

The

RADIO AMATEUR

Vol. 8

Number 8

AUGUST

1953

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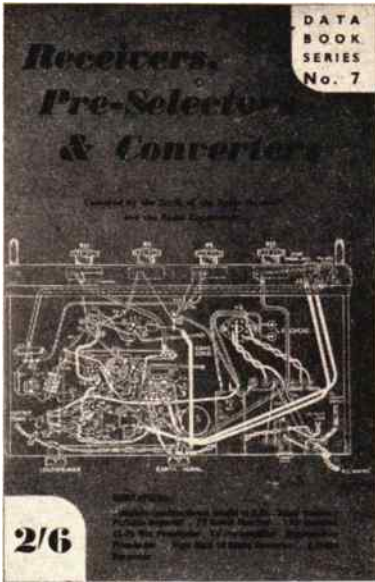


MINI SOLDERING IRON

ALSO IN THIS ISSUE . . .

Radio Equipment for Everest. An Experimental V.F.O.
An Audio Filter Unit. Talks about VHF. Moonbeams
and Moonshine. The World on the Air - Jamaica. Around
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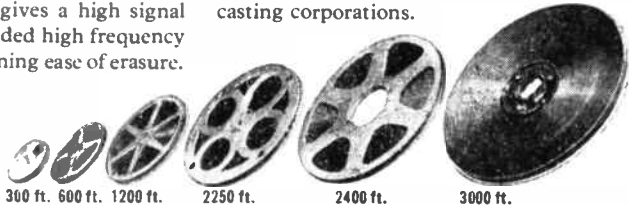
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EDITORIAL

We were pleased to see mention made in "The Month on the Air," in the June *RSGB Bulletin*, of a matter which may seem trivial to us in England, but which is causing a good deal of concern to our colleagues in Germany.

As is well known, the DL2, DL4 and DL5 groups of call signs in Germany are allocated to military forces resident in that country. Our German colleagues point out that they have no objection to the principle and if all the calls available in these groups were taken up and used, they would not complain. But in actual fact, very few of the calls have ever been allocated, with the result that these groups are in the main wasted. Moreover, the Germans themselves are getting short of calls in the groups left to them, so much so that the matter is getting urgent.

As Arthur Milne suggests in the article referred to, our own Service personnel could be issued with some such prefix as MD2 and it should not be difficult to allocate similar distinguishing prefixes to the present DL4 and DL5 users.

Foreign military personnel resident in most other countries have their own distinguishing prefix, so why not those in Germany as well?

We trust that those responsible for this matter will show their good sense by putting right a state of affairs which may at first sight appear very trivial, but which is causing considerable inconvenience to the German amateur radio fraternity.

A.C.G.

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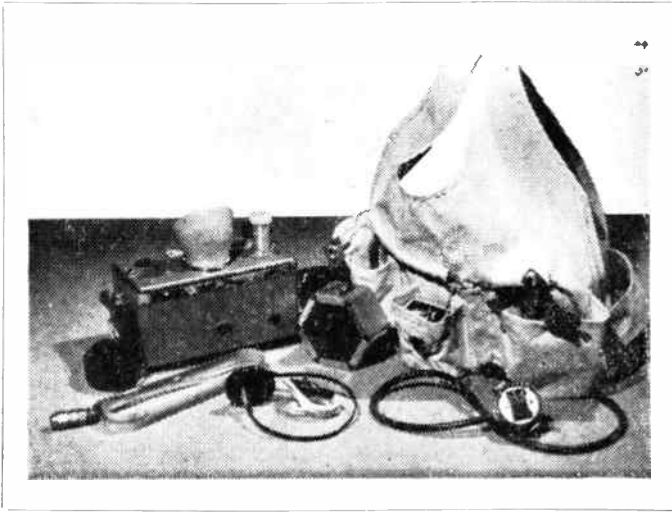
THE EDITOR invites original contributions on short wave radio subjects. All material used will be paid for. Articles should be clearly written, preferably typewritten, and photographs should be clear and sharp. Diagrams need not be large or perfectly drawn, as our draughtsmen will redraw in most cases, but relevant information should be included. All MSS must be accompanied by a stamped addressed envelope for reply or return. Each item must bear the sender's name and address.

Component Review. Manufacturers, publishers, etc., are invited to submit samples or information of new products for review in the section.

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PYE RADIO EQUIPMENT for EVEREST



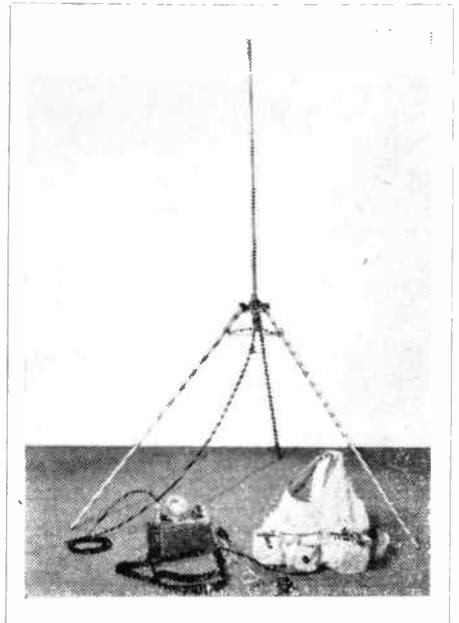
Many people have been surprised in these days of radio that news from the expedition has had to be sent out by runner. It should be made quite clear from the start, that as a matter of deliberate policy, Colonel Hunt decided not to take any radio equipment for keeping in direct touch with the world outside, and that equipment for this purpose, although it could have been readily produced, was never contemplated. The expedition wished to be a self-contained, self-reliant unit, acting upon decisions the members alone were responsible for making.

The first radio requirement was for receivers to hear the special monsoon weather forecasts from the B.B.C. Overseas Service, and from All India Radio, upon which the whole timing of the final assault depended. For this job a standard receiver was adapted by recasing it in wood instead of plastic, in a box stout enough to withstand rough handling and large enough to contain the dry batteries.

The other radio task was to maintain contact between the camps up the mountain to regulate the flow of stores. In the past much time and effort has been wasted because camps lower down have not known the situation higher up.

The smallest practical walkie-talkie yet devised was produced for this purpose. It weighs seven and a half pounds, and straps on the climber's chest or above his oxygen apparatus. There is a mouth-piece to speak into on top of the set and a midget earphone is worn on one ear. The sets were tested in a refrigerator to ensure operation at the low temperatures to be expected at great heights, and worked perfectly.

At these very low temperatures dry batteries cease to work. To overcome this difficulty the batteries were fitted in waistcoats for the climbers to wear under their clothes to maintain the batteries at body heat, so that as long as the climber lives the radio will work. The battery consumption was reduced to so low a level that a climber can wear batteries for some 45 hours use.



Design of suitable aerials presented a number of problems. Very high winds are experienced in the high Himalayas and the ground is hard rock or ice, making it difficult to put in pegs to hold guy ropes. An aerial was necessary so that the climbers could use their walkie-talkies from inside their sleeping bags, when in their tents.

A self-supporting tripod aerial was designed. The legs can be held down by rocks or blocks of ice.

The whole of the equipment was flown out to India to avoid too much exposure to tropical heat and to reduce handling.

Despatches from the expedition told how very successful and useful radio equipment was. Brigadier Moppett, radio adviser to the Everest Expedition and a Director of Pye Telecommunications Ltd., received a personal message from Colonel Hunt to say "it is winning the highest praise."



AN EXPERIMENTAL OSCILLATOR

by "L.C.R."

Much information has been published in connection with variable frequency oscillators, and many excellent circuits evolved in the quest for stability. One particularly ingenious circuit was that due to Franklyn, known in this country as the "Franklyn Oscillator" and in the United States as the single terminal oscillator.

It is a variation of the Franklyn which will be discussed in this article, but before so doing a recapitulation on the operation of the original oscillator is necessary in order to form a basis for the notes to follow. The basic circuit of the Franklyn Oscillator is shown in Fig. 1 and the operation is as follows:—

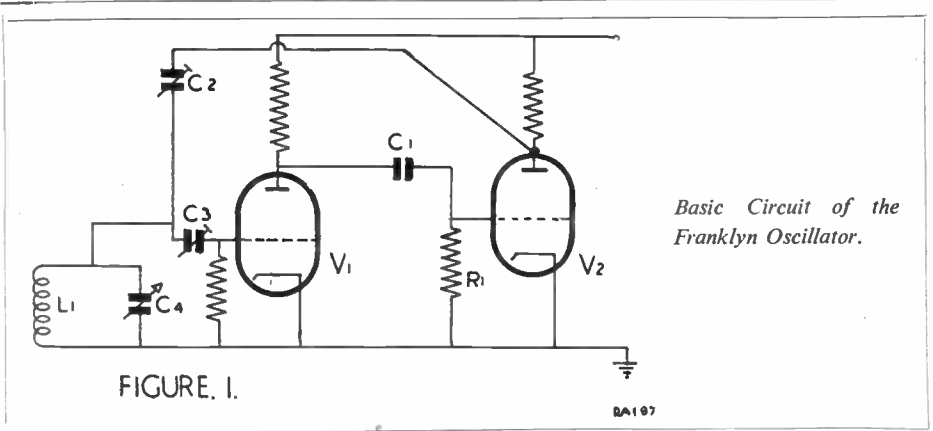
V_1 and V_2 form a conventional RC coupled amplifier, and, there being two stages, any alternating signal applied to the grid of V_1 will result in a magnified version—of the same phase—appearing at the anode of V_2 . If the anode of V_2 were connected to the grid of V_1 then, due to the loop gain of the system being greater than unity and also that the feed back is positive, the system would sustain oscillation

at a frequency determined (but by no means critically) by the time constant of C_1R_1 .

The voltage generated in the above manner would be of poor waveform, rich in harmonic content and the frequency would be somewhat indeterminate due to the poor selective property of the RC network; in fact, the system would be the well-known multivibrator. When Franklyn designed his circuit he put to excellent use this fundamental property of positive feed back, by introducing a highly selective, loosely coupled LC filter, which enabled the system to oscillate stably on any selected frequency within certain limits, and the waveform was good, in fact could be made practically sinusoidal.

Returning to Fig. 1, instead of the anode of V_2 being connected straight to the grid of V_1 , it is taken via two very low value capacitors in series, C_2C_3 , the junction of which is connected to a parallel tuned LC arrangement.

The voltage fed back from the anode of V_2 has now to pass through C_2C_3 in series before appearing at the grid of V_1 ; C_2 and C_3 have



Basic Circuit of the Franklyn Oscillator.

values chosen such that the feedback is only just sufficient to maintain stable oscillation, and of course this low value of C results in virtual isolation of V_1 from other parts of the circuit. L_1C_4 is effectively a parallel rejector circuit, which provides a very high impedance between the junction of C_2C_3 and earth. Thus, maximum feedback occurs only at the frequency to which L_1C_4 is tuned, all other frequencies being bypassed to earth and not appearing at the grid of V_1 .

In this circuit, the main requirements for stability and a good waveform are:—

1. High stage gain, permitting sustained oscillation with the lowest possible values of C_2C_3 .
2. Virtual isolation of tuned circuit L_1C_4 from the valves and other parts of the circuit.
3. A mechanically stable tuned circuit mounted in a screening box.

High stage gain may be achieved by using pentodes with suitable values of load resistance. Isolation of the valve and L_1C_4 —a very

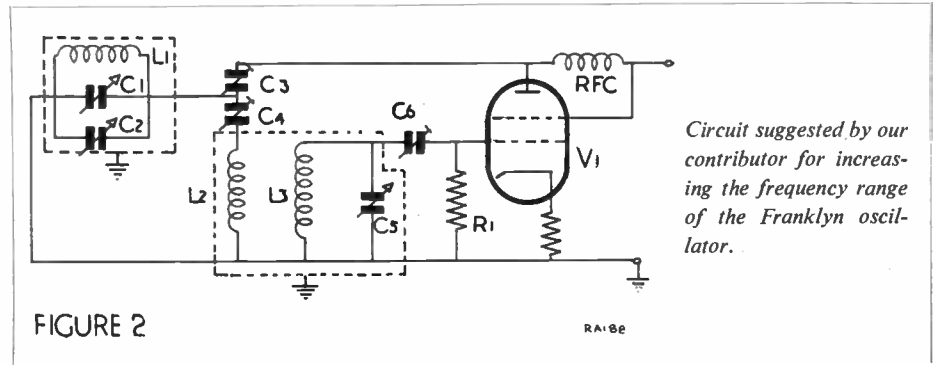
important factor—is provided by reducing C_2 and C_3 each to about 1 or 2 $\mu\mu\text{F}$; the actual value will be determined by the minimum setting consistent with continuous oscillation.

Changes of valve capacitance with temperature and voltage variation have little or no effect upon the frequency determining circuit L_1C_4 and a very stable oscillator will result. Since the resultant loop gain is only a little more than unity, the valves are operated practically linearly, thus, the waveform (and hence the "tone" if used as a VFO) is pure.

Despite its many virtues, the circuit in this form has one rather serious limitation, in that the maximum usable frequency is of the order of 3-4 Mcs. This limitation is due to the fact that it is in a broad sense an audio oscillator, and with resistive loads the effective gain falls to zero above the frequency quoted.

After consideration of this limitation, coupled with the fact that multiplier stages to, say, 14 Mcs become rather prohibitive from a space and power consumption viewpoint, the writer is putting forward a suggestion,

(Contd. on p. 290.)



Circuit suggested by our contributor for increasing the frequency range of the Franklyn oscillator.

AN AUDIO FILTER UNIT

by E. GOVIER.

An article written by our contributor on a similar unit appeared in our issue dated April, 1951. It aroused so much interest and correspondence that we feel the present improved version will appeal to both old and new readers alike.—Ed.

When a previous article on a similar unit was published in this magazine some time ago, an astonishing number of letters and queries were received by the writer which was, to say the least, most surprising. For the most part, they professed astonishment that such a cheap and simple unit design has not appeared in the radio Press for a long time, and were even more taken aback when they found by practical experience that the unit actually worked!

There are, of course, many ways in which to improve the selectivity of a receiver but probably the most simple (one does not have to delve into the internal circuit) method is to construct a filter such as the one described here. When completed, it only needs to be plugged into the phone jack and operated externally as an add-on unit.

Circuit

Basically, this operates as a switchable base cut on the audio frequencies as delivered from the output stages of the receiver, several degrees of this cut being available by means of a Yaxley type switch. Provided the circuit values are adhered to, it will be found that the audio base cut is progressively greater as the switch is advanced, position number six providing the greatest amount of cut at a pre-determined value. Position seven offers an amount of variable audio selectivity over the whole range of the unit, the variable resistor shown controlling the amount of cut as selected by the operator.

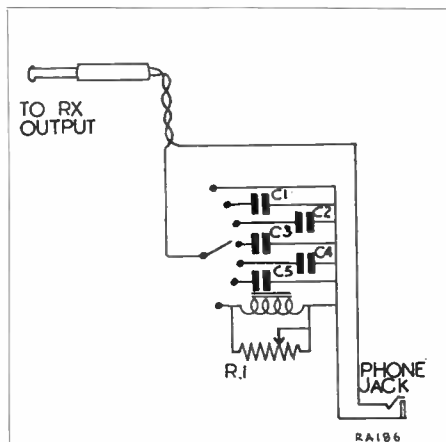
The unit as shown consists of the following few inexpensive parts—a few mica capacitors, a Yaxley type switch (seven or more positions), an aluminium chassis size $6'' \times 4'' \times 2\frac{1}{4}''$, a phone plug and jack, a length of twisted cable, a potentiometer, and an inter-valve transformer. All of these components are available from Messrs. Kendall & Mousley, of 99 Dudley Port, Tipton, Staffs., who kindly provided the writer with these components.

The transformer used has a great bearing on the efficiency of the unit, and the one finally selected was an Elstone Type LF36. Tag number three of this transformer should be connected to the Yaxley and tag five to the phone jack.

When completed, the unit should be plugged into the phone output of the receiver and the

headphones into the unit jack. On position number one, the output is normal. On position two, the audio is taken via C1, a $.001 \mu\text{F}$ capacitor, which provides the first audio cut, each successive position to number six giving greater selectivity.

The use of such a unit as this provides the operator with a choice of audio frequencies which is of enormous help when receiving signals amid the QRM. Cheap to build and easy to operate, it is an extremely useful little gadget, which will very soon prove its worth to those interested in receiving Dx. Suitable for both superhet and straight receivers, it is a worth while addition to the shack equipment.



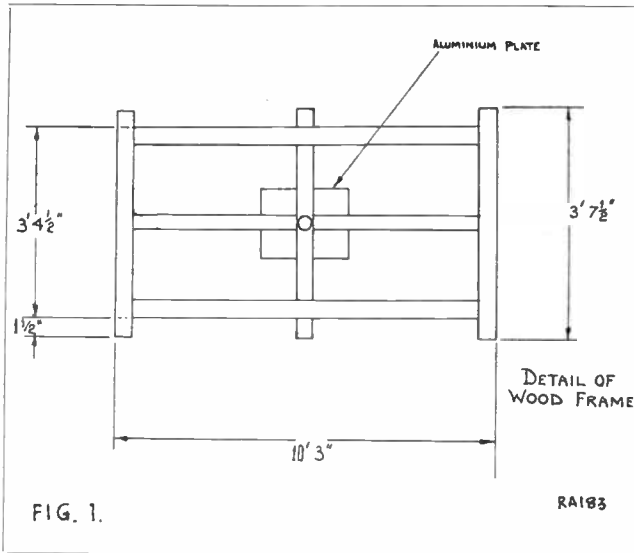
COMPONENT VALUES

C1	.01	Mica	R1 100k ohms, pot.
C2	.001	"	Choke-Elstone Type LF36.
C3	.0005	"	Switch-Yaxley type.
C4	.0003	"	
C5	.0001	"	

The ZU-LS 14 Mcs Minibeam

by L. W. SKIPPER,

G4LS



From time to time someone comes along with a revolutionary idea for something new in the way of aerials. Sometimes they work; sometimes they don't! Here is a description of a rotary beam which breaks a good many rules of the game but which will give the experimentally minded something to try out. As the author says "He's tried it and it gave him some extra countries." So have a go and let us hear how you get on with it.—Ed.

"I've got an idea," said a very well known and friendly amateur; G4ZU to wit,—“Have tried it myself and it works, now you have a go!”

That started it, and so after much experimenting, the following improved 14-Mcs reflector antenna beam was designed. Results were good and the principles can be applied to other frequencies.

First construct a light wood frame, using approximately $1\frac{3}{4}$ in. \times $\frac{3}{4}$ in. batten with the following dimensions (see sketch No. 1) Next cut a piece of tubular 300 ohm feeder, 25.5 ft. long—not the flat ribbon, as this is too affected by climatic conditions and does not lend itself to construction so well, as will be seen later. Cut away the black polythene insulation carefully, for about $\frac{3}{4}$ in. at the ends, so as to leave the bare wire, and from the ends of the wire, measure to the *exact* centre of the tubular feeder and mark with a piece of white tape. From either side of that centre (12 ft. 9 ins.), carefully cut a slit in the insulation 1 in. long about $\frac{1}{2}$ in. either side of the centre mark—do not damage the wire in doing this. Now measure off a piece of 14-gauge enamel wire 37.5 ft., fold it back on itself so as to get the *exact* centre and mark this *exact* centre with a piece of white tape, then stretch out

the wire again and proceed to feed this wire down the tubular feeder, watching through the slit already cut, for the white tape to appear, when the white-taped wire shows itself, gently pull through the slot for about an inch and cut in the middle, and clean off the enamel sufficiently for soldering purposes.

A piece of flat distrene, or polythene, 2 in. \times $\frac{3}{4}$ in. is obtained and a hole the diameter of the 14-ft. gauge wire is drilled $\frac{1}{2}$ in. from each end (perspex can be used, but is not a good dielectric). Now bind up the slit in the 300-ohm tubular with insulating tape, leaving the ends of the 14 gauge sticking through. Push this wire into the holes drilled in the distrene, and solder them to the length of 72 ohm flat black twin feeder you require.

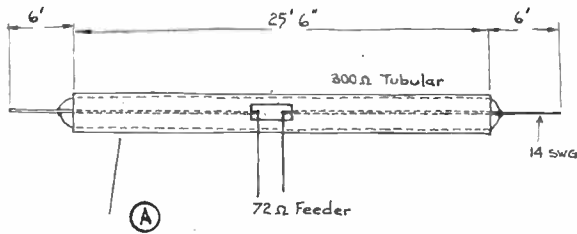
The flat distrene is pressed against the 300-ohm tubular and fastened in position by a little insulating tape. Having got the feeder fastened on, the whole tubular and wire assembly is stretched out and the enamel cleaned off the 14-gauge wire, where it meets the bared wires of the 300 ohm tubular wire, and solder these three wires together at both ends, in other words, you make a folded dipole arrangement with 6 ft. of 14-gauge wire left out of the tubular at both ends.

