in the shape of 4X150A's, or anything like that. (If there are any of these knocking



about, A.J.D. needs a couple for himself!)

### VHF Convention—Manchester

The North-West VHF Group want it to be widely known that they are laying on a VHF Convention—on the lines of the very successful one held up there in September 1955—on October 14, and at the same place as six years ago, the Grosvenor Hotel, Deansgate, which can accept overnight bookings. Fuller information will be given nearer the time, but immediate details are that the all-in cost (meeting, exhibition and dinner) will be 17s. 6d., and that the joint organisers are G3AOS and G8SB, assisted by G3AGS and G3MAX. Further details can be obtained from: J. G. Barnes, G3AOS, 5 Prospect Drive, Hale Barns, Cheshire, while bookings (ticket and hotel accommodation) can be made through: T. H. Davidson, G3AGS, 101 Grange Drive, Blackley, Manchester, 9. The chairman of the N-W VHF Group is G3EGX, with G3AKX as hon. treasurer, and G3KCB and G3LEE as committee members.

For a report on the September '55 meeting, see "VHF Bands," October 1955, pp.425-427.

### VHFCC Elections

We have been getting a bit behind with these, and the latest accepted are as follows:

Certificate No. 296 goes to Karl Rothammel, DM2ABK, Sonneberg, whose list includes two U.K. stations, G3HBW and G6NB, also F3XT, and a few ON's and PAØ's, the remainder being DJ/DL/DM, with eight countries represented. Raymond Jezdik, OK1VCW, Prague, gets Certificate No. 297, his list being confined to OK's.

R. Marriott, G3LTN, Weyhill, Hants., gains VHFCC Certificate No. 298, 6 countries being covered in his lot; he uses series-gate modulation on a QQVO6-40A, run at 80w., the Rx being a 6BQ7A cascode converter into a BC-454, with or without various pre-amp. units; the aerial is a slot-fed 6/6 at 35ft. C. L. Desborough, G3NNG, A.E.R.E.,

Harwell, is awarded Certificate No. 299, gained by the necessary cards from 6 countries, running a 10-watt RF amplifier using series-gate control, a beam consisting of two stacked 4-ele Yagis, and a crystal-controlled cascode converter into an HRO.

From over in Malvern, Wores., A. D. Smith, G3MT1, is able to put in a claim for VHFCC Certificate No. 300, his 100 cards covering contacts in 5 countries. S. W. Richards, G3CWB, of Hampstead, London, gains No. 301, his list being all-G except for 8 cards from three of the nearer EU countries; his transmitter takes an 832 PA driven by a 5763, modulation being by a pair of 6V6's in Class-AB1; the beam has been (until a recent change) a 2-ele Quad in the roof-space, on which most of G3CWB's contacts for VHFCC were actually made; the Rx is a CC cascode, with 9-11 mc tuned on a BC-342.

For VHFCC Certificate No. 302, Karl Fischer, DM2ADJ, of Possneck, lists contacts in DJ/DL/DM, HB, OE, OK and PAØ. D. Stevens, G3NWX, of London, S.W.18, is awarded No. 303, he having worked a total of 212 stations for the 100 cards, all these contacts covering 19 English counties only; the Tx is 832 PA, 12-15w, phone when modulated by a pair of N78's in Class-AB1, and the beam a 5-ele Yagi; his Rx can be "various," meaning that he has several CC cascades, tuning different IF ranges on an AR88. Then, Certificate No. 304 goes to P. Ackley, G3LRP, of Wakefield, Yorks., who started up in November '58 with 17w. to an 832A PA, on which a very creditable number of EU contacts were made, in 8 countries, the aerial being a slot-fed 6/6 at a mean height of 34ft. The Tx now in use is the 80-watt job as described in the June 1956 issue of SHORT WAVE MAGAZINE. The G3LRP Rx is a CC converter, incorporating PCC88's in the front end, into an Eddystone 888A tuning 28-30 mc. K. L. Bond, G3NUV, of Bushey, Herts., gains No. 305, he also running 20w. to an 832, the Rx being an A.2521 RF pre-amp. into an ECC84 CC cascode, with an HRO tuning

4.5-6.5 mc; the beam is a slot-fed 6/6. G3NUV is not too well located (G3HBW has the best site in Bushey!) and also has main-

### TWO METRES

#### COUNTIES WORKED SINCE SEPTEMBER 1, 1960

Starting Figure, 14

From Home QTH Only

Worked	Station
62	G2CIW
59	G6XA
55	G3KPT
54	G3HBW
53	G3BNL, G5MA
51	G3JWQ
47	G3NNG
44	G3MPS
43	G3MT1
41	G3LAR
40	G6GN, G8VZ
38	G3CO, GW3MFY
36	GW3ATM
35	G3OJY
32	G3KQF
31	G2BHN, G3NAE
30	G3HWR, G5QA, G5ZT
29	G3OSA
27	G2CVV, G3OBB
26	G3JHM, G3MHD, G3OBD
25	G2AXI, G3HS
23	G3NWK
22	G3FIJ
20	G3GSO, G5UM
18	G3KMT
15	G3ICO

*This Annual Counties Worked Table opened on September 1st, 1960, and will close at midnight on August 31st. All operators in the Table are asked to let us have their final score, reckoned to the end of this month, by September 20, for the final placings for the year, to appear in the October issue. As usual, this Annual Counties Table re-opens again immediately, w.e.f. September 1st, and scores to start the new Table off can be sent in with last claims for the preceding year.*

road noise trouble, but he has plans for a better beam on a higher mast.

### First /M VHFCC

The award of VHF Century Club Certificate No. 306 is unique, in that it is endorsed "VHF Mobile No. 1"—it goes to R. G. B. Vaughan, G3FRV/M, of Crawley, Sussex, who meets the essential condition of showing cards from 100 stations, all having been worked under strictly mobile conditions by G3FRV/M—"strictly mobile" being defined as using the gear and aerial as normally carried on the car, with no connections of any sort external to the vehicle, and the gear being capable of two-way operation while actually rolling; in fact, though we did not insist on mobile-rolling (in the interests of safety) most of G3FRV/M's contacts were made thus, only a minority being mobile-static. His car is a 1960 Ford Anglia, 9733-PO; the aerial is a halo\* 7ft. above the bumper line; the Tx is 4-stage with a QQVO3-10 PA taking 10w.; the Rx is a 5-stage CC cascade into an IF/AF amplifier unit tuning 9-11 mc. and consisting of 6BE6 mixer, 6BA6 IF twice, EB91 detector, 12AT7 noise limiter, and 6AQ5 output; his modulator is fully transistorised, with a pair of OC36's in the o/p stage; and the power supply gives 250v. at 100 mA, using OC28's.

And let it be noted that the whole of this equipment is home-concocted—so we are sure all readers who are with us thus far will join in congratulating G3FRV/M on a very interesting and significant result.

Naturally, we shall also be pleased to issue "Endorsed Mobile" VHFCC Certificates to any other /M operators who can qualify under the conditions stated—note that mixed home QTH,

/M and /P contacts cannot be accepted. All contacts must have been made under strictly mobile conditions from the claimant's end, either mobile-rolling or mobile-static. Those who already hold VHF Century Club Certificates will be issued with an additional parchment, numbered in the current series, but carrying the mobile endorsement.

### All-VHF Band Station

Still in the realm of the unique (and with space running out fast—*Ed.*) we come to G3JHM of Worthing, Sussex, who has changed his operating QTH—to a disused VHF relay station hutment at a place called Washington, 650ft. a.s.l. and 6 miles north of Worthing, where the mast was still standing. Installing himself there w.e.f. 9 June, he is now fixed up on 4 metres (8 counties worked already); two metres (18 GDX stations worked June 24-25, including G3ARS/M for Rutland); and on 70 centimetres, 9 stations worked in 5 counties, those heard on the 430 mc band being G2DQ, G2XV, G3NOX, G3OUO, G4KD, G5DT, G6NF and G8RW.

G3JHM says it is the most eventful month he has ever had on VHF in the eight years he has been on the VHF bands—we can well believe it! And, with the new station now nicely run in, he would like it to be known that schedules on 4 metres and 70 centimetres would be welcome any evening after 1930 clock time—*QTHR*.

### Portables, Out and About

G3HWR / G3LAR make a strong /P partnership, as those who remember their forays of last year will know. During the week-ends June 24-25 and July 1-2 they went into that difficult East Anglian country, spending three days in Norfolk (96 stations worked from a site near Gayton, NGR TF-757208) and 15S worked in one evening from Suffolk, the site being near Chedburgh at NGR TL-787563.

