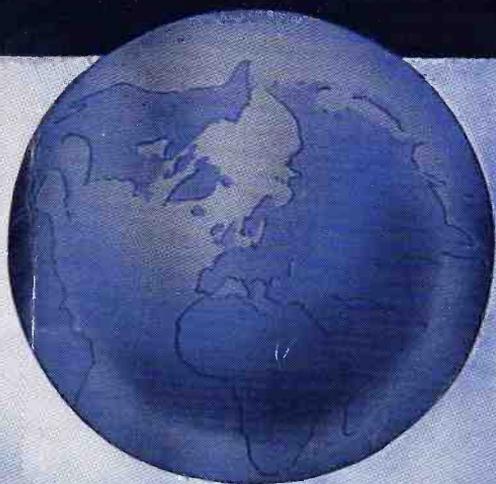


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The
SHORTWAVE
Magazine



Code

**EXCLUSIVELY FOR THE
RADIO EXPERIMENTER &
TRANSMITTING AMATEUR**

VOL. IX No. 7 SEPTEMBER 1951

M. WHITAKER G3SJ

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OSCILLOSCOPES. By well known British Manufacturer. In black crackle steel cases, size 12 x 8 x 6 ins. For AC mains 230/200V 50cy. Tube size 3ins. (green) Hard valve time base continuously variable from 5 to 250,000 c.p.s. Push-pull "X" deflection circuit with T.B. vwe form brought out to separate terminal for wobulator work or synchronising. Provision for fly back suppression. Push-pull "Y" deflection circuit, level from 15 to 300,000 c.p.s. All usual controls and provision for using a D.C. volt-meter to measure the amplitude of an A.C. waveform. Separate synchronised amplifier and no control interaction. Complete with all test leads and instruction manual. They are brand new and boxed in original cartons, and represent an un-repeatable bargain at £19/10/0. Carr. paid.

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FEEDERS. Henley 80 ohm twin line, 6d. per yd. 80 ohm $\frac{1}{2}$ in. Co-Ax 1/2 per yd. Telcon 300 ohm line 9d. yd. Ex-Air Ministry 10in. Insulators, $\frac{1}{2}$ in. diameter, fixing holes each end. Woden for 600 ohm feeders with 8s gauge wire. Useful also for breaking up of stay wires into non-resonant lengths. 6/- per doz.

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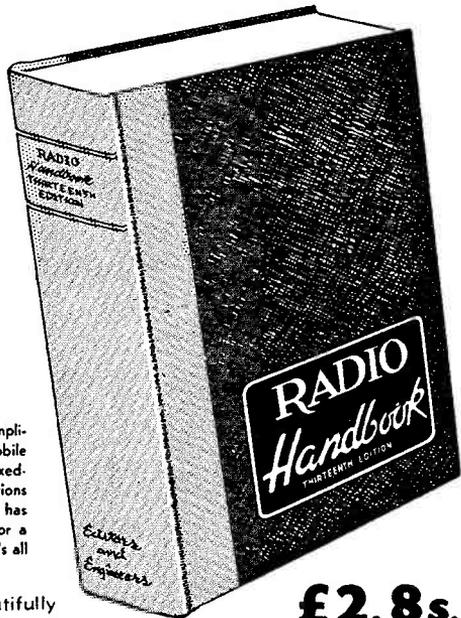
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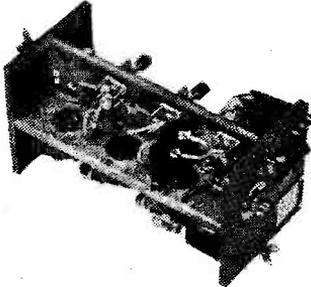
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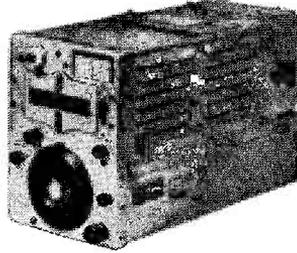
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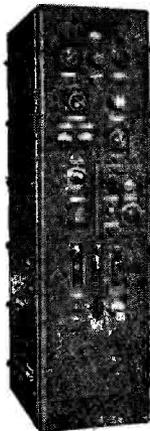
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SHORT WAVE MAGAZINE

FOR THE RADIO AMATEUR & AMATEUR RADIO

Vol. IX SEPTEMBER 1951 No. 98

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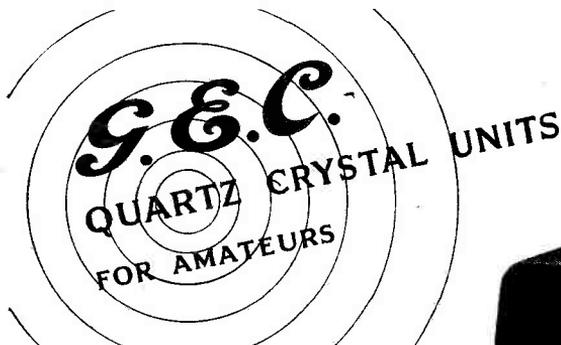
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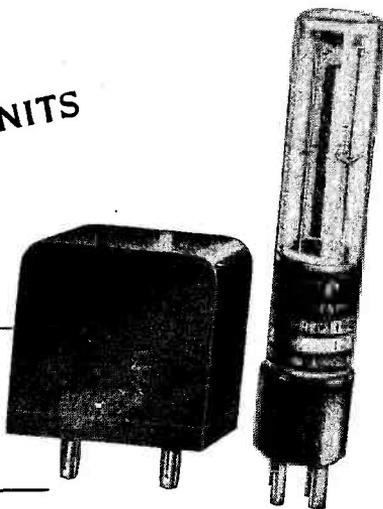
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The SHORT WAVE *Magazine*

FOR THE RADIO
AMATEUR AND
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E D I T O R I A L

Reiteration

Five years ago in this space we had occasion to write some words stressing the fact that SHORT WAVE MAGAZINE is an entirely independent undertaking, owing allegiance only to the interests of radio amateurs and the cause of Amateur Radio.

It seems it would be necessary that we reiterate this, as again there are those who like to say that we are not impartial in all matters of amateur interest. Therefore, let it be said again that this MAGAZINE is of and for Amateur Radio, and is indeed the only public journal in this country devoting all its space in every issue to the amateur bands. All our efforts are concentrated on the advancement of the interests of radio amateurs and the continuing development of the art.

There are a great many who have now come to see that it is very much to the advantage of amateurs generally that there should be in flourishing existence an independent publication of the character of this MAGAZINE, if only for the reason—and there are many others—that it is constantly the means of widening the field and enlarging the fold.

Much has yet to be done and many new channels will have to be followed before SHORT WAVE MAGAZINE reaches all its objectives; many difficulties have been overcome, but there are a lot more yet to be faced; in the field of technical progress we have vast plans which as yet there has been neither time nor opportunity to develop; and there is always scope for improvement in the MAGAZINE itself.

Freedom to act is one of the advantages of maintaining complete independence. But freedom to act also implies acting with responsibility and with due regard for the interests of all concerned.

*Arthur Foyll
G6FO.*

Making the S.640 Speak

BUILDING IN A QRP CW/PHONE TRANSMITTER UNIT

By H. BARNETT (G2AIQ)

ON lifting the lid of the S.640 one evening, the writer was immediately struck by the amount of unused chassis space that was disclosed. (It might be as well to add that the S.640, during its nearly three years' service, has never given any trouble and, as a result, the lid has been opened very rarely). The ideas that flashed through the writer's mind ranged from VHF converters and crystal calibrators to a transmitter, as a means of utilising the spare chassis space. Eventually, it was decided to make the S.640 speak, and so the possibility of fitting a transmitter inside the cabinet was investigated. Briefly, the chassis at the rear of the receiver, which normally contains one 6V6 valve and an output transformer, is now the transmitter chassis. The 6V6 has been placed next to the 6Q7GT and the output transformer has been turned 90° and mounted on the new chassis at the end nearest to the 6V6. It was decided to utilise the existing HT and LT supplies, available in the receiver, for the QRP transmitter, and also to use the existing 6Q7GT and 6V6 audio stages for modulation when required.

Transmitter Circuit

The transmitter consists of a hot cathode crystal oscillator using a Mullard EL91 audio pentode, either straight or as a crystal oscillator-doubler. The anode circuit, with a dust-iron cored tuned coil, is capacity coupled to the grid of the final amplifier, which is a Mullard EL42 audio pentode, functioning as a power amplifier on all bands. Keying is effected in the screen of the EL42, and, for telephony, plate-and-screen modulation is obtained by taking the HT to the final amplifier from the anode of the 6V6 output valve in the receiver. The loud speaker is removed from this transformer on "send" and, using the primary winding of the output transformer as a choke, Heising modulation of the PA is effected. The valves mentioned were chosen mainly for their small size and low heater consumption. By replacing the two 6.3v 0.3A dial lights by two 6.3v 60 mA lamps, a

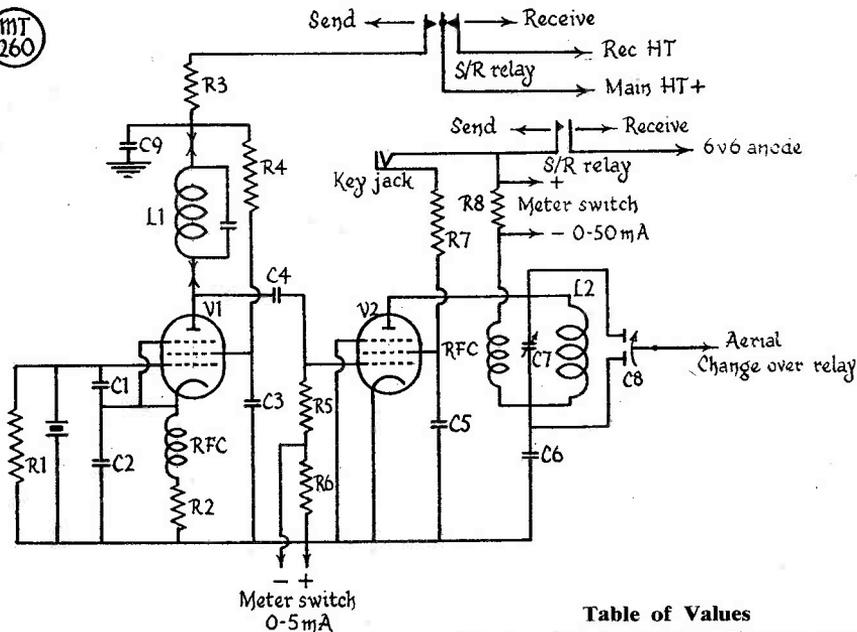
Not every owner of an Eddystone S.640 will wish to apply the modification to his receiver suggested in this article—which is to incorporate in the set itself a low-power CW/Phone transmitter with universal aerial coupler, fitted in the unused space on the existing chassis, and deriving its power supply from the receiver power unit, normally off load when in the stand-by position. However, our contributor shows just how this can be done, thus evolving a completely self-contained Tx/Rx unit, requiring only a mains connection, aerial, key and microphone to put it on the air.—

Editor.

saving of 0.48A can be made in the LT load. The two valves used in the transmitter require 0.4A for the pair, so the overall saving in heater current is 80 mA. On transmit, the HT is removed from all the valves in the receiver not required for transmission, i.e. all valves when working CW and all except the 6Q7GT and 6V6 when on phone.

The modulator circuit was arranged so that the available crystal microphone could be used. It is inserted in the earth lead of the volume control and a 4-megohm resistor is wired across the microphone leads. On CW, the microphone and this resistor are shorted out by the phone-CW switch, and the receiver reverts to normal conditions. A pair of contacts on the transmit-receive switch do the required shorting out when the transmitter is set up for phone working.

It was decided, in the interests of simplicity and versatility, that the transmitter output circuit should be capable of working into any reasonable single-wire aerial without having recourse to tuning units, coupling loops and the like. A differential condenser was made up from two Eddystone 70 $\mu\mu\text{F}$ single section condensers, and the fixed plates were connected across the tank coil, the aerial being connected to the rotor plates.



VALVE BASES

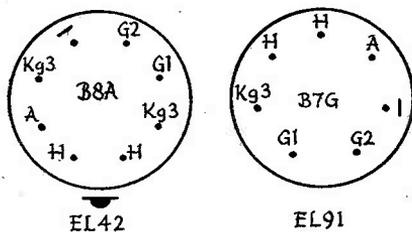


Fig. 1. Circuit of the two-stage transmitter unit suggested by G2AIQ for incorporation in the Eddystone S.640 utilising the space spare on the receiver chassis. As ORP operation only is envisaged, the Tx unit is run from the S.640's own power supply, normally off-load in the "receive" position. Full constructional details are given in the article and the accompanying drawings.

The change-over from "Receive" to "Transmit" is effected by the S.640 HT on-off switch, which operates the send-receive relay via a dropping resistor from the HT line. This relay is of the high resistance type and consumes negligible current in series with a fixed resistor during transmission. The aerial relay, which is mounted in the aerial

Table of Values

Fig. 1. The Transmitter Circuit used by G2AIQ in the S.640

- C1 = 4.7 μF
- C2 = 47 μF
- C3, C9 = .0022 μF
- C4 = .00012 μF
- C5, C6 = 250 μF
- C7 = 75 μF variable
- C8 = 70 + 70 μF differential
- R1 = 100,000 ohms
- R2 = 470 ohms
- R3 = 1,500 ohms
- R4 = 16,000 ohms
- R5 = 22,000 ohms
- R6 = 100 ohms
- R7 = 9,200 ohms
- R8 = Meter shunt resistor
- L1 = C0 anode circuit
- L2 = PA tank coil
- V1 = Mullard EL91
- V2 = Mullard EL42

coil compartment of the coil box casting, required more current for operation, so it was decided that it would be included in the HT positive (total) feed to the S.640 when on "receive." On "transmit," this relay is de-energised and changes over the aerial from the receiver to the transmitter.

Four sets of coils have been made up, one PA tank coil and one crystal oscillator anode coil for each of the bands 10, 20, 40 and 80 metres. These coils are plugged into the transmitter, with the appropriate crystal, as required. For example, with a 7 mc crystal, either

the 7 or 14 mc band can be used, the crystal oscillator working straight on 7 mc and as an oscillator-doubler on 14 mc. In this way, it is possible to operate on 28 mc with a 14 mc crystal.

Mechanical Details

The ironmongery required consists of the following pieces, all of which are shown in the drawings: The transmitter chassis cut to take the S.640 output transformer; the crystal holder; CO valve holder; CO anode coil holder (which is a $\frac{3}{4}$ in. crystal mount); the PA valve-mounting bracket with screen; and the PA tank condenser. The PA valve-mounting bracket is cut, bent and soldered into position on the main transmitter chassis, as is the screen across the valve holder. The tank capacity is a single 75 μF ex-Service condenser mounted on lead-through insulators. On top of this condenser is soldered a bracket holding the tank coil sockets and the differential aerial coupling condenser. Two panels are required for the front of the S.640; one mounts the 0.5 mA meter for grid current and PA current measurements, a DPT toggle switch for switching this meter, and the bushes for the PA tuning control and aerial loading control; the other panel mounts the S.640 S-meter, the microphone jack, the key jack and the phone-CW switch. The remaining items are two flexible couplers which were made up from an old piece of speedometer cable. These panels are fixed on the louvred sections each side of the main tuning scale of the receiver itself.

Coil Details

Quite strong and efficient coils can be

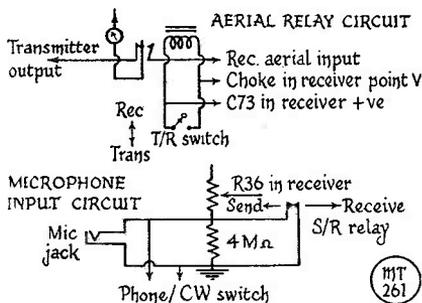


Fig. 2. Wiring detail for the Aerial Relay and Microphone Input circuits when modifying the S.640 for transmitter working.

made up for the tank circuit, as follows: Find a piece of paxolin former $\frac{3}{4}$ in. diameter and wind on one layer of any wire from 24 to 20 SWG so that, close wound, the winding is about $1\frac{1}{2}$ in. long. Cover this with two layers of good quality drawing or writing paper, securing the outer end with a piece of tape. Wind on top of this the turns required in the correct gauge wire and secure both ends. Run four lines of Durofix along the length of this coil, making the lines at 90° apart round the coil. When thoroughly dry, release the ends of the tank coil and one end of the first coil of wire wound. Pull out this winding until the tank coil and paper are loose. Take the coil off the paxolin tube and remove the paper from inside the coil. Run four more lines of Durofix down the inside the tank coil, underneath the original four on the outside. Allow the Durofix to set hard, when it will be found that the coil is quite rigid and can be easily handled. Mount the coil on the plug strip. The 28 mc coil can be wound direct on to the $\frac{3}{4}$ in. bakelite tube, and when it has been released it will spring off the former. It is then a simple matter to space and cut it to the required size. The 3.5 mc tank coil has been further supported by two pieces of bakelite cemented each side of the coil with Durofix. (This is necessary because the wire is too thin to support the coil with safety). The turns given are for coils wound as indicated, and the number and gauge of wire should be adhered to. The oscillator anode coils are wound on dust-iron core tuned formers. The turns are given as a guide only because the exact number will depend on the diameter of the former and grade and size of dust-iron core used.

The plug strips were made from lengths of $\frac{3}{4}$ in. x $\frac{1}{2}$ in. bakelite, cut and drilled to take the pins. The pins were salvaged from an old valve base by breaking off the moulded base material. The pins thus recovered had knurled ends for moulding, and these were forced into holes in the bakelite and made quite a solid job. The ends of the coils were cleaned, passed through the pins and soldered at the bottom ends in the same manner that wires are terminated on valve pins.

Coil winding details are as shown in the table.