You can now see the reason for using tubular feeder instead of flat, not only does round feeder lend itself better for holding the 14-gauge wire, but it also protects it against weather, and rain drains off. Finally, a rubber bung is pushed in each end of the tubular feeder, so as not to split the insulation, or the ends can be taped, this being done to avoid rain or moisture, getting inside the feeder. Carefully fold around your wooden frame and tape (especially at the ends) in position, this assembly. If done correctly you should find that the ends of the tubular do not meet on one side of the wood frame, this is correct. Some light insulator, polythene rod, will do nicely is cut to 7 in. in length and at $\frac{1}{2}$ in. from each end a hole, the diameter of the 14-gauge wire is drilled. The 14-gauge wire is pushed through the hole at each end of the polythene rod and pulled taut, thus leaving a space of about 6 in. between the two wires. These are then bent at right angles to the wood frame and two 6 in. spacers fixed on the copper wires (or stub) to keep them apart.

The 72 ohm feeder should in some way be anchored to the wood frame, to prevent drag, and then the whole assembly mounted up as high a convenient, so as to allow for trimming the stub for best forward gain.

For trimming the stub, i.e., the two approximately 6-ft. long wires hanging down, use a good field strength meter, placed as far as possible from the beam and at the same height. Connect the 72 ohm feeder to trans-

mitter with an RF ammeter in the feeder, point the stub, which we now call the front of the beam, towards the field strength meter. Take the FS meter reading and note the RF amps, write them down for reference. Then without touching the transmitter controls, turn the beam right round (stub at back) take FS and RF meter readings and write down. The front maybe higher or lower than the back, but don't worry, turn beam stub to face FS meter again, do not touch transmitter controls—and carefully cut $\frac{1}{2}$ in. off each leg of the stub, take reading of both meters again both back and front, and soon you will begin to observe that the front (stub) begins to give higher FS meter readings, and the RF current gets greater. Having arrived at this point, proceed to cut off $\frac{1}{4}$ in. from each leg, until you find the meters take a turning point, they begin to fall slightly. At this point hoist the beam to its final position in the air and if possible set up transmitter to the same watts input, put stub to face FS meter, take RF and FS meter readings again. A change will be noted probably lower meter readings, and so if possible by means of ladder or pair of steps, try to cut off another $\frac{1}{4}$ in. (NO MORE) from each leg of the stub, and so on until when you turn the beam from back to front, you will note a big change in FS meter readings. If you are satisfied that you are at maximum, then leave it, if you have cut too much wire off, well, haul down and solder on 2 or 3 ins. of wire onto each leg and retrim $\frac{1}{4}$ in. at a time again.



A shows the construction of the radiating element.

B gives dimensions of the radiator round the beam frame.

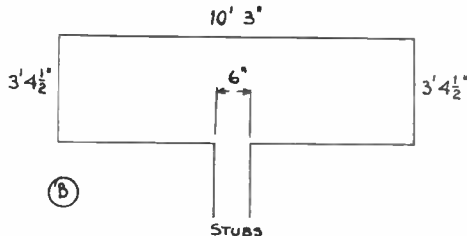


FIG. 2

RA184

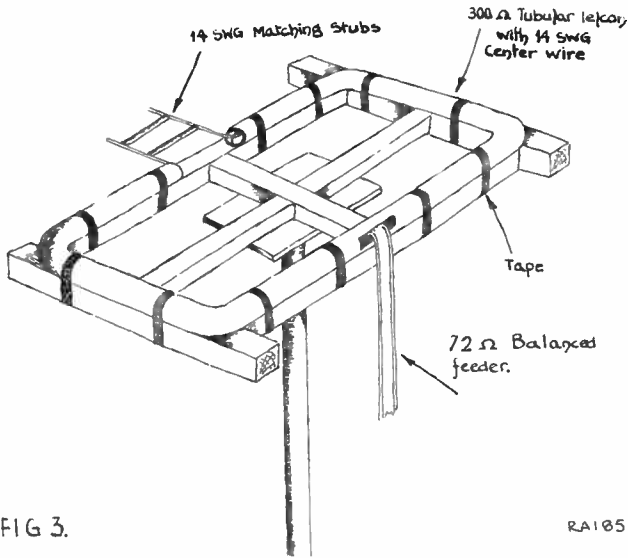


FIG. 3.

RA185

All this takes time and patience, but in the writer's case it paid to be careful with the cutting, as he now has about 18 db's forward gain. (!!!—Ed.)

For its size and weight—about 3½ lbs.—ease of construction, and low cost, it is well worth a trial, especially where some amateurs are faced with lack of space in which to put a beam.

“Well! I've had a go: and all I can say, is, it suits me.”

Any help or further information will be gladly given by the writer, provided a S.A.E. is enclosed, and although it may not be technically correct, it does the job as a reflector beam. Finally, a few new countries at 50 watts input and on FM, have been worked at 8 to 9 signal strength, including the rare SVØWP/P at 589 each way (50 watts input and on FM.)

The writer wishes to acknowledge that suggestions put forward by 4ZU have been very helpful.

Experimental V.F.O. (Contd. from p. 286.)

based on rather limited practical tests, for the extension of the operating frequency, whilst retaining as far as possible the inherent stability of the system.

The gain of the system could easily be retained by substituting tuned circuits for the anode loads, but the introduction of further LC circuits of high selectivity is to be avoided, since this immediately increases the “probability factor” of drift and cessation of oscillation due to malignment of tuning arrangements.

A suggested circuit for use at the higher frequencies is shown in Fig. 2: the tuned circuit, L_3C_5 , in the grid/cathode of V_1 is used in conjunction with the feedback coil L_2 to provide oscillation in the normal way, but should be flatly tuned such that the actual frequency of operation is determined by L_1C_1 (C_2 being the bandsread capacitor). If L_3C_5 is of sufficient “Q” to provide the necessary oscillation together with an adequate coupling with L_2 , C_6 may also be of a low value to assist in reducing valve effects on the tuning.

The valve used in this circuit should preferably be a tetrode of high slope, of the order of 9-10 mA/V; with optimum coupling between L_2L_3 , sufficient feed back should be obtained to enable C_3C_4 and C_6 to be reduced to reasonably low values.

The value of R_1 will be determined by the time constant of R_1C_6 at the frequency of the oscillation, and thus may be adjusted as necessary when C_6 has been set at its lowest permissible value.

Capacitors 3, 4 and 6 may be preset air-spaced trimmers having values of the order of 0-10 $\mu\mu\text{F}$ for C_3 and C_4 , and 0-50 $\mu\mu\text{F}$ for C_6 ; C_5 should have as high a value as possible for the frequency used, such that it is large compared with valve capacitance plus strays.

The writer would emphasise that whilst no claims are made for this circuit, it has shown very promising results regarding stability, and the foregoing notes have been prepared for the attention of those wishing to experiment along these lines.

MAKING YOUR OWN MINIATURE SOLDERING IRON

by W. G. MORLEY

Some time ago the soldering iron which the writer used for small work burnt out, and, having an hour or two to spare, he decided to try his hand at making a new one himself. He was surprised to find that not only was this process much easier to carry out than he had expected, but also that the completed job performed just as well as a manufactured iron. Furthermore, the cost of construction was nil.

Later on, several friends also made miniature irons on the same lines; and they, too, found that their irons were easy to build and gave good results.

This article will describe the manner in which the writer made his own iron. As the design is very simple, readers will be able, if they wish, to alter dimensions or materials to suit their own ideas or to take advantage of what they have available in their spares box.

It should be pointed out here that these miniature irons work from low-voltage supplies. That made by the writer operated from 6 volts at 3 amps; this being supplied either from a conventional mains or heater transformer, or from a car battery.

Materials

The essential part of the iron is the bit. This is made from a piece of copper tubing flattened at one end in the manner shown in Fig. 1. The element consists of a coil of ordinary nickel-chrome wire. One end of this coil is held in the flattened end of the tube, whilst the other end protrudes from the open end. The body of the element coil is insulated from the copper tube by means of mica. Connection to the element is made by connecting the supply to the free end of the wire and to the copper tubing. As the bit itself carries current to the element there is no necessity to double back the element leads, and manufacture is correspondingly much simpler.

Construction

If the construction of an iron of this type is contemplated, the first thing to obtain is a length of copper tubing whose internal diameter is around $\frac{3}{8}$ in. The length of the tubing should be approximately $2\frac{1}{4}$ ins. If tubing of this type is not immediately available, it should be possible to obtain a length as short as this from almost any garage which carries a reasonable stock of spares.

One end of the tube should now be lightly hammered flat, a 1 in. 6-BA steel bolt being primarily inserted to prevent the flattened end closing up completely. An attempt should be made to keep this bolt to one side of the tube

whilst the hammering is in progress. Fig. 2 (a) gives a side view and Fig. 2 (b) an end view of the tube after hammering. The bolt may now be removed, (by unscrewing), whereupon the end of the tube should have the appearance shown in Fig. 2 (c). A bolt is used, incidentally, instead of, say, a nail, because the copper would bind too tightly on the latter and it would be difficult to remove.

The next step consists of preparing the element. The writer obtained his from an old one-kilowatt electric fire. The complete fire element was of the familiar coiled type, the coil diameter being approximately a $\frac{1}{4}$ in. Several inches of this wire were removed and one end was carefully straightened out. The coil was then reduced in diameter by bending the "turns," one after the other, between the fingers. The final appearance of the element approximated to that shown in Fig. 3. The new coil diameter should be such that the element fits loosely into the copper tube.

It should be remembered that nickle-chrome wire is fairly brittle, especially if it has been previously used; and the operation just described must be carried out with care. There is no point in trying to make the smaller-diameter coil look especially neat; indeed, in some cases, the wire will break before this can be achieved. About 15 to 25 "turns" for a length of two inches will be required, and it should be quite simple to obtain this and keep the wire reasonably well spaced.

It is not entirely necessary, of course, to obtain the wire for the element from that used in an electric fire; and constructors will, doubtless, avail themselves of other sources. However, the wire chosen will need to be sufficiently thick to form a self-supporting coil, and the length required will be that which draws about 3 amps from a 6 volt source of supply, (or which warms up to a temperature just below dull red when connected to a 6-volt supply). "Resistance wire" should not be used. (By "resistance wire" is meant that type of wire which is used for making fixed wire-wound resistors, meter shunts, etc.)

Insulation

Before the element can be inserted into the tubing a small amount of mica must be obtained for purposes of insulation. As the voltages used are very low, heavy mica is not needed. Suitable mica may be obtained from trimmers, padders and similar components, or even from the electrode assemblies of unservicable valves. The writer obtained sufficient mica for his

iron from an old three-leaf padder, this yielding five pieces of mica about an inch square.

The element may now be fitted into the bit. This should be done slowly, the mica being wrapped around each portion of the element as it is pushed in. Whilst being inserted the element should be continually rotated in the direction which causes the coil to tighten.

It will be found that wrapping the mica around the element will cause it to split in various places. Where this occurs a second piece of mica should be added to cover the split section. Similarly, a second piece will be needed to cover any holes which existed in the original mica.

When the element has been inserted sufficiently far, its straight end will project through the flattened end of the bit. The element should now be carefully rotated, (from the open end), until the projecting wire lies approximately in the same place as did the bolt in Fig. 2 (b). Holding the straight part of the element against the side, the end of the tube should now be inserted in a vise, fitted with smooth vise clamps to avoid marking the copper, and finally flattened. The end of the bit should now resemble that illustrated in Fig. 4 (a). Whilst still in the vise, the tube should next be bent slightly to give the off-set appearance shown in Fig. 4 (b).

The bit may now be checked for operation and shorts. To do this, the coils of element wire projecting from the open end of the tube should be carefully straightened out and the whole unit connected up in the manner shown in Fig. 5. If all is well, the element should draw the same current whilst in the tube as it did before it was inserted. Should an ammeter not be available, the element should give a faint dull-red glow when viewed away from the light. The bit should be tapped several times during the test to obviate the possibility of intermittent shorts. After a minute or two, the flattened end of the bit should be sufficiently hot to melt solder.

In one or two instances (depending mainly on the type of wire used for the element) it may be necessary to reduce the input voltage to 4 or to increase it to 8 volts to get best results. (This has not been the writer's experience, incidentally.) In such cases, the best input voltage should be found empirically.

Mounting

After the bit has been constructed, all that remains is the problem of making a suitable mounting for it. A simple and effective mounting is illustrated in Fig. 6. (A handle is not shown in this diagram.) In Fig. 6 the bit is

clamped to a length of 4 BA studding, this latter also carrying the current to the element.

That part of the element which projects from the open end of the tube is taken to a small insulated mounting fastened some way back along the studding, and connection is made via a 6 BA bolt in the manner shown. If a suitable ceramic moulding is available for the insulated mounting this would prove ideal; but, as the heat at this point of the iron is quite low, an insulator made of composition should prove adequate in most cases. An alternative scheme for the insulated mounting is shown in Fig. 7. If desired, the bare part of the element may be covered with porcelain beads, but this is by no means essential.

A Handle

A handle for the iron may be made from wood or any other suitable material. A simple handle could be made by splitting down a length of heavy TRS sheathing, folding it around the end of the studding, and holding it in position with tape or whipping cord.

In some cases it may be considered desirable to reduce the area of the flattened part of the bit. If this is done, care should be taken to ensure that the element connection is not disturbed. Fig. 8 shows the best method of reducing the bit area. As may be seen, this method ensures that the end of the element is still held firmly in the fold of the copper.

A Typical Example

The photograph on our cover illustrates a typical example of a soldering iron made in the manner described here. The writer would like to point out that this particular iron has already been in use for several hundred hours and has been accidentally dropped on the floor at least twice. Despite this treatment it is still going strong and giving very good service.

PHILIPS FREE OFFER

Our contributor, Roy Patrick, informs us that Philips Advertising Division are offering to SWL's a new colour World Map printed in 16 colours showing most of the world's short wave stations. To enable newcomers to get the most enjoyment out of short wave listening, they are also offering a booklet entitled *The Mystery Solved* giving all particulars about short wave reception.

Both publications can be obtained from:—
General Advertising Division, Philips Electrical Ltd., Eindhoven, Holland.

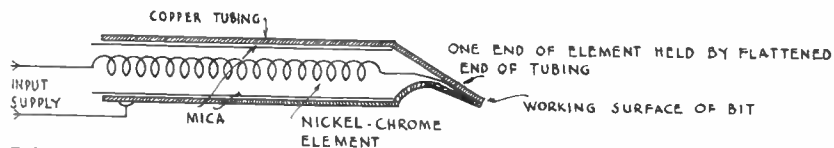


FIG. 1.

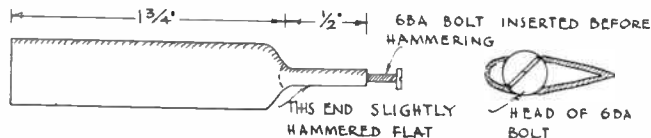


FIG. 2 (A)

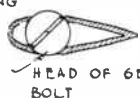


FIG. 2 (B)



FIG 2 (C)

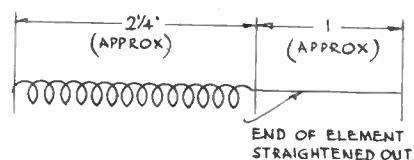


FIG. 3.

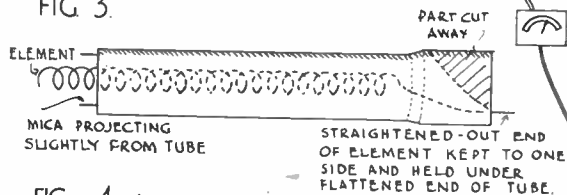


FIG. 4 (A)

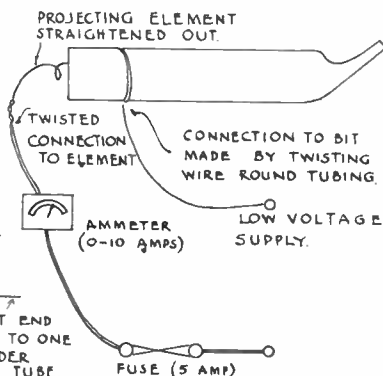


FIG. 5.



FIG. 4 (B)

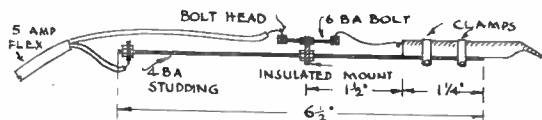


FIG. 6.

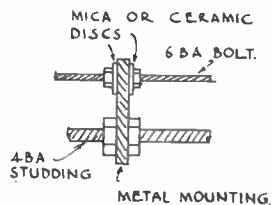


FIG. 7. RA108

TALKS ABOUT VHF

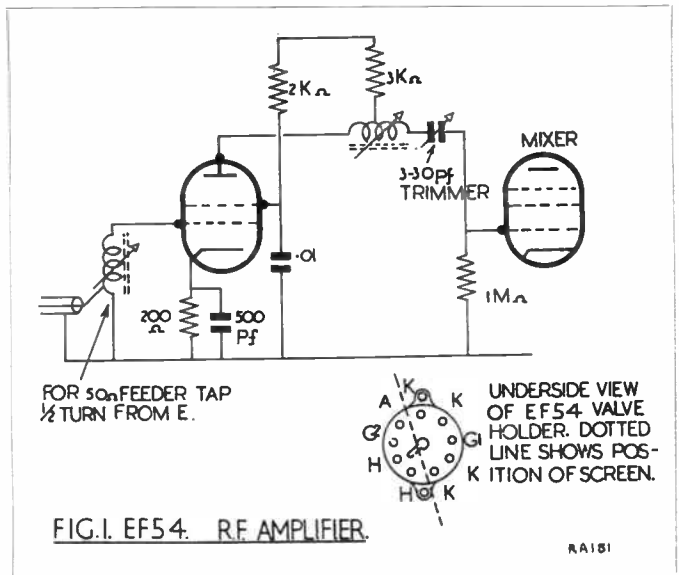
by H. E. SMITH, G6UH

Converters. (Some hints on the use of older types of valves.)

It is not everyone who can afford to purchase several 6J4s or 6J6s in order to "try out" the VHF bands, and many seem to think that valves such as the EF50, EF54, Z77 and 954, give such an inferior performance on 144 Mcs that they are not worth considering. The above question has been dealt with from time to time in this Journal, but this time we will go into it more thoroughly.

First of all, let us look at the EF54/VRI36. Having a noise figure approximating twice that of the 6J4 (700 ohms), this valve will make an excellent RF amplifier or mixer for the 2 metre band, provided it is used in a suitable circuit. Next, the EF50. When used as an oscillator this valve has a habit of breaking into modulation hum, making it impossible to obtain a T9 note from any signal. The only real cure that we have found is to apply DC to the heater, via a suitable metal rectifier and smoothing circuit. As a mixer however, it can be used with some success, provided some simple precautions are taken. These are shown in the accompanying diagrams. The MOV Z77 also makes an excellent mixer. Its performance as an RF amplifier at VHF is quite fair, but its relatively high noise figure (1000 ohms) is not conducive to a great degree of efficiency in the reception of weak signals. The 954 pentode (Osram ZA2) can be used to its best advantage as an oscillator, although it may also be pressed into use as a mixer. Fair results have been obtained by using this valve as a neutralised triode in a cascode circuit, but the results did not justify the enormous trouble taken to ensure satisfactory operation. Now we will go back to the EF54 and see how optimum results may be obtained from it as an RF amplifier on 144 Mcs. Fig. 1 shows an EF54 RF amplifier feeding another EF54 as mixer. One RF stage is enough, because of the high gain. Don't forget that the input and output capacitance is fairly high, which means that the coils will be smaller than those specified for an RF stage.

using B7G type valves. The grid coil in Fig. 1 should consist of three turns of 16 SWG wire, each turn spaced approximately $\frac{1}{16}$ in. The coil should be so positioned that the leads to the valveholder do not exceed $\frac{1}{4}$ of an in. The former used is $\frac{3}{8}$ in. diameter, and tuned with a dust iron slug. The anode coil is identical except for the centre tap, and once again, the leads from the valveholders must be made as short as possible. It is *most important* that the grid and anode coils are completely screened from each other, otherwise there will be a tendency to regeneration. With this type of RF amplifier, there should be little or no change in the "hiss" level when the grid coil is tuned for resonance. The slug should be adjusted on a weak signal somewhere in the middle of the band, and left set in the best position. If the hiss level rises suddenly when the grid coil is tuned, you can be pretty sure that some regeneration is taking place, which is an indication that the screening between the input and output is not complete enough. Regeneration in the RF stage may be quite a useful thing on the LF bands, but on VHF it just destroys the signal to noise ratio and many weak signals will be lost in the noise level. On the subject of noise, the valve with the lowest *equivalent noise resistance* figure is the one to choose for the RF amplifier, provided of course, that the valve is designed for use up to 150-200 Mcs. Provided some of the other



Triodes $R_n = \frac{2.5}{G_m}$ ohms.

Pentodes

$$R_n = \frac{I_a}{I_a + I_{g2}} \left(\frac{2.5}{G_m} + \frac{20 I_{g2}}{G_m^2} \right) \text{ ohms.}$$

Where $G_m = \text{Mohs.}$
 $I = \text{Current in Amperes.}$

The EF50 may also be used in a similar circuit to the EF54, but it must be remembered that it has a much higher noise figure than the EF54. This valve will probably be found more useful as a mixer, and we shall be dealing with this application in our next edition. Next the MOV Z77, of which very little is mentioned in journals and text books regarding VHF application (we can't think why not). As a pentode, this valve has a slope of 7.5 Ma/V and a noise resistance of 1000 ohms. Wired as a triode, it becomes quite interesting. The slope rises to 9.5 Ma/V and the noise figure falls to below 300 ohms. In actual practice, the Z77 is only very slightly inferior to the 6J4 when connected as a triode RF amplifier, either as a Grounded Grid or neutralised triode. The input capacitances are slightly higher than the 6J4, G1/Cathode 10 pf, Heater/Cathode 4 pf, so the inductances will need to be somewhat smaller than the 6J4. When triode connecting a Z77, the suppressor should be taken to anode, which means that pins 5, 6 and 7 are connected together.