During September 2-17, this redoubtable team will penetrate the jungles of South and West Wales, using sites in the wild countryside of Brecon, Carmarthen, Pembroke and Cardigan; operating schedules will be 6.0-10.0 p.m. on week-day evenings, and all daylight hours during week-ends. It is understood that the natives (the kind country landladies tolerating these strange goings-on) tend to look askance and become a little unfriendly if things are kept going too long after dark—so there will be no late-night operation. Fair enough.

If you hear G3MLE/G3NWG coming up with a /P call sign during the second week in August, the probability is that they will be in one of the rare counties of Hunts., Rutland, Norfolk or Suffolk. (It is really beginning to look as if the natives of East Anglia are being shown how to work the stuff!)

### Tabular Matter

All we have space for this time is Annual Counties, which terminates at midnight on the last day of the month—the new Table for 1961-1962 opens immediately. Necessary details are given in the note at the foot of the Table on p.319.

It is hoped to show a full spread of tabular matter next month, and your A.J.D. also wants to apologise for the fact that many readers' letters have not actually been commented on because this time there has been much more of general interest to cover than usual, even though extra space has been allowed for text.

### And Finally—

Closing date for next "VHF Bands" is **Wednesday, August 16**, as we are due out on September 1st—which means no sleep for A.J.D. for the next three weeks! Never mind—address it all to: A. J. Devon, "VHF Bands," *Short Wave Magazine*, 55 Victoria Street, London, S.W.1.—and go carefully over Bank Holiday.

\* For an illustrated description of a two-metre halo, see p.208 June 1959 SHORT WAVE MAGAZINE. A neat and effective commercial version is produced by Withers Electronics.

## • • • The Mobile Scene • • •

TOO MANY RALLIES? — RECENT EVENTS REPORTED — THE FORTHCOMING MEETINGS

WITH no less than sixteen Mobile Rallies already held and six more on the *tapis* before the end of the season, the Rally programme may be thought to have been a little overloaded this year. This has been reflected in some rather thin attendances and, furthermore, with so many Rally events scheduled, it has been difficult to avoid a clashing of dates. In that connection, obviously there is going to be an unfortunate clash on August 27—Stamford and Buxton are only about 85 miles apart, and would draw their main attendance from roughly the same area of the Midlands. We can see some of the keen types putting in an appearance at both these events—and possibly winning raffle prizes at both!

It is questionable whether, under present mobileeering conditions, more than about seven large Rallies—located and organised with the avowed objective of attracting attendances running into several hundreds—are required, or can even be justified. These might be dispersed, geographically and by date, as to one in the north-west of England, one in the north-east, two in the Midlands area, one in the south-west, one in the south and one in the south-east; an arrangement along these lines would bring something big to go to within reasonable motoring distance for nearly everybody. These rallies could be laid on as really large shows, with all the necessary attractions. (We could suggest places, dates and organisers for all seven, but will forbear to do so to avoid the appearance of drawing invidious comparisons!)

Of course, these big Rallies would not prevent local groups organising their own events—as many of them do already—not so much with the idea of bringing in a large gathering, “for all the attractions,” but simply providing facilities for a modest get-together of those who cared to come along.

In another season or two, the situation will have shaken itself out, and we shall see a more rational approach to Mobile Rally organising.

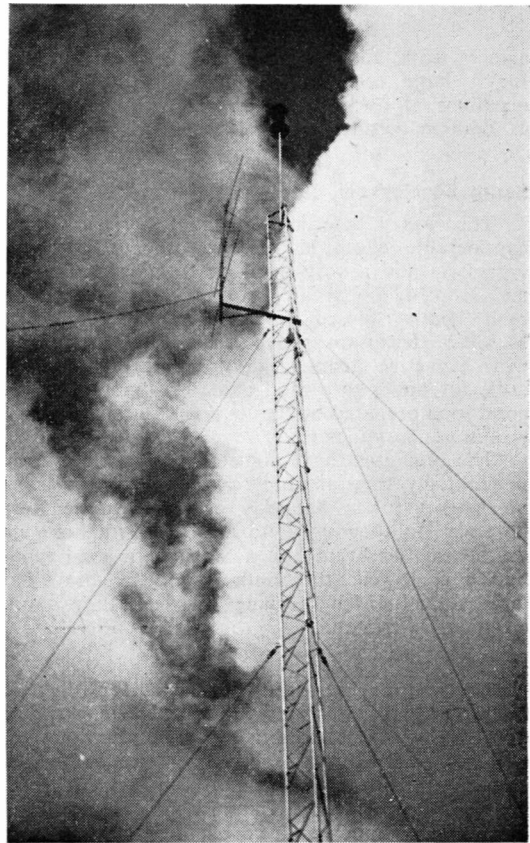
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### West of England Mobile Rally

Held at Longleat on June 25 in fine, hot weather, this popular event drew an attendance of about 500, of the same order as last year, which satisfied the organisers. Some 50 cars in the park were actually fitted mobile, 70% of them for Top Band. The talk-in stations were G3CHW/A on 160m. and G3GYQ/A on VHF; the longest-distance contact with the 1.8 mc control was made by G2CDN/M (London), who also recorded the highest field strength from a fixed point; the best DX contact made with control on two metres was by G3NAE/M (Bournemouth). The prize for the longest distance travelled to and from home on the day of the Rally went to G3LSF, of

Southport, Lancs.—he deserved it! In the *concours d'elegance*, the prize was awarded to G3IVP/M, who runs, not a car, but a smart 500 c.c. Matchless solo motor-cycle, on which he carries an SSB rig for 1.8/3.5 mc, and mainly transistorised at that; the (valve) PA runs 8w. and control of the equipment is by flick-switch on the handle-bar, with a throat microphone and single ear-piece under the helmet. This is a very ingenious and well thought-out installation, and it should also be noted that G3IVP/M's award was gained with the judges paying particular attention to the factor of safety in all rigs inspected.

G3NDT/T, of the British Amateur Television Club, laid on a closed-circuit amateur TV demonstration, with pictures of high quality and some intelligent



Top Band (and two-metre) aerial array for the Cheltenham Rally, consisted of a tower—supplied by Francis & Lewis, Ltd., Cheltenham—resonated at the base for 160 metres, with the VHF array operating simultaneously on two metres, without interaction. Total height 80 feet.



At the West of England Mobile Rally, Longleat, on June 25 last — fourth from left, G3OSH; dark glasses, G3NOF; extreme right, G3MSS, with some SWL friends. The shirt-sleeves-and-background effect gives a good idea of the setting and the weather in which this enjoyable Rally was held.

camera work, and there was also the usual free draw for a large selection of prizes. As on previous occasions, all awards were presented by the Marquess of Bath in person.

\* \* \* \*

#### South Birmingham, July 8

This was a Saturday evening Rally and, though considerable effort had been put into it by the organisers and a very good programme arranged—a mobile navigational and radio QSO'ing contest on both bands; closed circuit amateur TV by the M.A.R.S. television group; sale of Govt. surplus with attractive items at very reasonable prices; a raffle for prizes to a total value of about £200; and good food prepared by the local xyl's—the attendance was most disappointing.

The organisers have come to the conclusion, and undoubtedly they are quite right, that there is just no market for a Saturday evening Mobile Rally. However, as they say (and as we know) those who did attend this event had a thoroughly good time—but for next year, the South Birmingham boys have decided they will be keeping "normal Rally hours," a Sunday afternoon!

\* \* \* \*

The informal get-together arranged for July 16 at Cannock, Staffs., was very poorly attended, put down to it being a wet, cold and windy afternoon. As G3ABG points out, this was not intended to be a big event with competitions and prizes—just a meeting, a tour through Cannock Chase, and tea, all of which was much enjoyed by those who did come along.

\* \* \* \*

Following is the Rally programme from now till the end of the season:

**August 12/13:** Two-day Mobile Rally and Hamfest organised to celebrate the golden jubilee of the Derby Wireless Club. For further details see p.211, June, and p.259, July, issues. Hon. organiser: T. Darn, G3FGY, 44 Laurel Avenue, Ripley, Derbyshire, from whom all further information can be obtained (*s.a.e. pse.*).

**August 20:** Mobile Rally organised by the Luton & District Radio Society, at Stockwood Park, Luton, Beds., opening at 2.30 p.m., with G3JZW/A talking in on Top Band, and G3CGQ/A on two metres. Light refreshments will be available, and the usual lucky-number raffle and junk sale are being laid on. Hon. secretary: D. Bavister, 70 Crawley Green Road, Luton, Beds. (*Tel. Luton 4768*).

**August 26:** To coincide with the well-known Hetton Show, which is a Saturday event, a Mobile Rally is being held at the Show Ground, Easington Lane, Hetton-le-Hole, Co. Durham. The main attraction will be the Show itself—which includes a display by the Northern Command Gymnastics Team, a brass band contest, and show jumping—in connection with which the Houghton & District Radio Amateur Club will have their own stand. G3CKC/A will talk-in on 1980 kc from 10.0 a.m.; G3NMD/A will be on the HF bands. It is hoped to arrange a static display and closed circuit TV. Routes will be sign-posted and there will be a free car-park. Further details from: S. L. McAteer, G3CKC, 20 Kirkdale Street, Low Moorsley, Hetton-le-Hole, Co. Durham.