The Conversion

Some time must inevitably be spent with the S.640 off the air, but if the

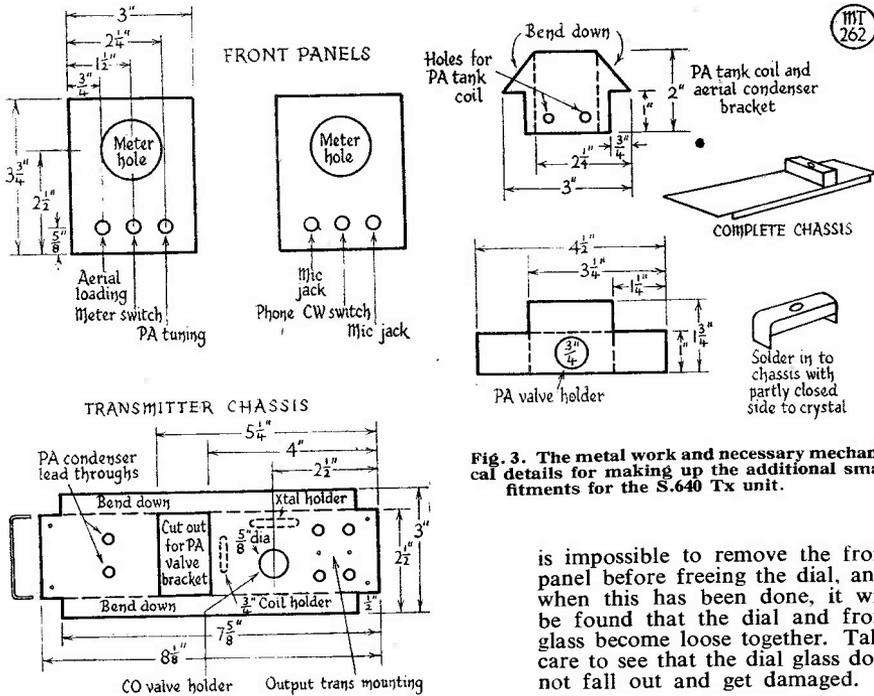


Fig. 3. The metal work and necessary mechanical details for making up the additional small fittings for the S.640 Tx unit.

is impossible to remove the front panel before freeing the dial, and when this has been done, it will be found that the dial and front glass become loose together. Take care to see that the dial glass does not fall out and get damaged.

following sequence of operations is carried out, the time that the receiver need be out of use will be less than a day.

- (1) Make up the transmitter chassis, assemble and wire up.
- (2) Make up the coils required.
- (3) Test the transmitter on a separate power pack with the aerial it is proposed to use.
- (4) Open up the S.640, punch a $1\frac{1}{8}$ in. hole next to the 6Q7GT valve holder for the 6V6.
- (5) Take off the rear chassis containing the 6V6 and output transformer. Wire up the 6V6 in its new position and the output transformer on the new transmitter chassis with (temporary) long leads from the 6V6 to the output transformer, to keep the S.640 still serviceable.
- (6) Take the front panel casting off the receiver and exercise care when removing the four screws holding on the dial and glass. It

- (7) Before commencing operations on the front panel, solder 6BA nuts on to the Xtal on-off switch, and stick 6 BA nuts on to the Xtal phasing and the BFO control condensers with Durofix. The easiest way to do this is to bolt nuts on to these three components, solder one pair on to the metal of the switch and glue on the other two pairs with Durofix to the ceramic front plates of the condensers. Whilst the front panel is being dealt with,

COIL DATA

- 3.5 mc CO coil, 70 turns 36 SWG wavewound $\frac{3}{8}$ in. dia., $\frac{3}{8}$ in. long. 33 μ F condenser.
- 7 mc CO coil, 50 turns 34 SWG $\frac{3}{8}$ in. diameter closewound 17/32 in. long. 15 μ F condenser.
- 14 mc CO coil, 22 turns 26 SWG $\frac{3}{8}$ in. diameter closewound 7/16 in. long. 15 μ F condenser.
- 28 mc CO coil, 10 turns 26 SWG $\frac{3}{8}$ in. diameter, winding spaced $\frac{3}{8}$ in. long. No condenser.
- 3.5 mc Tank coil, 52 turns 26 SWG close wound 1 1/32 in. long.
- 7 mc Tank coil, 24 turns 20 SWG close wound 15/16 in. long.
- 14 mc Tank coil, 10 turns 18 SWG close wound 17/32 in. long.
- 28 mc Tank coil, 5 turns 16 SWG spaced 1 $\frac{1}{2}$ in. long.

these nuts will dry on in position and assembly will be facilitated later on.

- (8) Cut out a space in the louvred front panel each side of the dial to clear the components on the two new panels to be fitted. These panels can be held in position by means of nuts and bolts or small metal clips, after having soldered long leads to all the components (screened lead, of course, to the microphone jack) for wiring into the set later on.
- (9) Take the opportunity of cleaning the dial and glass at this stage and fix the glass into the front panel casting with Durofix and leave it to set in position.
- (10) When set, re-unite the front panel to the receiver, having first removed the 6 BA screws used for fixing the nuts on the controls mentioned in (7) and finishing up with fixing the dial in position with the 4 original screws and clamps. If the pointers have not been touched, calibration will be found to be the same as it was before commencing operations. At this stage, check that the S.640 is still serviceable.
- (11) In the author's conversion, time was taken off at this point to build another BFO for the receiver. This unit was made up using the existing coil, new small condensers and one 6C4 valve, all in a box $1\frac{1}{2}$ in. x $1\frac{1}{4}$ in. x $2\frac{3}{4}$ in., which fitted under the chassis where the original unit was placed. This new unit had the advantage that it left the top of the chassis, where the original EF39 BFO valve was, clear for the flexible couplings to the transmitter chassis. It is not absolutely essential to do this modification, as it was found that the flexible couplings still worked well in spite of the sharp bends necessitated by the proximity of the EF39 valve in the original BFO design.
- (12) The next operation is to wire up the S-meter and circuit. It is a simple matter to accommodate the two fixed resistors in the existing under-chassis wiring and to mount the meter pre-set control on a small panel fitted at the rear of the chassis over the hole left after removing the octal socket into which the S-meter normally plugs.
- (13) The aerial relay is mounted in the aerial compartment of the cast coil box. It will be found that each aerial coil is held into place by one 4BA screw, and if these screws are removed, the coils can be pulled up and out of the way, supported on the wiring. Fit the aerial relay and bring out of the coil box two wires from the relay coil and one for the aerial connection from the transmitter. Wire up the relay coil in series with the main HT supply at the smoothing choke so that, when the receiver is on, the relay operates. Wire the aerial terminal to the change-over relay contact, the lead to the receiver aerial coil switch to mark contact, and the transmitter aerial connection to the space contact, so that when the relay is energised the aerial is connected to the receiver, and when de-energised the aerial is connected to the transmitter. Run a pair of leads from the chassis connections to the relay coil to a DPDT switch which is mounted in place of the original HT on-off switch on the front panel. Wire these leads so that one side of the DPDT switch shorts out the relay winding when the switch is down. Remove the HT on-off wiring and connect the HT permanently on. This arrangement is suitable for a relay requiring about 60 to 70 mA for operation; other arrangements must be made for relays of different current rating.
- (14) Wire up the other side of the DPDT switch so that HT is connected to the coil of the transmit-receive relay, via a suitable resistor, to earth, when the switch is down. In the writer's case, a 4,000-ohm resistor was suitable in series with a 5,000-ohm relay coil, but a high resistance coil is essential, otherwise too much HT current will be used and the voltage will drop seriously on transmit, not to mention overloading the rectifier circuit.
- (15) Now wire up the contacts of the change-over relay as shown in the circuits, after which mount the relay, with its bracket, on top of

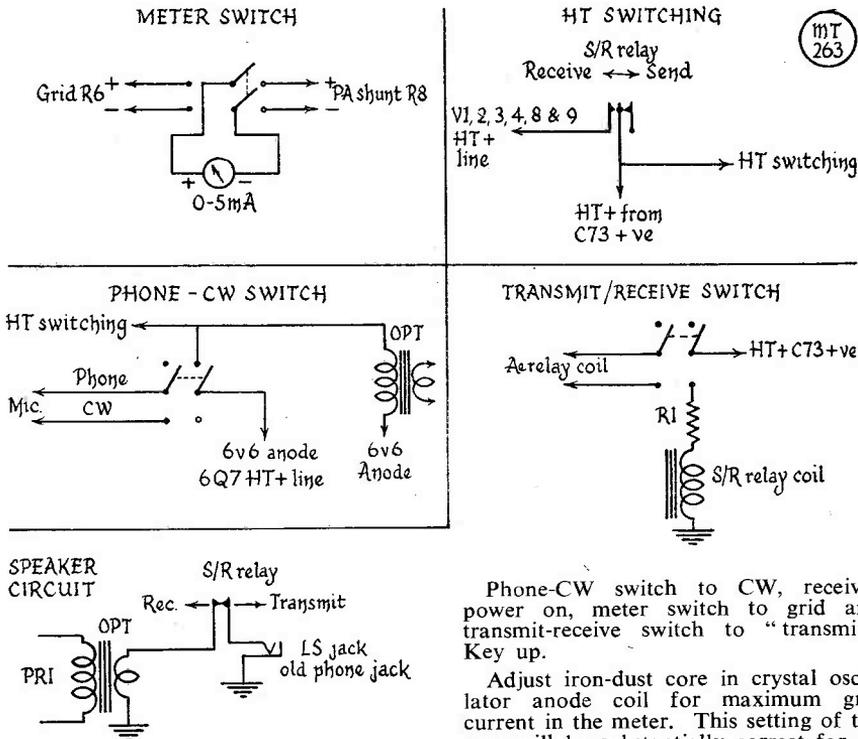


Fig. 4. Switching detail for the various control and change-over motions in the S.640 modified for transmission.

the chassis next to the mains transformer. The relay used in this conversion was a miniature GPO type taken from some surplus VHF equipment, with extra springs added to make up the number required.

- Finally, wire up and mount the transmitter chassis according to the circuits given, and test out on dummy aerial.

Test Figures

With a nominal 200v 50-cycle mains input, the figures in the table of operating data were obtained and will give a rough guide of what to expect.

Setting up the Transmitter

Insert crystal frequency required and coils for band selected.

Phone-CW switch to CW, receiver power on, meter switch to grid and transmit-receive switch to "transmit." Key up.

Adjust iron-dust core in crystal oscillator anode coil for maximum grid current in the meter. This setting of the core will be substantially correct for all the band if adjusted in the middle of the range intended for operation, but re-peaking is necessary if set up at one end of the band when operation is required at the other.

Put meter switch to PA position, turn aerial coupling to zero, press key and

OPERATING DATA

Transmit C.W.

- *Drive into PA grid at 7 mc with 7 mc crystal 4.0 mA
- *Drive into PA grid at 14 mc with 7 mc crystal 2.1 mA
- Minimum dip PA anode current at 7 mc with 7 mc crystal 20 mA
- Minimum dip PA anode current at 14 mc with 7 mc crystal 19 mA

Transmit Phone

- *Drive into PA grid at 7 mc with 7 mc crystal 4.0 mA
- *Drive into PA grid at 14 mc with 7 mc crystal 2.1 mA
- Minimum dip PA anode at 7 mc with 7 mc crystal 15 mA
- Minimum dip PA anode at 14 mc with 7 mc crystal 15 mA

* This depends upon the activity of the crystal used and will, generally, be greater for lower frequency crystals and less for 14 mc crystals.

More about Clamp Modulation

SOME OPERATING NOTES

By J. D. SPITTLE, A.I.Mar.E. (G3GFF)

IN the course of travelling around the country these past few months, the writer has met quite a number whose interest has been stirred by G5RZ's article on Clamp Modulation in the March issue of *Short Wave Magazine*. It is not proposed to repeat the theory of the system nor to offer some new and outstanding circuit, but rather to pass on as food for further thought a few observations on a subject on which there seems to be very little information.

In every instance, the Old Timer will still maintain that in the end nothing can compare with anode modulation, and will recall at length how, in the days gone by, he too meddled with these "trying-to-get-something-for-nothing" systems before finally seeing the light. However sound this philosophy may be, the fact still remains that Clamp control does offer a greater overall efficiency than some of the others and, at the same time, it is remarkably simple to put into operation.

It would therefore seem worth considering by those who fall into one of the following categories:

- (1) The CW-only man, who wishes occasionally to natter on phone with the locals and does not want large pieces of equipment standing idle most of the time.
- (2) The newcomer to phone who in these days cannot afford the luxury of a high-power modulator—not forgetting, in most cases, another power supply.
- (3) The "portable" man who cannot afford the space and requires a minimum of power-consuming stages. Into this category we might also place (together with the writer) the "self-contained" man, the flat-dweller, who likes a compact (or maybe the XYL insists on) table-top or book-shelf rig.

Clamp control is, of course, only applicable to a screened-grid PA (or a

While the purists will argue that from the theoretical point of view Clamp Modulation is no more effective than any other low-level system, such as suppressor or screen control, the fact remains that it is an extremely attractive proposition for the operator who wishes to get on phone easily, efficiently and with the minimum of complication and expense. This article expands some of the points touched on by G5RZ in our issue for March 1951.—Editor.

pair in parallel or push-pull), but that does cover a fair proportion of us.

The Speech Amplifier

A large multi-stage speech amplifier is quite unnecessary. Remember, all that is required is for the audio peaks to bias the clamp valve to cut-off, a swing of some thirty-odd volts negative, depending upon the characteristics of the valve employed. These conditions will remain the same whatever the input to the PA. Over-driving will not cause over-modulation, but speech compression and distortion. In the writer's case a single 6J7 provided more than enough gain from a carbon microphone; indeed, it proved sufficient for a crystal microphone, though another stage has since been added to provide full control with some reserve.

It is interesting to note that the modulation percentage remains practically the same whatever the audio input. So one may "shout for DX" and "whisper to the locals"!

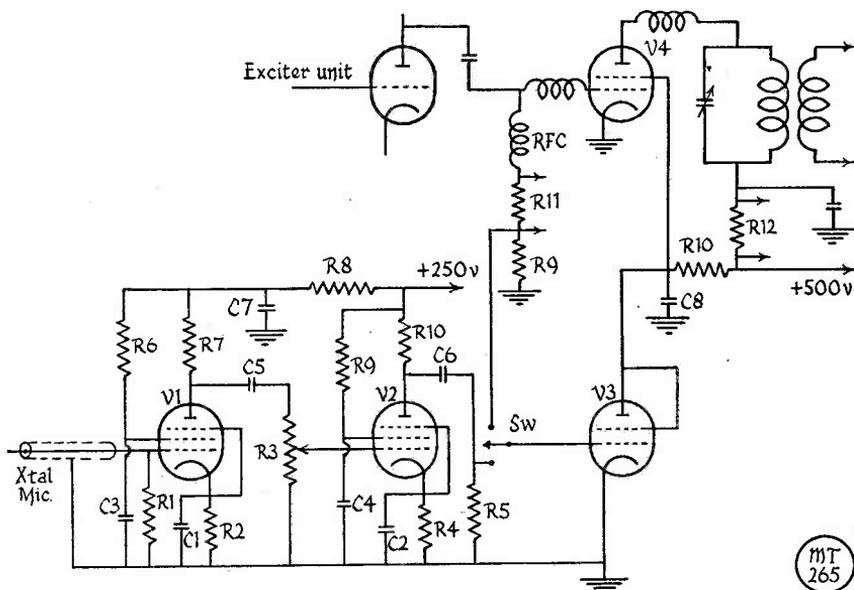
The Diode

Omitting the diode from the circuit has no apparent effect upon its operation. This has been borne out when removing it whilst actually in QSO, the other station detecting no change. After all, the grid/cathode of the clamp valve is effectively a diode in parallel with it, anyway.

The Clamp Valve

Both a 6V6 and 6L6 have been used as a clamp valve, either proving satisfactory. The latter provides a slightly greater degree of carrier control, but the filament drain is also greater. In either case, the screen and plate are lashed for triode operation.

All articles seen on Clamp Modulation appear to have overlooked the



In this circuit, the Clamp valve V3 is used to modulate the screen of the PA V4 and also functions as a protective device—preventing the screen current of the PA running high when on CW. The speech circuit V1, V2 will itself provide good Clamp control of V4 under the conditions discussed in the text.

normal use to which a clamp valve is put. Many stations must be using leaky-grid bias to the PA and possibly a clamp valve to offer it protection should the RF drive fail, or to enable keying of the oscillator or buffer stages. This was the lay-out in the writer's case. The addition of a speech amplifier quickly made the rig phone/CW. The original dropping resistor of 33,000 ohms to the screen of the 807 was found to be satisfactory. The only modification was to incorporate a two-way change-over switch to enable either RF bias or the AF voltages to control the clamp valve.

It is important that the PA be loaded, before any attempt is made to monitor the transmission. The PA is tuned and loaded in the normal manner for CW operation with RF biasing the clamp valve to cut-off. Switching to phone, the plate current drops to a low value. With modulation, the audio gain is increased until the plate current averages about two-thirds of the CW value.

With 500 volts on the anode, the 807 loads up to 50 watts for CW. On phone, a mean carrier level of 30 to 35 watts is maintained.

Table of Values

Circuit suggested by G3GFF for Clamp Control working

C1, C2	= 10 μ F
C3, C4	= 0.1 μ F
C5, C6	= 0.01 μ F
C7	= 4 μ F electrolytic
C8	= 0.001 μ F
R1	= 4.7 megohms
R2, R4	= 500 ohms
R3	= 500,000 ohm potentiometer
R5	= 1 megohm
R6, R9	= 500,000 ohms
R7, R10	= 100,000 ohms
R8	= 50,000 ohms
R9	= 22,000 ohms
R10	= 33,000 ohms, 10 watts
R11, R12	= Meter shunts
V1	= 6J7
V2	= 6SJ7
V3	= 6V6 or 6L6
V4	= 807
RFC	= 2.5 mh choke
SW	= Single pole, two-way switch

The transmitter, comprising VFO, band-switched exciter for 20, 40 and 80-metres and modulator, is comfortably housed in a TU9B tuning unit. No miniaturised valves or components are used anywhere.

It is hoped that when the ten-metre

band is open again, the exciter will be modified and the speech amplifier used alternatively for NBFM.

RF Drive

With phone, the RF drive does not appear to be any more critical than for CW operation. With the operating conditions as described, the drive has been varied between 2 and 5 mA with no detectable change in speech quality or power output. Below 2 mA, the output

falls off and the signal spreads, as would only be expected.

In the short time the writer has had Clamp modulation on the air, with an indoor aerial, many European countries have been worked with excellent reports and no adverse criticism, even though strong criticism is always asked for.

Successful results have also been obtained when clamp modulating a portable transmitter, the PA comprising a single 6V6 with an input of $2\frac{1}{2}$ watts.

Multi-Band Aerial Coupler

FOR THE
END-FED SINGLE-WIRE

By W. R. JOSS (G2AJ)

EARLY last autumn the writer erected a 270-foot long-wire. It was intended that this aerial should operate mainly on 1.7 and 3.5 mc, but that provision for radiating on higher frequency bands was desirable so that it could be used as a standby system, should the occasion arise. It was therefore decided to build a coupler unit which would allow the aerial to be used on all bands without the necessity for either coil changing, or a mass of crocodile clips which would require altering each time a change of frequency was involved. In other words, band-switching was required to be as simple as possible, preferably with not more than one switch.

The resulting coupler is seen in the accompanying photographs, which, although not the ideal solution to the problem, operates satisfactorily on all bands from 1.7 mc - 21 mc, and is simplicity itself. So far it has not been possible to cover the 28 mc band, but it will be noticed that a position on the switch has been provided to meet any future requirement. Obviously, any coupler designed to cover such a wide range must be a compromise on certain frequencies, but to date results have left little to be desired.