Next month we hope to deal with VHF mixing circuits, using some of the valves mentioned above.

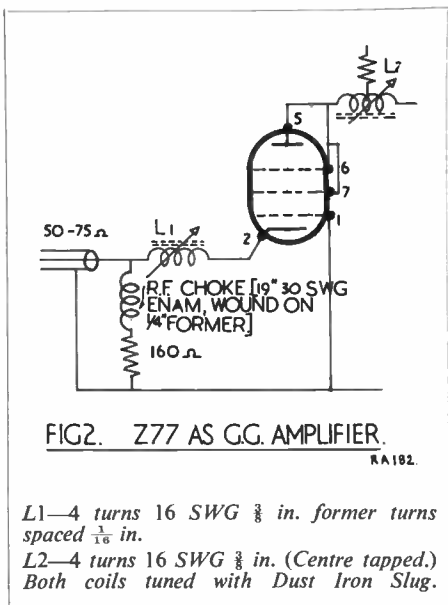


FIG2. Z77 AS G.G. AMPLIFIER. RA182.

- L1—4 turns 16 SWG $\frac{3}{8}$ in. former turns spaced $\frac{1}{16}$ in.
- L2—4 turns 16 SWG $\frac{3}{8}$ in. (Centre tapped.)
- Both coils tuned with Dust Iron Slug.

constants are known, there is an easy method of arriving at the approximate noise resistance figure of a valve. (These details were outlined by E. G. Hamer Esq., B.Sc., A.M.I.E.E. in the February 1953 edition of *Electronic Engineering*) as follows :—

MOONBEAMS and MOONSHINE

by O. J. RUSSELL, G3BHJ

The amateur world, (or at any rate the clientele of certain radio journals blessed with a touching faith in their fellow men) was recently electrified by a sensational report that a transatlantic QSO had taken place on 2 metres via waves reflected from the Moon. Those journals who were more suspicious concerning the technically peculiar features of the report—to wit unusually high signal strengths in view of the equipment used, coupled with circumstantial details of tables showing the position of the Moon at five-minute intervals, the aiming of beams with theodolites—all sufficient to arouse deep suspicion in the technically cognisant—are now very glad that they did not rush in with sensational reports. The whole story was in fact an April Fool spoof of the first magnitude, and in some cases enthusiasm led to reams of matter being published heralding a new Dx era for the UHF frequency bands. This is perhaps excusable in view of the fake

report coming close behind the genuine achievement of American amateurs in obtaining readable moon reflection signals, although no actual QSO has resulted from these experiments to date.

All this does arouse however, the question of whether such "moon reflection Dx" will ever eventuate. There can be little doubt that such "moon reflection" Dx will be achieved. In fact as American amateurs have been able to record faint moon-reflected echoes from 1 kW 2 metre pulses, it is only a matter of time before actual two-way contacts—of a sort—are achieved. Moreover, it is to be noted that the Collins Radio Company in America has actually succeeded in transmitting CW by Moon Reflection on 420 Mcs. In fact, were the equipment available, there is little doubt that these moon-reflected signals—appropriately

(Contd. on p.306.)



BROADCAST BANDS REVIEW



All Times G.M.T.

“Nf” New Frequency.

by J. FAIRS

There has been quite a flood of reports and letters flying around during the past month, and so we will curb the temptation to indulge in any form of preliminaries and see how much we can squeeze into the space available !

EUROPE

Ireland. A new reporter from the “ Emerald Isle ” starts us off this time. Patrick Cody of Roscrea, Co. Tipperary, says that a letter from “ Radio Eireann ” stated that the high-powered Short Wave station at Moydrum is fully completed with the exception of some of the aerial equipment, but no indication was given of when test transmission should commence. (Drop us a line, Patrick, if you get to know ! Tnx.)

Netherlands. “ Radio Nederland ” has dropped the long-established 21480 kcs channel and is intending to open a new outlet in the 15 Mcs band. (“ Sweden Calling Dxers.”)

Luxembourg. The new 50 kW transmitter of “ Radio Luxembourg ” operates on 15350 kcs at 1100-1300 and on 6090 kcs at 1800-2300. (Roy Patrick, Oldham.)

Portugal. “ Emissora Nacional,” Lisbon, has been heard using 5975 kcs (Nf) when signing-on at 2400, and also on 7230 kcs (Nf) around 2230, with bad modulation and repeated breaks in transmission. (“ Universalite,” bulletin of the Universal Radio Dx Club of Hayward, California, USA.)

Trieste. Just after the appearance on SW of the FBS Tripoli, comes the British Forces station in Trieste. Bill Griffith of Ashted, Surrey, lists this station on 15125 kcs, heard with S7-8 signals at 2115. Mike O’Sullivan (West Hartlepool) says he has received a letter from them which gives the schedule of experimental transmissions on 15125 kcs as 1600-2300 daily. (The address would have been appreciated, Mike ! Or is it Via Bellosguardo 8, Trieste, as listed for the MW station in “ World Radio Handbook ” ?) John Whittington of Worthing logged them on approximately 15150 kcs (June 1st), at 2230 with a programme called “ Caribbean Carnival ” to close at 2300 with “ God Save the Queen ”; a letter verification has since been received.

(Still no QRA ! Scribe.) Trieste was on 15125 kcs on June 26th, and on 15160 kcs the following day. (Scribe.)

Greece. The Central Broadcasting Station of the Greek Armed Forces, Athens, has again been using 7420 kcs. (URDXC and Scribe.) According to URDXC, the announcement is “ Edho Athine, Kendrikos Radiophonikos Stathmos Enoplan Dhynameon Helladhos.”

In our June “ Review ” we reported “ Radio Ioannina ” as being an apparently new station; Bill Griffith queries this and of course he is quite correct. This is, no doubt, the same station that has been called “ Radio Jannina ” for quite a long time now. (Oh, for a standardized spelling of some of these place-names.) Bill lists Jannina—or Ioannina, or Yannina—on 7080 kcs with good strength around 1730.

Poland. 9615 kcs is a Nf used by “ Radio Warsaw ” for Yugoslavian and Russian transmissions. (WRH.)

USA in Europe. “ Radio Free Europe ” is no longer operating on 5960, 6020, 7175, 7180 and 11855 kcs; 9655 kcs (Nf) is used for the Polish service. (WRH.)

AFRICA

Zanzibar. “ Radio Zanzibar ” is on the air at 1500-1600 weekdays only, on the listed 4795 kcs; all programmes are in the Swahili language. (WRH.)

Union of South Africa. The latest schedule of the SABC Home services is too lengthy to repeat in full in these pages, but frequencies used are as follows. English programmes are on 3290, 4370 (Nf), 4800 and 6095 kcs (Nf). Afrikaans programmes are on 3370, 4890 (Nf, ex-4895) and 6007 kcs (Nf). “ Springbok Radio ” (Commercial) is using 3356, 4945 and 7295 kcs. All the above are broadcast from Johannesburg. Afrikaans programmes from Cape Town are over 5892 and 7255 kcs. (WRH.)

The 3370 kcs channel has been logged by Ian Hardwick (Thames Line, New Zealand), with weak signals until 2145 on Saturdays (0945 Sundays NZ Time).

The Africa Service from Johannesburg is

at 0815-1200 (Saturdays and Sundays to 1345) on 15230 kcs, and 1400-2035 on 11930 kcs. (WRH.)

Sao Tomé. Station CR55C of the "Radio Clube de Sao Tomé e Principe" on 4807 kcs is sometimes a good signal until close with "A Portuguesa" at 2100. (Sidney Pearce.)

Egypt. The 11965 kcs Cairo frequency mentioned last month has been heard sign-on at 1500 with a clock striking "5 p.m." (Pearce), and closing at 2400 (Arthur E. Lewis, London.)

Libya. Quite a few readers seem a little mixed-up about this country. The Kingdom of Libya has, since January 1st, 1952, been an independent state with Tripoli as the capital; Cyrenaica, Tripolitania and the Fezzan are now merely the three federated regions which make up the Kingdom. (Yes, some of those Country Lists are becoming a little out-of-date !)

The Forces Broadcasting Station, Tripoli, moved to 4965 kcs (Nf) on June 22nd. This news was included in a very friendly and informative letter veri (plus QSL card) received by your Scribe from the Station Commander, No. 1 FBS. The main transmission on 1484 kcs MW is by an ET 4750 Tx of 7.5 kW power; the SW Tx is a BC610 running 250 watts to a dipole antenna. We quote: "The need for the SW service is in case we should want to broadcast to outlying troops. As you probably know, Medium wave propagation over desert is very poor, surprising as it may seem at first sight. At the moment any outlying listeners we may have, get several other stations on top of us at night, due to low field strength at distance, and the terrible overcrowding of the Medium waves.

"Our job, together with all the FBS stations, is to take a radio service wherever British troops serve in the world. We relay some GOS and complete a day's broadcasting with quite a compliment of local origin. . . . You may like to mention that we are always delighted to hear from amateurs, and they will always be assured of a reply to their much-appreciated reports."

D. A. Read (Melksham) and Philip J. Vincent (Shepperton) both report the station on the new 4965 kcs (announced) with signals peaking to Q3 S6-7 by sign-off at 2100. The QRA is: Station Commander, No. 1 Forces Broadcasting Station, Tripoli, MELF1. No. 2 FBS is at Nairobi, Kenya, No. 3 at Cyprus, and No. 4 at Benghazi, Libya.

Moçambique. The Portuguese programmes of the "Radio Clube de Moçambique," Lourenço Marques, have been heard well on 11952 kcs from around 1600 onwards. (Sidney Pearce. This will be CR7BE. Scribe.) CR7BU was logged on 4965 kcs (measured) with the English-sponsored programmes around 1900. (D. A. Read. Rx's: Eddystone 750 and SWN 1-V-1. D.A.R. says he is a little lonely down there in

Wiltshire, and if anyone would like to drop him a line, his QRA is "Wortleys," 24 Broughton Gifford, Melksham.) Ivor J. Street (Worcester) also lists CR7BU with a religious programme at 2000-2100.

Patrick Cody had a good find with his R1155, in the shape of CR7AB on 3490 kcs (English service) which was heard recently at quite good strength around 1930 when a request programme was featured. Reports and comments were requested to PO Box 594, Lourenço Marques.

NEAR EAST

Syria. The Syrian Broadcasting station, Damascus, has commenced a Central and South American Service at 2400-0200 over the 20 kW Tx on 11915 kcs; languages used are Portuguese, Spanish and Arabic. (WRH.)

ASIA

Thailand (Siam). The new 50kW transmitter of "Radio Thailand" will have the call sign HSK9. English programmes to Europe at 2200-2300, and to North America at 0300-0400 should now be in progress, but no frequencies are available at the time of writing. We might suggest the frequencies already listed for this country should be "worth a listen" at the above times, though would not like to give anything definite; as it is, our guess at the call sign of the 7140 kcs outlet last month was apparently incorrect ! HSK6 is now reported to be on 15915 kcs.

Taiwan (Formosa). BEC22 Taipeh, the Chinese Air Force station, is reported heard in Australia on a varying 9820 kcs (Nf, ex-9775). (URDXC.)

Ceylon. The Commercial service of "Radio Ceylon" is reported by URDXC on 3320 kcs (Nf). Ivor Street lists the 7190 kcs channel, Q3-5 S6-7, heard at 1500-1530 in parallel with 11975 kcs. Sidney Pearce reports hearing a native programme on 7190 to close at 1630, while 11975 is heard on Saturdays up to 1730.

China. 13625 kcs is a Nf for "Radio Peking," used in parallel with 15060 kcs at 0300-0330 in English; other English transmissions are at 0900-0930 on 6100, 7500, 9040, 10260, 11690, 15060 and 15170 kcs, also at 1330-1400 on 11690 and 15060 kcs. This latest schedule appears to have been sent to everyone who has ever written to "Radio Peking," including Manfred Lepple (Stuttgart, Germany), Bill Griffith, Patrick Cody and Sid Pearce.

Indonesia. "The Voice of Indonesia," Djakarta, has replaced YDF6, 9710 kcs, by YDC, 15150 kcs, for the European Service. This includes French at 1700, Dutch at 1800 and English at 1900 to sign-off at 2000 and YDF7, 11770 kcs in parallel. (Note: Should this be YDF2, 11785 kcs, as mentioned last month, or do they consistently switch these two around? Scribe.) This item was reported by Ron Young, Chelmsford and Peter Conway,

Birmingham. The call sign of the 9 Mcs outlet is confirmed as being YDF6 via Ian Hardwick's QSL from the station.

The Home services of "Radio Republik Indonesia" are broadcast from Djakarta as follows. The National Programme is on YDB, 2446 kcs (Nf, ex-2260, 300 watts), and YDF, 6045 kcs (100 kW). The Second Programme (school and educational broadcasts) is on YDD, 3277 kcs (Nf, ex-3205, 300 watts), YDB3, 7270 kcs (3 kW) and YDE, 11770 kcs (3 kW). Times for all these transmissions are: 2230-0045, 0430-0715, 0930-1530 weekdays, and 2330-0715, 0930-1530 on Sundays. (WRH.)

Malaya. Further to the Forces Broadcasting Service, Singapore, 5010 kcs, it is now known that the Tx is a 7.5 kW RCA, beamed north up the Malay Peninsula. The station was previously operating on 4962 kcs. A report sent by Arthur Cushen (Invercargill, New Zealand) was verified by Capt. J. Edridge, OC Signals GHQ, Singapore. (Programme details were given last month.)

The BFEBs is a good signal on 11820 kcs from 1415 to close at 1630, or 1645 Sundays. (Sidney Pearce.)

Pakistan. The Home services of "Radio Pakistan" are broadcast on the following frequencies. APK2 Karachi: 7010, 7096.6, 11885 and 15270 kcs; APK3 Karachi: 11885, 15335, 17710 and 17750 kcs; APD2 Dacca: 4807, 7150 and 7225 kcs (Nf); APL2 Lahore: 3335, 3915, 4785 and 7284 kcs. The External services are radiated by a 50 kW Tx at Karachi on 6235, 7010, 9645, 11650, 11674, 11770, 11885, 15270, 15335, 17750, 17770 and 17835 kcs. (URDXC and WRH.) The English programmes at 1945-2115 are still on 9645 kcs, but 7010 has been replaced by 11650 kcs. (Roy Patrick and Sidney Pearce.) The news in English at 1515, formerly on 11674 kcs, is now heard on 5990 and 9484 kcs. (Pearce.)

Indo-China (Vietnam). Sidney Pearce has been hearing a French transmission on 7410 kcs, from around 2230 with popular recordings and French songs, News in French at 2300, and more music at 2315. The announcement sounds like "Ici Radio Hironnelle." On referring to the last reports we have of "Radio Hironnelle," the Forces station at Hanoi, the schedule on 7408 kcs was listed as 0400-0630, 1030-1500 (or 1600), but is quite probable that an "early morning" session is also broadcast.

India. News in English from "All India Radio," New Delhi, can be heard at 1530 on 3970, 4760, 4940, 7170, 9670 and 11915 kcs, according to announcements; the latter three channels are heard best. (Pearce.) 15380 and 17740 kcs are used for the English programme to Europe and the UK at 0730-0830. ("Sweden Calling Dxers.")

PACIFIC

Papua and New Guinea. The new Port Moresby station, VLT6 on 6130 kcs, is heard

well at 0800 in North Island, New Zealand, relaying the ABC Home Service. (Ian Hardwick.)

Australia. VLM4 Brisbane has shifted frequency slightly, from 4917.5 to 4920 kcs (Nf). (WRH.) Ivor J. Street hears them on this frequency with a good signal when opening at 2000.

"Radio Australia" station VLC7 (7220 kcs) was heard to sign-off at 1500, when the announcement gave 15320, 11900, 9580 and 7220 kcs for this transmission, the latter two closing at this time. VLA9 (9580) and VLC11 (11760 kcs) were both Q5 S8-9 at 0730, when the direction also included VLC17 (17840 kcs). (Ivor Street.) VLA7 (7215 kcs) is sometimes strong, but has QRM, in parallel with VLC11 (11760) at 1800-2000 with the broadcast for Europe. On Saturdays VLA9 (9580) is heard signing-on at 0645 in the British Isles Service, to be joined at 0700 by VLG11 (11850 kcs) for listeners in New Zealand. (Pearce.)

Fiji Islands. ZJV Suva is a very strong signal in New Zealand on 3980 kcs (Nf) at 0530-1000. (Ian Hardwick.) Arthur Cushen tells us that reports were received by ZJV from as far as Sweden, Norway and the USA. The station will stay on 3980 kcs for some time to come and it "is the best frequency yet." The studios are in the Cable and Wireless Building, Victoria Parade, Suva, and the transmitter is three miles away from the town. Transmitters are of the Fiji Broadcasting Commission, 2 kW on 930 kcs (MW) and 500 watts on SW. The schedule is now 0530-1000 on Sundays, and 0530-1000, 1900-2100, and 2400-0200 on weekdays.

United States. The reduced schedule of the "Voice of America" is now in operation, and English programmes are at 1345-1415 to the Far East, 1500-1530 to the Near East, 1615-1645 to Europe, and 0030-0100 to Latin-America. (WRH.)

Canada. The address of the CBC International Service has been changed from PO Box 7000, and is now PO Box 6000, Montreal. (Patrick Cody.)

Mexico. XEXE Mexico City, 11900 kcs, is now announcing "XEQ y XEX, la Ciudad de Mexico." Both these are MW calls, but XEQQ, 9680 kcs, which has been relaying XEQ, is off the air; there must have been a merger of these two medium-wave stations. (Marvin E. Robbins, Indianapolis, USA. Rx: National NC-183 with RME DB-22-A Preselector. Antenna: 70-ft. "V"-type aimed at South America.)

Ian Hardwick lists the rarely-reported XEOI "Radio Mil," Mexico City, heard with popular recorded music at 0530 to close at 0600. XESC Mexico City, 15205 kcs, was an outstanding performer for John Whittington and Ed Classe around the middle of June, between

2230-2400. XESC was heard as early as 2115 on occasions. (Scribe.)

Dominican Republic. HI2A "La Voz de la Reeleccion," Santiago de los Caballeros, has moved from 9680 to 4840 kcs (Nf); the signal peaks in Indiana around 0100, then fades to a lower level, badly mixing with YVOI Valera on the same channel. (Robbins.) HI9T "Broadcasting Tropical," Puerta Plata, has returned from a varying 6215 kcs to the original 6190. (URDXC.) We believe the location of HI4V "Radio Baru, La Voz del Sur" on 3375 kcs (July "Review") to be La Vega. (Scribe.)

El Salvador. Station YDSR "Radio Tropical," Santa Ana, 4800 kcs, has been heard to sign-off at 0600 (June 20th) by Arthur Cushen.

Costa Rica. Sidney Pearce reports "Radio Excelsior" on a frequency near 6505 kcs, logged around 0400-0500 and later; he has since received an air letter veri from the station, but no call-letters are given, only that their MW station is on 1060 kcs. The QRA is definitely Apartado 1774, San José. Ian Hardwick lists them on 6500 kcs, heard with dance music until 0500; the identity is frequently given and is preceded by a single gong note. "Radio Excelsior" appears to be holding to an irregular schedule, and is only on the air, certain evenings, when it is invariably a good signal. No call-letters have been heard. (Robbins.) "Sweden Calling DXers" has reported the call to be TITH.

Carl Shapiro, Belfast, has logged TIDCR "Diario de Costa Rica," San José, on 9615 kcs—between Moscow (9620) and LLG (9610). Signals were Q2 S3-4 at 2345 with Latin-American tunes followed by a news bulletin in Spanish at 2400.

TIPGH San José, 5873 kcs, is audible at 0100, but suffers badly from CW and TTY-QRM; this station announces as "Alma Tica"—"The Soul of Costa Rica" ("tica" being a slang word for Costa Rican.) (Marvin Robbins.)

Cuba. COCQ Havana is now using 9675 kcs (Nf, ex-8825) on an irregular schedule. COJK Camaguey has not been heard for some time on 8663 kcs, and is maybe off the air with Tx trouble as was the case previously. (Robbins.)

Haiti. Station 4VCP "La Voix du Nord," Cap Haitien, is back again on 6363 kcs (ex-6382), and the modulation is still very bad. 4VCP is using a converted BC-375E and is now running 375 watts; the antenna is a folded dipole half-wave about 40 ft. high located between two dwelling houses, and runs east to west.

4VCN "Radio Fides" at Cap Haitien has been noted with fairly weak signals on 6407 kcs featuring classical music around 2200-2300. (Robbins.)

The general director of station 4VEH in Cap Haitien is Mr. M. E. ("Mardy") Picazo, known in the Amateur world as HH3MV, and during a recent QSO with him on "twenty," Marvin Robbins received some very interesting information about 4VEH. They are planning operation in the 60 and 49 metre bands, and also a new frequency in either the 16 or 19 metre bands, after they determine by test broadcasts which band will serve the better. Frequencies are not assigned, but then frequencies are not assigned at all in Haiti; instead, the Communications Commission in Port-au-Prince tells each station which frequencies *not* to use. At present, 4VEH is running 3kW but when their chief engineer, W4PWH, returns from Kentucky, construction will continue on the 10 kW transmitter.