**August 27:** Stamford Rallyfest at Burghley Park, near Stamford, Lincs., organised by the Stamford



Radio Club. Talk-in facilities will be provided on both bands, there will be all the usual attractions and catering will be available on site without advance booking. Further information from: D. Page, G3KWC, 57 Queens Street, Stamford, Lincs.

**August 27:** The annual Mobile Rally organised jointly by the South Manchester and Stockport groups is being held at the Pavilion Gardens, Buxton, Derbyshire, the main competitive event being a radio-navigational exercise for which cars will start from the Davenport Theatre Car Park, Stockport, at 1.45 p.m. Talk-in will be given by G6NM/A on 1920 kc from Stockport until 1.30 p.m., and by G3FVA/A on 1950 kc from Buxton until 4.00 p.m. There are many attractions at the Pavilion Gardens, including boating, a miniature railway, band concert and illuminations. For the Rally, competitions and demonstrations are being arranged. For further details write: C. M. Denny, G6DN, 18 Willoughby Avenue, Didsbury, Manchester, 20, who can also supply official car stickers allowing entry to the Gardens at the special inclusive charge of 2s. 6d.



Unquestionably the first time the call sign GB3BUS/M has ever been used — by the Chiltern Amateur Radio Club when they arranged their coach trip to the A.R.M.S. Mobile Rally at Barford St. John on June 18 last. Of course, the coach was fitted /M, operational both on two metres (G3INZ gear) and on Top Band using a 6SG7-6V6 CO/PA, choke control modulated by another 6V6 with EF86 pre-amplifier, and a Command receiver. Additional batteries were carried, to ensure prolonged operation without embarrassment, and the only snags were ignition noise and having the aerials knocked about by tree branches. Several good Top Band contacts were made, including G2FM/M mobile-to-mobile at 50 miles, and at Barford they were talked in on two metres. One of their contacts was G3HCK/M, who had organised the G6HH/M Hastings Club bus party to Beaulieu. In this photograph, G3ORX is on the right, with SWL R. Barton.

**September 17:** Mobile Rally and Hamfest organised by the Lincoln Short Wave Club, at North Kesteven Grammar School, Newark Road, North Hykeham, Lincoln. G2UK will give a talk and show some exceptionally interesting colour slides, and there will be attractions for all comers. Further details from: Mrs. F. E. Woolley, G3LWY, 10 Sturton Road, Saxilby, Lincoln.

## IN CHARGE AT RADIO QUITO, ECUADOR

We are informed by SWL Patrick (Derby) that he has had it direct from the authorities there that the broadcaster Radio Quito, HCJB, in Ecuador, has the following active AT station operators on its staff: HC1DD, HC1HG, HC1HT, HC1IJ and HC1OW. They all work the DX bands, and HC1IJ is on 40 metres as well.

## POST OFFICE R.A.E. AND MORSE TEST

We are informed that, as in previous years, the G.P.O. is holding, on October 7, 2.0-5.0 p.m., a radio amateur examination for a transmitting licence, at G.P.O. centres in London, Cardiff and Edinburgh. The fee is 25s., which must be forwarded with the application to sit, to: Radio Services Dept., Wireless Telegraphy Section, G.P.O. Union House, St. Martins-le-Grand, London, E.C.1, by not later than September 2.

Similarly, for the Morse Tests to be held in Birmingham, Cambridge, Derby, Leeds and Manchester, application forms should be obtained (*immediately*) from: Radio Services Dept., Radio Branch, G.P.O. Hq., St. Martins-le-Grand, London, E.C.1. The fee for the Morse Test is 10s., which must be remitted, with the application form completed, by August 19—so there is not a great deal of time if you want to take this Test, which will be

arranged at the centre nearest you some time in September.

## SCOUT RADIO JAMBOREE

We are asked to announce that the 4th annual Scout Jamboree-on-the-Air will be held during the week-end October 20-22. This affair is really an all-band QSO party for Scouts, past and present, and anybody with an active interest in the Scout movement. It is not a contest and there are no prizes. The international Scout station VE3JAM, Ottawa, will be on all bands 10-80 metres, looking for stations calling "CQ Jamboree," on CW or phone. The U.K. organiser for this interesting event is: L. R. Mitchell, G3BHK, Katoomba, Tyneham Close, Sandford, Wareham, Dorset—who would be very glad to hear from all G's with Scout affiliations who can take part. Those who particularly want to work VE3JAM will find them on 3750, 7210, 14195, 21195 and 28490 kc. G3BHK would appreciate reports from all those who work VE3JAM or any other Scout station.

## CORRECTION — "TRANSISTORISED CONVERTER"

In this article, "Transistorised Converter for the DX Bands," in our July issue, G5MY writes that in the circuit diagram on p.247, he omitted to show a connection between the junction of L5, C10 and the -7.5v. line, for power on TR3.

# NEW QTH's

This space is available for the publication of the addresses of all holders of new U.K. call signs, 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.

**EI8AJ**, J. J. Reddington, Technical Wing, Baldonnell, Dublin.

**G3ORB**, S. S. Bosley, 3 Dovecote Close, Weybridge, Surrey.

**G3ORX**, A. G. Rumbold, 21 Holland Road, Marlow, Bucks.

**G3OTS**, P. R. Huckle, 48 Foxholes Avenue, Hertford, Herts.

**G3OVE**, M. C. Brown, 40 School View, Banbury, Oxon.

**G3OXF**, M. G. Shaw, 12 Sandy Lodge Way, Northwood, Middlesex.

**G3OXL**, D. R. Westbury, 26 Beacon Hill, Rubery, Rednal, Birmingham.

**G3OYI**, M. T. Littlewood, Cotswold, 16 Banks, Honley, Nr. Huddersfield, Yorkshire. (Tel.: Honley 61433.)

**G3OYT**, G. D. Clinton, 249 Firs Lane, Winchmore Hill, London, N.21.

**G3OYU**, B. J. R. Davies, 14 Kelsey Park Road, Beckenham, Kent.

**G3PAN**, K. Depledge, 27 Mountfield Avenue, Waterloo, Huddersfield, Yorkshire.

**GM3PAQ**, J. D. Davis, 29 Rowan-side Terrace, Ardrossan, Ayrshire.

**G3PAR**, K. Keeling, 37 Ridge Road, Kingswinford, Staffs.

**G3PAZ**, S. W. Law, 11 Chishom Road, Croydon, Surrey.

**G3PBB**, P. B. Wood, 10 Conigar Road, Emsworth, Hants.

**G3PBC**, C. D. Craythorne, 34 Briar Walk, Oadby, Leicester. (Tel.: Oadby 3617.)

**G3PBI**, A. J. Davies, 56 Mansfield Hill, Chingford, London, E.4.

## CHANGE OF ADDRESS

**G2XA**, A. Bell, Marcross, Kingsway, Farnham Common, Bucks.

**G3FCV**, E. L. Bartholomew, 151 Watling Street, Gillingham, Kent.

**G3H NJ**, J. Clennell (*ex-VQ4EN/MD5AM*), 74 Elmfield Road, Doncaster, Yorkshire.

**G3IDG**, F. A. Herridge, 96 George Street, Basingstoke, Hants.

**G3IHH**, Bailleul Radio Society, c/o hon. secretary, G. Preston (G3OLA), 34 Wooshehill Lane, Wokingham, Berks.

**G3ILD**, L. Hunton, 2 Redworth Road, Heighington, Nr. Darlington, Co. Durham.

**G3ING**, A. J. Gillham, 33 Masefield Avenue, Southall, Middlesex.

**G3ION**, G. A. Allcock, 71 Bassett Green Close, Bassett, Southampton, Hants. (Tel.: Southampton 69706.)

**G3KZN**, D. W. Blakeley, 338 Thong Lane, Riverview Park, Gravesend, Kent.

**G3LEI**, D. E. Mills, 11 Dover Road, Northfleet, Kent.

**G3LNW**, J. McGuire (*ex-ZB1LNW/G13LNW*), c/o Sgts.' Mess, R.A.F. Station, Hullavington, Chippenham, Wilts.

**G3LSA**, D. R. Moore, 107 Acre Street, Lindley, Huddersfield, Yorkshire.

**G3MPW**, A. S. Walker, 15 Copse Road, Ashby, Scunthorpe, Lincs.

**G3NCZ**, K. Heap, Westwood, East Park Road, Blackburn, Lancs. (Tel.: Blakewater 86797.)

**G3NDV**, A. Audsley, 4 South Primrose Hill, Chelmsford, Essex.

**GM3NHQ**, T. Harrison, 94a Greenfield Street, Alloa, Clackmannanshire.

**G3NRW**, A. I. H. Wade, 125 Mildmay Road, Chelmsford, Essex.

**G3OLA**, G. Preston, 34 Wooshehill Lane, Wokingham, Berks.

**G3OFN**, S. J. Taylor, 16 Poltair Terrace, Heamoor, Penzance, Cornwall.

**G3OWQ**, J. R. Clarke, 12 Robin Hill, Brickhill Estate, Bedford, Beds.

**GM3OWU**, V. W. Stewart, 9 Belmont Avenue, Juniper Green, Edinburgh.

**G8CB**, H. H. Crewe, 1162 Thornton Road, Thornton, Bradford, Yorkshire.

## MORE SPECIAL-ACTIVITY STATIONS

Arising from the note on p.255 of the July issue of SHORT WAVE MAGAZINE, attention is drawn to the following special-activity amateur stations, all involving an effort locally to demonstrate Amateur Radio to the general public:

**August 7**: Rotherham Radio Society operating GB3RRS from the local Agricultural and Horticultural Show, on all bands Top to Two, from 7.30 a.m. until late evening. This is August Bank Holiday, and visitors as well as contacts over the air will be welcomed.