Construction

As the unit was required for rack mounting, it was built on a standard

This in a practical article which will be of interest to all who are seeking a universal aerial coupler for quick and easy operation. Full details are given on construction and operation.—Editor.

$3\frac{1}{2}$ in. x 19in. panel of 3-16in. Dural. Any gauge of Dural may be used, of course, or, if preferred, steel. The layout can be clearly seen in the photographs, and little explanation is necessary. At one end a bracket is fixed, and this carries a large type co-axial socket for connection to the transmitter. Dimensions of the bracket are given in Fig. 1. Mounted alongside the bracket is the coil, consisting of 30 turns of 16-gauge tinned copper wound on a 2-inch ceramic former. A former from one of the TU Tuning Units is ideal, and can be conveniently mounted by

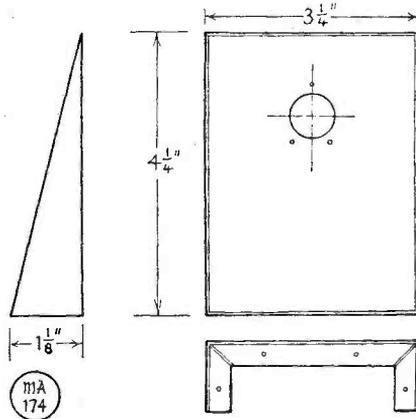


Fig. 1. Mounting bracket, in 16-gauge steel, for the aerial coupler described by G2AJ.

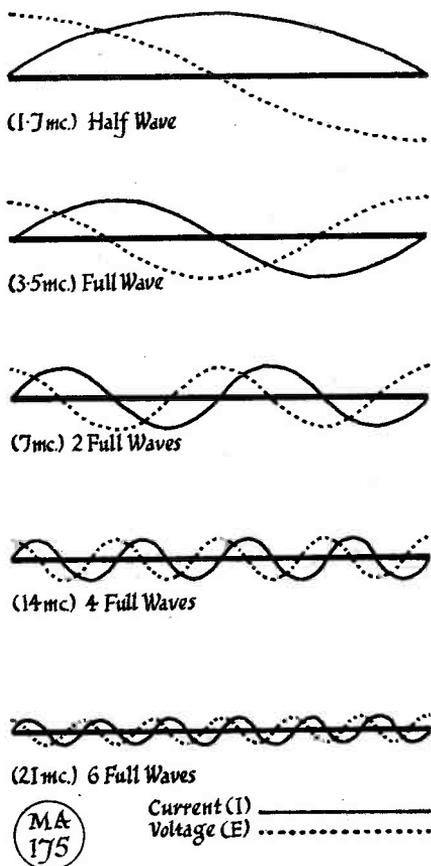


Fig. 2. Using a 270-foot aerial, this is the current-voltage distribution to be expected on five bands, neglecting end-effect. The tuning of the aerial to resonance would be effected by the coupler.

means of two porcelain stand-off insulators.

At the rear of the coil, and mounted directly on the coil, is a 300 $\mu\mu\text{F}$ padding condenser, which is used to pad the main condenser when the coupler is operating on the 1.7 mc band. The value of this condenser, which happened to be available, is somewhat higher than necessary, and any condenser with close-spaced vanes of about 150-200 $\mu\mu\text{F}$ will be suitable. The writer found about 170 $\mu\mu\text{F}$ was necessary.

In the centre of the unit is the main condenser, bolted directly to the panel

by means of two 2BA countersunk bolts, thus earthing the rotor plates. This condenser is of Cyldon manufacture, and has a maximum capacity of approximately 150 $\mu\mu\text{F}$. The minimum capacity is high, being about 25-30 $\mu\mu\text{F}$, and if an attempt is made to operate the coupler on 28 mc, a condenser with a lower minimum capacity would have to be used. The capacity of the present one could be reduced by changing the end plates from brass to polystyrene, or some other suitable material, but so far this has not been tried.

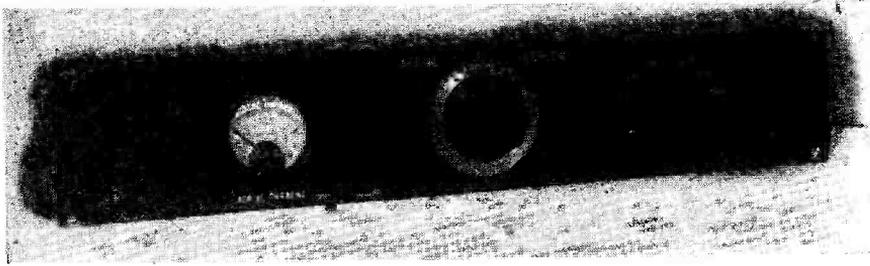
On the left-hand side of the condenser, looking from the front panel, is the RF ammeter, whilst on the right side is the switch. This switch is single-pole six-way, and, like the coil former, was taken from a TU Tuning Unit. The contacts are large, the action positive, and it is ideal for the job. The writer was fortunate in being able to engrave the six frequency positions on the Dural panel, but where this is not possible, a suitable scale can easily be fabricated from a piece of celluloid or card.

The RF ammeter which was used in the original unit was a 0.3 amp. instrument of the thermocouple type. This, however, is rather a large range, and a 0.1 amp. or 0.2 amp. would be more suitable, as, with an aerial of 270 feet, the wire is fed at a point of low current on all bands. For the benefit of those who may not be entirely familiar with the voltage and current distribution of various long-wire systems, Fig. 2 shows the standing waves for both current and voltage when the wire is operated on the various harmonics of its fundamental frequency. The frequencies in brackets only hold, of course, when the length of the wire is 270 feet.

At the extreme left of the panel a 2-in. bee-hive stand-off insulator is mounted, and this is used as an anchoring point for the aerial itself.

Circuit

The circuit is shown in Fig. 3, and is conventional in most respects. The main point of comment is the method of coupling to the transmitter. It will be noticed that there is no link at the coupler end. In other words, the link at the transmitter is in *series* with the coil of the coupler, and both are tuned by the coupler condenser. The great advantage in this is the fact that where the coupler is used for multi-band operation, the switching of links on the aerial



Front view of the aerial coupling unit described by G2AJ. It can of course be made up in any convenient form.

coupler is entirely eliminated. In the writer's case, where separate power amplifiers are used for each band there is no link-changing necessary at all, as each amplifier is fitted with its own link, of such a size as to provide correct loading on the one particular band.

This means that where band-changing is required, only the tapping position on the coil has to be altered; the advantages of such a system are obvious. It will be found that, with this type of coupling, loading the aerial is a simple matter and no difficulty should be encountered. Furthermore, it will be noticed that the link at the power amplifier can be reduced to fewer turns than are normally required when links are employed at both ends. Table 1 gives the position of the coil tap and size of link for the various bands, and it is of interest to note that on 1.7 mc three turns were sufficient. This Table should only be regarded as a guide, and the correct link and tapping position should be found by experiment for each band.

Operation

When the coupler is installed, each band should be checked independently. First, the transmitter is tuned to minimum dip and the link loosely coupled. Then the coupler is tuned until maximum aerial current is indicated, at the same time keeping a check on the PA anode current. The tapping position on the coil should now be altered one turn either way and the aerial current and anode current again noted; if an improvement is obtained in either direction, then the tap should be moved one more turn in the same direction and the checks repeated. The aim is to achieve maximum aerial current and correct PA loading, and the link may have to be

altered by one turn in order to obtain the latter, which should coincide with the link about three-quarters into the PA tank coil; a certain amount of juggling will probably be necessary in order to achieve the desired conditions, but time taken over these tests is amply repaid. [over

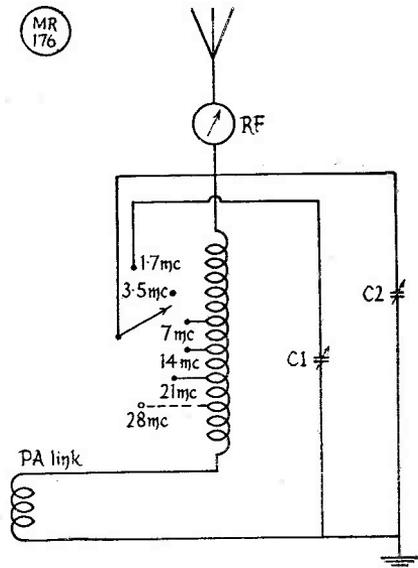


Fig. 3. Electrical arrangement of the aerial coupling unit. By using a tapped coil, all-band coverage is obtained, C1 (200 $\mu\mu\text{F}$) being the padder for the 1.7 mc band; C2, 150 $\mu\mu\text{F}$, tunes all other bands, the whole coil being in circuit for 3.5 mc operation. Unless C2 has a very low minimum capacity, it will probably not be possible to get as high as the 28 mc band. The method of linking into the PA is discussed in the text.

The above procedure should be carried out for each band except 1.7 mc. On this band the approach is similar, except that the main condenser should be set at mid-capacity and the padding condenser adjusted along with the PA link. When satisfactory conditions are reached the padding condenser should be left untouched and the main condenser used for all future adjustments.

Results

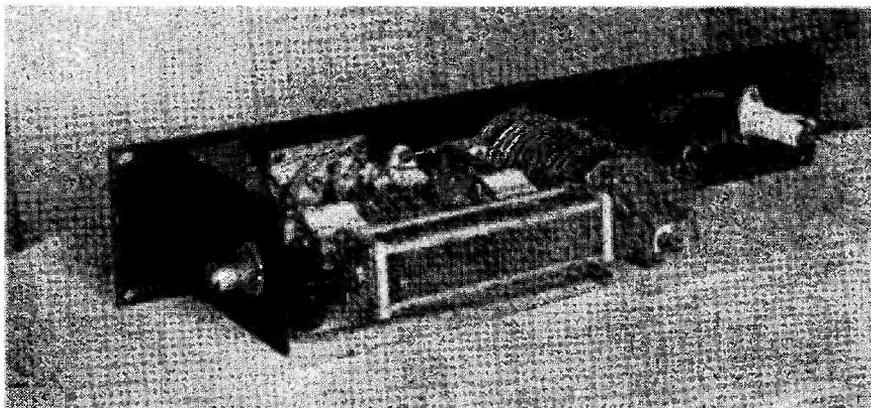
The results achieved last winter amply repaid the time taken in adjusting the coupler. On both 7 mc and 3.5 mc the writer had a much more successful season than during the previous winter, when only a 132-ft. wire was used. ZL3GQ stated that the signal was the strongest he had ever heard from Europe on 3.5 mc, whilst ZD4AB also reported reception of the writer's station on the same band. On 7 mc, DX was worked much more consistently than at any

Coil Data

BAND MC	LINK	TAPPING From Aerial End
1.7	3	Full Coil
3.5	3	„ „
7	2	12 Turns
14	1	20 Turns
21	1	25 Turns
28	-	-

time before, contacts with PK4DA and several VP8's being worthy of mention.

Furthermore, in Contest operation, where time-saving is an important factor, the ease of operation more than justified the time spent in the initial alignment.



Back-panel arrangement of G2AJ's aerial coupler, the circuit of which is given in Fig. 3.

NOTE FOR TOP BAND OPERATORS

There has been some discussion recently in "DX Commentary" with regard to QRM on DAC's 1885 kc frequency in the 1.7 mc band. Though not admitting that U.K. operators can be seriously at fault in this particular case, we have advised that Top Band users avoid this frequency, particularly after dark, when ranges on 1.7 mc

increase so much. This has now been reinforced by a direct request from the chief operator of DAC, asking that G's keep off his frequency, as interference is being caused with North Sea trawler traffic. We feel sure this request will be heeded, as it would be unfortunate if official complaints were to be lodged about specific British stations.

FIRST CLASS OPERATORS' CLUB

President:

GERALD MARCUSE, G2NM

Hon. Secretary:

Capt. A. M. H. FERGUS, G2ZC

Asst. Hon. Secretary:

J. E. CATT, G5PS

The Club Circular Letter for July was posted to every member individually, as it contained an up-to-date list of all new members, amendments and changes of address since the previous Membership List appeared. If anyone has not had his copy, and will notify either of the honorary secretaries, a duplicate can be sent. As a matter of passing interest, the next C/L (for September) will complete the "half-century" in respect of the FOC Circular Letters.

The September issue will also announce final arrangements for the FOC Marathon Contest; care has been taken to try to avoid a clash with any other contest known to be taking place, so the dates will lie between October 14 and November 3.

The Annual Dinner

It is already known that of the overseas contingent of FOC members, one VQ3 and two PAØ's will be present. The Dinner is to be held in London on Saturday, December 1st, and all who can do so are asked to book as early as possible—though nearly three months must elapse before this outstanding fixture in the Club's calendar actually takes place, some twenty firm bookings have already been received.

Club Activity

Despite the counter-attractions of the summer months, the August issue of *Short Wave Magazine* once again shows that FOC members have been very active, if one is to judge by the number of FOC callsigns appearing in both "DX Commentary" and "VHF Bands." In the Four-Band Marathon Table, out of the 18 stations listed, seven are Club members. Two others have made themselves DX on the 144 mc band—GC2CNC in Jersey, and DL2DV at Fassberg. The latter has been successful in working into Scandinavia on Two, but is most anxious to raise some G's; GC2CNC has, of course, worked the mainland and has become a well-known GDY contact.

Time Marches On

It is refreshing to see from the various photographs and callsigns appearing in the *Magazine* from time to time the number of Old Timers still active and interested in Amateur Radio, showing that one is never too old to be an amateur. It would probably come as a great surprise to many to know what a large proportion of active operators there are who have passed their 50th birthday—certainly, that applies to not less than 10% of the present FOC membership.

Election Notice

In accordance with the Rules of the First Class Operators' Club, the following are declared elected to the active membership list:

S. Mercer, G2DPY (Shoreham-by-Sea);
P. v'd Valk, PAØZQ (Voorburg);
E. F. Baker, G50Q (Tunbridge Wells);
A. E. Sinclair, GM3EST (Motherwell);
A. Hargreaves, G6NV (Plymouth).

All communications respecting the First Class Operators' Club should be sent direct to: Capt. A. M. H. Fergus, G2ZC, 89 West Street, Farnham, Surrey. (Tel.: Farnham 6067).

XTAL XCHANGE

Here are the offerings for this month. Insertions in this space are free and should be set out in the form shown. All negotiations should be conducted direct.

G2DPY, 160 Old Shoreham Rd., Shoreham-by-Sea, Sussex.

Has Q.C.C. 3515 kc crystal, $\frac{3}{4}$ in. mounting, certificated; also ex-Service 6760 kc $\frac{3}{4}$ in. pins, FT243 7040 kc $\frac{3}{4}$ in., and ex-Service 7070 kc $\frac{3}{4}$ in. 8260 kc and 8338 kc crystals, $\frac{3}{4}$ in. mounting. Will exchange the lot for one 100 kc bar.

G4RS, 17 Tudor Avenue, Bebington, Cheshire.

Has ex-Service 1000 kc bar, and 7033 kc crystal, $\frac{3}{4}$ in. mounting. Wants 100 kc bar and 3500 kc crystal.

SWL, 95 Ramsden Road, Balham, London, S.W.12.

Has Brookes Type S 7009 kc crystal, certificated. Wants Q.C.C. P5 crystal 3500-3520 kc or 14000-14050 kc, with certificate.



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

IN spite of mediocre conditions, we have a very large mail and all the evidence of lots of enthusiasm, which is a Good Thing—and much more important than the conditions prevailing on the bands. During the last month two different people have asked what it is that makes a DX man tick—and continue to tick. Through thick and thin some of the hardened cases continue their 'chasing'; others give it up for a while, but always come back to it eventually. Why?

The only answer we can think of is that DX-chasing is a kind of virus which gets into one and never lets go, except in the very rarest cases. You cannot think of yourself as a reformed DX-addict until you have (a) Burned all your Certificates; (b) Taken down, and preferably destroyed, most or all of your QSL cards; and (c) Forgotten nearly all the more exotic prefixes. If you have done all this and can listen unmoved to a strong but hollow signal sending "CQ G de VR4AA"—then you're not only a better man than Gunga Din himself, but you're cured.

Most of the month's news still concerns the 14 mc band. Phones from South Africa and South America continue to come in well on Ten, as do hordes of Europeans on short-skip, but there is very little CW activity. Forty

and Eighty are showing the signs of the opening up of a very interesting DX season, but are not yet in full cry.

The Marathon contestants have been unearthing new ones from all sorts of unexpected quarters. Several readers will note with delight that your Commentator has been pushed out of second place by G5BZ (Croydon), who now has the astonishing total of 146 countries worked *this year* on 14 mc. G3ATU (Roker) still maintains his handsome, but diminishing, lead. The latter stages

Calls Heard, Worked & QSL'd

of the struggle, especially if December is a good month, should be pretty exciting.

The DX on Twenty

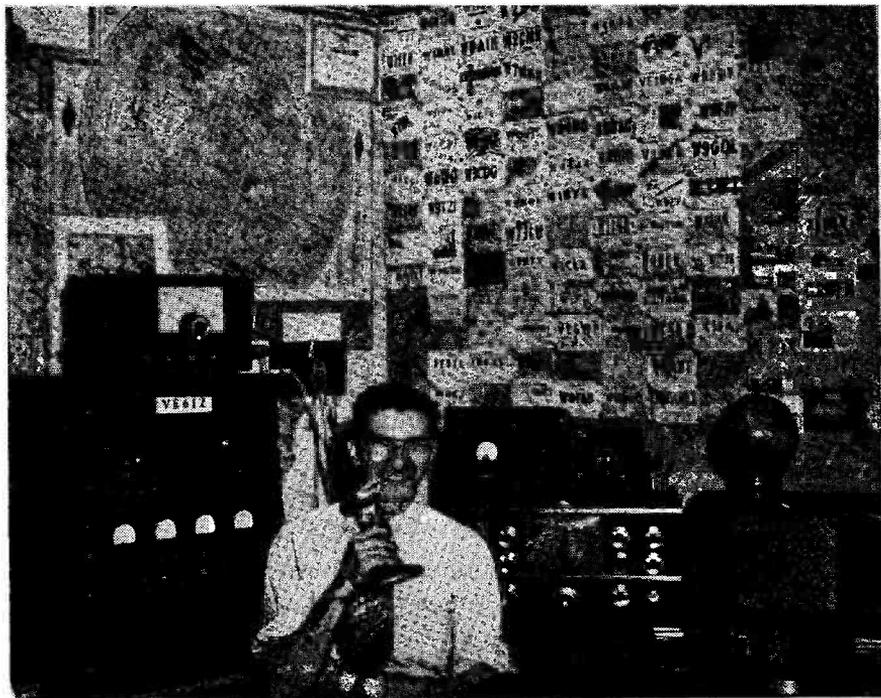
G5BZ has concentrated on this band and found conditions quite good in July and August. A large bag includes VP8, FO8, YN, OA, ZD2, HK, FN8, ZD1, HS, CR5, CR7 and ZS7. HB1JJ/HE and YN4CB were worked on phone. 'BZ adds that he took a very dim view of a DL4 using 500 watts of MCW (MCW, mark you) into a rhombic; he told this QRO-merchant what he thought of him and had a chorus of applause from other DL's who were all up in arms about the business.