Guatemala. TGQC in Guatemala City is a new station being heard with good signals on 9700 kcs. It was found on May 28th, for the first time, and was noted around 2000 the following day at a good level after WRUL left the channel. The announcement was quite clear and runs: "Transmité 'tay-gay-say-coo' en la Ciudad de Guatemala. . . ." (Robbins.)

TGQA "La Voz de Quezaltenango," Quezaltenango, is now on 6128 kcs (Nf) having moved from 6405 (Robbins). (Note: the station listed in WRH on 6590 kcs—"La Voz de Mazatenango"—should be TGBA instead of TGQA, and the call should be "La Voz del Pacifico," Mazatenango. "La Voz de Mazatenango" is TGBC, now believed to be on 6810 kcs, and, in turn, the call sign of "Radio Colonial" at Antigua, 6570 kcs, should be TGCB, we think. Has anyone had a QSL from any of these stations recently? It would be very nice to have them sorted-out properly! Scribe.)

The address of TGJA "Radio Nuevo Mundo," 5990 kcs, is 7a Avenida Sur No. 89, Guatemala City. (NZ DX Times.)

SOUTH AMERICA

Argentina. The English programmes from SIRA, Buenos Aires, are as follows. To Europe at 2000-2100 over LRS, 11880 kcs, and to the USA and Canada at 2300-0100 over LRA, 15345 kcs, 0200-0500 over LRU, 15290 kcs. This schedule was sent along by S. R. Webster-Hubbard, Sheerness. (Thanks for your letter—we need a few more "Latin-American specialists," if you have anything new to report OM!) Ed Classe (Vienna, Austria), logged LRXI "Radio El Mundo," Buenos Aires, 6120 kcs, Q5 and S7 at 0115-0135. .

LSB2 in Buenos Aires appears to be a new station, and has been reported testing on 7480 kcs. ("Sweden Calling DXers.")

Colombia. HJCT "Radiodifusora Nacional," Bogota, was found on about 6198 kcs with Q3 S4 signals around 0530. (Carl Shapiro.)

Peru. Station OAX4H, Lima, is noted on 6307 kcs at 0400, announcing as "Transmité Radio Mundial, OAX4H." (Marvin Robbins.)

Brazil, PRA8 "Radio Clube do Pernambuco," Recife, on 11865 kcs, is a really fine one (S8 to S9-plus) around 1900 to close at 2000, reports Peter Conway. (Your strange TV signals are very probably harmonics caused by receivers in your near vicinity, Peter.)

PSF of "Agencia Nacional" at Rio de Janeiro, 14690 kcs, was heard Q5 S9 at 2245 to sign-off at 2301. (Ed Classe.)

Bolivia. CP38 "Radio La Cruz del Sur," La Paz, is testing for two months on 9450 kcs (NF) owing to the heavy QRM on 9505 kcs. ("Radio-Sweden.") However, Ron Young heard them (June 4th), on a frequency near 9495 kcs at 2300. CP6 "Radio Illimani" at La Paz has been reported heard on 9500 kcs by a Swedish Dxer around 2400, when announcing also for CP5 as operating on 5950 kcs. ("Radio-Sweden.") CP5 is listed on a varying 5974.

Ecuador. The station on 6830 kcs (mentioned in our May issue) is now identified as being HC1FM "Radio Equinoccial" at Ibarra. The full announcement is "Aqui Radio Equinoccial, Ibarra, Ecuador, America del Sur. La emisora mas fuerte y popular en el norte del pais." (Robbins.) This must be a move from 6185 kcs.

Sidney Pearce has got the schedule of HC1RC "Radiodifusora Casa de la Cultura Ecuatoriana" at Quito, 4930 kcs. This station relays HC1RX on 1430 kcs (MW) with all-cultural programmes at 1130-1300, 1700-1900 and 2400-0315 (to 0400 Saturdays); on Sundays at 1100-1300, 2400-0400.

HC1MI "Radio Gran Colombia," Quito, 4840 kcs, has been heard to sign-off at 0400, followed by an additional transmission of news for relay stations in Guayaquil and Riobamba. The QRA of HC1MI is Guayaquil 1524, Quito. HC5GB "Radio Cordillera" at Riobamba, 4770 kcs, has also been noted with weak signals to close at 0400. (Arthur Cushen.)

Venezuela. YVOA "La Voz de Táchira," San Cristóbal, 4830 kcs, verifies reports by air mail letter. The address is Apartado 37, San Cristóbal. (NZ DX Times.)

YVMK "Radio Cabimas," Cabimas on 3410 kcs has been audible after 0100, and often has North American recordings, but all announcements are in Spanish. The SW call sign is definitely YVMK, and YVML is the MW call sign on 1180 kcs—other papers please copy! This is according to a letter veri received by Sidney Pearce; the power of YVMK is 2.5 kW and the station is located close to Lake Maracaibo near the city of the same name.

YVMU "Radio Carora," Carora, 3340 kcs, verifies reports by air mail, signed by the Director-General, Sr. Carlos Jose Gonzalez Schedule is 2230-0300. YVKU "Radio Libertador" at Caracas, 3350 kcs, is heard signing-on at 1030. (NZ DX Times.)

CONCLUSION

The Honour Roll of Countries Verified (Broadcast stations only) shows the positions at July 1st. Several new readers seem to have missed the "requirements" detailed in earlier issues. New readers claiming positions should send a list of countries verified, giving stations and frequencies—one station from each country is, of course, sufficient. Give each one a number and include the call-letters if these are used. For example: "57. HOLA Colon. 9505 kcs. Panama."

Secondly, only those readers who contribute a few items worthy of publication—at least occasionally—are eligible for the Honour Roll. A postcard with the magic words "Honour Roll: 150 countries" just goes in the WPB!

Broadcast news and your most interesting items from the log-book are always welcome, and should be addressed to: J. Fairs, 2a Durham Road, Redcar, Yorkshire, so as to arrive before September 4th, for inclusion in the October issue. The Editor and your Scribe thank all readers and overseas Dx editors who have supplied information for these pages, and all contributions are acknowledged. Credit should be given to *The Radio Amateur* on re-publication of any item.

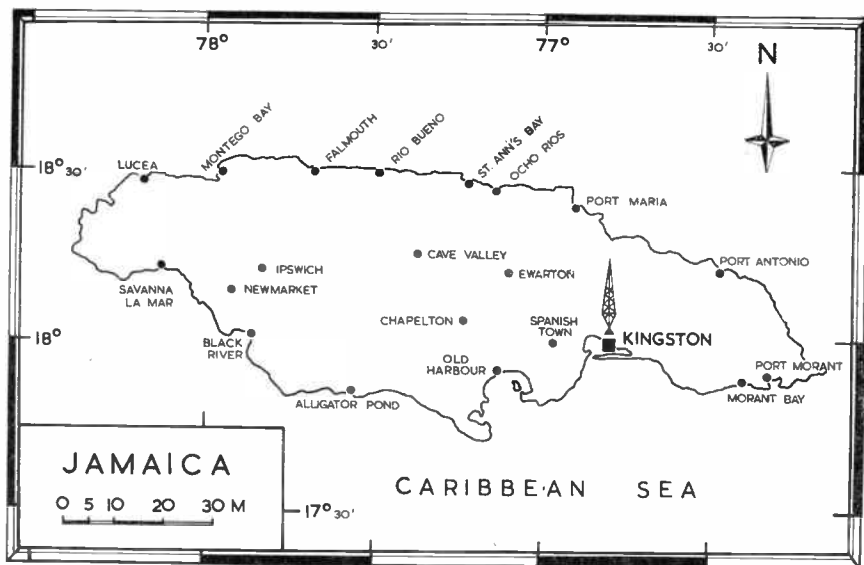
Happy listening to everyone until next month.

HONOUR ROLL

1. Sidney Pearce	132
2. Arthur Cushen (New Zealand)	127
3. Ivor J. Street	99
4. Roy Patrick	94
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6. Stanley Coppel	87
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8. Carl Shapiro	83
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11. John Whittington	64
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13. Ron Thorndike	54
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15. Fred Pilkington (MM)	41
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17. Alex Mackenzie	37
18. Ron D. Young	30

THE WORLD on the AIR - Jamaica

Compiled by JACK FAIRS.



"It is the fairest island that eyes have beheld; mountainous, and the land seems to touch the sky." So wrote Christopher Columbus in his famous Journal, when, in 1494 he reached Jamaica on his second voyage to the New World. The Island remained Spanish until the British conquest of 1655, and a few years later a constitution was granted, the first House of Assembly being elected in 1664. This constitution remained in force until it was abrogated in 1865, and responsible government was restored under a new constitution promulgated in 1944.

With a population of some 1,417,000 it is the chief island of the British West Indies, the Turks and Caicos group, together with the Cayman Islands, forming its dependencies.

The Jamaican coastline is broken and thickly forested. About two-thirds of the island consists of a limestone plateau, and from East to West runs a mountain chain, the highest part being the Blue Mountains in the East; Blue Mountain Peak is 7,360 ft. high. The chief rivers are the Black River, the Salt River and the Cabaritta, which are navigable for small craft and barges, while due to the great number of mountain springs, countless cascades and rivulets spill down the mountains into the sea.

Jamaica's coastal towns are hot, Kingston's coolest month being February when the temperature falls to about 76 degrees F.,

but the hills are always refreshingly cool and verdant. The vegetation is luxurious. The island is like a huge hothouse overflowing with rare fruits and unbelievable flowers; the Blue Mountains are adorned with one of the most lavish displays of flowering plants and trees in the entire West Indies—gigantic cotton-trees, coconut palms, banana and breadfruit trees, sarsaparilla and ginger plants. There are no indigenous mammals and few reptiles, but some 43 varieties of song-bird are peculiar to the Island.

Over a quarter of the total area of 4,400 square miles is under cultivation, and bananas constitute a large proportion of the export trade, with rum and coffee next on the list, while palms, bamboo and cabinet-making woods are also produced. There are over 200 miles of railway system, and the currency consists of British coinage with Jamaican currency note at parity.

The Island is divided into three counties with the typically English names of Cornwall, Middlesex and Surrey; there are towns named Falmouth, Trelawney, Ipswich and Newmarket, but the Spanish influences are retained by such place-names as Montego Bay, Rio Bueno, Port Antonio, Port Maria, Lucea and of course, the old capital, Spanish Town. Montego Bay is, incidentally, the best-known seaside resort, the sand on the beaches being composed of finely crushed coral, on which the

(Contd. on p. 312.)

Amateur Bands Commentary

STAN.
HERBERT
G3ATU

Another rather depressing month for most of us judging from your comments. Twenty has been doing its best, but Dx openings have been few and far between, interspersed with periods of extreme short skip. G's, GM's, GI's and EI's have been pouring in at great strength on occasion, a state of affairs which caused alarm and despondency among the SWL fraternity. The transmitting boys, however, look at things from rather a different viewpoint, as these openings give many of them the opportunity to chat and compare Dx notes with their opposite numbers, normally inaudible to them. It's an Ill Wind, in fact!

How long this state of affairs continues depends of course on the Sunspot Cycle, which takes roughly 11 years to go from minimum, through maximum and back again to minimum. The last minimum was in 1944, which suggests that we can look forward (!) to another two years of steadily scrapper conditions. However, the Cycle is subject to considerable variations and it *may* be that things will suddenly start to improve, so don't swop your receivers for cameras just yet! **The Twenty Metre Band**

Twenty continues to attract the attention of most of the Dx chasers and the number of reports, even with things as they are, speaks volumes for the keenness of all concerned. We don't think there is going to be such a rush for the cameras, after all!

GM3IGW (Alloa) starts us off with a report which just missed last month's deadline.

Mike dug out FQ8's AA, AI, AP and AR, 3A2AW, OY2Z, AP2K, KH6KS, VE7 and 8, KZ5, CR4AJ, MP4BBD, ST2HK, ZD2DCP, CR7AG, ZD4BM, LU5ZO and LU5ZZ (both in the Antarctic territories), KV4 and TI, all on CW. Phone was heard from VS1EG, HZ1TA, VQ2DC, VQ5AU, HP, HK, HH2L, VP7NR as the pick. The new S750 is going great guns and has made 125 countries during the month—a goodly start.

D. J. Newton (Catford), short of time, garnered HX1AB, OA4DC, OX3SK, SU1MR and W7's ADS, DF, LXT. On CW he had FF8AG, PI1LS (weather ship), PY, TF3SV and KH6USA/KH6. The extra "KH6" denotes portable operation.

D. E. Nunn (Hove) has put up a new aerial, a full-wave on 20, with the result that he collected three new ones in HC1LM, CP5EK and HK1DZ. ZP5, YV, CX, CE, FQ8AZ, 8AI, HH1DD, MP4BBL, ZD4 and PJ1WJ were others on Phone, with CW from SU1SS, LU1CI, CO4TP and PJ.

Donald finds his 1155 makes CW digging on 20 rather uphill work.

J. A. Stringer (Holywood, Co. Down) still uses an EF50-EF50 receiver, which has netted him 29Z and IO1C in 15 months' non-hurried listening. John remarks how rapidly his score increased after he had learned Morse.

Recent catches were CT2BO, JA3AF, KA2K, LZ2KSKS, OQ5CP, VQ3AN, VO6N and EL2P, with HR1UA and AP2K on Phone. The latter is in Quetta, Baluchistan, and John wonders whether the prefix should not be AP3. But Baluchistan is part of Pakistan and counts with it, so there should be no undue panic there!

D. L. McLean (Yeovil) caught some early-morning openings to KL7 and some evening ones to Africa and the ME but was troubled somewhat by the loud G and GM signals. His Phone findings comprised, ET2CG, 2NX, FF8AP, KL7ADR, 7AFR (0630/50), OA4BC, OQ5, Ø, ST2AM, VP4TT, 6MO, VS7GR (14328-2240), VS9VG, VU2RC (14160-1740), W7's AHX, AHZ, BF, Y12AM, ZC4MH, ZD2RRW (14117), ZD4BF, 4BK (1820) and a nice one, ZS8E (14132).

G3CMH (Yeovil) worked FF8AG and some W's on CW, with HZ1AB, OD5AJ, SU1MR and VU2RC on Phone.

A. P. Allechin (Clacton-on-Sea) has never known conditions worse! His only Dx since early June was VS2BS and CE2CC. Never mind, we all get those spells and surely things will improve one day.

R. J. Holliman (Cambridge) found things well down on the previous month, but got a kick out of logging his 1,000th station, 4X4CW. ET2CG, CN2AD, 4X4FQ, were added.

R. Goodman (Edgware) would like some really good Pacific Dx! He remarks that when the Pacific Dx is in, *he* is out. However, one morning, Ron found the band full of really loud West coast W's, notably W6SAC and W7BBO. Other Phones were CE2, CP1CT (0030), CX2CL, FF8AP, KH6AWN (0715), M1B (2340), PJ2AC, VE8ML, VP9F, YN4CB (0000), YV5 and three new ones, GC2ASO, ET2CG (Eritrea) and VP2AJ (2340), bringing the band score to 32Z-127C.

P. D. Lucas (Redhill) resumed listening after having his receiver re-aligned and erecting a 136-ft. long wire.

Apart from short skip, all he heard in the short time available were ET2VD and OX3BD.

Peter wonders if the YU's are allowed Phone, as he has never heard one except on CW. YU1AD is quite active on Phone (Although Mirko flips a pretty el-bug, most of the time) and YU1AG is also around.

P.D.L. also queries DJ1BQ (Denmark, Japan, One Boston, Quebec), heard, needless to say, on Phone. The DJ is in Germany and the

call as given is a beautiful example of the confusion that can arise through using place-names in a phonetic alphabet. The habit is really a very stupid one, and yet how many of us continue to be guilty !

B. J. C. Brown (Derby) writes from a shack boasting a 76-degree temperature. (Yet he needs electrically-heated clothing in the winter. The next shack will be air-conditioned !)

Re last month's reference to VP6PV, Bernard comes up with another "back-to-front" call—ZBIBZ ! He gives the date of the MI/ET change as June 1st, and says MI3US is now ET2CG.

The big moment for B.J.C.B. came with the snagging of VU2CP (1720), his first ever VU. Other Phone came from CO8MP, CE2CC, ET2CG, OA4BC, KL7ADR (1700), VS1EG, W5OXZ (Okla) and many W6 and 7 from late evening to early morning. CW Dx was from CO8AQ (2300), I5GO (1730), MP4BDD, TI2TG, VO6N, W7PGX (Ariz) and ZS6CY.

P. Hunt (Ellistown) sends the result of one week's activity. Phone came from VK2AOK (very rare, these days), KG4AF, VS1CZ, 2BS, MD5DO, OQØDZ, CR6AC, FP8AC, CE13AA/LU (Tierra del Fuego !), and ZD2AA and ZC5VS for two goodly new ones.

H. J. Hill (Whitley Bay) starts by asking us if we've read any good books lately ! Of 68 countries heard, only 38 were non-European, but at least one of 'em—CR5AC—was new, which helps a bit.

Best of the others were KG4AT, PJ2CA, FM7WF, VP5AK, VS7GV, VQ2DF, 4BU, VP2AB, OA4BG, VP7NB, 9S4AD, KZ5AA, HC1FS, CM9AA, TI2RC, CE3AB, VS2DF and ST2NW. The ST's are Anglo-Egyptian Sudan and of course count as a separate country.

Harry has some information of interest re the "YL Half" of CN8MM, who is about to become active from Rio-de-Oro.

Via CE2CC (who is supplying the generator for the expedition), comes the latest date for the CEØAA jaunt. July 12th, is now forecast as the day the balloon goes up. Let's hope that generator doesn't blow up at the first dit. Could happen !

During a recent visit to H.J.H., Mike of GM3IGW took a twirl on CW and unearthed VQ8AW, which was a nice new one for both of 'em.

R. Balister (Croxley Green) found things just as good as in May, so there can't be much wrong with his O-V-1.

On CW, he picked up ET2WW, CR4AJ, KH6USA, KP4AZ, KL7ATN, KR6IN, MD5DO, OD5XX, PI1LS, VO1A/2/MM (taking part in the ARRL Field Day), YV5AK, ZS and ZC2AX (a definitely identified call sign). (Maybe, those VK1's have been issued with the correct prefix for Cocos at last.) Phone produced only VQ4AA in the way of Dx.

Roger is soon to move, and his new QTH is 350 ft. ASL (100 ft. higher than the present one), he should be happy.

G3HSL (West Hartlepool) is still adding to his CW score. Latest new ones are OD5LC, VS8AS, PJ2AD and the juicy FK8AA (1400), making him 94C worked. Other Dx from Fred is W5FKO (Tex), VP9GX, VP9BC/P, KV4AA, CT2BO, KZ5FI, CE3CD, OX3UD and W7LXT (Ore). He missed YV51K, EA6AF, ET2WW and a VQ4, all of which would have upped the score.

K. B. Ranger (Strood) still uses his O-V-0 and O-V-1 receivers, but with an indoor wire, 17 ft. round the picture-rail, the big 90 ft. aerial having blown down.

This combination raised CW from FF8AG, KR6IN (2015), VQ4FCA, SU and VP6GT, while Phone was logged from ET2NW, VS6DX, VQ5RO, HC1FG, HZ1SA, VU2DZ and VS1FK, all through loud short skip, including the first ON4's ever heard in Strood.

Keith has checked his '52 and '53 scores for the same period—33Z = 118C and 32 = 122C. The all-time score is 37 = 155.

J. Whittington (Worthing) found conditions about the worst on record.

On CW, he grabbed W7AH (Ariz) for a new state, LZ and VQ4SS, with Phones' ET2MW, HC1LM, HK1HF, M1B, OA4, VE4UV, 7EF and 7VC.

R. Nixon (Stockport) listened at odd times, in between exams, got KH6AWM for a brand new zone, plus LX2DA, KR6RW, OY2Z and VU2RC for new ones this year, making the '53 total 33Z-119C. Other Phone was from CT3, FF8AP (Ø755), KA2EF, 21M, 2NH, 8SC, KL7, OQØDZ, ST2NW, TI2AG, VE8MO, VP4TO, 7NB, VK4RW, VQ5CY (Ø730), ZE2KO, VS1 and 2.

R.N. wonders if KA8 is Korea, following the old J8 prefix. No, all KA's are now in Japan itself.

OQØ (Ruanda Urundi) is not yet a separate country, but we imagine it will count so before long.

G. Curtis (S. Harrow), using an S740 and a 33-ft. VS1AA aerial, concentrated on CW and was rewarded by AP2R, C7AZ (calling "CQ USA only" and getting replies from all over Europe !), EL2P (2130), KA2KS, 2MH, KL7AWB, KW6BB (1710-working ZC41P), VQ2HW, 3AV (1800), VS6CG (1800), VS9AR (1600) and VU2GM (1700).

G.C. is very interested in the SLP idea and suggests that anyone interested in 20 CW, particularly may like to write to him, when G.C. will arrange some private tests. The address is 45 Holyrood Avenue, South Harrow.

G.C. has fitted a 100-degree dial in place of the normal control on the 740 and finds the resultant spread—110 degrees for the CW portion of 20, makes tuning as easy as it is on 80 meters.