**August 8-9**: Leicester Radio Society will have their G3LRS/A on the air from the Abbey Park Show, running all bands Top to Ten.

**August 12**: The Halifax Amateur Radio group is to run a Club station at the local Agricultural Show, in Shipden Park.

**August 11-13**: A station signing GB3SFS will be operated by the local group at the South Shields Flower Show, using all bands; a special QSL card will be sent for all contacts.

**August 25-26**: British Timken will have three stations under their call G3NIB operating from the British Timken Show Ground, and will be on the look-out particularly for other Club stations.

**September 27-30**: Members of the Cheltenham group will have G5BK/A operating from the local Hobbies Exhibition.

# THE OTHER MAN'S STATION

**G3NCZ**



**F**EATURED this month is G3NCZ, the station owned and operated by K. Heap at (until quite recently) 138 New Bank Road, Blackburn, Lancs. Interest in Amateur Radio was born in December 1954, when he happened to acquire a new BC-type receiver; tuning round on the HF ranges one day, he came across the 15-metre band, with local stations operating—and from that day to the present time, Amateur Radio has been the only hobby-interest for G3NCZ. He had three years' indoctrination as an SWL (during which several straight receivers were built and got to work), and he also studied for the R.A.E. while starting to learn Morse. As his friend G3NCV was at that time also learning the code, and lived in an adjacent house, they decided to work at it together by rigging up a pair of lines between their homes, with audio oscillators at each end; thus, they were able to have many enjoyable QSO's on closed circuit, and eventually got up to their 12 w.p.m. for the Morse Test.

On becoming licensed in October 1958, G3NCZ started on 40 metres with a QRP transmitter, consisting of a 6J5 as a Pierce CO driving a 6V6 PA to 10 watts, with a 136-ft. end-on aerial. Using this simple set-up, G3NCZ had many good European

contacts, and on one or two occasions he even managed to work North Americans.

The photograph shows the station as it was in February this year, before the move to a new QTH in another part of Blackburn. On the left is the Top Band transmitter and stand-by receiver (an ex-R.A.F. R.1475, covering 2-20 mc), and in the centre is the home-built all-band transmitter, consisting of a Geloso unit driving an 807 PA, running 50w. input on CW and 35 watts on phone. Underneath this is the original QRP Tx and its cathode modulator. The station main Rx, on the right, is a National HRO with a DB-20 Pre-selector which, says G3NCZ, certainly improves the performance of the HRO on 10 and 15 metres.

Aerials in use (at the old QTH) were the original 136-ft. end-fed wire, backed up with dipoles for 10-15-20 metres. Operating interest is generally touring the bands, with 40m. getting most attention. The score before the move stood at 70 countries worked—and as G3NCZ's wife is Belgian, naturally both he and she are particularly interested in working ON4's. The new QTH for G3NCZ is: Westwood, East Park Road, Blackburn, Lancs.

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*More than 80% of licensed U.K. amateurs are Regular Readers*

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# THE MONTH WITH THE CLUBS

By "Club Secretary"

(Deadline for September issue : August 11)

(Address all reports for this feature to "Club Secretary")

**M**OBILE and other outdoor events continue to fill up Club programmes, and the level of activity is very high. For the past two or three years we have been receiving many more Club reports during the summer holiday period than we used to in the past, and it is certainly the popularity of mobile and portable work that keeps the pot boiling.

Although November is still a long way off, and most of us would prefer not to think of it at all, the time is ripe for a preliminary announcement concerning this year's *Magazine Club Contest* (MCC). The dates will be, as usual, two consecutive week-ends. November 11 and 12, 18 and 19 have been chosen, and the operating hours will be the same as last year—1700 to 2000 GMT.

This year we propose to try out a "zoning" scheme which will give some of the outlying stations a better chance to make a good score, if not to win, and we shall be giving full details in plenty of time. MCC has been a "scratch race" for a long time—this year it is going to be a *handicap*. An arrangement has been evolved (which will *not* make for complication or difficulty in scoring) with the country divided into five Zones. The Zone letter will be sent, in place of the "C" (for Club) which formerly preceded the Club number. Points will be scored accordingly.

We hope for a record entry and suggest that Club members start thinking *now* about the gear and aerials that are most likely to carry them into one of those coveted first-three positions.

**Aberdeen**, meeting every Friday at 6 Blenheim Lane, will be hearing about Conversion of Surplus VHF Equipment on July 4 (GM3FKS) and "Pre-1939 and All That" on August 11, from some of the older members. Visitors are welcome at all meetings. **Acton, Brentford & Chiswick** hold an Open Night on August 15, when subjects for discussion will be welcomed. Usual meeting-place—the AEU Club, 66 High Road, Chiswick, W.4.

The **B.A.R.T.G.** (British Amateur Radio Teleprinting Group) is yet another of the many new Clubs whose members are too widely dispersed to allow of regular meetings. They get together through the medium of their publication, *BARTG News Sheet*, and No. 12 was published in June. For secretary's QTH, see panel.

In **Basingstoke** they hope to form "an organisation catering for the licensed amateur and short wave listener." There used to be an active Club there, but

it is so long since we heard of it that we assume it no longer exists. Anyone interested in the new venture should contact P. J. Sterry, Ashley, Orchard Road, or R. West, 37 Franklin Avenue, Tadley, for information.

**Bradford** held their AGM and elected G3EKE president, with G3NPO vice-president; G3NNO continues as secretary. The name has been changed to "Bradford Radio Society," dropping the word "Amateur." July 11 is booked for an informal meeting and July 25 for a talk on Audio Amplifiers by G3LZW. The new session will open on September 12. All meetings at 7.30 p.m., preceded by Morse classes if previously arranged.

**Bridlington** met Scarborough to do battle in a Radio Quiz. The Questionmasters were G5VO and G3GBH, who are members of both societies! The scoring method may be of interest to other Clubs: If the first member of a team answered correctly, he scored two points and the second member was given a question; if correct answers were received down to the third member, two points bonus awarded to the side, and the questioning passed to the opposing team. If a member of the team did not answer correctly, the question was passed to the other team, who then scored two if they answered; if *they* did not, it went back to the first team, who scored one for a correct answer. This method was devised by the two Quizmasters, and worked well. The Inter-Club Quiz is a very useful method of getting together with neighbouring Clubs, and one which should be encouraged.

**Coventry** ask us to announce that their meetings are now held at the RAFA Club, Holyhead Road, Coventry, at 7.30 p.m. on Mondays. **Crystal Palace**





have organised their programme right through until *next February*: August 19 is booked for a VHF Evening, and September 5 for a Morse Class at G3FZL's home; on September 16 there will be a Hi-Fi Audio Evening.

**Hastings** meet on August 15 for a talk and demonstration on Valves, by G3MQT; this will be continued on August 29, plus a talk on a subject not yet fixed. **Llanely** report several successful meetings and a lot of activity during Commonwealth Technical Training Week, but we have no details of their future meetings. **Northern Heights** recently heard a talk by G2SU on Fifty Years of Radio; on August 9 they will hold a discussion on the Scout Jamboree. August 23 is booked for a Ragchew, and September 6 for a talk on Radio Astronomy.

**Reading** recently had talks on this year's R.A.E., by G3GKH, and on Power Supplies for fixed station and mobile equipment, by the same speaker. **Rotherham** have moved into new quarters at the Atlas Hotel, Brinsworth; on August 7 they will be operating GB3RRS from the Agricultural and Horticultural Show, 0730 GMT onwards, on all bands from One-Sixty to Two.