G5BZ's mention of HSIUN reminds us that this station suddenly popped up out of the blue; he was working CW on about 14160 and had an amazing signal for a few afternoons. Many of the CW-chasers must have missed him on account of his frequency.

G5JU (Birmingham) raised new ones in VQ8AF, ZD3AM, VQ5AU, YN1OC, ZD1SS, ZK1BC and JA5AP. He found conditions "none too good."

G8KU (Scarborough) rolled in 9S4AX and FQ8AG for two new ones; otherwise he thought conditions were on the poor side. G2HKU (Sheerness) had a good month and worked FQ8AC, FG7XA, TI8CM, CO7AH, KV4AA and a lot of the more usual stuff, not forgetting a W7 in Arizona.

G3COI (Wolverhampton) thinks conditions have declined, but he managed to snatch a brief one with HB1JJ/HE, although the latter was calling CQ DX! 'COI thinks the present system of reporting the DX (but including times where possible) is adequate, and disagrees with the controversy stirred up



Station, operator and cards at VE6IZ, Vegreville, Alberta. The transmitter is 6C5-6L6-813 running 160 watts, modulated with a pair of 811's; the VFO is 6SK7-6AB7-6L6 with oscillator keyed for BK working; and the receiver is an NC-240D with R9'er. The whole station is relay-controlled and a fair amount of DX has been worked.

last month. As he says, the times are mainly useful so that one can "wonder idly whether one would have got him at that time." Frequencies are quite meaningless except in the case of the very few crystal-controlled stations. Power, likewise, doesn't mean much. Aerials we shall be talking about towards the end of this feature.

G3ABG (Cannock) returns to the fold after a long QRT, and offers YN4CB, VP900, CX6AD, CE3OK, PJ5FN and 3V8AN. He still has a month on holiday, so expects to improve his score. G3BDQ (St. Leonards) is another member of the same profession (complete with long holidays!) but is spending most of *his* on a complete rebuild. Before going off the air for this purpose he worked XZ2EM YN4CB, CR4AH, TA3KA, TA3AB, PJ5FN, HP1BR and other nice ones, including an "M1D," who is somewhat suspect.

Some New Reporters

Always glad to see new call-signs appearing in this feature, we welcome several of them this month. G3FPK (London, E.10) sends his first letter, although he has been a reader since August, 1946. 'FPK has been active on Twenty and pulled in CE3AE (0210), CT2BO, I1RC/Trieste (2310), LU2EQ (2240) and VQ3SS (1810)—all on CW. He gives us a description of the contents of the shack, all home-brewed except the receiver, and says he derives as much pleasure from designing and building gear as from operating it.

G3FPQ (Bordon, Hants.) wielded 24 watts CW to good effect, and collected FP8AG, HB1JJ/HE, KP4, KV4, KZ5, PJ5ZO, SU, TA, VP6LN, VP7NU, YN and ZE. Some even better ones got away, as he says, including VQ8CB, YS10 and HR1KS.

G3IRE (Portslade) started activities on

July 24, and by August 12 he had landed FP8BX, KZ5GF, KP4, VK, ZL, ZC4, SU and lots of VE's and W's, which strikes us as good going for the first three weeks or so. 'IRE says he wouldn't have reported it if G3FXB hadn't told him he was doing well for a "new boy"!

Back to some of the regulars, starting with G5FA (London, N.11). He mentions OQ5VD, VQ2GW, ZD2HAH, VP5BL, VQ3SS and a number of old-stagers, and tells us that VQ3SS will be in the U.K. by the time you read this, staying in London for two weeks before going home to Birmingham.

G6QX (Hornchurch) worked Twenty between 2330 and 0100, as usual, emerging with HR1DF, ZD2DCP,

EA6AF, YN3AG, F3AT/FF8 and I1AHR/M1 for new ones. But he says he has offended some guy or other, as he has had a dozen QSO's wrecked by someone who just chops up his frequency with a bug-key. Nice people we have on the bands these days.

Phone DX on Twenty

G2AJ (Biggin Hill) says his DX has been limited by activity on Two, gardening, poultry-keeping and the arrival of a daughter. That is why he has "only" worked HC8GI, HE9LAA, ZP4BB, YS2SA, OA4AT, ZK1BC and KG6AAE—all on phone! He asks when we shall resume the "All-Time" Four-Band Table; so far as we can see, the answer is January 1952, when our 1951 Marathon finishes. He would like to see Top Band and Two Metres both figuring in next year's Marathon!

GM2DBX (Methilhill) is another microphone man, and he has added a phone QSO with a PX1A to his score. This type said his name was Mario and gave a Madrid QTH for QSL, so we shall see in due course whether he was good or not. 'DBX would like to correct an error in last month's notes—he did *not* work C on phone, but CS3 and GC. He still awaits a card from LN7B and hopes he was not on a ship. Finally, he says "for Delaware try W3QFH."

G3ATU (Roker) writes from Holland, where he says "the sunshine and big eats" make a change from DX-chasing. Before leaving, however, he worked ZK1BC, HR1KS, XZ2EM and CE7ZO, all on CW. He suggests that, judging by the way the Pacific DX has come through in this "bad" summer, the winter conditions might well be very interesting.

G2BJY (West Bromwich) found quite a lot of good stuff in the periods 0700-0830 and 1900-2230, and mentions ST2GL, XZ2EM, VS2CP, VS6HR, VU2AT, F3AT/FF8, VP8AI and many others. He plans to spend most of his time on Eighty during the winter. 'BJY is another who says he is satisfied with our present method of reporting DX, except that he thinks, on the whole, that it is made to appear too easy! He admits, though, that some of our leading 'chasers are "brilliantly clever" in their tactics, from which he has learned quite a lot.

G2BW (Walton-on-Thames) is QRT for a holiday in France, but tells us that he worked ZD2, EQ, FQ, ZS3, OQ

FOUR BAND MARATHON (STARTING JANUARY 1, 1951)

Station	Total Points	3.5 mc	7 mc	14 mc	28 mc	Countries
G3ATU	251	21	82	143	5	151
G5BZ	237	21	54	146	16	150
G6QB	232	20	56	126	30	141
G3FXB	221	23	71	123	4	133
G5JU	217	25	54	107	31	120
G6QX	209	32	63	97	17	110
G5FA	190	15	69	99	7	111
G2AJ	185	17	44	101	23	112
G3ABG	178	22	65	68	23	97
GM2DBX	153	1	30	80	42	95
G2BW	142	14	30	85	13	92
W2WC	141	22	35	77	7	84
G8KU	138	13	25	91	9	94
G6TC	128	13	35	65	15	70
G8IP	128	12	50	58	8	83
G3COI	107	19	18	68	2	75
G3EDA	79	12	32	34	1	51

(Note that new entries to this table must not include QSO's dating back more than two months from the time of entry. Regular reporters should send in their score month by month—three months' failure to do so will be taken to indicate loss of interest and the score will be deleted).

and FF8, as well as ZK1, YV, AR8 and SV9 for new ones. (We should like to know more about SV9, please!) G3AIM (Speke) returns to the fold after a year. At his new QTH, where he is restricted for aerial space, he has to fight for the DX, but the past month has pleased him and he quotes PZ1AL, F3AT/FF8, CE7ZO, KG6GU, JA2OO, VP7NU, VP8AI, FP8BX, YN4CB, CR4AH, ZD1SS and HB1JJ/HE. It seems that the fight was pretty successful. He makes some sage remarks about operating, which we deal with further on.

G6PJ (Sheffield) also returns with a long list, including OQ5LY, KG6GU, PK5SA, KH6's, South Americans and the like. He, too, makes some comments which we keep until later. G3FXA (Bexhill) dodged the local QRM (G6QB) to the tune of FG7XA, FF8AB, CR4AH, 7B4QF, 3A2AF, OY5EL, CE7ZO, JA2KW, VS2CP (0900), F3AT/FF8, ZD2HAH (0854) and many others. He was especially pleased with the VS2 over the long path (confirmed by VS2CP's beam) as he can't get out that way by the usual path. 'FXA now has a pet aversion—the man working nice DX who shatters the patient queue by saying "Pse QRX for my dear friend So-and-so" and succeeds in holding things up until the DX fades out. Yes, we've got *him* on the list.

G3GUM (Formby) is QRT for a while, but has been doing well. He thinks he must have been the only European to hear FO8AC's first CQ one morning, because he got him before the "swoosh-gang" spoilt things. 'GUM was also pleased to work F8QK/MM, about to enter Guinea harbour and only using 5 watts. A mystery-bod, was VQ1IV, who sounded genuine enough. (Wonder if it was CR7IV on an expedition?) The rest from G3GUM were VE8DE, YK1AH, FP8BX, F3AT/FF8 and some of the more usual DX. And finally he remarks that several late-night CQ's have been answered lately by VK's.

GW3CDH (Risca) has gone up from his former 40 watts to about 120 and has been astonished at the results. He now feels within hailing distance of the century, and has worked KG4AT, OQ5RA, VP4LZ, XE1AC, VP9OO, FF8AE, TA3AA, FQ8AF and ZD2HAH, to mention only a few. His QTH is in a valley, surrounded on all sides but the South by 200-ft. mountains, but in spite



This is DL6KW, Ingolstadt, where the transmitter is VFO-BA-FD-PA on Twenty, Forty and Eighty, running 100 watts input. The receiver is a BC-348 and the aerial a 100ft. wire energised through a universal coupler.

of indifferent conditions he seems to get out fine.

G3FXB (Hove) winkled out FG7XA, FY7YB, HB1JJ/HE, MI3VG, MP4BAF and 4BBD, TI2AP and ZK1BC—all new ones for him. Others were KV4AU, TA3KA and lots of South Africans. "Gotaways" were FN8AD and PK4DA (both for the second time), as well as HK4CF, OA4EH, YK1AH, YN3AG and XU6F. 'FXB was very thrilled with the conditions round about August 1 "with nothing audible under 1000 miles"—which is how they *should* be on Twenty!

Forty-Metre Doings

Even now the forty-metre band is beginning to wake up, and some of the sleepless wonders have been doing great things. The early risers have been quite well off, too—there's a subtle distinction between the two. G6QX, working late at night, accumulated KP4UW, VP9AK, PY's, CO6PP and 9S4RB.

G2DPY (Shoreham) stuck to the band all the time and raised VP4CQ, 5BH, 6FM, 8AK, LU's, PY's, KP4's, ZL's (lots of them at 0500-0600 GMT), as well as Trieste, 9S4 and SP. All, by the

ZONES WORKED LISTING

POST WAR

Station	Z	C	Station	Z	C
Phone and CW			cont'd.		
G6ZO	WAZ	232	GM3EST	38	152
G6RH	WAZ	228	G3FGT	38	148
G6QB	WAZ	219			
G3ATU	WAZ	208	G3GUM	37	148
G5YV	WAZ	205	G6QX	37	143
G3DO	WAZ	200	G3ABG	37	138
G2FSR	WAZ	196	G2FYT	37	137
G4CP	WAZ	195			
G8IG	WAZ	188	G2YS	36	135
G2VD	WAZ	171	G2HKU	36	127
G3BI	WAZ	162	G3CIZ	36	127
G3TK	WAZ	157	G6TC	36	113
G3AAM	WAZ	154	G2DHV	36	109
G2IO	WAZ	152			
G3YF	WAZ	152	GM3CVZ	34	107
G8AP	WAZ	144	G3HDA	34	103
G3AZ	WAZ	133			
G5BJ	WAZ	126	G2BBI	30	101
G5VU	WAZ	124			
Phone only					
G2AJ	40	205	G2AJ	38	167
G5BZ	40	200			
G2WW	40	183	G3DO	37	160
G3FNJ	40	150	G6WX	37	135
G6BB	40	136			
G3BNE	40	134	G8QX	36	139
G5MR	40	130	G3COJ	36	134
			G2WW	36	134
G3BDQ	39	170			
G8KU	39	160	G2VJ	34	122
G5FA	39	160			
G3FXB	39	144	GM2DBX	33	107
			G2BBI	30	98
G2BJY	38	162			
G3COJ	38	157			

way, with 25 watts and a half-wave Zepp. "Gotaways" were HR1AZ, HP1LL, VP9AK, HC2ME, TI8JR and MID.

G3HKL (Harlington) says he has spent a most enjoyable week on Forty, using only 10 watts and working all round Europe; the one he didn't like losing was UQ2CK. G3IRE raised W3UX and KP4UW. G5FA worked 9S4AK on phone and 9S4RB on CW. G3FXB managed to get VP4CQ, but missed VP5BH. (The latter, by the way, is on the Cayman Islands, but the only time to get him seems to be 0300).

G3GGN (Worthing) sends a terrific list, which includes CO6PP and 7JD, CX1FY, FP8BX, HP1BR, TI2PZ, VP6CJ and 6FM, VP8AP, VP9AK, VS7NG (all between 2200 and about 0130) and a horde of ZL's round about 0430. He adds what he calls "a few flukes," including EK1DS (1000), FF8AE (1435), TF5TP (1150), W6MUR (1305), ZB1AJX (1045) and 3V8AN (1420). 'GGN will be on some time with a VK4

call from Brisbane, and he intends to work Forty out there.

G2HKU offers 3A2AK (what, another one?) and some W's; he also heard UA9CQ and VP4CQ.

Other Bands

There is hardly a breath of scandal concerning Ten, which is running just about true to form. South American and South African phones are good most evenings, and every now and then a little CW breaks out, but mostly from Europe. On Eighty we know there is a lot of DX being worked, but those who do so are too modest (or too canny) to tell us about it. So we may as well disclose that G6QB worked VQ4HJP at 2300 one night (S7 both ways) and that 'HJP heard quite a lot of G's on the band. Other G's have been working LU and CE, and it wouldn't surprise us if the ZL brigade proved active again in the mornings by next month.

The Overseas Mail

VS2AA (formerly VS1AA) is returning home for good, after 25 years in Malaya. He dropped us a line to disclaim the words we recently attributed to "VS1AA" (about being on Eighty with 800 watts) and says the thing must have been a leg-pull. For one thing, they're not allowed 800 watts, and for another, he's practically on the way home! Mac hopes to be running a G or GM station before long.

G2FSR drops a line from TA-land, of all places, and asks to be remembered to all the old friends. He hopes to be home, settling down to DX again, for the winter.

VS6HR (ex-G3CDR) says he has the queerest polar diagram imaginable, being literally underground in one direction and practically up against the cathedral in another! Then there is a block of flats lending a helping hand. After working with a sloping aerial that was practically underground, he put up two 45-ft. masts and now gets out quite well. Formerly he used to put a strong signal into KH6, just about off the end of his dipole. Again he asks stations in Ipswich and Hull to listen for him between 1500 and 1900 GMT on Saturdays.

W6SAI sends a brief note on the Andorra activities and tells us that 7B4QF worked 480 stations, out of which only 42 were W's! 7B4QF was not licensed, but operated with the sanction of the Andorra Council and

the "passive consent" of the French Government. All QSL's for 7B4QF and 3A2AC should go to ARRL.

SUIFX has been very active on Twenty and pulled in JA, XZ, VP9 and MI3. His DX time-table is like this: East before tea, Europe all evening, West from the early hours until dawn. 'FX wants a QSO with the Chatham area. He suggests that there must be more amateurs in DL than in any European country; he *always* gets them back on a CQ—even a CQ G. SUIFZ and 1GG will soon be on, if they surmount the various operational problems. 'FX says he is lucky—he lives in a locked barbed-wire compound!

G3HVG, the Junior Op. of G8VG, is now VS7XG (Colombo). His licence has just arrived and we shall doubtless be hearing him soon.

ZE3JL says we may quote himself and ZE3JQ as saying that they have never had any trouble (of the "bad manners" type) from G stations. He adds "When W's are on, we might as well pack up." He enjoys reeling off W's at one a minute and QRQ—but *not* when he wants to work G's. 'JL says conditions have been "unspeakable" on all bands for the past six weeks. G3BAF has arrived out there and settled in—awaiting his ticket. ZE2K stations are to have new call-signs, all in the ZE4J series—or possibly they will get into ZE5J by then!

Mouth-waterer for DX-chasers: ZE3JL says "Managed ZD9AA this evening; just switched on and there he was, calling CQ."

ZS2AT makes various allusions to "Thrombosis Corner" and mentions a CR7 Clot who, because 'AT once beat him to a piece of DX, now settles on anyone that ZS2AT calls, and grinds out a CQ DX. (We've had a UA3 doing that to us for *years!* He seems to be specially detailed for the job, and we quite miss him when he has to eat or sleep. Fortunately, he doesn't hear some of the DX very well and settles just *off* the frequency. We call him occasionally to tell him that he's off the mark, in case he gets purged.)

We gather from a letter from ex-G3DIH, at present in Cyrenaica, that there is a considerable grievance there because the Posts and Telegraphs flatly refuse to issue amateur licences. In Tripoli things are quite different; yet in Cyrenaica there is a refusal on grounds of "security." Thus any MD1's

AERIAL SYSTEMS

- G2BJY: 138ft. East/West, fed 16ft. from one end with 80-ohm co-ax.
- G2HKU: 14 mc — Folded dipole, NNE/SSW
7 mc — Dipole
Station 9ft. below sea level!
- G3BDQ: 33ft. dipole 15ft. high.
- G3FXB: General — 66ft. Zepp, 33ft. feeders, N/S.
14 and 28 mc — Single-section
14 mc 8JK, N/S.
- G3GUM: 137ft. end-fed, 36ft. high, E/W
Flat country, station 8ft. a.s.l.
- G5BZ: General — 137ft. Zepp.
14 mc — 2-element rotary.
28 mc — 3-element rotary.
- G6PJ: 33ft. Windom, NW/SE.
- G6QB: Two 264ft. wires, end-fed. One NW, one SW.
- G6QX: General — 135ft. Windom, E/W.
14 and 28 mc — rotary dipoles
68ft. N/S, 500ft. a.s.l.
- G6TC: 14 mc — Folded dipole, N/S.
28 mc — 3-element rotary.
- GM2DBX: 28 mc — 3-element rotary.
- GW3CDH: 68ft. Windom, NW/SE.

and MT1's that you hear are strictly under cover—with all that that implies.

VU2DZ (Bombay) says that CR8CC was properly licensed by the authorities in Goa, but he doesn't say whether the said station (W2UWC/MM) was ashore or afloat when he made his contacts under that call-sign. 'DZ has found Twenty very patchy and Ten useless except for the occasional /MM station. He does say, though, that G's are occasionally heard at S9 when they are too busy with W's to work into India. Best time for Bombay seems to be 1700-1900 GMT.