D. J. Wright (Forest Hill) is on the air again with a clean and re-decorated shack. He heard lots of short skip, plus 5A1TO, HZ1AB (1300) MD5EF, 4X4AE and the peculiar BU14KL! (Anyone got any clues about that one?)

Roy Patrick (Oldham) is checking 20 for the time being, but next Winter, he will stick to 1.8 and 3.5 Mcs. He believes in doing things the hard way and prefers the LF range even for BC Dx work.

Recent catches are CO8MP, HC1FS, KP4TZ, OA4BC, YI2AM (RAF Habbaniya). Receiver is a 1155.

Roy has a QSL from KP4HN, giving PAA Clipper Net frequencies as 7075 and 14150 kcs. Amateur veries total 21, as against 94 for BC.

R. Winters (Melton Mowbray) continues very busy, but listened on odd occasions and snagged Phone from EA8AH, ET2NX, FF8AM, HZ1TA, ST2AC, VQ2DT, VQ4ALQ/AM, ZD4 and VS2BS.

Richard would welcome details of any surplus receiver capable of picking up the Police VHF channels!

G. M. Sifford (Dudley) is up to 22Z-75C, despite exam diversions. Phone includes KZ5AF (a new one), FM7WO (2200), CE2, CO8MP, EA9AW, ET2CG (Eritrea), FF8AB, HP3FL, M1B, OZ7EJ/MM, VP4TO, 6FO, ZP5CQ and W7's AHX and BVD of Oregon. All on an 1155 with an 80-ft. wire.

Gordon heard W1MCW saying that KS4AU is active on 14250 kcs. Good news, this, as Swan Island has been devoid of activity for quite some time.

H. Lee (Oslo) is still finding the going tough. His latest Phone Dx is from KR6LW, OD5AB, PJ2AK, VS1CZ, W7AUS, W8IIP/7 and IS1LMN.

Henry is taking five weeks' holiday in the mountains (lucky chap) and will be 2750 ASL, but will *not* be taking a portable!

Bill Hardie (Harwick) heard little except South America, such as CM9AA, HC1FS, LU2OC and YV5, making the score 28Z-91C to date.

C. J. Goddard (Warwick) was fortunate with his listening time and caught some good openings, which netted him several all-time new ones and pleased him mightily. On Phone, he pulled in AP2Z (14305), CO8HG, CM9AA, CR5SP (14105), HC1RD, HK5CR, HR1UA (2230), KZ5AP, M1B, MD4DW, MP4ABW (anyone got his QTH?), OA4DG, ST2NW, T12CV, 2LT, VP4LL, 9AY, VP7NS (1945), VS2CP, ZS and XE1BI (2200). CW gave John CM2CG, CT2BO, CR6AI, FM7WD, FQ8AP (14025-1545), KZ5GS, T12TG, UA9OA, VU2FH, SV1SP (Athens) and a very nice KB6AY (1130).

For the next two weeks; C.J.C. will be operating with the Army (T.A. Camp and with fine weather, we hope!)

J. L. Hall (E. Croydon) also heard KB6AY (0415/0620) and continued a terrific assault on the Pacific with JA's 1AA, AD, AX, 3AC, 8AA, KA's 2KS, 3AC, 3AF, KH6's IJ, ANK, AFS, AHQ, VG, ER, ES and WW, KG6ADW, six KL7's KR6's IG, IN, KS, LL and LX, FO8A1 (0630), ZK1AB (heard often 0500-0630, Peaking S7), and sundry AP, VU and VS7. All the above was CW.

N. C. Smith (Petts Wood) has been away, but managed as usual to dig out some good Dx. On CW, his best were CP1BX, AP2K (0500), HR1AA, EA0AB (2045), JA8AA (0550), 8AE (1300), KX6AN (1600), ST2AR (0450), VP2KO, LU5ZI, OA4ED, ZK1AB (0525), ZS8D and another juicy one, FL8AA (1500), HS1A was heard weakly, talking about a kW!

On Phone, Norman picked up CR5SP, OA6F, 4AK, TI2RC, 4JG, HI8WF, VP4CO (0210) and VP5AK. The receiver is still a VRL 250.

G. C. Allen (Thornton Heath) sends the interesting confirmation that there was a VQ9 active for a few days from Mahe Island. G6ZO was heard telling of a QSO with him, so it would presumably be VQ9MR. Hope he makes the trip again!

P. M. Crawford (Darlington) is highly satisfied with results from his S750 and dipole, especially in the present conditions.

His CW catches feature KH6AI, 6ARL, KB6AQ (1847), VR2CG (0900), VS9AS, 9GV (0900), VP8AJ (0800), CR6AL and two from places we thought had no current activity—KP6PX (0900) and PK4RI (0820-569x).

On Phone, Martin settled for AP4K, DU1DO, KA5AW, 5SV, 7LJ, KR6KS, VR1J, OY2Z, FF8OP, MP4ABW, 4KAC, lots of WØ and G3ATU!

He heard someone remark that to try for Dx on 20 was "flogging a dead horse," with which sentiment he couldn't disagree more!

P. N. Morgan (Stourbridge) reports for the first time. He uses an O-V-1, on which Phone was heard from ZB21, HK1PZ, HZ1AB, KP4HX, EA6AR, 8AY, CO8BL, CM9AA (S9 plus), P11J (a technical station in Holland) and lots of W/VE.

G. H. Elleson (Malvern Link) also has his first say, although he has been listening since 1935 (less seven years as from 1939!) His aerials, a dipole, a 65-ft. wire and a 25-ft. wire are all some 630 ft. ASL, Malvern being about 600 ft. ASL and the receivers are a Hallicrafter S20 and an O-V-1. Phone picked up includes YI2AM, OA5OT, VQ4ERR, MP4KAC, CR6AI, ZL1BY, DU7SV, OY2Z, VP9BD, KA3WQ, SU1MR, ST2AC and a hot early morning piece in ZM6AA.

P. Q. Dodson (Rhuddlan) is also welcomed. He uses a very old National FBX with 2.5V valves (some of them the originals). This, with a recently-built preselector, still does a

very good job. The aerial is a Marconi and recent Phone catches were AP3K, CX2CL, ET2CG, KA2IM, KP4, VP4LL, VP9G, VQ4BU, W1WMA/AM (off Iceland), VS1EU and ZD4BF.

Paul has been at the game since 1945 and has 131C, to date.

A. Kennedy (Blackhill) is yet another new reporter and he must be one of our youngest, at 14 years.

Alan uses a Globeking receiver and prefers 20 Phone, which yielded GD3IDQ, Y12AM (2115), OX3BQ, K1FBH, ZB1 and many W's.

Fifteen Metres

The band is quite active these days, but short skip accounts for quite a lot of it. However, there *is* Dx around.

GM3IGW pulled out three new ones, TF3KG, ZD1SW and VQ2HA on CW.

D. L. McLean's Phone efforts got him CE3CZ, CR4AP, EA6, EA9, FF8, HZ1TA, KV4, KZ5AF, OQ5, OQØDZ, PY, VQ2, VQ3RJB (1005), VQ4, VQ5CB (1850), Y13WH (who is G3WH), ZD2S (1840), ZE2JK, ZP5 and 4X4.

G3CMH worked on Phone CE3CZ, FA3HH, KV4BD, Y13WH, ZB1 and much short and medium skip Dx.

Ron Goodman's O-V-1 pulled in CE3CZ (2120), VQ4, PY, VQ2DT, 3V8 and new ones 4X4CW, ZD2S and GW.

B. J. C. Brown unearthed CX4OW, K2AQV, W2AWT and PY.

R. Winters nabbed 9S4AL for a "rare" European, ZP5DC and 5A2.

G2UK (Oulton Broad) had a good day recently on Phone, but this is what he says. "The same thing is happening as happened on 28 Mcs. Everyone keeps to the LF end of the band and the high end is empty. Had good results contacting stations at the LF end and then getting them to QSY 100 kcs or so HF, where we had perfect 100 per cent. QSO's. It's quite impossible however, to get a contact by calling CQ up on the high end! There's pretty well no one to be heard above 21200—and we've a further 250 kcs above that!"

Which sums up the situation admirably. We have a band 450 kcs wide, yet everyone jams together at the bottom edge and complains about the QRM. Let's spread about a bit, and make full use of what is after all our own territory.

N. C. Smith heard HE9LAA on Phone recently, so that makes one more new one on the band. The 21 Mcs score is now 96. Just four to go! The 1953 all band score is going strong too and has reached the 181 mark.

Dx on the Other Bands

The LF bands are still holding Dx for the keen types and even 10 has thrown up something from outside Europe, albeit very little.

On 40 CW, N. C. Smith dug out CO8AQ, CT2ACN, LU9AX, PY5TG, VK2WP, 2ACC,

W5AE, 5QKZ and ZL's 2BJ, 3KN and 3KQ

GM3IGW heard GC3EBK for a rare one—S9 on 10 metre Phone. Mike could do with him nicely for a new Top band county!

On 40 CW, '3IGW worked new ones CN8BG, TF5TP, IT1AGA, 5A2TI (who came back to a CQ) and heard FF8JC, 8AG, LU3ZO, ZS6BA, ZL's 3JA, 3OZ, ZS3E (569 at 2100), CM8RM, TI2PZ, PZ1WX, CR5WR, Y12AM and CE7AZ. There's life in the old band yet!

D. J. Newton, who heard LU3DD and LU8DDN on 21 Mcs CW, wonders what the chances are of getting a QSL. Pretty fair, we'd imagine, but he'd better wait and see!

D. L. McLean remarks that even short skip on 10 is better than a dead band, but he did get some Dx in LU2DX, 3DBX, 5DZ, VQ2DT and CN8MM, which must have been quite encouraging.

On 80 metres, R. Goodman's O-V-0 pulled in VE1PB and VE1QW (0253).

H. J. Hill was beginning to regard his recently-acquired 10 metre converter as a dead loss until the band opened and he snagged LU3DBS (1720) and two nice Africans—CR6CT and CR6BX.

B. J. C. Brown caught a gaggle of LU's with LU3AAZ, 3DBX, 4AAR, 5AR, 5DZ and 8DEG, with VQ2DT and a very unusual W4NQM to complete the tale.

K. B. Ranger logged 16 countries (including two new ones) on 10. His Dx was CR6AJ, PY2AHS, W4NCW/MM and ZS1JD. He found the Europeans earsplitting at times.

J. L. Hall found LU1EP, VQ2U, W5TNU (0345) and ZS2HI (0046) for four really good ones on 80 CW, while on 40 CW he uncovered FF8AG, PJ2CI, PZ1WX, WN5ZOC and WN5ZBA (the last two, being American Novice Class).

G3ATU (Roker) has news for anyone wondering whether ZC3AA is around yet. He is! We heard him during the last week of June (14098-1100), very weak and working an OH. He was heard to say he was closing down. He did, and nothing more was heard for two weeks, when he appeared one Sunday (1400-14050), 479c in amongst the short skip and calling CQ Dx. We called him (strangely enough, we appeared to be the only one to do so), but nothing happened. However, at least he *is* around!

FP8AK/MM was worked while on the M.V. *Miquelon*, en route for St. Pierre, where he will operate as from July 12th. The operator is W2BBK.

We worked VS8AC recently (1300-599). He was using 300 watts and a Rhombic and declined to give a QTH. Where exactly he's supposed to be is a mystery, but we would put him as being slap in Central Europe!

Those in need of Ethiopia may like to know that ET3Q (Addis Ababa) is active once

more on 20 CW and puts in a good signal around 1800 GMT. Remember that the ET2 "Two-Letter" calls are Eritrean.

From IISM, we hear that a VQ6 may be expected to fire up one day soon.

Dx QTH's

- Kuwait QSL W. N. Burgess, MP4KAL, c/o Bureau. Kuwait Oil Co. Ltd., Ahmadi, Kuwait, Persian Gulf.
- HH3DM. PO Box 943, Port-au-Prince, Haiti.
- HZ1AB. Base- Communications, APO 616, c/o P.M., New York, N.Y., U.S.A.
- KV4BD. Ed Miller, Box 588, Christiansted, S. Croix, U.S. Virgin Island.
- SU1MR. PO Box 672, Cairo, Egypt.
- VQ3RJB. c/o Box 107, Moshi, Tanganyika.
- VS9GV. Vinicio Giachetti, International Aeradio, c/o Aden Airways, Aden.
- 9S4AL. R. Bluel, Heinestrasse 24 Saarbrücken, Saarland.

Dx QSL's Received

D. L. McLean has cards from CT3AF, JA2MB (20 months), KA2MB, PJ2CB, PY6CN, VQ2JN, YV5AP (14 months), ZL2JL (15 months). 21 Mcs QSL's were from CN8MM, ZS1FD, ZS6SG.

A. P. Allchin collected from KV4AZ, KZ5JD, MP4KAC, TG9RB, VS2BS.

J. A. Stringer had a card and covering letter from ZL3KN for 40 metres CW.

P. Hunt: KZ5CH, HP1CC, W5AGB/FM (Fletcher's Ice Island, with a photograph of the op).

J. Whittington: CX2CO, 3A2AW, HR1UA, W7LCM (who is a former Mayor of Huntley, Montana), KG4AJ, KP4KD.

C. L. Bradbrook had a 1.8 Mcs QSL from ZC4XP, giving him 14C confirmed on the band. He is waiting for cards from VP9 and VE.

H. Lee had PJ2CA, IT1ESM and GM3IGW, all new.

Bill Hardie: FA8AY, IT1AFS, GI3IEO.

J. L. Hall has recent cards from VP9BDA (1.8 CW), VS7NG, T12TG and LZ1KAB (all 3.5 Mcs CW), PZ1WX (7 Mcs) and VQ3BM (21 Mcs CW).

G3ATU had prompt card from SVØWG (Rhodes).

QSL's should be coming through any time now from SVØWP/SV9.

And with that, we reach the end of another month. Let's hope next month shows an improvement, but remember, things will probably get worse before they get better!

Please send your reports to reach Roker House, South Cliff, Roker, Sunderland by August 8th, and, for the following issue, by September 8th.

Good hunting and 73.

Moonbeams and Moonshine. (Contd. from p.295)

enough the classic first message of Samuel Morse "What hath God wrought . . ."—could have been received in this country.

However, it must be pointed out that even with the use of high power it is difficult to receive moon-reflected signals. Thus, the Jodrell Bank research laboratories with a large parabolic reflector and kW pulses need the most elaborate gear possible to detect pulses on reflection. Indeed the original moon echoes were obtained using high gain arrays and some 200 kW pulses, and even then, band widths of some 50 cycles were necessary in the receiver in order that signals could be resolved above the noise. Powers of this order and receivers of such narrow bandwidth, would probably enable ionosphere scattered 2 metre signals to be sent across the Atlantic without any moon reflection at all!

The technical difficulties are so formidable, that the actual achievement of pulse echoes by amateurs is in itself a major triumph, as in order to reduce receiver noise, extremely selective receivers and high-gain aerials are necessary. Even then after two years work, weak echoes only just above the noise were obtained. The use of high selectivity at UHF is complicated by the fact that the Moon's motion adds a "Doppler Shift" of frequency, and the received frequency is actually different from that of the transmitter. The shift of the received frequency is in fact subject to variation, and has to be calculated so that one can tune the receiver to the echoes—and here again, due to the distance of some half-million miles involved in the journey to and from the Moon, one has to wait 2½ seconds to check any adjustments. This is a far cry from the casual aiming of beams at the Moon in order to work anywhere whatsoever on 2 metres. In fact it is fair to say that a Moon echo QSO will be a precision engineering feat of the first magnitude. Nevertheless, it is a feat well on the way to completion, and indeed as pulses nowadays are being bounced at the Moon, the really keen VHF types can avoid the cost of kW transmitters, by attempting to receive somebody else's Moon echo. However, the successful man will be the one who applies sound engineering principles—rather than pious hope—and even then good luck will be a requisite! For the future, it is indeed just possible that powers of the order of 100 watts may be successful. At the moment 1 kW is barely adequate even when backed up by elaborate receivers and the use of stacked rhombics. This is a far cry from the "stacked spirals" and 24 element arrays purported to be used in the "spoo" article that started this contribution.

ON THE HIGHER FREQUENCIES

Monthly Notes and News

by H. E. SMITH, G6UH

The outstanding highlight of June was the RSGB 2 Metre Field Day. Activity was very high in spite of reports that conditions were not as good as during the "open" event in May. Judging by what we heard in Hayes, G3BEX/P was one of the most active portable stations in the south. Altogether, G3BEX contacted 61 stations, 15 of which were portable. It would appear that the enthusiasm for /P operation on VHF is waning somewhat. We do not for one moment think this is so. It is more likely due to the fact that many operators who would like to operate portable equipment have not the means to transport the gear to the site. We personally know several staunch VHF men who would have gone portable but they just could not find any means of transport. A great pity this, because it limits the entrants to /P Contests to those who own cars, or have long-suffering friends willing to act as "gear shippers" for the day. One thing we did notice again was the reluctance of portable stations to work fixed stations. There were one or two notable exceptions of course, in particular G3BEX/P G6XM/P and Gw5MA/P. These field day events are usually enjoyed to the full by the participants, even if they are of little value otherwise, and we are all for them to continue. Another June highlight was the re-appearance of G5TZ on the band! For many months we have been forecasting Jumbo's return, and he is here at last. Operating as G5TZ/A on 144.999 Mcs, situated on the southernmost tip of the Isle of Wight (St. Catherine's Down) Jumbo is putting out a truly remarkable signal (with extra-BBC quality on fone). It is very nice to be able to re-new our schedules with this OT. (Some readers may remember the G6UH/G5TZ schedules in the old 5 metre days—others may prefer to forget them. Hi).

Two-Metre Zone Plan now Officially adopted

The RSGB invited representatives from various journals and societies to attend a VHF Conference at RSGB Headquarters. This took place on July 2nd, and proved to be a most memorable occasion. Among those present

were: Mr. Leslie Cooper, President of the RSGB; Mr. J. Clarricoats, General Secretary; Mr. H. A. M. Clark, G6OT, who took the Chair at the invitation of the President, Mr. Austin Forsyth, G6FO, Managing Editor of the *Short Wave Magazine*; Mr. H. B. Dent, G2MC, Technical Editor of *Wireless World*; Mr. W. H. Allen, G2UJ, VHF Editor of *RSGB Bulletin*; Mr. H. E. Smith, G6UH, VHF Editor of *Radio Amateur*; Mr. J. Hum, G5UM, Hon. Editor *RSGB Bulletin*; Mr. E. Dedman, G2NH, representing the Television Society; Mr. M. Barlow, G3CVO, representing the British Amateur Television Society; Mr. D. N. Corfield, G5CD; Mr. P. Thorogood, G4KD and G3AHL. After long discussion on the many aspects of VHF operation, including the present QRM (during Contests especially) in Zone J, 144.850—145.250 Mcs, it was agreed that no useful purpose would be served in making any alteration to the present Two-Metre Zone Plan sponsored and first introduced by the *Short Wave Magazine*. It was therefore unanimously accepted as a workable and satisfactory Plan, and from now on will be the Official Zone Plan for operation on 2 Metres. We would urge all those not at present operating in their zone, as laid down in the Plan, to do so without delay, as it is only by 100 per cent. support that any plan can operate to its best advantage. Prior to the discussion on the 144-146 Mcs band at the conference, (we put this item first as it applies to the majority of VHF operators), there was a long discussion regarding the necessity for planning the 70 cms band. Considered from all aspects, it was finally agreed that the following plan be adopted:—

- 420-425 Mcs S. E. O. (CW and Phone.)
- 425-432 Mcs Amateur Television.
- 432-438 Mcs Frequency Stabilised Transmissions (CW and Phone).
- 438-445 Mcs Amateur Television.
- 445-455 Mcs Future Amateur Development
- 455-460 Mcs S. E. O. (CW and Phone).

It will be seen that the portion 432-438 is in harmonic relationship to the 144-146 Mcs band, and it is suggested that the Zone Plan for the latter band be co-related to operation on 70 cms where crystal control is used. Fuller details of the Conference will be found in the *RSGB Bulletin*, and we hope to be able to include more details in our next issue. We should like to mention how pleased we were to attend this Conference, and to note the cordial atmosphere which prevailed. It's really good to see a real "get together" of this nature and we should like to congratulate the RSGB on the manner in which it was "laid on."

It is now up to the VHF man to play his part to the full and back up the plans for the two bands.

TRANSMITTER REPORTS AND NEWS Ireland

Ei2W sends his usual monthly letter. The International VHF Society now has a change

of President. Mr. H. Riley, Ei2G has been elected to that office, Mr. C. J. B. Dorrity as Sec.-Treas., and Messrs. J. F. Mahoney, A.I.E.E., Ei9C, Basil E. King, Ei5Y and R. V. N. Sadlier, Ei4D as Committee members. While welcoming the new President, everyone will be sorry that Harry Wilson has relinquished the Presidency, but he deserves a little respite. Ei2W must have had a very strenuous year, and it is entirely due to his efforts that the VHF activity in Ireland had risen, in a few short months, from 7 to 39. This is certainly a great achievement. Ei2W reports that contrary to some beliefs, the Zone Plan has not broken down, but there is some QRM trouble which requires sorting out. A secondary plan is being worked out, which will operate by allocating frequencies to IVHFS members, and this will contribute to the Overall Plan on a workable basis.