**South Shields**, having duly seen their Mobile Rally through, now look forward to running their Exhibition Station GB3SFS at the local Flower Show on August 11-13; special QSL's will be issued, all bands worked, and visitors are invited. At the Club headquarters, theory and Morse classes continue, and any prospective members will be most welcome.

**Thames Valley** recently heard a talk on SSB by G3HQX, with an interesting contribution from G2NH. Modern Valve Technique was the subject of another meeting; the talk was given by G3JIP and the accent was on information for the less experienced. Next meeting is on August 8, at the Carnarvon Castle Hotel, Hampton Court.

**Army Wireless Reserve A.R.S.** report that GB3AWR has had two recent spells of activity from

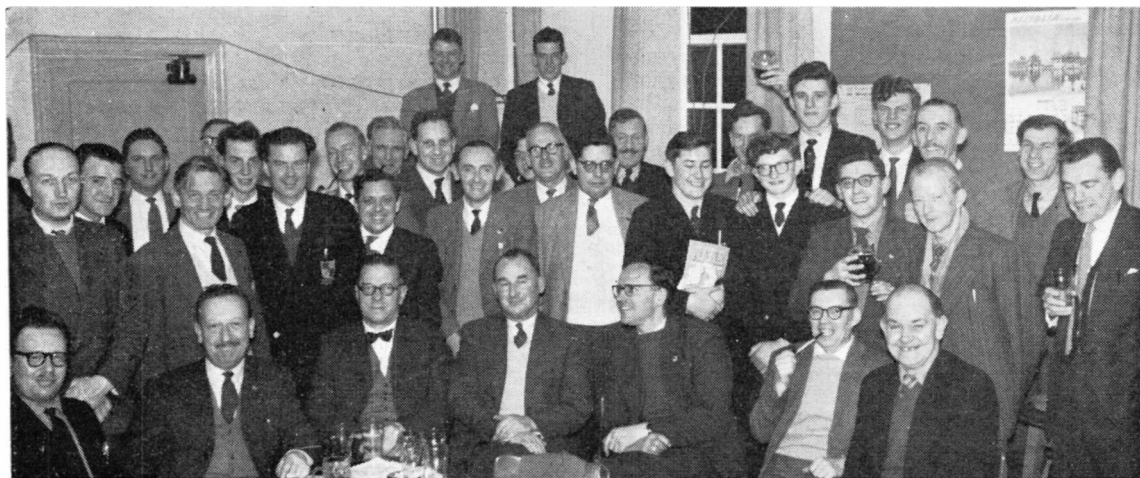
Blandford Camp, their new home during training periods; their AGM was held on June 28 and the officers re-elected. The secretary will be pleased to hear from past and present Army amateurs who would like details of membership, and will also be pleased to pass on applicants for membership of the new Royal Signals Amateur Radio Society, now in process of formation.

**British Timken** held their AGM on June 27 and elected G3NOK chairman, G3JJW vice-chairman and secretary; they will be active on August 25 and 26 from their Show Ground, working several bands from three stations and especially looking out for other Club stations. There are now eight "tickets" among their members, five of them mobile.

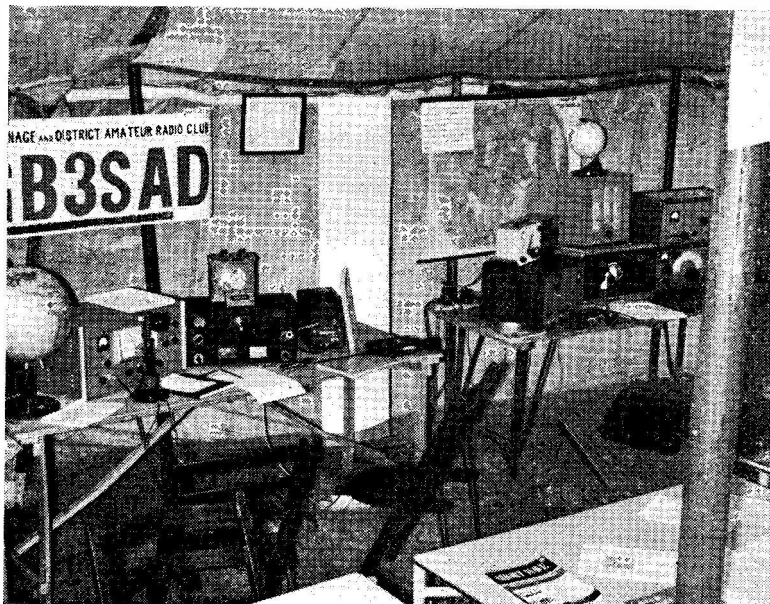
**Cheltenham** recently held an Evening D-F Hunt, with G5BK/P well hidden and giving the members an interesting run round the by-roads in the Cotswolds; only G3JFH/M and G3MOE/M found him. Next event of interest is the Club's DX-pedition to Scottish counties (in early August) signing G5BK/P and G3JFH/M. They will also be taking part in the Cheltenham Hobbies Exhibition, September 27-30, at the Rotunda (opposite the Mobile Rally site).

**Cornish** mustered some 35 members at Falmouth for their July meeting, when G3XC spoke on the subject of a two-metre Field Day and also explained the building of his transistor communication receiver. **Crawley** announce that their August meeting will be a mobile outing to the Hog's Back, with three mobiles in the convoy, all operational on two metres; members of other clubs are invited to join them for a ragchew. Club members operated G3FRV/P for the recent two-metre field day.

**Guildford** held an open-air meeting on July 13, to give younger members experience in getting a portable station erected and operational. On July 28 G2DX gave a talk on Propagation—Past, Present and Future. **Peterborough** propose to run a barbecue on September 10, at their riverside site at Alwalton (just



Group photograph taken at a recent meeting of the Chiltern Amateur Radio Club, High Wycombe, featuring a wide selection of call signs from early two-letter to the most recent three-letter. The Chiltern membership is about 35, of whom 20 are licensed, and the Club meets on the last Thursday of each month at the British Legion Hq., St. Mary's Street, High Wycombe, Bucks., the hon. secretary being C. Simpson, G3OOZ, 2 Mead Street, High Wycombe.



On June 10, the Stevenage & District Amateur Radio Club had GB3SAD on the air for the local "Stevenage Day" event. As this photograph shows, they had a very good layout, and activity covered Top Band to two metres. A convincing demonstration of phone working with EU stations was given to the public.

off the Great North Road between Norman Cross and Wansford); all friends are invited, together with XYL's and harmonics.

**Southgate** are exhibiting at the Wood Green Horticultural Show, September 8 and 9. Friday is usually a bit of a problem for enrolling operators, and all help in this direction will be appreciated; part of the aerial difficulty is being resolved by using Glendale School as one of the "sky hooks."

**Burslem** meet on the third Wednesday, 7.30 at the Town Hall; for August only, the meeting will be on the fourth Wednesday. Each meeting includes a Morse class, and additional instruction is arranged by request; lectures and demonstrations will begin in September.

**Halifax** helped out their Club funds with a very successful Junk Sale in July; on August 15 there will be a Ragchew, and on September 15 G3KEP will talk on the R.A.E. The club will be running a station at the Halifax Agricultural Show, Shibden Park, on August 12. Note new secretary's QTH—in

#### CLUB PUBLICATIONS RECEIVED

We acknowledge, with thanks, receipt of the following Club publications: **Surrey (Croydon)** (*SRCC Monthly News*, July); **North Kent** (*Newsletter*, No. 47); **Southgate** (*Newsletter*, July); **I.H.H.C.** (*Newsletter*, July); **Guildford** (*Monthly Natter*, No. 8); **Crystal Palace** (*Newsletter*, No. 68); **Hastings** (*Natter-Net Notes*, No. 21); **Mitcham** (*Newsletter*, June); **Enfield** (*Lea Valley Reflector*, June); **B.A.R.T.G.** (*News Sheet*, No. 12); **A.R.M.S.** (*Mobile News*, Vol. 2, No. 8); **Midland** (*Newsletter*, No. 168); **Wolverhampton** (*News Letters*, June and July); **R.A.I.B.C.** (*Radial*, Vol. 7, No. 5).

panel opposite.

**Leicester** will have a stand at the Abbey Park Show on August 8 and 9, when G3LRS/A will operate on all bands, Top to Ten. Visiting amateurs and all interested persons will be most welcome.

**North Kent** will be meeting on August 10 and 24; September 14 is booked for a Film Show, September 28 for a Junk Sale. All meetings at the Congregational Hall, Clock Tower, Bexleyheath, 8 p.m.

**Surrey** (Croydon) hope to have a talk and demonstration on the K.W. range of products at their meeting on August 8, but this was not fully confirmed when their report was received. Their recent Club Rally was very successful and attracted 56 people to the rendezvous, The Fort, Box Hill. They have now fixed a Two-Metre Mobile Rally and D-F Hunt for September 24, ranging over Surrey and North Sussex. Non-members can take part at an entry fee of 2s. 6d.

per car—details from the secretary.