The 1951-52 Trans-Atlantics

W1BB writes to confirm our suggested dates for the Trans-Atlantic Tests. Full details will appear on the Log Sheets, but note, right now, that the dates will be **December 16 and 23, January 6 and 20, February 3 and 17.** Times, 0500-0800 on all days. We proposed five Sundays, starting on December 23, to which Stewart agrees, with the excellent suggestion that we should also try a dummy run on December 16—just in case. He will be there, and so will many more of the W's than last year. One of the really keen ones will be W4NNN/Ø, now in Newton, Iowa. He will be working in the bands 1900-1925 and 1975-2000 kc. Another reminder about all this next month.

Miscellany

No Clots' Corner this time, but a few

agonized remarks about operating practices and abuses. G6QX threatens to make an automatic gadget to follow the "diddle-bug" type who follows *him* round the band, and encloses a letter from ZB1CH which makes it clear that Malta is well plagued by some of these "No Call-Sign" experts on phone (or gramophone) who are slowly squeezing their way down into the CW band.

G3GBH (Scarborough) makes some blistering remarks about the types who allude to "My frequency." And he rightly says that many of the moaners have a purely selfish outlook. If *they* get away with something it's Slick Operating; if someone else does it to them it's Spivvery. So he says "If the other bloke does something one doesn't like, call him and tell him so, but don't inflict the moans on the mob through an otherwise first-rate Magazine." Sorry, 'GBH—we'll keep them within reason; but you must admit that some of them are very much bound up with the problem of keeping our sense of humour, which is a very important thing these days. We often print someone's moan with tongue in cheek, knowing well that it will provoke hearty laughter in some quarters and possibly strike home a little enlightenment in others.

G3AIM opines that DX-working is very much the survival of the fittest, these days. "Queueing-up" is no answer, as the DX station doesn't make an orderly queue of it—he just lets the rabble loose again after each QSO. Present chaos, he says, is due to the overcrowded state of the bands, the fact that many DX stations use BK, and just plain hogging!

G6PJ says that AC4LP made a brief appearance recently, and the chief spivs were a DL, an F and an EA, none of whom seemed to have a clue as to how to go about it. He also asks, though, why some G stations call eternal CQ's instead of listening. Other writers also ask "Why call CQ DX when the DX is there, calling CQ?" Why, indeed?

G2YS (Chester) makes a plea for some of the QRO stations who regularly work the DX (especially on 80) to stand aside now and then and let others have a look in. One or two of them, last winter, were heard working the same ZL's morning after morning, while there were a lot of chaps around who would have given a week's pay to raise just *one* ZL. Surely some of the big noises could get even more kick out of doing a little friendly QSP-business, besides

giving the ZL's some fresh contacts?

G3BTC (Welling) would like us to use a symbol after each DX call listed to indicate whether it was on phone or CW. We try to make it clear; it's usually CW unless we *say* phone. But we will give some thought to the idea, which is a good one.

GM3EST (Glasgow) says that the H15ES-cum-HS5IE comic resides in Glasgow, and is, in fact, so notorious that it's a wonder he hasn't been bumped off already. He also has kind words to say about a station "testing" on phone right on top of AC3SQ, and suggests that this eternal chase for DX is beginning to have a really bad effect on Amateur Radio.

G6AT (Hampton Hill) is forced to drop out of the DX tables owing to (a) Collapse of aeriels for maintenance, and (b) Overhauling of a 19-year-old car! He won't be active again except with portable gear for several months.

EI2S (Bishopstow) writes to say that he modulates 100 kW every Saturday night from 2030-2100! The Irish Broadcasting Station radiates an all-amateur variety show and EI2S beats it out on vibraphone (no, not Vibroplex), xylophone and drums. At home he runs 150 watts to a long wire and an 8JK.

G6KW (Birmingham) says his call bears no relation to the power he uses. He has held it for 27 of his 72 years, and still airs it, mostly between 0630 and 0730 BST on 7 mc, when he finds he can "get in a word edgewise."

Aerials

Some, but not all, of the leaders in the Marathon Table have sent in brief details of their aerial systems, which may be found summarised in the panel herewith. They make interesting reading, and we should like to see more. Please include these particulars in next month's letters, those who have not already done so.

And so, for the present, we sign off. Next month's deadline will be **first post on September 12**, and for the following issue it looks like *October 17*. Address everything to "DX Commentary," *Short Wave Magazine*, 55 Victoria Street, S.W.1. Until then, BCNU and very 73.

*The Short Wave Magazine
covers the whole field
of Amateur Radio*

The Folded Dipole

COMPARISON WITH A SIMPLE DIPOLE AND HOW THE CENTRE IMPEDANCE IS STEPPED UP

By S. GOULD (G3ASP)

ALTHOUGH the folded dipole can serve a very useful purpose in Amateur Radio, from many conversations heard over the air it is evident that the theory of this type of aerial is not as clearly understood as it might be; in many cases folded dipoles are used under conditions where an ordinary dipole would give equal and possibly even better results.

The two types of dipoles have identical radiating properties and polar diagrams for any given power input, the only difference being the higher input impedance of the folded dipole. This feature of the folded dipole is useful when it is required to use a high impedance feeder line to the aerial, and is of great advantage where the input impedance of an ordinary dipole falls to a value too low for effective matching to the line, *e.g.*, in the case of a parasitic array.

The normal input impedance of a dipole depends upon several factors, including the height above ground, but usually will be somewhere between 70 and 80 ohms. However, if parasitic elements (reflectors and directors) are added, the input impedance drops to a value determined by the number of parasitic elements and the spacing. For instance, in a 3-element close-spaced array, the input impedance to the driven element might be as low as 5 ohms. Under such conditions, matching involves great technical difficulties (which will not be discussed here), and this is where the folded dipole comes into its own. By careful design, the input impedance of a folded dipole can be made to match the transmission line normally used. In the case of the parasitic array previously mentioned, the impedance could be stepped up 15 times, giving a good match to a standard 72-ohm line, or 10 times to match into a low-impedance co-ax line.

Change in Centre Impedance

A folded dipole in which the two elements are of the same diameter will have an input impedance four times that of an ordinary dipole used under the same conditions; so that where the aerial system consists of just a dipole, the substitution of a folded dipole will produce an input impedance of about 300 ohms, enabling a good match to a 300-ohm line, but giving no advantage whatever in regard to radiation purposes, or in the polar diagram obtained. In the case of a parasitic array, a step-up of the impedance by even four times may still be insufficient, and this can be overcome by adding another element to the folded dipole, giving a step-up of nine times, or, as is most usual, a two-element folded dipole is used, with the

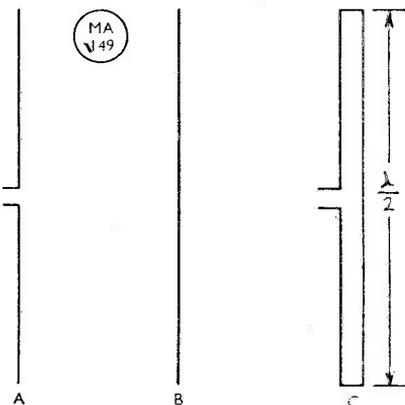


Fig. 1. Electrical layout of the folded dipole; A, the fed element and B, the driven element, are combined as C, the result being that the feed-point impedance is stepped up, as explained in the text.

uncut element of larger diameter than the other (fed) element.

There are various methods of explaining the theory of the folded dipole, but probably the simplest is to regard it as an ordinary dipole. A in Fig. 1, with another dipole, B, in parallel, the combination looking like C. The element B is voltage-driven from A and the voltages, and therefore the currents in the two dipoles are in phase, as shown in Fig. 2. If the two dipoles are of equal diameter, the currents will be equal for any given input power. Now

if power is fed into the centre of A, the current at that point will be exactly half that of a single dipole loaded up to the same power.

Why the Centre Impedance Changes

In order to feed the same power into the folded dipole via dipole A, the voltage at the feed point must be doubled. As the impedance at resonance is resistive, it can be given by

$$Z = \frac{E}{I}, \text{ and } Z \text{ now is } \frac{2 E}{0.5 I} = \frac{E}{I} \times 4,$$

where E and I represent the voltage and current of an ordinary dipole loaded to the same power. Thus Z has been increased four times.

Let us take a practical example. A dipole with an impedance of 80 ohms is loaded up to a power of 80 watts. The impedance can be taken as the radiation resistance, and the current at the centre will be 1 amp, and I^2R will give 80 watts. Another dipole is now shunted across the first and, with the same input power of 80 watts, the current in the centre of the first dipole will now be half of its previous value, i.e., 0.5 amps.

The input power is still the same, 80 watts, and I^2R must still equal 80 watts. But I is only half its former value and I^2 one-quarter.

$$R = \frac{W}{I^2} = \frac{80}{0.25} = 320 \text{ ohms,}$$

so that R has been increased four times.

If three elements are used, then for a given input the feed current will drop to one-third its former value, I^2 will be one-ninth, and R will increase nine times. As previously mentioned, the input impedance of a folded dipole can be stepped up further by making the diameter of the uncut dipole greater than the other (fed) dipole. The current in the fed dipole will be less than the other, the impedance going up as the

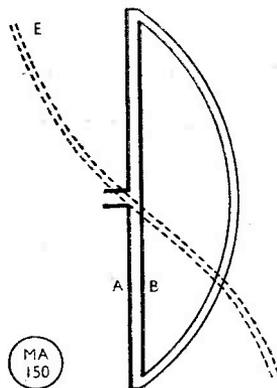


Fig. 2. The voltage-current distribution on a folded dipole is the same as on a plain dipole. The only difference is the centre, or feed-point, impedance.

ratio of the diameters increases. However, with this type of folded dipole, the spacing between the two elements is a determining factor in the impedance step-up obtained, as has been shown by previous writers.

Before concluding, it should again be emphasised that for the same input power, the results given by a folded dipole will be identical with those obtained from an ordinary dipole—if the matching is accurate in both cases.

It is fairly certain that the superior results, claimed by some operators for the folded dipole used alone, are due to a *better match* being achieved, the lower standing wave ratio thus increasing the efficiency of the aerial. In other words, exactly the same results can be obtained with an ordinary dipole *if accurate matching is effected!*

THAT GIRL FROM OPORTO

From G3FMY, London, N.20, we have it that CT1YA and her husband CT1JM will be visiting London during September 20-26. Anyone interested in a personal QSO is asked to get into touch with G3FMY, either by card (QTHR) or by telephone (Hillside 6994), as he is proposing to arrange a small party for them, probably on the Saturday evening. CT1YA has made many G contacts and is establishing a reputation for herself reminiscent of that enjoyed by W2IXY in pre-war days.

THE MAGAZINE CLUB CONTEST

The season again approaches for the Annual 1.7 mc Magazine Club Transmitting Contest (MCC), to be held during the period November 10-18, and now the sixth in the series. This year, a change in the scoring rules restricts QSO's to those between Club stations only, but on the other hand all MCC stations may be worked once to score during each daily operating session. In effect, this gives each Club a QSO potential of nine times the number of Clubs entering for the Contest.

Comparing the 6J6 and Cascode Converters

CIRCUITS ANALYSED FOR GAIN AND NOISE FACTOR

By W. J. CRAWLEY (G2IQ)

MANY readers of "VHF Bands" will have noticed a recent comment by an operator using a cascode converter who claimed that it was a great improvement on his original G2IQ type. This statement gave impetus to a long-standing intention of the writer's, namely, to compare the 6J6 type converter with the Wallman or cascode. In addition, the writer receives numerous enquiries regarding modifications to the 6J6 converter, and, in order to reduce the volume of his correspondence, it is proposed to deal with two of the most common queries in this article.

These queries are: (1) *Will the addition of another RF stage improve the converter?* (2) *How does the all-6J6 converter compare with the cascode?*

Is Another RF Stage Worth While?

The short answer to query (1) is "It all depends on what you mean by improve." If you ask if the additional valve will improve the gain, the answer is, of course, "Yes." If your converter has been modified to have a tunable IF and a fixed oscillator and you suffer from break-through, then the additional RF stage should improve the performance by reducing the break-through. If, however, you ask if the additional RF stage will improve the signal-to-noise ratio, or noise factor, of the converter, then the answer is "No."

Difference Between Gain and Noise Factor

Certain misconceptions as to the relative merits of gain and noise factor exist in the minds of some VHF workers. The noise factor of any receiver is almost invariably determined by its first stage, always assuming that the first stage is giving a gain. Once this has been established, additional gain may be obtained if desired from any subsequent stage, IF or AF, without alteration to the noise factor, provided that the over-

Our well-known contributor offers an opinion on a controversial topic in the VHF field — whether the Wallman Cascode is superior to the 6J6 converter design with which G2IQ himself has become so closely associated. His arguments are clear and convincing, and his conclusions are fair. They will be of great interest to all VHF workers.—
Editor.

all band-width is not changed materially. According to Friis, the noise factor of any receiver may be calculated from

$$N = N_1 + \frac{N_2 - 1}{G_1} + \frac{N_3 - 1}{G_1 G_2} \dots$$

from which it may readily be seen that if there is enough gain (G_1) from Stage 1 to overcome noise (N_2) in Stage 2, then the effect of Stage 2 noise and the noise of all subsequent stages is negligible. Thus, the addition of another RF stage to the 6J6 converter will change the noise factor to a figure depending upon the design of the new stage. If another neutralised 6J6 stage is used in a similar mode to the original, the noise factor of the receiver should remain at its original figure. The addition of a pentode RF stage will certainly increase the gain, but will de-grade the noise factor by several dB. Therefore, it is *not* recommended that a further 6J6 stage be added to the converter. The gain will undoubtedly be improved, but it could also be improved more easily and just as effectively by adding another IF stage!

Practical Tests

In order to prove to his own satisfaction that the foregoing was correctly argued, the writer constructed a new converter with two neutralised 6J6 stages and compared its performance with the standard converter, both working into a common IF strip. First impressions were that the new set was far more lively than the old—as indeed it was from the point of view of gain. Ability to copy weak signals, however, was by no means improved, and judged aurally there was nothing to choose between the two receivers from the aspect of signal-noise. Noise generator tests revealed a slight edge in favour of the single RF stage, due no doubt to tendencies towards regeneration with the two RF stages. Regeneration in any RF

stage improves gain and degrades noise factor.

Conclusions Regarding Two RF Stages

To sum up the conclusions reached, both theoretically and practically, the writer would say that there is no point whatsoever in adding another RF stage to the 6J6 converter unless it is with the object of reducing break-through.

Comparison with the Cascode

The Wallman or cascode circuit consists of a neutralised triode of high *gm* followed by a grounded grid second stage. A typical circuit is shown in the diagram. It is perhaps as well to examine the primary purpose for which the circuit was developed, namely, for use in wide-band, low noise IF strips in the 20-60 mc region, and in this application it exhibits an extremely low noise factor. It should be stressed, however, that the full advantages of the circuit only become apparent when very high band-widths of the order of 20 mc or so are involved, and for the narrow pass-band of amateur receivers the circuit is not being employed to its full advantage. Indeed, for these narrow band-widths there seems little point in preceding the grounded grid stage by the neutralised triode! If the band-width requirements were different—if, for example, a band-width of 10 mc were necessary—then the grounded-grid triode alone would be inferior. Its band-width in the input circuit is large, but, in order to maintain this high band-width, the output load would have to be made so low as to reduce gain seriously and 2nd stage noise would become a factor of importance.

This disadvantage of low power gain from the GGT was overcome by preceding the GG stage with a neutralised triode. The damping produced by the second stage maintains a large band-width whilst obviating the use of a noisy damping resistor. But for narrow band-widths the grounded grid triode stage is unnecessary. It is admitted that a very good performance with low noise factor may be obtained from the circuit, but it is maintained by the writer that, for the narrow band-widths of amateur requirements, the circuit is unnecessarily complicated. There is, for example, no reason why the grounded grid stage should not be changed to a pentode, or the neutralised triode used alone, followed directly by the mixer. Indeed, at such narrow band-widths, a grounded-

grid stage using a 6J4 (if one can get it!) or an EC91 should give sufficient gain to enable a noise factor equivalent to that of the cascode to be obtained.

Practical Comparisons

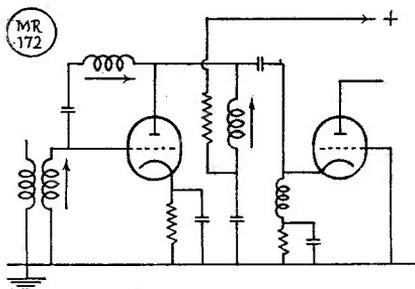
A cascode converter was constructed, using a neutralised triode-connected 6AK5 followed by an EC91 GGT stage. A triode-connected 6AK5 mixer with self-excited 9002 local oscillator were tried, although it was soon apparent that, for a permanent installation with this type of circuit, some form of crystal-controlled oscillator was highly desirable. The normal IF strip, a BC-455, was used and comparisons were made against the 6J6 converter, both aurally and by means of the Noise Generator. On weak signals there was no discernible difference in the two converters. The gain of the cascode combination was slightly higher, but readability of weak signals appeared to be exactly the same as on the 6J6 set. Comparison of the noise factors showed a very slight advantage (less than 1 dB) in favour of the cascode, but this would not be apparent under working conditions.

The cascode was then altered to EC91 GGT into the 6AK5 mixer. Gain was reduced, but readability was again about the same on weak signals. The noise factor of this combination was about 1 dB down on the 6J6 set.

Conclusions

One of the most notable characteristics of the VHF worker is his perseverance. This dates back to the early five-metre days when, to improve receiver performance, 2-volt valves were de-based and self-supporting coils introduced. When Two Metres became an amateur band, it was soon obvious that some new thinking on receiver design was indicated. Perseverance with triode RF stages has now brought us to the point where the receiver contributes a negligible proportion of the total noise level. Indeed, it can now be said that aerial noise is the limiting factor, and our experiments will bear more fruit if directed towards *aerial* improvement rather than towards receiver improvement.

Consequently, when asked if in his opinion the cascode is better than the all-6J6 converter, the writer replies, "It is a matter of taste." He doesn't honestly think that there is a ha'porth



of difference between them. The writer still prefers the 6J6 job because of its

In comparing the Wallman Cascode converter with his all-6J6 design, G2IQ draws conclusions which will be of considerable interest to VHF workers. This is the circuit of a Wallman front end.

inherent stability without recourse to crystals, its symmetrical layout and comparative simplicity.

Therefore, when you hear that G9XYZ's cascode is a big improvement on his old 6J6 set, get out that salt and take a pinch. Obviously, there was something wrong with his original receiver! In the writer's opinion, there is not much that can be done to improve the push-pull 6J6 RF stage when it is properly adjusted.