Overseas representatives have been appointed to the International VHF Society as follows:—Mr. J. Adama, PAØFB, Holland, Mr. Guy Janssen, ON4BZ, Belgium, Mr. Hans J. Hasenjager, DL3QA, Germany and Mr. W. H. Parker, Gw2ADZ, Wales. A full list of overseas representatives will be sent to members shortly when arrangements are completed.

Will members please note that correspondence should be sent to the Hon. Secretary, and not to Mr. H. L. Wilson, Ei2W, if in connection with the work of the Society. Letters for the personal attention of the President should be sent to Mr. H. Riley direct.

Ei2W hopes to resume his test signals in the near future. Transmission will be on 144.180 Mcs and take place between 2200 and 2300 hrs. each night. Beaming S.W. at 2200, N.W. at 2215, N. at 2230 and W. at 2245, will all new stations please report reception.

Will all readers please note that membership of the International VHF Society is open to all. Subscription is 10s. per year, and application should be made to the International VHF Society at 97 St. Stephen's Green, Dublin. Copies of the Society's journal, *The Upper Spectrum* are available at 2s. from the Hon. Sec., Messrs. Easons of Dublin and Belfast, or from W. H. Smith & Sons Bookstalls (this latter of course, applies to English readers).

G3BEX (Southwick, Sussex) sends an interesting account of his Field Day activities during the RSGB Contest in June. The station was operated at Devils Dyke, four miles north-west of Brighton, about 800 ft. above sea level. The site is ideally situated for VHF operation, and 'BEX says that on a clear day, pre-war, it was possible to see the Crystal Palace. The transmitter used an 832 in the final, modulated by a pair of KT66's. The beam was a 12-element stack, and power supply was obtained from a petrol-electric generator with 230 volts at 60 cycles output. The weather was overcast throughout the day

with a few brief periods of sun in the morning, and becoming dull with some showers in the afternoon. Owing to the strong wind it was not possible to rotate the stack, and it remained fixed for most of the day in a northerly direction. Conditions deteriorated as the day progressed, and 'BEX was glad that they took advantage of the early activity from the North. A total of 61 QSO's were made during the day, some of the best contacts being with G5YV Leeds, G4JJ/P Nr. Barnsley, G6XM/P 15 miles east of York, Gw5MA/P Monmouth, G201 Eccles, G3MY/P Sheffield, G3ABA/P Nr. Coventry and G3AGS/P Nr. Rochdale. G3BEX/P sums up the event by saying that it was not very well supported, and even semi-local activity was at a minimum and 15-minute lapses between contacts were quite common. QSB was present on a great number of stations and even the semi-locals lacked their usual punch. During this Contest and the Open event in May there has been a lamentable lack of activity from the West, and conditions to the Continent were poor. Only one French station was heard during the Field Day.

G3WP (Brightlingsea Essex) sends his first report. Jack broke into the band for the first time on June 13th, and he has been pounding brass most evenings since, invariably meeting with conditions of low activity. ON4BZ was heard on June 25th, but Jack is suffering from IF breakthrough and thinks that some signals may be missed because of this. Work is proceeding to eliminate this trouble. The converter is a 5-valve CC effort with the oscillator running at 67.6 Mcs with second harmonic injection, into an IF of 9.11 Mcs. At the moment a rotary dipole at 20 ft. serves for the aerial, but a beam is in course of construction. Transmitter runs at 7 watts input (6J6), and contacts have been made with six stations in two counties, with Reading as the best Dx. Frequency is 145-659 at present, but Jack intends to fall into line with the Band Plan at an early date.

Stations worked to date include G2YB, G2WJ, G3ANB, 3BRW, 3FIJ, G4OT. Heard: G2BCB, CZS, HCG, G3VI, WS, G4AC, AU, RO, SA, G6NB, ON4BZ.

G3IIT (Trumpington, Cambridge) has now got his "all clear" for Phone operation and has lost no time in getting into a "modulated condition"! Bernard has now worked more than 81 different stations on VHF including, PA, ON and Gw. The 3 over 3 is now in use at 40-ft., and is giving far better results than the 3-element Yagi previously used. G3IIT mentions the extraordinary results being obtained by G2CNT who lives on the east side of Cambridge bordering on the Airport. He has recently erected a new beam (thought to be a 4-element Yagi) and has worked Devon and Somerset recently at 5 and 9 both ways. G2CNT is apparently using an unusual

matching system. (What about a description OM?)

G8LN (Plumstead, London) says he cannot seem to work anyone except G3ANB these days, although he did call G6UH on June 28th, and obtained no reply. (We bow our head in shame OM and offer no excuse, although we have a permanent S5 noise level these days !) (In case anyone misinterprets that, the noise is coming from *outside*, not from the converter.) G8LN sends some notes on replacing his TT11 with a 5763. More drive is obtained with the 5763 but great attention must be paid to the screening. The screening should be very wide of the glass as the anode is so large and so close to the side of the envelope that additional capacity to earth may easily cause trouble. During the RSGB Field Day G3BEX/P and G3FRG/P were both heard at S8. Locals were heard working Gw5MA/P but nothing was heard of him at G8LN. Bill commends the QRG lists, but would like to see them published a page at a time, so that the whole page could be detached. (We have tried to do just that in this issue, but it's rather difficult in view of the space limitations OM.)

G3WW (Wimblington, Cambs.) has been doing some portable operation for a change. From his /P QTH near Cheltenham 3WW worked 40 stations during the RSGB Field Day, covering 12 counties. Both G3APY/P and G4JJ/P were heard, but no contact resulted. Other activity by G3WW has not been high, but a noteworthy contact was made with GD3DA/P at 2230 on June 10th. GD3DA/P sent his card direct and states that he made the first G/GD and Gi/GD contacts on 70 cms with G20I and Gi3GQB.

(During the Field Day, G3WW used G3BK's gear as his own was not ready. The Cheltenham Gang helped him in setting up the station, and during the day he was visited by various *notables* including G6VX and G2AOK, the latter making the trip all the way from Stow-in-the-Wold and staying from 2 p.m. until 8 p.m.)

G2DHV (Lewisham, London, S.E.13) is now a member of the International VHF Society. A new 4 over 4 Yagi (indoors) has been built, and an 8-element stack is being constructed. This will be erected outdoors at 35 ft. when completed. George operates on four different QRG'S:—144.990 and 145.206 are the normal ones, 144.720 and 145.314 are also used at times. Contacts and reports are welcomed. 100 per cent. QSL.

G3GBO (Denham, Bucks.) operated at G3XC/P during the RSGB Field Day at Bledlow, Oxon. Also in attendance was G3HZK from Hayes. Some of the new stations worked recently include G6CI (Kenilworth), G6WF (Staffs), G2DSP (Bognot Regis), G3GVL (Derby), and some repeat contacts

have been made with G3YH (Bristol), G2FNW (Melton Mowbray) and G5MA/P (Oakham). All time score is now 387 stations worked. Don now has the new modulator in use. (From our own observations it is working well OM. Your quality compares favourably with any on the band.)

G3FYY (Cricklewood, London, N.W.2.) has recently commenced operations on the 2 metre band. Many contacts have already been made, and a 6-element stack is under test. This is a G6CJ/G6UH type stack as described in the RSGB *Bulletin*, of September, 1949. G3FYY is rather concerned that he is unable to obtain, with 10 watts input, a greater reading than 100 MA in a thermo-couple meter inserted temporarily in one of the lower elements. We have already advised G3FYY on this point and it may be of interest to other constructors of this stack to note that the actual reading obtained on a meter in this position is of little consequence as the reading will vary with different heights of aerial. The main thing is to tune for *maximum* reading, no matter what the actual reading is.

G5LK (Reigate, Surrey) has been QRL with business but has managed a few new ones. Another good contact has been made with Gw2ADZ on CW and Phone, and a first contact was made with G3HAZ (Birmingham). Leslie was able to assist in hooking up these two stations for a trial 70 cms QSO. Some of the stations heard and called without success include G6CI, G6WF, G5UD, Gw8UH, G3AGR, G3BKQ and PAØWO. A QSO has also been made with old timer and mutual friend G5TZ/A. (Would all readers please note the following: As you all know, G5LK is blind. Another blind amateur, a friend of G5LK, is being persuaded by Leslie to come on to the 2 meter band. If anyone has any surplus equipment he would like to donate to assist in this good cause, please send it direct to G5LK at 6 Madeira Walk, Reigate, Surrey. Your conductor is starting the ball rolling by sending a valve or two for the converter, so what about it chaps? Here is the opportunity to do a real good turn.)

G5ML (Coventry) is now active on 70 cms using a 16-element stack and a 105 unit with about 2 watts of RF output. At the time of writing Fred has only been on a few days, and no stations had actually been contacted. Several stations have been heard, including G3BKQ, G6YU, G2BFT and G3HAZ. G5ML's frequency is 433-26 Mcs and a G2DD converter is in use. At the moment the stack is only 18 ft. high, but it is hoped that it will be at the same height as the 2 metre array (55 ft.) before very long. During the Field Day, G5ML assisted by second operator, Ray Bastin, operated from a /P QTH at Redhill, Worcs. (six miles south of Birmingham) and worked 28 stations in the Contest. Condi-

tions were poor, and no Dx over 100 miles was worked. Several stations over 100 miles were heard and called including G3BEX/P, G6RH and G3EVV. The most consistent 2-meter signals from the South at the moment are G4RO, G6RH (usually heard under poor conditions at S7) and G6NB (always S9). No signals have been heard from E1, Gm or Gd this year. A recent visitor to the shack was G3YH from Bristol, who was in the area on holiday.

That appears to be all the Transmitter reports for this month. We do apologise if any later reports have been left out. It was necessary to get our copy off earlier this month as your conductor wished to take a short holiday. (He needs it—Ed.!) Hi. So until next month, we wish everyone the best of luck, and *Please* don't forget the zero date for your July reports is *August 6th*, direct to 176 Station Road, Hayes, Middx.

Listener Section

We were very pleased indeed to receive another nice little batch of Listener reports this month. Space limitations may force us to omit some of the interesting matter contained in them, but they are highly appreciated just the same. We award the palms to the following two listeners:—Peter Blair of 31 Byron Road, Mill Hill, for his really excellent work with a super-regen plus RF stage, and A. W. Blandford of 1 Biggin Avenue, Mitcham, Surrey, for extreme consistency of operation and neatness of report lay-out. We have pleasure in awarding a 12AT7 valve to each of these listeners, which we hope will assist in spurring them on to even greater efforts.

Peter Blair of Mill Hill, has now improved the Super-regen plus RF to such an extent that stations up to 90 miles are now being received. The total of stations heard has now risen to 52 in 13 counties, and he remarks on the speedy reply he received from G3WW. Some of the best Dx heard recently includes G3HVO, G5TZ/A, G3WW, G3DIV and G5MA/P (Berks.). (This shows what can be done with very simple equipment, and a little ingenuity. Peter only has a 6-element stack in the roof space. Provided an RF stage is used in front, there is no reason why a super-regen circuit should not be used on 145 Mcs. You will of course, be limited to the reception of Phone or MCW signals. Plain CW cannot be received properly on a super-regen unless a BFO is used, and this is somewhat difficult to get working, because of the inherent AVC action of the super-regen circuit.)

A. W. Blandford of Mitcham encloses a Log copy, showing that he was active almost every night during June. His calls heard appear in the appropriate section. Bert has noticed that the conditions have been better from the West and South-West than from the North recently. G2BMZ has been heard several times with a very good signal. On 70 cms

G2HDZ has been heard, making the total of stations heard on 70 cms 41. A.W.B. says he would be interested in taking part in a Listener Group. (We are willing to arrange anything that is asked for, provided we get the necessary support. Some suggest Counties' Tables, others say they are a waste a space. There is also the point that a Listener Group would not be very successful with a mere handful of listeners. We *know* there are far more VHF listeners than write to us, but we can do no more than *invite* as many as possible to contribute their reports. If they are not interested, there is nothing further we can do. Many VHF listeners still do not realise the value of the work they are doing. The mere sending of a QSL card to stations heard is only *part* of the job. The publication of calls heard lists is of immense value, not only to the Transmitting fraternity, but to other listeners.)

R. W. Russell of Southampton points to the need for regular operation with the beam in a given direction and/or long distance schedule working. By doing this Reg thinks we might be able to arrive at something more definite regarding propagation at these frequencies. (We know that a large number of transmitting readers peruse these notes, so perhaps someone will arrange schedules on these lines, or contact R.W.R. with a view to operating on fixed nights with the beam directed towards Southampton. As Reg says, "it is only by continual checking will we ever find out the other nine-tenths of the VHF story" and such observations can only be made if one is certain that a station is *on* at the other end and beamed in our direction. The week commencing June 10th, was full of rain and gales, yet the band was never completely closed, and on the 17th, quite a large haul of London stations was made. R.W.R. has a spot of trouble with the 70 cms converter in the shape of "birdies." Not having a general-coverage SW receiver he has added a converter to the 2-metre converter. He is now going to clear a space in the IF/AF amplifier and fit a tunable 28-34 Mcs stage in the hope that the trouble will be cleared.

N. McBrayne, Westcliffe-on-Sea reports that although his June listening has been in "snatches," usually after TV hours, his impression is that it was a poor month, both as regarding conditions and activity. Forty-odd stations were heard during the month, which is many fewer than in recent months, and most of the stations heard were local or semi-local. One or two outstanding Dx stations have been heard, Gw2ADZ providing a new county and G3HVO in Dorset (another new county) brings the total of counties to 30. G2BMZ was heard for several nights running (about the 200 mile mark) but no intervening stations. Up to June 24th, no signals had been heard from the Continent during the month, but on the 25th,

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just as M.McB. was about to depart on his holiday, the band opened up wide, with F, ON and PA stations being called, ON4BZ pounding in, and G5YK heard for another new county. "It seems it always happens" says he. (You could have cancelled your holiday OM!! Hi.)

Len Whitmill, Harrow Weald spent most of June on holiday, so he only has a few days listening to report on. G5YV has again been heard, also G8AO/MA. Two new stations, G3LL and G3EVV bring the total score to 502 stations heard. Activity on 70 cms has been low. The only stations heard being G2DD, G2RD, G5DT and G6NF. (Thanks for the report OM. Even if it was a short one, it was welcomed just the same.)

Ray Bastin, Coventry, second operator at G5ML has spent most of his time with Fred. As he is moving QTH shortly, the 24-element stack has been dismantled and for the time being, a 3-element Yagi in the roof space is serving as the aerial. All signals are about 10 db down on the stack. Ray is hoping to obtain a 6BQ7 in the near future, and will then try the ON4BZ converter. (Thanks for the gen Ray, also for the slick way in which you scribe the G5ML report.)

Well, that about covers the news for the month again. We thank you all for the interesting reports. If any have been left out due to late arrival, we apologise, but as this is being typed on the eve of your conductor's departure on holiday it is not possible to fit the late ones in this month. Good luck to you all, and don't forget the next date for Listener reports is by *September 1st, at the latest.*

73 G6UH.

CALLS HEARD SECTION

G5ML Coventry
Heard but not worked:—G2HOP. G3ASG, EVV, FAN, HWF, IOO, BEX/P, IRA. G5JU, YV, YK. G6AG, LI, RH, XM/P. G8MW. Gw2ADZ.
 L. A. Whitmill, Harrow Weald.
 2 Metres:—G2ANT/A, BTY, DTO, DUV, LV, LP, WA. G3ASR, DBM, EYV, GBO, GHI, HSC, LL. G5LK, YV. G6AG, RH. G8AO/MA, OU
 70 cms:—G2DD, RD. G5DT. G6NF.
 M. McBrayne, Westcliff
 G2BCB, BMZ, CZS, FQP, FTS, HCQ, MV, UJ, WA, WJ, XV. G3AAN, ANB, BKQ, CFF, DJX, EHY, EVV, FIJ, GHI, GHO, HEA/P, HVO, WS. G4AC, AU, OT. G5BD, DS, NF, TP, YV. G6AG, CH, LL, NB, PG, RH, TA. G8AO/MM, LN, OU, VR. Gw2ADZ.
 R. W. Russell, Southampton
 100-150 miles:—G2ATK, CNT, WJ, XV. G3ANB, BKQ, GWB/P, HAZ, IIT, WW. G5MR, UD. G6CW. G8OY/P.
 150-200 miles:—G3AGA, APY/P, IOO, MY/P. G4JJ/P. G5YV. G8MW.
 Over 200 miles:—G6XM/P.
 Peter Blair, Mill Hill
 G2YB, BBB, FBD, FKZ, FVD. G3SM, WW, AEX, CDQ, CDX, CVO, DIV, FSD, GDR, HOB, HWJ, ISA, HVO. G4KD, SA. G5MA/P, NF, TZ/A, YM. G6AM, NB, RH, TA, SG. G8OU.
 A. W. Blandford, Mitcham
 Heard during RSGB Field Day (entered in order of reception)

G3GWB/P, 3CFB/P, G6JK, G3HVO, 3HEA/P, 3HCU, 3HWJ, G2MV, G3GOP/P, 3BEX/P, 3FD/P, 3BKQ, 3ABA/P, 3CGO, 3XC/P, G8WU/P, 3IEK, G2DUV, G6TA, /EVV, G2NM, G5YK, Gw5MA/P, G5UM, G2AH, G3GDR, G5DS, G4AU, G3AGR, G6RH, G3FUH, 3BK, 3FUP, G2AHP, G6AG, G3IWA, G8OU/P, G4SA, G5NF, G5HB/P, Gw2ADZ, G3IOO, G2BTY, G6JP, G2YB, G3GSE, 3ISA, 3CNF, G2XV/P, G5LK, G2XS, G5LN, G2DTO.

Stations heard by G6MN, on Sunday, June 21st, 4 1/2 miles from Leek, 1605 ft. high.

G2 HCJ/P, OI/P, HGR, ANC, ADZ/P, BVW, ATK, CYN, JT, ACV, ASC. G3 ABA/P, NL, BKQ, GWP/P, BW, BEX/P, MY/P, IWJ, ENS, 1WK, AGS, IOO, HIO, GCX, EPW, DA, GMV, GZM, GW3GWA. G4 JJ, G5 ML/P, BM, JU, YV, GW5MA/P, G6WS, NB, LC, XM/P, WF, SN, AS, XX/P. G8 MW, KL, QF, QY, KL.

QRG SECTION (continued from last month)

Call sign	QTH	QRG (normal)	QRG when last heard
G3BA	Daventry..	144750	144885
G3BCY	Greenwich ..	145110	same
G3BEX	Southwick, Sx.	145210	"
G3BHE	Malvern, Worcs.	145355	144870
G3BHS	Eastleigh, Hants.	145285	145475
G3BJQ	Rugby, War.	144440	same
G3BK	March, Cambs.	144695	"
G3BKQ	Leicester ..	144670	144460
G3BKW	Leafeld, Oxon.	144567	same
G3BKS	Farnworth, Lancs.	144350	"
G3BGR	Malvern, Worcs.	144155	"
G3BLP	Selsdon, Surrey	144970	"
G3BM	Poole, Dorset ..	144700	"
G3BMY	Halesowen, Worcs.	145160	"
G3BOB	Hayes, Kent ..	145620	"
G3BOG	Heswall, Ches.	144165	"
G3BPM/A	Southgate, Mx.	145265	"
G3BPD	Nr. Newcastle, Staffs.	144920	144185
G3BW	Whitehaven, Cumb.	144425	144265
G3BWS	Gillingham, Kent	145030	same
G3BXN	Harrow, Mx.	145380	"
G3BY	Aston under Lyme, Lancs.	144595	"
G3BTC	Welling, Kent ..	145360	144355
G3BVJ	Coventry, War.	144710	same
G3BVA	Bromley, Kent ..	144730	"
G3BVG	Ealing, Mx. ..	145015	"
G3BRQ	Southfields, S.W.	145115	"
G3BVU	Witney, Oxon. ..	145230	"
G3CAZ	Gillingham, Kent	144900	"
G3CBU	Belvedere, Kent	145185	"
G3CC	Nr. Hull, Yorks.	144440	"
G3CCH	Scunthorpe, Lincs.	144560	"
G3CCP	Shrivenham, Wilts.	144725	"
G3CDJ	Catford, London	144900	"
G3CFB	Chalfont, Bucks.	144170	"
G3CFK	Great Yarmouth	144450	144715
G3CFR	Bournemouth, Hants.	145390	145436
G3CGB	Hampstead, London	144970	same
G3CGE	Southampton ..	145470	"
G3CGQ	Luton, Beds. ..	144725	"
G3CHY	Coalville, Leics.	144680	"
G3CIY	Cambridge ..	144480	"
G3CKX	Hillingdon, Mx.	144900	"
G3CMT	—, Somerset	145000	"
G3CNF	Wanstead, Essex	145435	"
G3CNY	Wednesford, Staffs.	144715	144155
G3COJ	Hull, Yorks. ..	144200	same
G3CQC	Nr. Torquay, Devon	145510	145565
G3COL	Leigh on Sea ..	144027	same
G3CSC	Prescott, Lancs.	144280	"
G3CU	Dulwich, London	145275	"
G3CUA	Luton, Beds. ..	144185	"
G3CUJ	Hull, Yorks. ..	145220	"
G3CVE	Bournemouth, Hants.	145775	"
G3CVO	Garrards Cross, Bucks.	145130	"
G3CXD	Newcastle, Staffs.	144615	"
G3CYY	Newcastle, Northumb.	144120	144345
G3CZY	St. Pancras, London	145000	same
G3DA	Liverpool ..	144710	144230
G3DAH	Herne Bay, Kent	145155	same

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Call sign	QTH	QRG (normal)	QRG when last heard
G3DBM	Burnham, Bucks.	144310	
G3DDF	Ealing, Mx.	144160	145120
G3DEP	Ryde, I.O.W.	145230	145470
G3DGN	Enfield, Mx.	144170	same
G3DH	Bramhall, Ches.	144100	144670
G3DIV/A	Eastbourne, Sussex	144980	same
G3DJQ	Coleshill, War.	144440	"
G3DJX	Wheatthampstead, Herts.	144815	"
G3DKZ	Leafield, Oxon.	145685	"
G3DLU	Weston-super-Mare, Somerset	145400	"
G3DMK	Catterick, Yorks.	144120	144265
G3DNP	Dudley, Worcs.	144905	same
G3DMU	Crowle, Lincs.	144455	"
G3DO	Sutton Coldfield	144455	"
G3DQC	High Wycombe, Bucks	144805	"
G3DQY	Caterham, Surrey	144770	"
G3DTT	Southampton	145460	"
G3DUP	Northampton	144885	"
G3DVK	Rotherham, Yorks.	144315	"
G3DVP	Leicester	144425	"
G3EBW	Hurstpierpoint, Sussex	145130	"
G3ECA	Ilford, Essex	144740	"
G3EDD	Nr. Cambridge	144650	"
G3EDN/A	St. Merryn, Cornwall	145026	"
G3EEZ	Wolverhampton, Staffs.	144850	"
G3EGP	Birmingham, War.	145320	"
G3EGV	Farnborough, Hants.	144475	"
G3EHB	Woodstock, Oxon.	145015	"
G3EHY	Banwell, Somerset	145220	(also operates on 145350 and 144980 if QRM is bad.)
G3EHZ	Stockton, Co. Durham.	144215	same
G3EIL	Newbury, Berks.	145420	"
G3ELT	Salford, Lancs.	144250	"
G3ELV	Henlow, Beds.	144650	"
G3EMJ	Derby	144055	144495
G3ENI	Culham, Oxon.	145300	145450
G3ENS	Loughborough, Leics.	144465	same
G3ENY	Walton, Surrey	145230	"
G3EOH	Waltham Cross	145000	145345

World on the Air.