**Wolverhampton** meet on August 21 for a Ragchew—the only meeting definitely scheduled for August. **Lothians** are "in recess" until September, when they open on the 14th with the President's Address; at the recent AGM, GM3KIG was elected president and GM3BCD secretary (see panel for QTH).

For **Wirral**, the next meeting is on August 16, for a talk by G3AKW; on September 6, they have a lecture/demonstration on Receivers. Another active interest up at Wirral is D-F working, and the W.A.R.S. group can now put three teams of their own members into the field.

One of the several strong Midland organisations, **Slade** have a varied programme to take them to the end of September; next meetings are on August 11 (informal ragchew session), and August 25, when

#### NOTICE TO ALL HONORARY SECRETARIES

Appearance in this space is free to those Clubs who care to make use of it for publicity and the reporting of their activities. Hon. secretaries are asked to ensure that their reports, addressed "Club Secretary," Short Wave Magazine, 55 Victoria Street, London, S.W.1, reach us by the date given each month at the head of the "Clubs" article. It is impossible to write in late reports, received after we close for press. All reports must include the name and QTH of the hon. secretary, for publication in the address panel. Photographs to illustrate the feature are welcomed, and payment is made for those we can use.

they visit a local firm, Taylor Controls, Ltd., specialising in automatic control equipment. Also very active in the D-F field, Slade run their own contest for the Harcourt trophy—this will be on August 20. Their Club station signs G3JBN, and is on the air every Thursday evening; slow Morse is radiated by G3AYJ on 1900 kc during 8.0-8.30 p.m. each Monday evening.

### COURSES FOR THE R.A.E.

Further to the notice on p.247 of the July issue of SHORT WAVE MAGAZINE, following are the arrangements so far notified:

**Birmingham:** Central Evening Institute, Leamason Centre, Bell Barn Road, Edgbaston, Mondays and Wednesdays, 7.0-9.30 p.m., instructors G3HBB and G3HBE, commencing September 18, enrolment at the Institute during week commencing September 11. Also at the Garretts Green Technical College, Yardley, on Thursdays 7.0-9.30 p.m., instructor G3HBE, commencing September 25. enrolment during week September 11-15.

**Bristol:** At the Technical College, commencing in September, details from the Registrar, Bristol Technical College, Ashley Down Road, Bristol, 7.

**Coventry:** Arranged by the Coventry Amateur Radio Society, to be held at the Coventry Technical College starting in September. Full details from: A. Noakes, C.A.R.S., 4 Baron's Field Road, Cheylesmore, Coventry.

**London: Northwood,** at the Evening Institute, Potter Street, Northwood Hills, Middlesex, R.A.E. Theory on Mondays, instructor G2QY; Morse on Thursdays, instructor G3NQR. Courses commence week September 18, enrolment at the Institute 6.30-8.30 p.m., during September 11-13.

**London: Brentford,** at the Brentford Evening Institute, Clifden Road, Brentford, Middlesex, classes in R.A.E. Theory on Wednesdays 7.0-9.0 (course fee 30s.) and in Morse Code on Tuesdays, 7.0-9.0 p.m. (fee 10s.), starting during week beginning September 18. The Institute also offers two other courses, Mathematics for Radio Amateurs, and Radio Servicing, at similar low fees for the term. Apply for details to the Head of the Institute.

**London: Holloway,** organised as in previous years by the Grafton Radio Society, at Montem School, Hornsey Road, Holloway, London, N.7, on Mondays, repeated Tuesdays and Wednesdays, R.A.E. Theory, 7.0-9.0 p.m., and Morse Code, 9.0-10.0 p.m., commencing September 25, enrolment any evening September 18-22, fees 20s. for either course, or 22s. 6d. for both. Apply in the first instance to: A. W. H. Wennell, G2CJN, hon. secretary Grafton Radio Society, 145 Uxendon Hill, Wembley Park, Middlesex.

**London: Ilford,** at the Ilford Literary Institute, Cranbrook Road, Ilford, adjacent Gants Hill Station on Central London Tube; R.A.E. Theory on Wednesdays 7.15-9.15 p.m., fees 30s. and 20s. respectively, or 35s. for both; enrolment September 4-7, 7.0-8.30 p.m. at the Institute, classes commencing week beginning September 18. These classes have

### Names and Addresses of Club Secretaries reporting in this issue:

ABERDEEN: G. A. Roberts, GM3NOV, 111 Great Southern Road, Aberdeen.  
 ACTON, BRENTFORD & CHISWICK: W. G. Dyer, G3GEH, 188 Gunnersbury Avenue, W.3.  
 A.R.M.S.: N. A. S. Fitch, G3FPK, 79 Murchison Road, London, E.10.  
 ARMY WIRELESS RESERVE: Maj. D. W. J. Haylock, G3ADZ, 3 Norris Gardens, Grange Estate, Havant, Hants.  
 B.A.R.T.G.: Dr. A. C. Gee, G2UK, East Keal, Romany Road, Oulton Broad, Lowestoft, Suffolk.  
 BRADFORD: M. Powell, G3NNO, 28 Gledhow Avenue, Roundhay, Leeds.  
 BRIDLINGTON: H. H. Mills, G3AJB, c/o 28 East Road, Bridlington.  
 BRITISH TIMKEN: J. B. Johnson, G3JJW, 44 Castle Avenue, Duston, Northampton.  
 BURSLEM: W. Luscott, 36 Rothsay Avenue, Sneyd Green, Hanley, Stoke-on-Trent.  
 CHELTENHAM: J. H. Moxey, G3MOE, 11 Westbury Road, Leckhampton, Cheltenham.  
 CORNISH: W. J. Gilbert, 7 Poltair Road, Penryn.  
 COVENTRY: A. Noakes, G2FTK, 4 Baron's Field Road, Coventry.  
 CRAWLEY: R. G. B. Vaughan, G3FRV, 9 Hawkins Road, Tilgate, Crawley.  
 CRYSTAL PALACE: G. M. C. Stone, G3FZL, 10 Liphook Crescent, London, S.E.23.  
 ENFIELD: V. Croucher, G3AFY, 15 Nelson Road, London, N.15.  
 GUILDFORD: J. R. Barker, 35 Bandens Rise, Merrow, Guildford.  
 HALIFAX: G. Sunter, 24 Booth Fold, Luddenden Foot, Halifax.  
 HASTINGS: W. E. Thompson, G3MQT, 8 Coventry Road, St. Leonards-on-Sea.  
 I.H.H.C.: M. Allenden, G3LTZ, 16 Grovefields Avenue, Frimley, Aldershot.  
 LEICESTER: P. G. Goadby, G3MCP, 535 Welford Road, Leicester.  
 LLANELLY: H. J. Hughes, 4 Pen-y-Morfa, New Dock, Llanelly.  
 LOTHIANS: T. Simpson, GM3BCD, 118 Braid Road, Edinburgh 10.  
 MIDLAND: C. J. Haycock, G3JDJ, 29a Wellington Road, Birmingham 20.  
 MITCHAM: M. Pharaoh, G3LCH, 1 Madeira Road, Mitcham.  
 NORTHERN HEIGHTS: A. Robinson, G3MDW, Candy Cabin, Ogdon, Halifax.  
 NORTH KENT: B. J. Reynolds, G3ONR, 49 Station Road, Crayford.  
 PETERBOROUGH: D. Byrne, G3KPO, Jersey House, Eye, Peterborough.  
 R.A.I.B.C.: W. E. Harris, G3DPH, 4 Glanville Place, Kesgrave, Ipswich.  
 READING: R. G. Nash, G3EJA, 9 Holybrook Road, Reading.  
 ROTHERHAM: S. J. Scarborough, 25 Crawshaw Avenue, Sheffield 8.  
 SLADE: C. N. Smart, 110 Woolmore Road, Erdington, Birmingham, 23.  
 SOUTHGATE: R. Pedder, G3NEE, 6 Greenall Close, Cheshunt, Herts.  
 SOUTH SHIELDS: D. Forster, G3KZZ, 41 Marlborough Street, South Shields.  
 STOKE-ON-TRENT: V. J. Reynolds, G3COY, 90 Princes Road, Hartshill, Stoke-on-Trent.  
 SURREY (CROYDON): S. A. Morley, G3FWR, 22 Old Farleigh Road, Selsdon, South Croydon.  
 THAMES VALLEY: K. A. H. Rogers, G3AIU, 21 Links Road, Epsom.  
 WIRRAL: A. Seed, G3FOO, 31 Withert Avenue, Bebington, Cheshire.  
 WOLVERHAMPTON: J. Rickwood, 738 Stafford Road, Fordhouses, Wolverhampton.

been running for the past 12 years, and more than 220 students have been successful. Apply in the first instance to: C. H. L. Edwards, A.M.I.E.E., A.M.Brit.I.R.E., G8TL, 28 Morgan Crescent, Theydon Bois, Epping, Essex, with stamped addressed envelope.