BOOK REVIEW

The Radio Handbook, Thirteenth Edition

This is undoubtedly the finest book of its kind—for the radio engineer, technician or radio amateur—yet offered by Editors & Engineers, Ltd., of America, who for years have been publishers of a wide range of excellent manuals and handbooks on radio subjects.

The 13th is a large volume of more than 700 pages, covering in 28 chapters the Fundamental Principles; the Generation of RF Energy; Modulation, including FM and SSB; Transmitter Design, Construction and Adjustment; Aerials, in five separate chapters discussing Theory, Construction, Matching and Feeding, Directive Arrays of every type, and VHF and UHF designs; BCI and TVI, to which some 24 pages are devoted; Mobile Equipment and its installation, with practical designs for much suitable apparatus in this field; and seven chapters of 170 pages describing in detail the construction of a great many items of amateur band equipment, from Receivers, Exciters and QRP Transmitters, to High- and Low-Power RF Amplifiers, Modulators and Speech Units, and their associated Power Supplies; there is also a comprehensive chapter on Test and Measuring Equip-

ment, and finally a useful section of 70 pages on Radio Mathematics and Calculation, including much Reference Data.

It can truly be said that the scope of this edition of the *Radio Handbook* is such as to make it an essential buy, and quite indispensable to the advanced amateur, to teaching establishments and to radio laboratories, since it is right up-to-date in design and practice.

The book is very well produced, in stiff covers, profusely illustrated with circuit diagrams and photographs, and adequately indexed. Though the highest-priced volume of its kind at present on the market, the new *Radio Handbook* represents excellent value because it does embody so much that otherwise can only be obtained by reference to a variety of manuals and handbooks.

Radio Handbook, 13th Edition, published by Editors & Engineers, Ltd., obtainable from the distributors for the U.K. and Europe, Gage & Pollard, Publishers' Agents, 55 Victoria Street, London, S.W.1, price £2 8s. 0d., postage 1s. 6d. Limited supplies are available for immediate delivery on receipt of order.

***Will Your Station Pass an Insurance Inspection?
Are Your Power Circuits Safe?***

VHF BANDS

By A. J. DEVON

FROM North, South, East and West, from GM, GI, GW, EI and GC, a huge (and very welcome) volume of mail has poured in on your anxious A.J.D., who for the best part of four days has lived in a haze of callsigns, a maze of lists and tables, and a daze of amendments, corrections, alterations and re-drafts.

Well, out of this whole boiling it emerges very clearly that it has again been a Good Month, with a high level of activity, many new contacts made, and a general movement up the ladders, with several new participants making their first appearance on the lower rungs. In fact, there were no less than 80 movements notified for the Counties tables alone—and it is devoutly to be hoped that we have succeeded in fitting everyone into his correct niche!

GD3DA/P, Snaefell

It will no doubt be generally agreed that one of the outstanding events of the period July 11-August 21, which this narrative covers, was the appearance of GD3DA/P, operating from Snaefell in the Isle of Man over the four days July 29-August 1. Outstanding not only for the results he achieved and the contacts he gave—66 different stations worked on Two, in 31 counties and 5 countries—but also by reason of the effort and enthusiasm G3DA put into his expedition. One is always apt to forget the background of an undertaking such as his: Procuring the special licence to operate, the gear to be provided for use on the two VHF bands, getting it and himself there and up the mountain, and then having to contend with the great gale

GD3DA/P on Snaefell—

Month of Good Conditions—

Excellent Continental Openings—

Individual Reports and Results—

Widespread Activity on Two Metres

which blew up on Snaefell on the Wednesday, with heavy rain and gusts of 75-100 m.p.h.

The only comment that G3DA himself makes about all this is "I operated absolutely single-handed and the question of transportation of the equipment and myself was a major headache. The rain on Wednesday was just unbelievable and I had to put swan necks on the feeders, when the rain ran off the bends like water out of a tap."

Nevertheless, says G3DA "I am going over again at the end of August when the emphasis will be on 70 centimetres,"—this because his original plan mis-carried somewhat and, though torn between Two-Metre and Seventycent operation, he concentrated on 2 metres to give the QSO's which would be most helpful to the majority.

Gear for GD3DA/P consisted of a very-modified BC624 running 6J6-832-832, with 6-8 watts input on Two and 6 watts on 70 cm. The receiver was a 6J6 converter into an IF strip loaned by GW5MQ, and the aerials a 3-ele. Yagi on 144 mc and a 5-element version of the same on 430 mc, both coupled through 72-ohm line. During the journey to Snaefell, the BFO on the IF strip got damaged, and all G3DA's contacts on Sunday 29th were read on key thumps; it was not until the Monday morning that he could rewind the BFO coil and begin to take weak CW from further afield.

G3DA's worked-heard list covering his sojourn on the mountain appears in the Two-Metre Activity Report herewith, to which should be added, for the record, the following "Firsts," all to the credit of GD3DA/P, operated by G3DA of Speke, Liverpool: GD/EI, with EI2W, July 30; GD/G, with G3GMX, July 29; GD/GI, with GI2FHN, July 29; GD/GM, with GM3DAP, July 29; GD/GW, with GW5MQ, July 28. And also the first

GD/GW contact on 430 mc, with GW5MQ worked on Seventycems on July 29.

In his report, G3DA records that of all stations worked or heard, the outstanding signals were G3BA, G6XM and G6NB, in that order. He also called the six stations (see Activity Report) he heard but did not work.

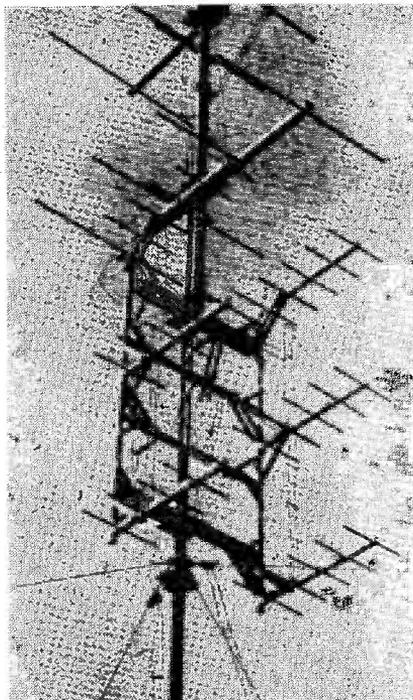
Whether or not they were successful with GD3DA/P, all who read this piece will want us to thank G3DA for his Snaefell expedition, which was in the best tradition of amateur VHF activity, and to congratulate him on the success of what must have been a most arduous undertaking.

The Seventycem Report

That box on p. 360 of our August issue did not make it clear, as it should have done, that the G3APY/G5BY contact on 430 mc of July 17 last over their 227-mile path is actually the world record for point-to-point (fixed station) working on 70 cm. G5BY lists a number of excellent 430 mc contacts during the period July 17-28: G2WJ, GW2ADZ, G3APY, G3FZL and G3GOP, all over distances in the 100-225 mile category. After he worked GW2ADZ on July 25, around midnight, '2ADZ pedalled his bicycle over to G4LU with the idea of getting him on for a QSO with G5BY—but he couldn't wake G4LU! On July 21, when conditions were exceptionally hot on Two, G5BY was receiving the third harmonic of the 2-metre signal from G3DJX (St. Albans, at about 200 miles) at 559, and the East Coasters G3CFK (Yarmouth) and G8AX (Norwich) were strong enough on two metres, i.e. blocking G5BY's IF stage with AVC off, to suggest that had they been able to operate on 70 cm, the world record for the band might have been pushed up to 300 miles or so, beyond even the present portable range! So, as G5BY says, a chance may have been missed; incidentally, he is now up to the satisfying level of 10 counties worked two-way on Seventycems.

On that same evening of July 21, G2WJ (Great Canfield, Essex) was getting G5BY at S9+ on 70 cm, using a CC converter; the Tx at G2WJ gives 2-3 watts out from a CV53, with a 7-ele. Yagi, and on this occasion gave S7-8 at the Devon end.

At the GW5MQ hide-out in Flintshire, stations worked on the 430 mc band during the period July 8 to August 11 were, in addition to GD3DA/P: G2DCI, G2JT, G2OI, G3AOO and G3ELT—showing that there is now a very fair level of 70 cm activity in those parts, though none of the



The fine 30-element 70-centimetre receiving array at G5BY, Bolt Tail, S. Devon. It was with this beam that he established, with G3APY of Kirkby-in-Ashfield, the new world point-to-point record of 227 miles on 430 mc. Other outstanding 70 cm contacts have been with G2WJ (225 miles), GW2ADZ (175 miles), G3FZL (180 miles), and G3GOP (119 miles). The beam pictured here is 40ft. high on a wooden frame of 1in. sq. deal, all-copper elements, with phasing lines of 14-gauge wire spaced $1\frac{1}{2}$ ins., the main feeder being of 11g. wire spaced $\frac{3}{4}$ in.; the line matching transformer is of $\frac{1}{2}$ in. copper tube, spaced 2ins. and a $\frac{1}{2}$ -wave in length.

distances yet achieved are very great.

G3IS (Rugby) reports that he is on 432 mc most evenings, 1900-2000 clock time, calling "CQ Test 70" on CW at intervals, with the beam aimed at the London, South Devon, Birmingham and Liverpool areas.

G3FZL (London, S.E.22) says that G5BY's average-559 signal behaved in a very erratic manner during their 70 cm DX contact on July 28—G5BY was peaking to S7 in sharp bursts and equally suddenly went right down into the noise, all this with a superimposed flutter fade. On July 29 G3FZL/GW2ADZ succeeded in establishing a

TWO-METRE ACTIVITY REPORT

G3BW, Whitehaven, Cumberland.

WORKED: G2FO, 2FNW, 2FQP, 2HGR, 2NH, 2OU, 2RI, 2UQ, 2WJ, 3ABA, 3AYT, 3BA, 3BLP, 3DH, 3DJQ, 3EHY, 3FRE, 3GHI, 3HAZ, 3WW, 4CI, 4HT, 5BD, 5BY, 5CP, 5DS, 5HB, 5QU, 5UD, 6CB, 6NB, 6GR, 6XM, 6YU, 8KL, 8SB, GD3DA/P, GM3DAP, 3EGW
HEARD: G2XC, 2FTS, 3AKU, 3DUP, 5LI, 6VX.

G3HBW, Wembley, Middlesex.

WORKED: F9DI, G2BTO/P, 2FTS, 2IQ, 3AGA, 3AUS, 3BHS, 3GLW, 3HAB, 3HAZ, 5UM, 5YV, 6PZ, ON4BZ.
HEARD: DL1LB, 4XS/3KE, F8AA, 8MX, 8NW, 9FT, G2ATZ, 2AVR, 2CPT, 2HCG, 2HIF, 2RI, 2XC, 3ABA, 3AKU, 3AVF, 3BA, 3CFK, 3CJY, 3CVE, 3DAH, 3DUP, 3ENS, 3FAN, 3FFV, 3GGJ, 3GOP, 3GUD, 5BM, 5BY, 5HB, 5UD, 6LI, 6UJ, 8AX, 8IC, 8KL, 8SY, GC2CNC, GW2ADZ, ON4HC, 4HN, 4UV, PA0PAX. (July 20 to August 11).

G8VR, Upper Abbey Wood, London, S.E.2.

WORKED: F3LO, 8NW, 9DI, G2FTS, 2FVD, 2HCG, 2XV/P, 2YC, 3ABA/P, 3AKU, 3ANB, 3ASG, 3CGQ, 3CJY/P, 3CWW, 3DIV/A, 3EUQ/P, 3EVD, 3FUL, 4AU, 4FB, 5LI, 5UM, 6PD, 8LN, ON4AP, 4BZ, 4HN, PA0FC.
HEARD: DL3FM, F8AA, 8KF, 8RZ, G2BUJ, 2FNW, G3BA, 3BW, 3CCP, 3DMU, 3DUP, 3FIH, 5BD, 6CI, 8SB, 8IC, GW3EJM, ON4HC, 4IF, 4IV, 4UV, 4VL, 4XB, PA0AJA, 0FB, 0FP, 0TK, 0LDG, 0TG. (June 3 to August 3).

G2BTO/P, Winter Hill, Rivington Pike, nr. Bolton, Lancs.

WORKED: G2ASR, 2CYN, 2DCI, 3ATZ, 3BLP, 3BOC, 3CGQ, 3CHY, 3CXD, 3DA, 3DH, 3EHY, 3FMI, 3GHI, 3GSS, 3GUD, 3GUU, 3HAZ, 3HBW, 4HT, 5TH, 6LC, 6NB, 8SB, GW2ADZ.
HEARD: G2HCQ, 3BA, 4VH.

G3HAZ, Birmingham, Warwickshire. NGR 43/023790.

WORKED: G2BTO/P, 3AVO/A, 3BA, 3BGR, 3BHS, 3BLP, 3COJ, 3FAN, 3HBW, 3LN, 3VM, 3WW, 4SA, 4VH, 5BY, 5HB, 5LI, 5LJ, 5ML, 6UJ, 6YU, 8SB, GD3DA/P.
HEARD: F8AA, G2CPT, 2HIF, 3AGA, 3CFK, 3DAH, 3DVO, 3EHY, 5BD, 5YV, 6CB, 6CW, 8VR, GC2CNC, GW3ENY/P, 5MQ

G3CWW, Hendon, Middlesex.

WORKED: F8NW, G2AHP, 2AOL, 2DVD, 2FTS, 2FVD, 2HDZ, 2LW, 2RI, 2XC, 2YC, 3ABA, 3BA, 3BYV, 3CDJ, 3CFB, 3CGQ, 3DJX, 3DUP, 3DVO, 3ENI, 3EYV, 3FAN, 3FFX,

3FSR, 3FUL, 3GBO, 3GHS, 3GTH, 3GX, 3GXO, 3HAB, 3KG, 4FB, 4HT, 4KD, 5DS, 5LI, 5LK, 5LN, 6AG, 6JP, 6SC, 6YP, 8LN, 8TB, 8VR, ON4BZ.

HEARD: F8MX, G2BZ, 2HCG, 3ANB, 3AVO/A, 3DAH, 3HBW, 3HWS, 3WW. (Between July 28 and August 12).

G4RO, St. Albans, Herts. NGR 52/147075.

WORKED: G2XC, 3AUS, 3BNC, 3EHY, 3GHI, 4FB, 4HT, 6CB, 8WV, GD3DA/P, GW3EJM, ON4HC, PA0IK.
HEARD: F8NW, G2AJ, 2AHP, 2BMC, 2DVD, 2FTS, 2FZL, 2HCG, 2HDZ, 2HIF, 2MV, 2NH, 2NJ, 3AGA, 3BA, 3BLP, 3FIH, 3FUL, 3GBO, 3CVO, 3GDR, 3GHO, 4KD, 4SA, 5BY, 5CP, 5LI, 5UF, 5WP, 6NB, 6VX, 6XM, 8OU, 8SY, 8VR, GW2ADZ, 5MQ, ON4BZ. (July 21 to August 5).

G3VM, Norwich, Norfolk. NGR 63/182101.

WORKED: DL3FM, G2AHP, 2FNW, 2HIF, 2XC, 3AJP, 3AUS, 3CCP, 3CFK, 3FAN, 3FUL, 3GBO, 3HAZ, 3HCU, 4PV, 5HB, 5UF, 6XM/P, 8AX, 8QY, 8SB, ON4BZ, PA0IA, 0JU, 0NG, 0NO, 0OD, 0TG.
HEARD: DL1LB, G2FQP, 2HCG, 2PU, 2XS, 3ANB, 3BA, 3COJ, 3CUA, 3DA, 3DMU, 3DIV/A, 3EHY, 3FZL, 3WW, 4HT, 4JJ, 4SA, 5BC, 5BD, 5HB, 5UD, 5YV, 6CB, 6GR, 6LI, 6NB, 6PZ, 8BD, 8GL, 8OU, 8SY, PA0FC, 0IK. (July 15 to August 4).

G3COJ, Hull, Yorks.

WORKED: DL1LB, 3FM, G3DA, 3FRE, 3HAZ, 3WW, 4JJ, 5GX, 5YV, 6LI, 6NB, 8SB, GM3ENJ.
HEARD: DL2DV, 3MH, 4XS/3KE, G2AJ, 2FO, 2FTS, 2FZX, 2NH, 2PU, 2UQ, 2XS, 3A0O, 3APX, 3BW, 3CGQ, 3CYY, 3DMU, 3ECA, 3VM, 4LX, 4MW, 5BD, 5DF, 5HD, 5QU, 5UD, 5UM, 6BC, 6PZ, 6UJ, 8AX, 8IC, ON4BZ, 4VL. (July 20-22).

G2HDZ, Pinner, Middlesex.

WORKED: EI2W, F8MX, 9DI, 9RL, G2AJ, 2DSW, 2FNW, 2FTS, 2HCG, 2UQ, 2XC, 3ABA, 3ARL, 3AUS, 3BA, 3BVG, 3BYV, 3CFK, 3CWW, 3DAH, 3DIV/A, 3DQC, 3ECA, 3EFX, 3EHY, 3ENI, 3FAN, 3GAV, 3GTH, 3MI, 5BC, 5BM, 5DS, 5HB, 5LK, 5SZ, 5UD, 5WP, 6AG, 6GR, 6HG, 6JP, 6XM, 8HY, 8KZ, 8SB, 8SY, 8VZ, GC2CNC, GD3DA/P, GW2ADZ, PA0AJA.
HEARD: G2DGB, 2PU, 2XV, 3A0O, 3BW, 3CJY, 3CXD, 3DA, 3GUD, 3LJ, 5YV, 6CI, 6CW, GW5MQ, ON4BZ, 4HC, 4HN, 4VL. (July 9 to August 4).

GD3DA/P, Snaefell, Isle of Man.

WORKED: EI2W, G2FCV, 2FQP, 2HDZ, 2HGR, 2JT, 2NH, 2OI, 2RI, 2XC, 2XV, 3ABA, 3AGS, 3A0O, 3ATZ, 3BA, 3BLP, 3BW, 3CGQ, 3CHY, 3CXD, 3DMU, 3EHY, 3ETI, 3FMI, 3FRE, 3FSL, 3GHI, 3GMX, 3GSS, 3GUU, 3HAZ, 3WW, 4CI, 4HT, 4MW, 4RO, 4SA, 5BD, 5BM, 5DF, 5DS, 5HB, 5TH, 5UD, 5VN/A, 5WP, 5YV, 6CB, 6CW, 6NB, 6VX, 6XM, 8GL, 8IC, 8OU, 8SB, GI2FHN, 3GOB, GM3BDA, 3DAP, 3EGW, 3FOW, 6WL, GW3ENY/P, 5MQ.
HEARD: G2MV, 4JJ, 6LC, 6YO, GI3AXD, GW2ADZ. (July 29 to August 1).

G2FVD, Morden Park, Surrey.