(Contd. from p. 301.)

tourist can sun himself after a swim in the Caribbean.

Fifteen miles east of Spanish Town lies Kingston, capital since 1872 and a seaport with excellent harbour. In 1907 an earthquake rocked the town and much damage was done, while in more recent times a hurricane swept across the town, leaving a trail of devastation. However, with a population of over 100,000, Kingston has some fine buildings, including the Institute of Jamaica, an art gallery, library and museum, not forgetting the parish church in which Admiral Benbow is buried.

The popular broadcasting station, ZQI "Radio Jamaica," is operated by the Jamaica Broadcasting Co., Ltd., and radiates English programmes for 17 hours every day, including regular BBC news relays, transcriptions of popular BBC features, and locally-produced programmes together with sponsored items. A rediffusion system is also in service. The short-wave transmissions of 5 kW output are primarily intended for reception within the Caribbean area, and the frequencies used are invariably within the "tropical bands" of 3 and 4 Mcs; reception of "Radio Jamaica" in Europe can not, therefore, be relied upon, but detailed reports from any continent are welcomed and, if correct, verified.

Jamaica is five hours behind GMT, and the distance from Kingston to London is 4,710 miles, which constitutes a travelling time of 14 days by sea, or 25 to 28 hours by air.

LATE FLASH - from the Irish News agency:

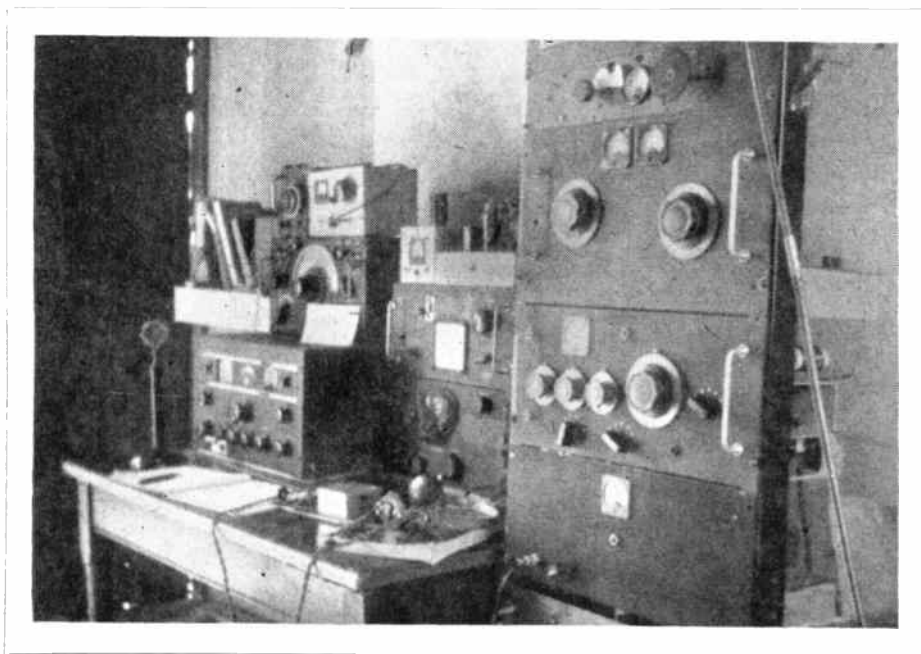
IRISH AMATEUR RADIO TEAM SPANS ATLANTIC ON VHF

An eight-man team of the Irish Amateur VHF Radio Association, operating a radio receiving and transmitting station at Kilkee, has spanned the Atlantic.

After a week trying to establish contact, the leader of the team, Mr. Henry Wilson, reported receiving the Morse signal "EEW 4" from an unidentified American station. Mr. Wilson has cabled America for positive station identification.

News of the radio link was received with great enthusiasm by the team whose members come from all parts of Ireland. They have operated the station since Saturday, July 4th. It has a 60-ft. mast supporting a multi-element beam and contains more than half-a-ton of specialised equipment. Now it is closing down until next year, when further experiments will be carried out.

AROUND THE SHACKS



NOTTINGHAM UNIVERSITY RADIO SOCIETY

The photograph above shows the Shack of the Nottingham University Radio Society, which is situated in Beeston about half a mile from the University. Being on the main road, ignition noise as well as audio noise is very troublesome !

Transmission has been chiefly on 3.5, 7 and 14 Mcs, the transmitter shown running 807s in the final. The modulator for this transmitter is conventional, using 6L6s. Two aerials are available, a 40 metre dipole used for transmitting on 7 Mcs and receiving on all bands and a 132-ft. long wire for transmitting on 3.5 and 14 Mcs.

The receivers which can be seen in this photograph are the AR88, BC348 and 1155. On top of the 1155 is an RF 27 unit, originally purchased for conversion to 2 metres, but at present used for listening to TV ! By its side is a grid dip meter, used as an absorption wavemeter.

On top of the BC238 is the VFO, a converted TU5B and standing on this as another absorption wavemeter with plug-in coils. To the right of this is the VFO power pack. The frequency meter is hidden behind the transmitter, which also obscures the 1155 power pack. Three loudspeakers are available, one for each receiver.

CLUB NEWS

Club Secretaries are invited to submit notes for this feature by 15th August, for inclusion in next month's issue.

The World Friendship Society of Radio Amateurs. Chairman: J. I. Meardon, Brookfield, Lustleigh, Nr. Newton Abbot, South Devon.

The Junior Section of the above Society continues to flourish and progress in a manner which leaves its officers in no doubt that it has a glorious future ahead of it. The Section, which is now run by its own committee, has many plans for the future. Perhaps the greatest of these is for a Dx contest to be held in the near future. The Section's magazine, *Waveguide*, a four-page monthly continues to receive enthusiastic acclamation from the members. Each issue contains, news from members, a technical article, and news of the affiliated school clubs. In addition to the magazine a newsletter is circulated at regular intervals among members. The society is always willing to welcome new members and full details can be obtained from the Chairman at the address given above.

Torbay Amateur Radio Society. Hon. Sec.: L. D. Webber, G3GIW, 43 Lime Tree Walk, Milber, Newton Abbot, Devon.

A new member, Mr. Symonds, BRS.19991, was welcomed recently—having arrived to take up permanent residence in Torquay, from S.E. London. He is intending to work towards his licence.

No further details of the SW Hamfest have yet been settled—beyond the price of the tickets, 12s. 6d.—the date and place being Sunday, October 11th, 1953, at the Oswalds Hotel, Babbacombe, Torquay. Full details will be announced later.

Any intending visitors to Torquay are invited to communicate with any members.

Meetings held on 3rd Saturday each month, at 7.30 p.m., at the Y.M.C.A., Torquay.

Birmingham and District Short Wave Society. Hon. Sec.: F. C. Cook, 67 Regent Road, Handsworth, Birmingham, 21.

The Club's activities continue at a high level, and the next month's meeting will include a mock auction.

Further programmes in hand include talks by members and also a forum.

All visitors will be cordially welcomed at the Society's meeting place "The Colmore Inn" Church Street, Birmingham; and the second Monday in each month.

Liverpool and District Short Wave Club. Hon. Sec.: Arthur D. H. Looney, 81 Alstonfield Road, Knotty Ash, Liverpool 14.

Two outstanding events have taken place in the last few weeks. The first was a visit to the Holme Moss Television Transmitter, with the very kind permission of the BBC. The party was limited to 22 and they all enjoyed themselves, slight delay was caused in our journey there owing to the coach having a breakdown due to the very steep ascent to the Station. Two engineers showed the party round and they were very thorough in their explanation, we were fortunate in seeing the transmitter in operation as Children's Hour was on, and all expressed surprise in the efficiency of the station, an indicator in the control room showed that a 40 m.p.h. with gusts of 50 m.p.h. wind was blowing on the outside, the whole station and mast is an engineering feat. A DF Contest was held on May 31st, with a first prize of "The Malcolm Cohen Trophy" and a guinea going to G3CK, assisted by G3EGX. Second team home was G3IQO, assisted by Mr. S. Cotter. All contestants enjoyed their day out and some good DF work was done by Mr. R. Kenyon and B. Cusick using a QRP rig. It will not be so long before the Club have another DF Contest. G3HII, a Club member who is in the RAF has been posted to BAOR and has been issued with the call DL2US, reports would be appreciated via home QTH or through Club Secretary. One of our honorary members who is in the Kenya Police and a keen SWL will be arriving home in July on leave, he hopes to have his own call very soon and so add to the Kenya Dx. We would like any service personnel or unattached SWLs or Hams to contact the Club if they are in the Merseyside area. Club night is Tuesday night, 8 p.m., St. Barnabas Hall, Penny Lane, Liverpool, 15. We welcome the QRP SWL and the QRO Ham; all letters answered.

The South-West Essex Radio Club. Hon. Sec.: B. W. Le Grys, G3GOT, 75 Shaftesbury Road, Romford, Essex.

The Club continues to meet at 8 p.m., Tuesdays, at the "Shack" 367 Rush Green Road, Romford, for informal discussions and constructional work. An effort is now being made to get the Club station, G3FZF, on the air again having been QRT for a few months owing to TVI. July 5th, saw the annual outing which was enjoyed this year at Margate. September 6th, has been fixed for Field Day, and gear is being collected for use on this occasion. Membership has risen of recent date and any newcomers are welcome.

Southend and District Radio Society. Hon. Sec.: J. H. Barrance, 49 Swanage Road, Southend-on-Sea.

For the benefit of those who were unfortunate enough to miss Mr. Crispin's talk at the last meeting, when he demonstrated the newly-constructed transmitters used on National Field Day, may I stress the distinct advantage, for contest purposes, of monodial tuning which he designed for the Top Band and 80-metre transmitter.

We extended a helping hand at the International Radio Controlled Models Contest at Southchurch Park, on July 25th, and Rochford Aerodrome on July 26th.

We are invited to meet members of the Medway Society at the Shore end of the Pier at 3.30 p.m., on August 9th, when they visit Southend, and proceed with them to the "Hope" Hotel, Marine Parade, where tea has been booked for 4.15 p.m. They are expected to arrive by boat at the Pier Head about 11 a.m.

Leicester Radio Society. Hon. Sec.: H. Wibberley, 21 Pauline Avenue, Leicester.

The attendance at the Society's meetings has greatly increased during the past three months and a full report of the part played in the National Field Day activities appeared in a copy of *The Melton Times*. It was also stated in this report that the Leicester Radio Society was now in its 40th year, and it was believed to be one of the oldest societies in the country.

A very extensive programme of interesting lectures is now in preparation for the next Winter session and all members will find that all the general radio topics have been covered.

The Society meets every first and third Monday in the month at its headquarters in the Club Room, Holly Bush Hotel, Belgrave Gate, Leicester. The time of the meeting being 7.30 p.m.

Full details of future activities, visits, and meetings can be obtained from the Honorary Secretary.

Cambridge and District Amateur Radio Club. Hon. Sec.: T. A. T. Davies, "Meadow Side," Comberton, Cambridge.

At the last meeting, on July 17th, Bob Bass, W3JC1, gave a talk on "Ham Radio in the US." A VHF Picnic was held at The Gogs, Roman Road, on Sunday, July 19th, a DF contest being held to find a hidden transmitter provided by G2XV.

QRP Research Society. Hon. Sec.: J. Whitehead, 92 Rydens Avenue, Walton-on-Thames.

The main interest this month is centred round a design by GC2CNC, who is well known in the VHF field, of a simple QRP 435 Mcs Transmitter/receiver, the circuit of which is published in "QRP," the Society's monthly Journal.

Also, the QRP Communications Receiver Design is progressing steadily, with many novel ideas being incorporated, as suggested by members.

A welcome is extended to G3HJL, who has been elected to the Society's Council, and to the Contests Committee.

West Lancashire Radio Society. Hon. Sec.: T. Searle, 11 Sefton Drive, Thornton, Liverpool, 23.

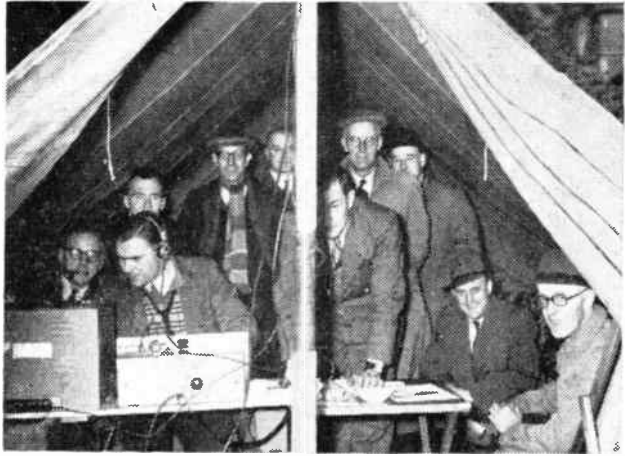
The above Club is now meeting at its original headquarters again, that is:—Above Gordon's Sweet Shop, St. John's Road, Waterloo, Liverpool, 22.

Starting September, there will be a monthly series of films and filmstrips, lectures, etc., and Morse and technical classes. Meetings weekly, Tuesday evenings, at 8 p.m.

Chester and District Amateur Radio Society. Hon. Sec.: N. Richardson, 23 St. Mary's Road, Dogleston, Nr. Chester.

Cleckheaton region B station at NFD, G3FØH/P.

From left to right: front row, G2FIS G2BMC, (Chairman of Spen Valley Radio and Television Society) G3GJV, G2AQN, G6PL. Second row, G5ZB, G3JJC, G2DAZ. Rear row, G2CTC and G2AWL Norman Pride.



Would members please note the new address of the Secretary.

Future programmes will be notified later. New faces are always welcome to our Tuesday evening meeting, when something of interest will always be on.

Bradford Amateur Radio Society. Hon. Sec.: A. R. Bailey, G3IBN, Scart Croft, Parkside, Bingley.

The next meeting will be on August 18th, when three members will talk on "Home Built Receivers." Meetings commence at 7.30 p.m., at Cambridge House, 66 Little Horton Lane. Morse classes are held from 7 to 7.30 p.m. before the meetings. All interested in Amateur Radio are welcome to all meetings.

Lancaster and District Amateur Radio Society. Hon. Sec.: A. O. Ellefsen, 10 Seymour Avenue, Heysham.

Several meetings of this new Society have been held and membership is steadily increasing. At our last meeting Mr. Sumner, the local GPO radio interference officer gave a very interesting talk on Radio and Television Interference, its causes and its cure. No meeting will be held during August. A film show has been arranged for Wednesday, September 2nd. The Secretary is always pleased to hear from prospective members.

Hastings and District Amateur Radio Club. Hon. Sec.: W. E. Thompson, 8 Coventry Road, St. Leonards-on-Sea.

At the recent Exhibition, a station was run using the Club call, G2HH, licenced members being nominated as alternative operators. A selection of "Data Publications" was on view, including *The Radio Amateur* and the *Radio Constructor*.

Slade Radio Society. Hon. Sec.: C. N. Smart, 110 Woolmore Road, Erdington, Birmingham, 23.

A recent Club evening event was a direction-finding contest organised as a demonstration for members not normally taking part in these events. The last meeting in June took the form of a technical discussion.

Now that the Society has been issued with its own licence and call sign (G3JBN), a Communications Committee has been formed to organise the building of equipment for the Club station, and participation in contests and field days. It is hoped by these means to widen Society interests and increase membership.

There is only one meeting in August, this is on the 21st, at the Church House, Erdington, Birmingham, at 7.45 p.m. This is a lecture entitled "The Radio Amateur's Workshop." Visitors will be welcome and may obtain further details from the Honorary Secretary.

Soar Valley Radio Club. Hon. Sec.: K. B. Roulston, G2BJN, 29 Church Gate, Loughborough.

A new radio club has been formed in Loughborough, for the benefit of radio amateurs. All branches of Electronics will be covered, from Radio Transmission to Hi-Fidelity Amplifiers and Tape Recording. A monthly series of lectures is being formulated, and it is hoped to include at least one outing before the end of the summer. Providing sufficient interest is shown it is also intended to run a "Beginners Class."

Twenty-three members turned up at the inaugural meeting held at the Great Central Hotel on July 8th. Club officers were elected, and the secretary was instructed to go ahead with the booking of lectures, etc. The subscription was fixed at 5s. per half-year.

New members are invited. They can either contact the secretary at his address or turn up at the next meeting which will be held at the Great Central Hotel, Great Central Road, Loughborough on August 19th, at 7.30 p.m. Future meetings will be held at the same place on the third Wednesday of each month.

Tops Club. Hon. Sec.: J. P. Evans, GW8WJ, 2 Ffordd, Ty Newydd, Meliden, Flintshire.

Readers should note our North-Western Topsfest, on September 12th, at the YMCA, Chester, by kind permission of the Chester AR Society. Doors open at 3 p.m. Tea at approx. 5 p.m., and the meeting proper at 7 p.m.

Tickets will be available from the Tops Club Secretary, after August 3rd. Please enclose S.A.E., Teas must be booked by September 5th, at the latest.

Both DL7AH and OH2MA will probably be making a personal appearance at this Fest.

Latest recruits to Tops are:—PAØXE and G3IBY. It is learnt that GW8WJ is the first GW, and Tops members to receive the VERON Code Proficiency Cert. (15 wpm). PAØLR hopes that many more UK Hams and SWLs will try for one of these certs.

Member (ex) G3AGQ is now VE7BS at Vancouver, and he obtained his call in 1½ hours! Some licencing authorities could take lessons from the Canadian Post Office. Bob just walked in at 10.30 and came out at Noon, complete with 1 kW Phone/CW permit!

Kingston and District Amateur Radio Society. Hon. Sec.: R. S. Babbs, 28 Grove Lane, Kingston.

Meetings continue to be well attended and future programme includes further talks on receivers, transistors and on August 26th, a lecture and demonstration by Goodmans Industries Ltd., on Sound Reproduction to



Station operated by members of Purley and District Radio Club at a Coronation Fete held in the grounds of Reedham School, Purley, on Saturday, June 6th. The call used was G2AYM and the operator in the picture is G3FTQ. 20 and 80 metre Phone was used, the equipment being a PR 120v, an Eddystone 640 and a Radio-craft Preselector. a display of members' equipment was also on view.

which members of neighbouring societies have been invited.

Arrangements are being made for an outing on the river from Kingston to Windsor, on a Sunday in August, to which members and their friends are invited.

Morse and radio theory classes continue to be well attended.

A licence has been granted to the Club and it is expected that the station will be operating in a few months time.

Meetings are held fortnightly on Wednesdays at Penrhyn House, 5 Penrhyn Road, Kingston, and refreshments are available during the interval.

Visitors are specially welcome.

Torbay Amateur Radio Society. Hon. Sec.: L. H. Webber, G3GDW, 43 Lime Tree Walk, Newton Abbot.

The return to Devon of G2FDV—the Ex-TR of Dulwich and New Cross—was welcomed, after a long spell in London.