**Glasgow:** At Allen Glen's School, Montrose Street, on Tuesdays, 7.0-9.30 p.m., R.A.E. Theory, and on Thursdays, 7.0-9.30 p.m., Morse, course fee 20s., starting September 12, enrolment September 4-7, 7.0 p.m. at the School. Instructors are GM3AXX, GM6MS, and GM8MJ. For further details apply A. M. Fraser, GM3AXX, 35 Gadloch Street, Glasgow, N.2.

Organisers of courses are reminded that we need their details by August 11 to catch the September issue of *SHORT WAVE MAGAZINE* for the next list as given here.

#### AMENDMENTS TO THE "CALL BOOK"

Based on the present (Spring-Summer) edition of the *Radio Amateur Call Book*, we have already been able to send forward more than 900 amendments, additions and corrections to the U.K. section for the Fall-Winter edition. The Foreign Section of the *Call Book*, now issued every six months, is the only complete and (as far as it can be) up-to-date listing of all the amateurs of the world outside the United States. Both editions of the *Call Book* are always

available from us—see our Publications Department advertisement, in this issue.

#### R.A.E. — CENTRES OF INSTRUCTION

In addition to the details we publish about particular Radio Amateurs' Examination study courses, more than 60 evening institutes and technical colleges, all over the country, offer instruction in Subject No. 55, and all at nominal fees. To find out if such facilities exist in your locality, apply to the Principal of the Technical College (or Evening Institute) or to your local Education Authority—addresses in telephone directory—quoting Subject No. 55, City and Guilds. In the event of no course being available, it can often be arranged if some minimum number of candidates, usually 6-10, can be got together; the local Education Authority will be glad to help with information about starting a course—though it is fair to say that the great difficulty may be in finding a suitable instructor.

#### OLYMPIC AMATEUR BAND TRANSMITTERS

These are now being manufactured, by Southern Radiocraft (Tx), Ltd., at their new factory at 136A Markham Road, Winton, Bournemouth. Interested readers who may be on holiday in the Bournemouth district are invited to visit the factory.

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R.C.A. AR77 — 540 kc/s to 30 mc/s, Bandspread	22	10	0
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National NC.60 with 230v. adaptor	25	0	0
Hammarlund HC.10. IF/Output unit	68	0	0
Hallicrafters SX110, hardly used, 110 volt	68	0	0
Hallicrafters SX62A — 550 kc/s to 108 mc/s — excellent condition, AM/FM...	128	0	0
Vanguard TX, top band model	70	7	0
Explorer TX, good condition	45	0	0
Hallicrafters SX140, amateur bands	56	10	0
Labgear LG300 TX	35	0	0
Tiger 200 Tx, good condition	85	0	0
Eddystone 770 R, 19 to 165 mc/s	185	0	0

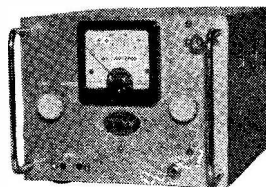
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### READERS' ADVERTISEMENTS

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### READERS

**51J2 COLLINS COMMUNICATIONS RECEIVER,** 30 bands, 0.5-30.5 mc. and AM-912/TRC Western Electric Converter, 100-225 mc, tunable. Both first-class condition. £245 the two.—G3JNG, The Huon, Branksome Hill Road, Bournemouth.

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**WANTED:** DX-100U or other 150w. all-band commercial table-top transmitter in good working condition; good receiver; Mosley 4-band vertical antenna or TA-32Jr., with beam rotator and indicator; telescopic mast. Prices including carriage.—(C.O.D.) to G3LGV, 80 Green Lane, Garden Suburb, Oldham, Lancs.

**BRAND-NEW,** unused, Barker-Williamson SSB generator, Model 51SB-B, original carton, absolutely factory mint condition; cost £135; best offer secures.—Box No. 2481, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

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**ADMIRALTY List of Radio Signals** (1959), Volume 2, 12s.; Volume 3, 9s. CQ, Jan. 1961, 3s. 6d. Several used 12AX7, 12AU7, 2s. 6d. each.—Box No. 2483, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

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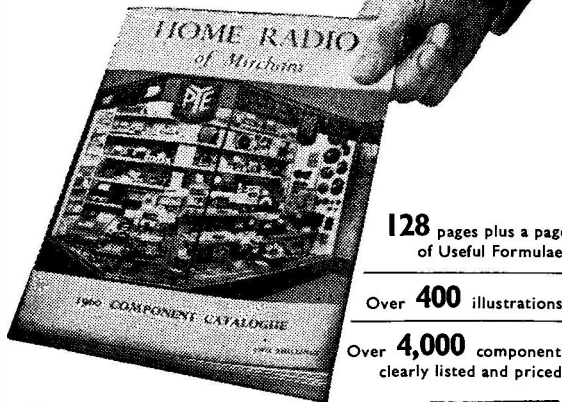
**WANTED:** Handbook on T.1154 Transmitters; also plug and leads to connect set to power pack; also 12-volt to 230v. power pack.—Thomas, 16 Croydon Road, Middlesbrough.

**MINIMITTER** 44 Receiver, £45. Minimitter Minibeam, 10/15/20m., £8; 3-cle. 10m. Beam, £4. 60w. Phone/CW VFO Tx, with 3 PSU, no TVI, 160-10m., £15. (Going VHF).—Box No. 2485, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

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### SMALL ADVERTISEMENTS, READERS—continued

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**WANTED:** HRO with set bandspread coils. Model Mx preferred, or coils only.—G. Kay, 106 Warbro Road, Torquay.

**WANTED** (purchase or loan): Manual for Canadian Marconi WS9 Transceiver.—Gillham, G3ING, 33 Masefield Avenue, Southall, Middlesex. (SOU 5261.)

**Q'FIVER** (new), 85s. Sender 36, power supply and modulator, £4. *Surplus Conversion Manual*, Vol. 2, 15s.—A. King, Angel Hotel, Cardigan.

**EDDYSTONE 888A**, very little used and in mint condition; latest silver-grey finish; best offer over £65.—Olver, The Spinney, Moor Hall Drive, Sutton Coldfield.

**RECEIVER** for sale, Eddystone S.640, £15. Delivered free reasonable distance.—P. Tigwell, 15 Glebe Gardens, New Malden, Surrey. (Tel. Malden 3813.)

**AMERICAN VHF Converter**, Western Electric Type AM 913/TRC, 95-220 mc, 30 mc IF output, complete with AC mains stabilised power pack, £10. Two-metre beam, 10-element Yagi, all alloy, 13.4 dB gain, new, 40s. HRO dial drive and gearbox, 20s. AR88 type speaker in grey hammer steel cabinet, 35s. VCR-97, 5BP1, 7s. 6d. Coax Telcon 50-ohm, ¾in. dia. solid dielectric, low loss, 9d. yd., new. All items postage extra. Many valves, meters, components; s.a.e. list, or call.—Briscoe, 311 Eton Road, Ilford, Essex.

**CLEAN HRO COIL SETS**, 50-100 kc, 12s. 6d.; 100-200 kc, 12s. 6d.; 180-430 kc, 16s.; 480-960 kc, 20s. **WANTED:** Good communications receiver; cash available.—Box No. 2486, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

**FOR SALE:** New 4E27, 30s.; HRO dial and gear-box, 25s. **WANTED:** Geloso 4/102.—G3CEU, 56 Chilvers Bank, Baldock, Herts.

**FOR SALE:** Really TVI-proof CW Transmitter, 35-watt, 7-28 mc, 6-in. x 19½-in. (rack mounting), 8 ins. deep, in all-aluminium screened box; 10 metered positions; relay controlled VFO in die-cast box; worked 120 countries; separate PSU, £12 complete. Other oddments, s.a.e., to: G3KRC, 24 Galley Lane, Barnet, Herts.

**SALE:** Panda ATU, 160 to 10 metres, FB condx., £9. 813 (2), £1 each.—Box No. 2487, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

**G4ZU BEAM**, 6 months old, protected against corrosion, as new; real DX-chaser; £10.—Box No. 2488, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

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## SMALL ADVERTISEMENTS, READERS—continued

**C**DR or Minimitter Beam Rotator and control unit required. State price and condition. All letters answered.—Kennedy, 27 Mess, H.M.S. *Ausonia*, c/o G.P.O., London.

**H**RO in steel cabinet, containing PSU, BS, coils, S speaker; pictured in *Short Wave Magazine*, February 1960; £27.—G3KPW, 3 Mayfield Villas, Moss Road, Askern, Doncaster.