WORKED: G2BN, 2DPD, 3ABA, 3ANB, 3BA, 3BHS, 3BNC, 3CJY, 3CWW, 3DUP, 3ENS, 3EYV, 3FAN, 3FEX, 3FIH, 3FMI, 3FUL, 3GHI, 3GOP, 3GXO, 3HAB, 4CG, 5DF, 5LN, 6CB, 6KB, 6NR, 6QN, 6WU, 6XM, 6YP, 8SY, 8VR.
HEARD: G2FNW, 2FTS, 2HCG, 2XC, 3AUS, 3DAH, 3EHY, 3GDR, 3HSC, 3MI, 5HB, 8HY.

EI2W, Rathgar, Dublin.

WORKED: G2AOK/A, 2HDZ, 2HGR, 2HIF, 2MV, 2NH, 2OI, 3AAK, 3BA, 3BLP, 3CCP, 3DH, 3EHY, 3ELT, 3FMI, 3MA, 4SA, 5BM, 5BY, 5CP, 5DF, 5DS, 5HB, 5WP, 5YV, 6CW/P, 6NB, 6XM, 8OU, 8SB, GD3DA/P, GI2FHN, 3GOB, GM3BDA, 3DDE, GW2ADZ, 3DA/P, 3ENY/P, 5MQ. (June 10 to August 6).

GI2FHN, Bangor, N.I.

WORKED: EI2W, G2OI, 3BW, GD3DA/P, GI3GOB, GW3ENY/P
HEARD: G3DA, 5VN/A, 8SB, GI3AXD, GM3BDA, GW5MQ.

GM3EGW, Dunfermline, NGR 36/099876.

WORKED: G2FO, 3BW, 4LX, 5BD, 5QU, 6LI, GD3DA/P, GM2DRD, 3BDA, 3DAP, 3ENJ, 3FYB, 4QV, 5VG, 8FM.
HEARD: E, 2W, G2CPT, 2DKH, 3COJ, 3A0O, 3CYY, 3DMU, 5YV, 8IC, GI2FHN, GM3BBW, 3GAB, GW5MQ. (July 1-31).

G3FRE, Stanton Hill, Notts.

WORKED: G2CPT, 2HCG/P, 2IQ, 2UQ, 2XS, 3AGS, 3AKU, 3APY, 3BA, 3BW, 3CGQ, 3COJ, 3DMU, 3EHY, 3EMJ, 3ENS/P, 3ERD/P, 3GUD, 3HAZ, 3WW, 4JJ/P, 5YV, 6CW, 6CW/P, 6YO, 8AX, 8IC, 8SB, GD3DA/P.
HEARD: DL3FM, 3BLP, 3GSO. (June 1 to August 1).

GI3GOB, Newtonards, N.I.

WORKED: EI2W, GD3DA/P, GI2FHN, 3AXD, GW3ENY/P, 5MQ.
HEARD: G3EHY.

“shaky QSO” on 430 mc, again under conditions of considerable QSB—nevertheless, a fine contact for the distance and their respective locations.

G8VR (London, S.E.2) now has a QQV06/40 tripling to 430 mc and driven by the 2-metre transmitter. His 70 cm receiving arrangement is interesting: A CV102 diode in a coax line with a 9002 pot oscillator (see p.627, November 1950 *Short Wave Magazine*) into a 6AK5 amplifying stage on 20 mc. The 5th harmonic of Wrotham at 15 miles can be received on this converter, and the pot oscillator stability is so good that the signal can be held in the crystal gate of an S.640 for hours on end.

Two-Metre Results

The best evening of the period was almost certainly July 21, other good dates being July 14-20 inclusive, July 25, 27, 28, 31, and August 3 and 4, with a particularly high spot on July 27.

Of July 21, G3WW (March, Cambs.) says his log speaks for itself. Having erected a Lazy-H borrowed from G2AIQ, G3WW went into action at about 2130 and thereafter proceeded to knock off F9MX, DL1LB, DL3FM, ON4BZ, ON4HC, ON4HN, ON4VL and GDX like G3AUS (Torquay) and G5BY (Bolt Tail)—with signal levels in and out varying from 579 to 599; it all lasted till about 0130 on the 22nd. Actually, G3WW found his usual 5-over-5 Yagi about 4 dB up on the Lazy-H, but probably conditions were so good as to make tests not really conclusive. And all this had to happen while the G3WW dwelling was in process of being re-roofed, with the domestic chaos that that must have entailed.

G3VM (Norwich) also speaks exceed-

TWO METRES	
COUNTRIES WORKED	
Starting Figure, 8	
11	G3BLP (DL, EI, F, G, GC, GD, GI, GM, GW, ON, PA)
	G5YV (DL, EI, F, G, GD, GM, GW, ON, OZ, PA, SM)
9	G2HDZ (DL, EI, F, G, GC, GD, GW, ON, PA)
8	G2XC (DL, F, G, GC, GD, GW, ON, PA)
	G3ABA (DL, F, G, GD, GM, GW, ON, PA)
	G5BY (DL, EI, F, G, GC, GW, ON, PA)
	GW5MQ (EI, G, GD, GI, GM, GW, ON, PA)

ingly well of July 21, and says that the “area of conductivity” seemed to cover the Continent and all the southern part of this country. July 28-29 provided further Continental openings for the East Coast stations. G3VM gives G3AJP as a new East Anglian now active; though actually located in Suffolk for Table purposes, just to confuse the issue his postal address is Norfolk.

G2WJ was another who made an evening of it on July 21, working F9MX, ON4BZ, ON4HN, ON4IW and ON4VL.

From Some of the Outposts

GW5MQ remarks on the fact that G5BY is no longer as strong a signal with him as he used to be ex-Woolton, Liverpool, and in comparison with the reports G5BY gets from the Manchester stations—which, as GW5MQ says, is not to be wondered at having regard to the path Rhosesmor—Bolt Tail, across mountain country; nevertheless, GW5MQ has worked 43 counties from North Wales.

An interesting report from EI2W (Dublin) discloses that from June 10-August 10 he had 106 contacts with 40 GDX stations in all parts of the U.K., averaging 183 miles per QSO, and all on phone! This working has produced a score of 20 counties in 5 countries for EI2W, other highlights being reception reported by ON4BZ on two occasions, SM7BE heard in Dublin, and GC2CNC also received; in fact, EI2W and GC2CNC have heard each other's signals though without QSO so far. EI2W gives G3EHY as his most consistent G, always at S7 or better; all this is attributed to the 16-ele. array now in use, which he says is points better than the 4-over-4 or 6-over-6 he has had up. EI2W is now on 145.1 mc—the previous crystal was faulty and gave a 100 kc drift on Two—and, for the information of the many who will be interested,

TWO-METRE DX MARATHON

Station	Miles
G5YV (SM7BE)	602
G2BMZ (DL4XS/3KE)	520
G3HAZ (OZ6PX)	519
G3DIV/A (OZ2FR)	501
G2XC (DL3MH)	486
G5BY (DL3FM)	470
G6CW (OZ2FR)	452
G3WW (OZ6PX)	432
G6LI (OZ6PX)	428
G3BNC (DL4XS/3KE)	420
G8VR (DL3NQ)	417
GW5MQ (PA0FP)	416
G6XM (DL4XS)	415
G5BD (DL4XS/3KE)	412
G3BK (DL3MH)	411
G3ABA (DL1LH)	400

Minimum distance for this table is 400 miles. Claimants must submit NGR or Lat. and Long. for both ends of contact.

next spring he will commence operations from the extreme West Coast of Ireland, testing with East Coast W's on 144 mc over the all-sea path, and using "an elaborate beam array to be constructed in Dublin and transported knocked-down for assembly at the site." It may safely be said that EI2W has become seriously infected with the virus of VHF !

G13GQB (Newtonards, 144.13 mc) and G12FHN (Bangor, 145.8 mc) keep at it and show good results considering their relatively remote locations and the probability that some of these spells of exceptionally good conditions do not reach them. G13GQB says that he will shortly be on 145.82 mc and that all GI's coming on in future will conform to the Zone Plan ; he also reports that he has heard G3EHY several times, which would be a very nice QSO for them both ; schedules are in hand with GW5MQ and G5BY, and our two GI representatives are there every evening from about 2200 onwards.

GM3EGW (Dunfermline) comments rather caustically—as do several others—that it had to be a G to put GD on the VHF map ! He remarks that even with an indoor beam he can receive GW5MQ at any time, and so hopes for a QSO. We have also been informed that DL4XS/GM3ENJ have heard one another, which will be no ordinary QSO when it happens. From Steventon, Ayrshire, GM3DIQ reports himself and GM3DDE busy with aeriels, '3DDE also having worked EI2W with S9 signals both ways.

Across from Jersey, C.I., GC2CNC comes into the Tables with 15 counties, no mean feat in view of his location *vis-a-vis* the centres of activity and the comparatively short time he has had on the band ; he reports GC3FSN active, was receiving G3BA (Daventry) like a local on July 28, and has worked G8IL on phone for the G/GC first contact in that mode ; good DX heard includes EI2W and EI8G. GC2CNC is grateful to those of the regulars who always come back to his calls and are not too proud to work him for the second time. On the subject of QSL's, he says that he and '3FSN will without fail send cards to all who QSL them, but they do not originate QSL's ; in the period May 24-July 28, GC2CNC worked 51 different stations, but only 19 of them QSL'd to him—so he concludes that the others are not interested in a GC card, but they can have one if they want it.

Into the Midlands

G3FRE (nr. Mansfield) checks himself

in, his Tx running 16 watts to an 832, with a 5-ele. Yagi only 12 ft. up, the receiver being EC91 GG-6AK5-9002 into a 640 ; he is at one of the highest spots in Nottinghamshire and is very pleased with Two Metres—except that he would like more attention from the regulars, even if they do know his county ! G3FRE apologises for being out of his Zone, and says he is now beginning to realise the points in favour of the Plan.

G3ABA (Coventry) comes out strongly in favour of no-VFO's and suggests that any necessary flexibility can always be achieved with a crystal for the HF end—not that this is likely to commend itself to those who think it would be good to be able to flit about the band ; but G3ABA has listened in the London area, so knows all the arguments about congestion. He puts it that if all stations would observe the Zone Plan, and if operating in a congested area choose a channel with discrimination, many alleged difficulties would disappear.

G6CI (Kenilworth) has a new aerial up ready for after-his-holiday, and G3HAZ (Birmingham) writes at length on a number of points—he also is very happy at having chosen to serve his apprenticeship on the VHF bands, and has nothing but good to say of the operators and the types he has encountered so far. Incoming QSL's are a bit slow, 45 in/75 out, there is what he calls "general silence" above 145.4 mc, and he is another who marvels at the consistency and strength of G3BLP's signals. The past month has given G3HAZ some useful new GDX contacts, and GC2CNC will be interested to know that he was 579 with G3HAZ on July 27 ; though called repeatedly he could not be raised, nor could F8AA also on the dial at about the same time. G3HAZ will shortly be off on a trip to California and hopes to look in at the W6 end of the recent 1395-mile QSO on 145 mc—the lucky chap !

Down in the West

G5BY took those words (p. 232, June) out of G3AKU's mouth by working him on July 27, S9 phone both ways ! Much good DX from DL, F, ON and PA was heard on July 21, and G5BY spent most of that evening trying to raise DL1LB and DL4XS, who, were CQ'ing busily at the LF end.

G3FKO (Bath) has been having a /P session from the roof of a house 100 ft. higher up his hillside (but yet 400 ft. from its summit) and still cannot raise anything in the arc NE-NW from him. Weakly

TWO METRES
ALL-TIME COUNTIES WORKED LIST
Starting Figure, 14
From Fixed QTH Only

Worked	Station
53	G2OI
51	G3BLP (466)
48	G3EHY (282)
47	G5WP, G6NB, G8SB
46	G2AJ (375), G2NH, G3BW (120)
45	G4HT (419), G5BY, G6XM (356)
44	G3ABA (222), G5MA
43	G3COJ (131), GW5MQ
42	G2XC (345), G5VY
41	G3BA, G3DMU (192), G3WW, G5DF
40	G3CGQ, G8OU
39	G2IQ
38	G3APY, G5BM, G5DS (261)
36	G2FNW, G3CXD, G8IP (258)
35	G3VM (190), G6LK
34	G2CPL (288), G4AU, G4DC, G4RO (177), G5BD, G5JU, G5LI (245), G6YU (147), G8IL
33	G2XS
32	G2FQP, G3BK, G6CW, G6UH (267), G8WV
31	G2CIW (231), G3FAN (185), G3HAZ, G5RP
30	G2HDZ (190), G3BHS, G3BOB, G4CI, G4SA, G5NF (201), G6CB (261), G8SM
29	G5UM (208), G6CI
28	G2AHP (232), G2DLJ/A
27	G3AKU, G3DAH, G3GSE, G3HBW, G8QY
26	G4NB, G5SK
24	G2AIQ, G3AVO/A (118), G3FXG, G3GBO (221), G8KL
23	G2NM, G3FD, G4MR, G5PY
22	G3AEP, G3BPO (189), G3HCU (103), G4RK, G8VR, GM3BDA
21	G3BNC, G3FMF
20	G2ANT, G3EYV, G3FIH, G8IC, G8NZ
19	G2FVD, G5LQ (176)
18	G3CWW (164), G3GOP, G4LX, GM3OL
17	G5MR, G6XY
16	G2AOL, G3FRE
15	G2AVR, G2DWD, GC2CNC, GM3EGW

NOTE: Figures in brackets after call are number of different stations worked. Starting Figure, 100.

modulated carriers, obviously juicy stuff which G3FKO would like to work, plague him incessantly, and he knows all about the DX the others are getting by listening on G3EHY's channel! Nevertheless, G3FKO is pleased with his cascode converter, which as he points out is much easier to get going than the neutralised push-pull 6J6 arrangement; and he lists some nice GDX heard.

Away off in Falmouth, G2BHW is now reported as being fully operational, running a 6J6 converter into an AR77; with four ½-waves stacked and an 832 giving 6 watts RF out; this is being boosted with a p/p

4E27 PA and, with G2BAT (Falmouth) to be active in due course, G2BHW hopes to give a few more GDX stations their Cornish contact. So it would be as well to look in that direction a bit, especially as stations already worked by G2BHW include G2FTS, G2HCG, G3AUS, G3BA, G3BEX and G8SY.

With G3EHY in Banwell, Somerset, EI2W and EI8G have now become regular nightly contacts, under almost any conditions, and on August 13 he chalked up his 50th EI QSO—two years ago, who would have thought such consistency possible on a frequency like 145 mc! So far as G3EHY is concerned, conditions this month have been consistently good, with 200-mile DX the rule rather than the exception, and stations like G3BW at 232 miles and G8GL at 220 have been worked solid on many occasions. G3EHY also notes the increasing number of new call-signs making their appearance on the two-metre band, considering it a good thing and a sign of the times—and so do we. G3FIH (Radstock) remarks that he has had the privilege—and the unusual experience—recently of giving three new stations their first Somerset QSO, as normally G3EHY beats him to all that sort of activity!

On July 8, G5BM with a party of helpers journeyed into the Black Mountains, Brecon—and a lovely part of the country it is—to become GW5BM/P and from a magnificent VHF site 2300 ft. a.s.l. there to enjoy the experience of hearing stations from all over the country pouring in for hours on end without a lull. The receiver for G5BM's /P activities on Two is extremely interesting; the valve sequence and circuit arrangement can be summarised as follows: 6J6 RF-6J6 mixer-6J6 CO arranged 7500 kc x 3 x 6 into 6SK7 9-11 mc tunable IF-6K8 9-11 mc tunable mixer/oscillator, 1.6 mc out into 6AG5 1600 kc IF amplifier-6K8 mixer/oscillator, 85 kc out into 6SK7 85 kc amplifier-6SQ7 2nd detector and BFO-6V6 audio. The total weight is only just over 6 lbs., compared with the previous "portable" equivalent—a converter into an HQ120X, weighing 63 lbs.! Not without justification, G5BM remarks that he is pleased with his new receiver.

Up in the North

G3DMU (Scunthorpe) will be on soon with a new CC converter; he has now worked 192 stations and is up most evenings 2000-2230. G3GSS (Formby) has only recently opened up on Two, with a 6AK5-p/p EF91-6J6 converter, and has made

some useful semi-local contacts—he remarks that he is on the estuary of the Mersey and “slightly below” sea level! G5YV (Leeds) has spent a lot of time looking for GC and GI and now has 120 watts into an 829B driven by a BC-625A; this is appearing to give him one or two S-points over the signal reports he used to get with 18 watts. G3AGS (Manchester) is at the 18C mark and is up most evenings on 144.39 mc with 20 watts into an 832, a “City Slicker” array, and all-6J6 p/p converter. G3AGS is one of the many who remark how much the G3DA expedition was appreciated.

G3BW (Whitehaven) found DX “there for the asking” during the good spells—at any rate, he is now well up all-time Counties, though still looking for Suffolk, Sussex, Dorset, Worcester, Cornwall and Oxford, to say nothing of Hereford, Monmouth and Glamorgan! G3BW feels that his best contact of the month was that with G5BY, long an ambition; he also had fine QSO's with regular DX like G2NH, G3BLP, G6NB and G6XM. As he can see Snaefell from his QTH, G3BW was getting a pretty strong signal from GD3DA/P! Another good S9-plus station with him is EI2W. G3BW puts in a strong plea for more activity and quotes a number of the (to him) regular GDX stations which can be heard or worked almost nightly.

G8IC (Doncaster) goes up a bit with

two more counties and countries; it is interesting to note that he works entirely with a rotary Cubical Quad 30 ft. high, input being 14 watts to an 832; a good phone contact for him recently was G2AJ (Biggin Hill).

G3ETI (Wirral) was a little affronted by the cracks earlier this year about “lack of activity in the North” so got himself going on 144.13 mc w.e.f. May 27—and now says he cannot foresee his return to any of the other bands! His 2-metre converter started as EF91-6F33-EF91 but has since been completely revised to the design by G6VX appearing in the February 1951 issue of *Short Wave Magazine*. GDX heard on it includes G3EHY, G4HT and G6XM. G3ETI is now on 144.44 mc in his correct zone, is on at week-ends, and anxious to QSO South.

G2BTO/P (reported by some as a “3”) is an enterprising station established jointly by G2BTO, G2HGR and G3BKS—members of Bolton Amateur Radio Club, and out to put Bolton on the VHF map—located on the summit of Winter Hill, Rivington Pike, just to the north of Bolton, and 1200 ft. a.s.l. As shelter is available, with mains supply, we gather G2BTO/P is to be a permanency—actually, the station is built into an egg incubator on a lonely moorland farm, and the site is clear away to the South and the Welsh Mountains. The aerial is a “City Slicker” (so popular in Lancashire!), the transmitter runs an 829 with 25 watt input on 144.36 mc, and the receiver is a 3-stage all-6J6 job into an S.640. The warming-up run took place on August 11-12 and was very successful, with 14C (see Calls Heard) worked from G2BTO/P; very high signal levels were reported by the semi-locals. Operation /P will take place whenever conditions look like being good enough (and for as long as the operators can keep awake), and the ultimate objective of this enthusiastic effort is regular working on 70 cm. The fortunes of the G2BTO/P team will be watched with interest by us all—and jolly good luck to them!