G5MU of Dorchester was another welcome visitor—and he was able to meet many friends in the district whom he had met on Top Band.

The Chairman, G2GK, reported having made arrangements for the films to be shown in conjunction with the SW Hamfest, to be held on October 11th, 1953, at Torquay. (Please see further announcements.)

Meetings held at 7.30 p.m., on the third Saturday each month at the YMCA, Torquay—next meeting on August 15th, next.

Yeovil Amateur Radio Club. G3CMH. Hon. Sec.: D. L. McLean, 9 Cedar Grove, Yeovil.

The usual weekly meetings have been held each Wednesday. We were very glad to have a visit from John Hall of Croydon, well known for his 1.7 and 3.5 Mcs SWL activities. He brought along details of stations heard on 1.7 Mcs during the winter 1952/3. Letters and QSLs received from the various stations made most interesting reading. As enquiries had been received regarding BCI caused by TV receivers, some time has been spent in checking this. The trouble is mostly on the Light Programme 200 kcs, and the radiation from some receivers has found to be greater than on others.

As mentioned in the May report, a 150-watt transmitter is now in use. This has now been tested on all bands, 3.5-28 Mcs, Phone and CW with good results. Most activity has been on 14 and 21 Mcs with 46 countries worked on the latter. 14 Mcs, DX worked has included HZ, KV, PJ, VS2, VU and YV, and 21 Mcs KG4, KV, VQ2-4-5, ZD2, all on Phone. Tests are now under way on 21 Mcs, with a ground Plane aerial. Since coming back on the air in April after six months absence we have made 198 QSOs.

ANNOUNCEMENT

The following information, concerning radio classes to be held at Brentford Evening Institute, may be of interest to readers:—

(i) Radio Servicing

This covers the theory of operation of radio receivers from first principles before dealing with fault finding and repairs. Some practical work will be included.

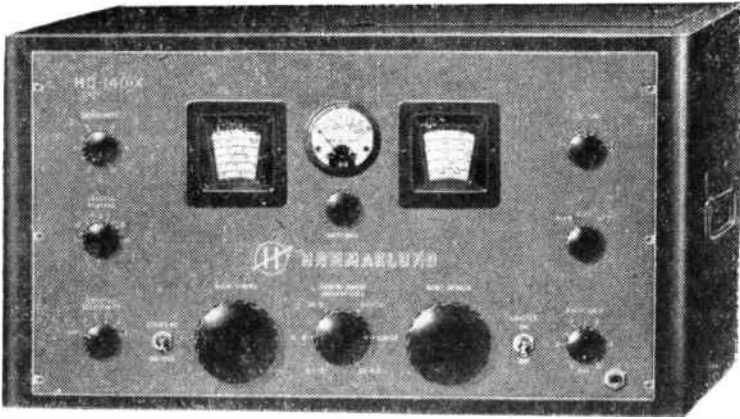
This course is held on Tuesday evenings from 7-9 commencing Sept 22nd, next. Enrolment is on all evenings September 14th-19th, inclusive.

(ii) Radio Amateur's course

This prepares students for the Radio Amateur's examination of the City and Guilds Institute and qualifying those passing transmitting licence. This course does *not* include instruction in the Morse code. All necessary theory is covered starting from "scratch."

These classes are held on Wednesday evenings from 7-9, commencing September 23rd, next, whilst enrolment is from 14th-19th September, inclusive (evenings).

Both series of lectures will be given by J. R. Hamilton, Assoc. Brit. I.R.E., G2HKR.



NEW COMMUNICATIONS RECEIVER

—BY HAMMARLUND

A new general purpose superhetrodyne communications receiver, the "HQ-140-X," for use by commercial and amateur radio operators and other short wave listeners is now being introduced by the Hammarlund Manufacturing Company of New York, it has been announced by Rocke International Corporation, (13 East 40th Street, New York 16, N.Y.), which acts as the Hammarlund's Export Department.

The receiver is a table-top model with a continuously tunable frequency coverage of from 540 Kc to 31 Mc (555 to 9.7 meters) in six convenient bands, and includes a self-contained power supply.

Band spread tuning is available on the four higher frequency ranges, with direct calibration for the 80, 40, 20, 15 and 10 meter amateur bands. Calibration charts may be easily made for use with the arbitrary bandspread logging scale to tune other ranges.

Rocke announced that full use of the receiver's high sensitivity is available for reception of even the weakest stations because of inherently

high signal-to-noise ratio and the Hammarlund noise limiter. The special patented Hammarlund crystal filter provides extreme selectivity for the high attenuation of closely adjacent interfering signals.

While this receiver was designed primarily for communications use, good fidelity music and voice reproduction in both standard and short wave broadcast bands is provided. Power hum is negligible. Either headphones or loudspeaker may be used. Automatic volume control aids in keeping music and voice reception at the desired level.

Large, comfortable and conveniently positioned controls in addition to its many other features make the "HQ-140-X" a truly professional type receiver.

A prototype of this new model was first exhibited at the 1953 Radio Engineering Show (March 23rd-26th) in New York, and the company announced that production has started on them.



HB9DM is a very clever cartoonist and drew this up overnight at the IARU Congress to publicise the new "M" code for modulation, which was suggested at the congress. The "M" code has been widely publicised and very favourably commented upon in practically all the European Amateur Radio magazines.

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TI154B TRANSMITTER UNIT

Medium/High powered, for C.V.-M.C.V.-R/T. 3 Ranges 10-5.5 Mcs, 5.5-3 Mcs, 500-200 kcs. Complete with 4 valves, etc., in metal case 14x16½x8½ ins. External Power Supply required.

Ask for C/E5A. **39/6** EACH. CARRIAGE 7/6d. extra.
Circuit 2/3d.

RI155 RECEIVER UNIT

Communications, D.F. and "Ham" 20, 40, 80. 5 Ranges 18-7.5 Mcs, 7.5-3 Mcs, 1500-600 kcs, 500-200 kcs and 200-75 kcs. Complete with 10 valves. 5M Drive, ME tuning, BFO, etc., in metal case 16½x9x9 ins. External Power Supply required.

Appearance as new. **£9. 19. 6** EACH. CARRIAGE PAID
Ask for No. C/E6.
Appearance good. **£8. 19. 6** EACH. CARRIAGE PAID
Ask for No. C/H916.
Appearance rough. **£5. 19. 6** EACH. CARRIAGE 7/6d. extra.
Ask for No. C/H898.
Circuit 1/3d.

VISUAL INDICATOR TYPE 1

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SHORT WAVE BROADCAST STATION LIST

(T) Denotes Tentative Frequency or Station Under Construction.
 (V) Denotes Frequency liable to Variation.

(E) Denotes Experimental Channel.
 (I) Denotes Inactive at the time of publication.

Kcs	M	Call	Location	Kcs	M	Call	Location
6035			Rangoon, Burma.	6085	49.30	ORU	Wavre-Overijse, Belgium.
		CXA30	Montevideo, Uruguay.			ZYK31	Cairo, Egypt.
		OAX6B	Arequipa, Peru.			VUM3	Recife, Brazil.
		FK8AA	Noumea, New Caledonia.			VP4R	Madras, India.
		HRQ	Tela, Honduras Rep.	6087 (V)	49.28	YNRG	Port-of-Spain, Trinidad.
6040	49.67	GSY	Daventry, England.	6090	49.26	GWM	Granada, Nicaragua.
		WLWO-7	Bethany, Ohio, U.S.A.			CKOB	Daventry, England.
		VUD	Moscow, U.S.S.R.			APD	Luxembourg, Luxembourg.
			New Delhi, India.				Sackville, Canada.
			Salonika-1, Greece. (VOA Relay).				Moscow, U.S.S.R.
6042	49.65	OAX6A	Arequipa, Peru.				Dacca, Pakistan.
(V)		HCJB	Quito, Ecuador.				Pnompenh, Indo China (Cambodia).
6045	49.63	YDF	Djakarta, Java.				Panama City, Panama.
			Moscow, U.S.S.R.	(V)		HOO	Sydney, Australia.
		CE604	Antofagasta, Chile.	6092	49.24		Tabriz, Iran.
		XETW	Tampico, Mexico.	6095	49.22		Horby, Sweden.
		HOU31	David, Panama.				"Radio Free Europe."
			Aden, Aden.			ZYB7	Sao Paulo, Brazil.
6050	49.59	GSA	Daventry, England.			OLR	Prague, Czechoslovakia.
			Moscow, U.S.S.R.			BED29	Taipeh, Taiwan (Formosa).
		YSR	Tbilisi, Georgian, S.S.R.			OAX4H	Lima, Peru.
		HIIN	San Salvador, El Salvador.			HC5PT	Cuenca, Ecuador.
			Ciudad Trujillo, Dominican Republic.	6098	49.20	HJFK	Pereira, Colombia.
		HC2RQ	Quevado, Ecuador.	6100	49.18	WRCA-2	Bound Brook, N.J., U.S.A.
6054	49.56	HJEX	Cali, Colombia.				Moscow, U.S.S.R.
6055	49.55	HER2	Schwarzenburg, Switzerland.				Belgrade, Yugoslavia.
							Pekin, China.
		PRB21	Sao Paulo, Brazil.	(V)		DYH3	Cebu, Philippines.
		CXA14	Montevideo, Uruguay.			YNV	Lagos, Nigeria.
		YNOW	Managua, Nicaragua.				Managua, Nicaragua.
		DYH4	Dumaguete, Philippines.	6105	49.14		Belize, British Honduras.
(E)		HSU20	Don Muang, Thailand.			ZYN6	"Radio Free Europe."
6060	49.50	GSX	Daventry, England.			HJFD	Fortaleza, Brazil.
		WRUL-1	Scituate, Mass., U.S.A.				Manizales, Colombia.
		KWID-1	San Francisco, Calif., U.S.A.	6110	49.10	GSL	Kure, Japan. (BCOF.)
		CKRZ	Sackville, Canada.				Daventry, England.
			Moscow, U.S.S.R.				Moscow, U.S.S.R.
			Petropavlovsk, U.S.S.R.				Tangier, Tangier.
		OZF3	Herstedvester, Denmark.			HRXW	Singapore, Malaya. (BFEBs).
(V)		HC1AC	Quito, Ecuador.				Comayagua, Honduras Republic.
		HORT	Panama City, Panama.			DZ14	Manila, Philippines.
		VQ7LO	Nairobi, Kenya.	6112	49.07	APD	Srinagar, Kashmir.
		CP44	Cochabamba, Bolivia.			HIIZ	Dacca, Pakistan.
6065	49.46		Horby, Sweden.	(V)			Ciudad Trujillo, Dominican Republic.
		LRA1	Buenos Aires, Argentina.	6115 ¹	49.06		Warsaw, Poland.
(I)		ORU	Wavre-Overijse, Belgium.			HC2FB	Berlin, Germany (U.S.S.R. Zone).
		VUM7	Mysore, India.	6116	49.05		Guayaquil, Ecuador.
		XEXE	Mexico City, Mexico.				Saigon, Indo China (Vietnam).
		YNEQ	Managua, Nicaragua.	6120	49.02	WDSI-2	Brentwood, N.Y., U.S.A.
		HC2FO	Guayaquil, Ecuador.				Moscow, U.S.S.R.
6067 (V)	49.45	EA9AH	Tetuan, Spanish Morocco.			OIX7	Pori, Finland.
6069	49.43	JOB	Yamata, Japan.			LRX1	Buenos Aires, Argentina.
6070	49.42	GRR	Daventry, England.	6122	49.00	CP15	La Paz, Bolivia.
			Sofia, Bulgaria.	6125	48.98	ZJM4	Limassol, Cyprus.
			Khabarovsk, U.S.S.R.			APD	Dacca, Pakistan.
			Petropavlovsk, U.S.S.R.			HP5H	Panama City, Panama.
			Toronto, Canada.			GWA	Daventry, England.
		CRFX	Tegucigalpa, Honduras Republic.				Manila-1, Philippines (VOA Relay).
		HRQ5	Oruro, Bolivia.				Manila-3, Philippines (VOA Relay).
6075	49.38	CP18	Belmont, Calif., U.S.A.	6128	48.96	CXA4	San Pedro Sula, Honduras Republic.
		KGEI-2	Karachi, Pakistan.	6130	48.94	OAX7A	Sao Paulo, Brazil.
		APK	Lahore, Pakistan.				Montevideo, Uruguay.
		APL2	Montevideo, Uruguay.				Cusco, Peru.
		CXA3	San Salvador, El Salvador.				"Radio Free Europe."
6080	49.34	YSC	Munich-3, Germany (U.S. Zone), (VOA Relay).				Moscow, U.S.S.R.
			Tangier-5, Tangier, (VOA Relay).	(T)			Tromso, Norway.
		VUD	New Delhi, India.			LKJ2	Damascus, Syria.
			Vladivostok, U.S.S.R.			CHNX	Halifax, N.S., Canada.
		ZL7	Wellington, New Zealand.				
		JK13	Kawachi, Japan.				
		CKFX	Vancouver, Canada.				
6082	49.32	OAX4Z	Lima, Peru.				

TO BE CONTINUED

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Readers' small advertisements will be accepted at 2d. per word, minimum charge 2s. Trade advertisements will be accepted at 6d. per word, minimum charge 6s. If a Box number is required, an additional charge of 1/- will be made. Terms: Cash with order. All copy must be in hand by the 12th of the month for insertion in the following month's issue.

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RADIOVISION V55R receiver AC mains £10. CR100 not in working order £10. E. Filmer, 22 Batteries Close, Lynsted, Sittingbourne, Kent.

EDDYSTONE speaker and S Meter, both in perfect condition £5. Box No. C 134.

DOUBLE SUPERHET, 15 valves, appearance as Denco DCR 19, Turret coils 36 Mcs to 200 kcs, Bandspread all Ham bands, mechanical calibrated every control, Xtal second frequency changer, PP, 6V6s, £20 or exchanges. Wanted Premier TV complete, or Hallicrafter S27 or ? SAE please. MCRI with coils and circuit, slight fault, tubes OK, £3. Windsor 65B Generator £9. Delivery in London. Taylor, 41 High Street, Lake, Sandown, I.O.W. Phone Sandown 746.

VALVES for sale. 807, ECC35, KTW61, 6L6, KTW63, 6U7, 6V6, 12AT7, 6A7, TH41, 12BA6 at 8s. each. ECC31, 6J7, HL42DD, 6K7, EB91, ML4, 6L7 at 6s. each. PP225, 220HPT, 220P, Z21, 210SPT, 210VPT, W21, TDD2A, PM12M, L63, 6J5 at 4s. each. Box No. C 133.

VC97 for £1, 131 12 in. £4, 97 Magnifier 15s., 1155 £4, 194 IF Strip (London) modified with valves 30s. Emmerson, 85 Frimley Road, Hook, Surrey.

1082 RECEIVER for sale, complete set of coils, offers. No. 68 Receiver 3 to 5 Mcs. No. 18 Receiver, modified for Long, Medium, Short and Trawler bands, all need slight attention, also 14 copies *Radio Constructor*, 20 copies *Wireless World*, 42 copies *Practical Wireless*—offers. R. C. Smith, 10 Carlton Hill, Princes Park, Liverpool, 8.

ALLEN FOCUS COIL, new Corona Ring, Rubber mask with plate glass for 16 in. "Telexing" 65s. Hall 89 Preston Old Road, Blackpool.

CAXTON Practical Radio and Television, 2 books 50s., EHT transformer 1500v—2.0-2—4v, new, £1. S. Petts, 7 Chedworth House, Geldeston Road, Clapton, E.5.

WANTED. Circuit and information for BC454. L. C. Dalby, 3 Bank Street, Herne Bay, Kent.

Eddystone S640 RX and matching loudspeaker for sale, £20. AVO 1948 type All Wave Oscillator £9; Ex-R.A.F. Test Set Type 73 (see May *Radio Constructor*) mains driven scope £7; all above in mint condition. Also 1938 Ekco TSC 102 TV Console chassis, power supply and Time Base Chassis and Mazda CRM71 CRT, in perfect order but requires rebuilding of receiver chassis, £10 complete with manufacturers servicing sheets and circuit diagrams. (Appointments to demonstrate—no dealers please.) Nearest offers within 10 days or exchange photographic equipment to D. R. Edwards, 333 Greenwrythe Lane, Carshalton, Surrey.

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BLUEPRINTS. High Gain 10 Metre Converter, with a de-luxe circuit comprising EF91 RF stage, ECC91 double triode mixer and oscillator, EF92 IF amplifier, with stabilised voltage supply via a 7475. 1s. 8d. post free with full instructions. A.S.W.P., 57 Maida Vale, London, W.9.

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AMATEUR STATION RECORD CARDS. 6 in. by 4 in., best quality card, for recording that QSO and full details of the contact. An invaluable aid to quick reference of stations worked, etc., 3s. per 100 from Data Publications, 57, Maida Vale, London, W.9.

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Announcement

New Service for the Amateur and Experimenter

A stamped addressed envelope will bring you details of the new series of blue-prints of aerial tested circuits, from single valve to six and seven valve super-hets. In the near future, kits of parts will be offered, both for the home constructor and the Amateur Transmitter and Receiver. Coming off the drawing board shortly is a simple Communications Receiver circuit. Further announcements will be made shortly concerning equipment for the T/A home constructor, including wide band pre-amplifiers, etc., at prices which will be right for you pocket. Get your name and address on the files NOW by sending your S.A.E. to J.H.G. Box No. C 107.

Miller's "PANL"—the air drying black crackle enamel. From dealers 3s 6d jar or direct 4s 6d including postage —8 Kenton Park Crescent, Kenton, Middx.

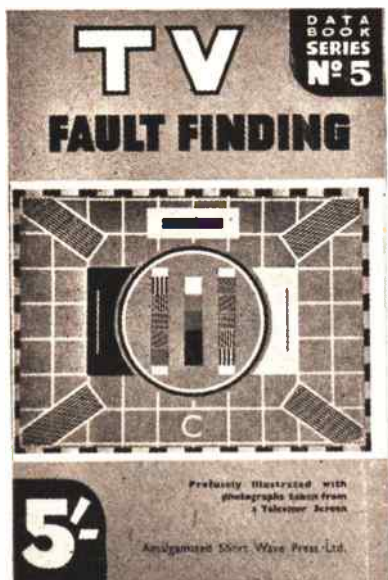
ARE YOU STUCK? PRE WAR VALVES from 6s., each. WAVEMETERS, VOLT and MILLIAMPERMETERS from 15s. S.A.E. for list. LAWRENCE, 134 Cranley Gardens, London, N.10.

OSMOR—for efficient coils, coilpacks, etc. Send 5d. stamp, for FREE circuits and lists. Dept. RCC, Osmor Radio Products Ltd., Borough Hill, Croydon, Surrey. Tel. Croydon 5148/9.

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FOR SALE. Sensitive Relays, similar Siemens type 73, 2000 ohms, spdt suitable R/C. 10s. Also with 3400 ohms coil, 10s. E.C.C. Miniature Relay. Type 5A. £1. Miniature Accumulators Exide Type 2—SP 1. 4v. 3 A.H. L3½ in. x W1½ in. x H3 in. 10s. 2 mfd 1000 V.D.C. condensers 2s. Packard Bell Pre-amplifier model K. 10s., Denco 1F's type 1FT7/1.6. 5s. 6d. Labor 1.6. 7s. 6d. Laboratory type milliammeter 25-0-25 x 4 x 10. 10s. 6d. Selection three transformers, unidentified, from surplus 5s. Muirehead Slow Motion Drive, ratio 48-1. 5s. 6d. Midget 2 gang tuning condensers, max. 50 pf per section 2s. 6d. Ditto 500 pf. 3s. 6d. VALVES. T.20. 5s. Four German RL12.P35's, transmitting pentodes, with two bases. £2 the lot. VT 136, 12E1, EF 50, VR 136, VR 56, VR 53, VR 99 all at 3s. 6d. GF6G 7s. 6d. *Wireless World* 1952, April, May, June, Sept., Oct., Dec., at 1s., copy. *Cathode Ray Oscillographs*, J. H. Reyner, 10s. *Radio Control for Models*, Honnest-Redlich, 7s. 6d. *Short Wave Magazines*, 1952, March, April, May, Oct., Nov., 6d., copy. **WANTED.** Old bug key—paddle and contacts, several 8000 ohm sensitive relays. "East Keal," Romany Road, Oulton Broad, Suffolk.

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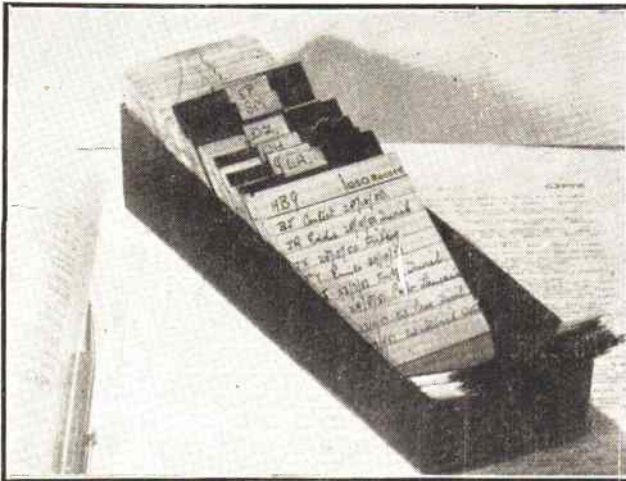
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