**L**ABGEAR LG.300, together with matching Power/Modulator Unit, in perfect condition, and as new.—Desmond, G5VM, 28 Bristol Street, Birmingham, 5. (*Phone Midland 2258*.)

**W**ANTED: American Communication Receiver; also American Frequency Meter. Full particulars, price, condition, etc., appreciated, please.—Box No. 2489, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

**D**ST 100 Mk. II double superhet, with original PSU and manual, £10. Buyer collects.—G5DS, Surbiton, Surrey. (*ELM 4156*.)

**1154<sup>N</sup>** Tx, 30s. 1155 Rx, £5 10s. (LS. and S-meter). Mains Oscilloscope, £2 10s. R.A.F.-type Modulator (300w.), 30s. 1000v. 250 mA power pack, 30s. Bendex RA10FB Rx, £3. Oscillator Unit 145, 30s.—Holman, 105 Leard, Penn Fields, Wolverhampton, Staffs.

**P**OWER SUPPLY/MODULATOR for 150 watt PA, exc. chassis 24 ins. x 12 ins. x 3/KT88 AB2-12BH7-12AT7-12AT7, PM3, DC at 1000v. 250 mA, 450v. 250 mA, 150v. 40 mA (bias), 850v. 300 mA (Mods.); 24v. 2-amp. relay supply, primaries switched all valves, chokes, conds., fil. xformers, etc.; ready connect PA; £18 collected. 813 base, fil. xfmr. given to purchaser. Newnes *TV Servicing*, Vols. 1-5, 1955-61 (10 vols.), £10. EF80, ECL80, EF37A, 6F13, etc., 2s. 6d. each.—G5NH, 34 Sheaf Street, Daventry, Northants.

**S**ALE: Geloso VFO 4/104 with valves, price £4.—G3OFN, 16 Poltair Terrace, Heamoor, Penzance, Cornwall.

**S**TOLEN: Black Ford Anglia SGT-857, fitted Hallicrafters "Sky Traveller" receiver (minus lid), H.M.V. push-button car radio, four field telephone sets, small pair headphones. Anyone who may have been offered this gear is asked to get in touch with: A. Coombes, G3OLV, 113 Blenheim Gardens, Wallington, Surrey.

**V**K3ADD requires Dec., 1953 *Short Wave Magazine* for article "Bandspreading a BC-348".—Please write to 140 Kent Road, Hamilton, Victoria, Australia.

**C**OLLINS TCS RECEIVER 1.5-12 mc, brand new condition, £8. 160m. "Command" Receiver, modified for LS output, £5.—Acton, 20 St. Blaise Road, Sutton Coldfield, Warwickshire.

**G**6GD going QRT, Transmitting and Receiving components for sale very cheaply including Tx valves, condensers, chokes, mains and filament transformers, s.a.e. for list.—Edge, 8 Church Street, Malpas, Cheshire.

**F**OR SALE: SX28, good condition, complete with spare valves, speaker and manual, £30. Regret buyer collects (Berkshire area). WANTED: Tx for 2 metres, not surplus, around 30w.—Box No. 2491, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

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**£23** plus carriage available for Eddystone 840A, state colour and date of purchase.—Box No. 2490, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

**FOR SALE:** LG.300 and Pu/Mod. companion unit, mint. £95 o.n.o.? R.208, excellent condition, with manual. £8. Leak TL12, mint, with variscope preamp., cost £42. Offers? Chapman Tuner, cost £40, offers? Heathkit GDO, brand new condition, £5. UM2, 50s. Grampion m/c Mike, transformer and stand. £4. CRO mint, cost £35, what offers? Brand new power transformer 500-0-500v., and usual LT windings, £3. Glasgow area.—Box No. 2492, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

**KW "VICEROY,"** home-built power supply and control box, £90. Unfinished linear amplifier, brand new Eimac 4CX300A, B. & W. 851 pi-tank coil, Eddystone capacitors, £30. Power supply, 2000/1500 volts 500 mA, with new 5 amp. Variac, £20. AVO Electronic Testmeter, £22. Valves from 3d. each; FT-243 crystals from 2s. each. Many Eddystone, Woden, Denco and other components, cheap. *QST, Short Wave Magazine, Bulletins* 1946-1956.—G5RP, Old Gaol House, Abingdon, Berks. (Telephone Abingdon 380 after 6 p.m.)

**EDDYSTONE 840, 1959 Call Book and Radio Amateur's Handbook**, £27. SWL Retiring.—Harrison, 30 Park Lane, Southwick, Brighton, Sussex.

**CLEARANCE SALE:** R.1155L, PU/Amp., £12 10s. R.13920 £2 10s. 18 Set £2 10s. Control unit 310 30s. Scrap R.107, no valves, 10s. P.104 less meter, drive, £1. RF-24 15s. 46 Set, less valves, 2s. 6d. Vibrator supply unit/AF amp. 5s. Valves, speakers, transformers and other components.—Callers welcomed, Hardcastle, Rigton Grange, East Keswick, nr. Leeds.

**WANTED:** HRO Receiver, CR100 or similar receiver.—D. Harding, 18 Park Road, Birstall, Leicester. (Tel. Leicester 814297 after 5 o'clock.)

**SALE:** GM3BQA Triple Quad Ant., new, complete with instructions, £16 10s. o.n.o.? (including postage).—M. R. Stuart, Sandbeck Hotel, West Cligg, Whitby, Yorks. (Whitby 371.)

**FOR SALE:** EL-Bug-OZ7BO using high speed relays, with built-in power supply and paddle, small physical size, £6 10s. Labgear Wideband Multiplier unit with drilling template, £1. FL8 Audio Filter, 7s. 6d. Two 500-0-500v. 500 mA transformers, 230v. AC primary, 7s. 6d. each. Coax Ae. c/o relay, 24v. DC, 5s.—G3KKZ, 7 Leonard Road, Streatham Vale, London, S.W.16. (Pollards 4508.)

**OVERHAULED AR88D**, handbook, 6-band 160-10 metre Tx, 50 watts, Phone/CW; trap dipole, 20-10 metres; Class-D Wavemeter, modified AC. £65.—Lawrence, 33 Sweet Briar Grove, London, N.9.

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**"CW MAN'S" Tx** by K.W. Electronics: Gelo 4/104, 6146, 6BW6 clamper, 160-10 metres, 60 watts; matching PSU, separate HT for Gelo, T9x all bands; 6SL7-6Y6 cathode modulator, FB phone, £30.—G3JLB, 103 Whitehill Road, Gravesend, Kent.



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**FOR SALE:** "Communicator" 2-metre mobile Tx/Rx, few hours' use only, cost £90, accept £75, or exchange for high-grade HF Tx or Rx to that value.—Box No. 2494, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

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**WANTED:** Scrap R.C.A. AR88D receiver for spares; also a Woden UM2 or UM3 modulation transformer—G3LEB. — (Telephone Farnborough, Kent, 51132).

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**FOR SALE:** Genuine AR88 S-meter, brand new, complete with detailed fitting instructions, 57s. 6d., postage 1s. 6d. Spares available for AR88D and AR88LF (send s.a.e. for list)—A. J. Reynolds, 139 Waller Road, New Cross, London, S.E.14 (Telephone New Cross 1443 after 7.30 p.m.).

**SELL** Mains portable Rx/Tx, 12A6-832, small, robust; worked good DX 80-40 metres. Also Test Set TF-986, 2 metres. £3.—J. Pigou, 7 Gloucester Walk, London, W.8.

**BC-221**, stabilised power supply, 230v. AC, fits battery compartment, miniature valves, £5.—Cranfield, 87 Cecil Park, Pinner, Middlesex.

**FOR SALE:** R.1155A in good condition, with power pack, £8; carriage extra.—D. Townsend, 45 Canterbury Road, Margate, Kent.

**COMMAND** Rx, 1.5-3.0 mc, new, best offer secures. Band 2 RF Unit, 100-156 mc, 45s.; Q'Fiver, 80s.; both mint and unmodified. BC-639A manual, 40s. Wanted: SX-28 or Super-Pro, in first-class condition throughout; also CR-100 in new condition.—Box No. 2495, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

**FOR SALE:** R1155, power pack, output stage, new condition, perfect working order, £5 10s. (please include carriage).—Box No. 2496, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

**PYE** 444 fully transistorised receiver for sale, coverage 160 kc to 3.8 mc. Ferrite Rod for LW-MW and 5ft. whip for SW, £12.—G3NMZ, 182 Bishopsote Road, Luton, Beds.

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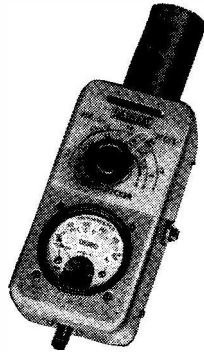
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