Up in Hull, G3COJ now has opportunity only for occasional week-end working (Army call-up) but was fortunate to get a “48” for the good spell around July 21; he heard ON4BZ and ON4VL quite early that evening, worked DL3FM for his first DL and followed with DL1LB, two others—DL2DV and DL3MH—being uncompleted contacts. G3COJ says it is heartbreaking to read of the wonderful DX he has been missing, and equally awful to be in perfect DX weather, with no chance of getting at a receiver. He is

VHF CENTURY CLUB

LIST OF CERTIFICATED MEMBERS

G2AHP	G3BBA	G4CI	G6LX
G2AJ	G3BLP	G4DC	G6MN
G2ANT	G3BOB	G4IG	G6NB
G2AOK	G3BTC	G4RO	G6OS
G2AOL	G3BW	G5BD	G6UH
G2AXG	G3CGQ	G5BM	G6VX
G2CIW	G3COJ	G5BY	G6XM
G2CPL	G3CWW	G5GX	G8GX
G2HDY	G3CXD	G5JU	G8IL
G2KI	G3DA	G5LO	G8KL
G2MR	G3DCV	G5MA	G8LY
G2MV	G3EHY	G5MR	G8QX
G2NH	G3EYV	G5PP	G8SM
G2NM	G3FAN	G5PY	G8TS
G2OI	G3FD	G5RP	G8UZ*
G2QY	G3GBO	G5TP	G8WV
G2RI	G3GSE	G5UD	GM3OL
G2XC	G3IS	G5UM	GW2ADZ
G2XS	G3VM	G5VY	GW5MQ
G3ABA	G3WW	G6CB	PA0ZQ
G3AEX	G4AP	G6HD	
G3APY	G4AU	G6KB	

(* deceased)

Total VHF CC Membership, 85. Present Five Band Club Membership, 161. Lists correct to August 8, 1951. VHFCC List last published May 1950. Operators qualify for membership by showing proof by QSL card of having worked 100 or more stations two-way on the VHF bands from 50 mc up.

stationed at Chester, and gets in an occasional VHF session through the hospitality of G3ATZ.

London and Home Counties

A large budget from this area includes a letter from G2HDZ (Pinner) who says he is in complete agreement with the no-VFO arguments put forward last month; he points out, in regard to QSL's, that if everyone adopted the procedure of QSL'ing only on receipt, none of us would get very far! (True, but it would always be up to those who wanted cards back to send theirs out). In contrast, he says, is the admirable example set by EI2W in this matter; he QSL's everyone immediately.

G3BLP (Selsdon) weighs in with agreement on the subject of contest organisation—"One contest for which I would not in any circumstances enter is that judged on 'merit' by an anonymous committee of 'well-known VHF workers'"; on the exaggerated value of the full power of 150 watts over 25 watts—"The mythical qualities of which induce one 'contest organiser' to go so far as to give a bonus of 50% to the users of 25 watts!"; and as to height a.s.l., G3BLP says that while it is obviously beneficial if one is up on a mountain—citing GD3DA/P and G2BTO/P—there are very few people in this country who live at and can operate regularly from such altitudes. (It is also conceivable that one can be so high as to be stuck up into the roof of a duct, with complete cut-off!).

G5UM (Knebworth) feels that the standard of SWL reports on VHF is extremely high, and most people would agree with him. G3AVO/A (Watlington) replaced his "horrible green ex-Govt feeder" with home-constructed 300-ohm open line and has been astounded at the difference it made—"I now have a fairly good chance of working 'em if I can hear 'em." He is running 70 watts to a 3E29 and has worked 118 stations in 24 counties in four months from the present location. At the old QTH, 50 ft. a.s.l. but in the clear, he had far better results than he now gets 350 ft. a.s.l., simply because, though higher, he is surrounded by 800 ft. hills. So to G3AVO/A any "height a.s.l. handicap" would be plain nonsense; and he, like everyone else who comments on the point, says he likes to know what the rules are before he starts a contest!

G3CHU (Chiddingfold) keeps active but has been too busy in the garden to put in all the hours he would have liked.

TWO METRES	
COUNTIES WORKED SINCE SEPTEMBER 1, 1950 Starting Figure, 14	
Worked	Station
44	G3EHY, G6XM
43	G4HT
42	G2OI, G5YV, GW5MQ
40	G2XC, G3BW, G5MA
39	G3BA, G8OU
38	G2NH, G3WW, G5DS
37	G3ABA
35	G2AJ, G2FNW
34	G6YU
32	G8IL
31	G3FAN, G3HAZ
30	G2HDZ, G3VM, G4RO, G4SA, G6CW
29	G5UM, G6CB
28	G2AHP, G2DLJ/A
27	G3GSE, G3HBW
26	G2CPL
25	G3AKU
24	G3AVO/A
23	G2XS, G3FD, G3GBO
22	G3COJ, G3HCU, G4MR
21	G3BNC, G3BOB
20	G6CL, G8IC, G8VR
18	G2CIW, G3EYV, G3GOP, G5PY
17	G2ANT, G6XY
16	G3FRE
15	G2DVD

NOTE: This Table closed at midnight on August 31. Please let us have amendments to that date by September 12, so that final placings for the year can appear in the October issue.

G8OU (Ashtead) wired us to enter him in "both Counties tables for the first time." G6XM (Farnborough) says he missed the Continental chances but has had some nice GDX QSO's. G4SA (Steventon) reports an interesting QRP contact with G2IT of Reading, just coming on the band, and has himself worked his 100th different station, which includes a solid 25-minute chat with ON4HC. G2HIF (Wantage) though on and off Two for the last 8-9 months, has recently begun to take it seriously again. He is putting up a 5-over-5 and has already discovered that on 145 mc the feeder line must be something better than speaker extension wire! With conditions above average, he has worked ON4HC and EI2W for DX, with some good GDX as well. G2HIF makes the interesting suggestion that we consider starting a Reliability Ladder, listing those who can maintain GDX, or any DX, contacts under all conditions; the idea is to eliminate what G2HIF regards as the element of luck in record making and breaking. This is something which will be thought about some more,

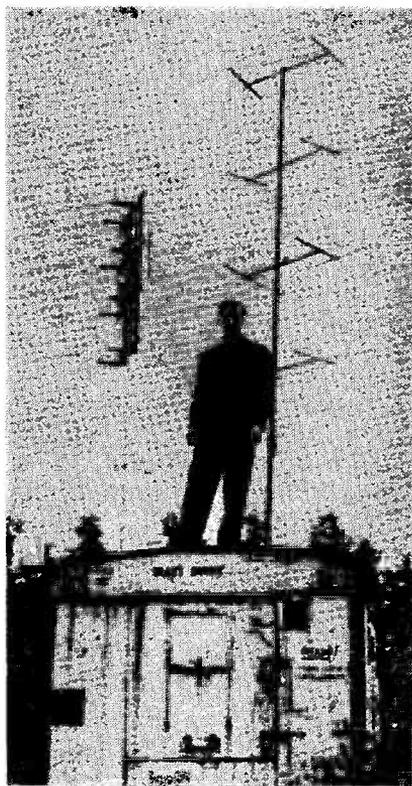
and in the meantime when next writing please say what *you* think.

G5DF (Reading) thought the GD3DA/P episode the high spot of the month, and also added 6 new counties for himself; he says that there is now activity in those parts at 0800-0930 daily as G2BN/G6KB run a regular schedule. Some more of this sort of thing would be good.

G2FVD (Morden Park) is now back on Two after a long absence, and finds it all very much more interesting, with greatly increased activity; he is on 145.04 mc, running 60 watts into a pair of 8012's, with a CC converter and an indoor motorised 3-over-3. G3GBO (Denham) buttoned up Devon nicely by working G2AVF and G3AUS on the same evening—and then swung North to find G6LI (Grimsby) wanting a QSO. He can hear G5BM and GW3EJM—and wants them badly—remarking that half-London goes back to GW3EJM every time he calls, but no QSO! G3GBO says he is “surprised people are dumb enough not to realise that no good can come from constant changes of frequency; one does not have to hold with the Zone Plan to see that!” He feels that if the VFO comes in on Two, we shall be faced with a plague of buzz-saw char-chip-char-chip stuff sliding about the band and merely making things messy for everybody.

G3CWW (Hendon) reports again as a regular, having been spasmodic for some time, and registers full agreement with the line taken in this space on the various procedural and contest points discussed in the last issue. G3CWW is still using the same gear, running 80 watts to an 829B, the CC converter into an AR88 instead of the AR77—and is having a bit of trouble due to band splitting between the two receivers, involving a change of converter IF—and an 8-ele. stack; the DX has included ON4BZ. G4RO (St. Albans) was there on July 21 and worked PA0IK at R5 S8, having several good GDX contacts, and hearing the excellent ON4BZ (who never fails us when the band is open) at R5 S7. G4RO is one of those (few, as we understand it) who have worked GW3EJM in Cardiff, who was S9-4. Since August 1 G4RO thinks conditions have gone off; he is all in favour of the Zone Plan, and agrees that stations working with “sets of crystals” defeat the object of it.

G3HBW (Wembley) is on at week-ends only and was there for July 21-22; he called DL1LB, DL4XS and PA0PAX unsuccessfully but was well rewarded by



View of the DL4XS/3KE set-up on Radio Hill, Wiesbaden, with DL3KE on the roof. The notices warn off burglars by threatening detonators and trip wires!

a 233-mile QSO with the elusive G3AGA (Falmouth) for best GDX so far. On August 5, ON4BZ was worked at 240 miles and on August 11 a pleasurable QSO was that with G2BTO/P, as one of our best-known SWL's, E. A. Lomax of Bolton, was at the other end.

G5LI (West Hampstead) also comes out in support of the no-VFO-on-Two argument and (though *he* does not say this) his opinions about VFO working must carry considerable weight because he is one of our leading DX men on the communication bands and knows all about VFO'ing under fiercely competitive conditions. G5LI puts it that VFO technique, apart from being undesirable, is entirely unsuitable for Two because (a) Signals are generally weaker than on the IF bands, (b) They are subject to much more fading,

so that (c) The result would be a chaotic pile-up with no QSO's for anybody. (The annoying thing is, of course, that the first few stations to start this VFO nonsense would get away with it pretty well, thus forcing others to follow suit in order to keep up with the scoring—but we are ready for that). In the matter of QSL's, G5LI says that though he has boxes of them for the DX bands, all VHF contacts have been QSL'd 100%—in spite of that, five Devon contacts have not as yet produced a single card, which seems a bit hard. The GDX heard by G5LI includes Northerners like G3BW, G3DMU, G3DA, G5KX, G5CP, G5YV and G8IC.

G2AHP (Perivale) never fails to put in an interesting report on things in general and says his "Chinese cricket" score board now records 232 stations for 28 counties declared. He is a little surprised that his suggestion for the Countries Worked table should have been taken literally, particularly as he himself still has a long way to go before he can begin to count for it. Well, that's what comes of making suggestions, even if they are good ones!

G8VR (London, S.E.2) is back again after a complete rebuild and, with QQV04/7's in the exciter, now has ample drive into the 832 PA on Two. With a 6-ele. stack and this new transmitter he has had excellent results, including numerous Continental QSO's—and, at last, he has his 100 cards for VHFCC.

Some End Pieces

BSWL-4061 (London) reports that SM5PW is fully equipped for Two Metres with an 815 PA and a 6J6 converter. DL2KW says that Wuppertal is an area consisting of two towns, Barmen and Elbfeld on the R. Wupper about 10 miles south-east of Dusseldorf, and in a hilly district; so we are still without a pin-point for DL1LH. DL3MH (Celle) reports reception of G3COJ and G5BD at 449 each on July 27. DL3MH is a keen follower of this feature and says "It is out of this literature that I know most of the English 2-metre enthusiasts." Thank you!

We have a report from a West London SWL that the calls of G3FIV and G3CKO are being pirated on Two. The former has never been on the band, and G3CKO is in Southern Rhodesia. The fists behind both calls are the same and the signal levels equal, so it must be the same gink lurking in some London attic.

DL2DV (Fassberg) was sitting there on

the evening of July 21-22, hearing lots of DL's at 200 miles-plus, and G3COJ, G5BD and G6LI, all coming in well—DL2DV called and called and *called*, but no luck; later, he worked G5YV and G6UJ on a fading band at 0300! DL2DV has much to say about propagation conditions on Two in relation to the weather, but this is a matter which we must leave him to discuss with G2XC!

Reminders

Do not forget the European DX Contest—rules on p. 366 of our August issue—over the week-ends September 22/23 and 29/30, and note in particular Rule 7, the importance of which was at first overlooked by VERON itself. Remember, we also are interested in this Contest (Rule 4) and we hope it will be blessed by reasonable conditions. Anyway, come on and try to give the PA's a point whatever the conditions.

And then there is "Counties Worked Since September 1, 1950." As we want to show the final placings for this annual marathon in *Short Wave Magazine* for October, please do not fail to let us have your claims to August 31 as soon as possible. In any case, in the interests of all concerned, no new claims for this Table will be entertained after the closing date for the October issue, September 12.

Peroration

If A.J.D. may be permitted, unusually, to bring this long narrative to a close on a personal note, it is that I would like to thank more than 80 correspondents for their letters, covering one of the busiest and most interesting periods we have yet experienced on the VHF bands; to say that I hope I have got the story straight and the facts right; that I have done my best to cover everything and mention everybody; and that I hope I have not left colleague E.J.W. with any babies to hold or questions to answer—though I will tell him now that I did omit his carefully typed Calls Heard list, together with many others which would easily have filled another page!

And with that, I bow myself out, perhaps to return in another twelve months—perhaps!

Closing date for "VHF Bands" for the October issue of *Short Wave Magazine* is **September 12** certain, for all your VHF news, views (and complaints!), addressed to E. J. Williams, B.Sc., (G2XC), *Short Wave Magazine*, 55 Victoria Street, London, S.W.1. Opening again on October 5, under the old management.

Random Jottings

By THE OLD TIMER

IS mine a lone voice in the wilderness, or do others approve of simplicity rather than complexity in an amateur station? It seems to me that we make so many things vastly complicated (in order to make them "simple") that it has just ceased to make sense. "Complexity," of the type encountered in many amateur stations, is simply a liking for (or at least a toleration of) haywire construction. It is really refreshing to see a photograph of a station where the function of everything is apparent without even bothering to read the caption. On my left, the receiver; in the centre, the VFO, mike and key; on the right, the transmitter. Precious little wiring visible, and a general air of tidiness; no piles of QSL's, logs, pipes, tools and tea-cups. A station like this, I always feel, must *work*; furthermore, it must be a pleasure to operate. How does *yours* look, when caught in an unguarded moment?

PHONE—OR GIBBERISH

What amazing expressions one hears on the phone bands! Of course, we know what they mean, but what on earth do casual listeners think of us sometimes? Stand back with a detached air and listen to "George Six A B C Oblique Stroke P" doing his stuff—why not "G6ABC Portable"? And the old whipping-boys such as "Q R Morocco" and "Q R Norway" for "Jamming" and "Static"; they don't even save time, they sound terrible, and, as one of the uninitiated asked me the other day, "What on earth have Morocco and Norway got to do with it? I thought both stations were in London."

STILL MORE DECIBELS

Doubtless, G5GQ's admirable article on "Decibel Dementia" in the July issue caused a few of the "S9 plus 40" experts to stop and think about the rather ridiculous way in which a mere S9 has now been banished to the level of quite a weak signal. A further amusing suggestion comes from a technically-minded friend of mine, who has calculated that a signal that is

genuinely "S9 plus 40 dB" should, when it comes down the receiving aerial, be sufficiently strong to cause a visible deflection on a thermo-ammeter of the 0/5 variety. Roll on the day when we report the other chap's signals as "so many mills, on the hot wire."

DICKY-BIRDS ON 80

Those of us who have searched for the elusive DX at the LF end of the 80-metre band have all been annoyed, at some time, by the appalling chirps and yoops owned by the various other users of the frequency. If Haywire Harry with his 25 watts and not-too-extensive specialised knowledge of radio can produce a T9, or even a T8 signal, why do these semi-commercials have a creep of 5 kc or more, all taking place in the first few milli-seconds after pushing the key? It increases their nuisance-value tremendously over what it would be if they sat on one frequency all the time. One particular bird was yoooping from 3505 to 3510 kc with every dash; the dots were practically unreadable, anyway.

REPORTING TONE

Something *is* wrong with our "T" code—this time applied to the notes of *amateur* stations. One hears lots of them that are far from one's idea of T9, and yet cannot honestly be reported as T8 or T7 because they are practically pure DC; the various sound effects such as chirp, clicks, and particularly wobbles, can't be easily reported. I suggest that the "T" code should be re-wired, with T9 for the very best steady DC note; T8 for slight ripple; T7 for bad ripple; T6 down to T2 for the various forms of clicks, chirps and things, with T1 embracing all the horrid things that, at present, could be given anything between T1 and T6.

DIRECT SUBSCRIPTIONS

Casual readers are reminded that they can obtain *Short Wave Magazine* regularly either by ordering on their news-agent or by remitting to us 24s. for a year of twelve issues, starting next month. This guarantees despatch by post on the day of publication. Orders to The Circulation Manager, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

More About Morse Recording

NOTES ON A
HOME-BUILT UNIT

By W. E. PHILPOTT (G4LC)

FURTHER to the article by G2NS on Morse recording in the May issue of *Short Wave Magazine*, perhaps these notes and the photograph of one built by the writer in 1925 may be of interest to readers.

In this case, the gramophone motor was mounted on a flat box which was fitted with a sliding drawer containing a turntable on which the roll of tape was carried, feeding *via* two revolving guides directly over the driving spindle of the motor; this was fitted with a short piece of rubber tube to grip the tape. In the photograph, the syphon tube can be seen clamped to the armature of a small relay movement, so mounted that the marking end curves over the spring-loaded roller directly on to the tape after leaving the driving roller. This does away with any other rollers or drive. The relay is pivoted and has a light spring attached, causing the tube to bear gently on the tape, and is raised by pushing the knob attached to the Meccana strip; this also applies the brake acting on the governor fitted to the motor, thus setting the speed, the "off" position being set by the knurled terminal just above.

This recorder, as well as serving the purpose of the one in the article, would also record high speed Creed transmissions when operated by a PO type polarised relay rewound to about 2000 ohms and inserted in the anode circuit of a small power valve biased to cut-off and driven by a couple of audio stages.

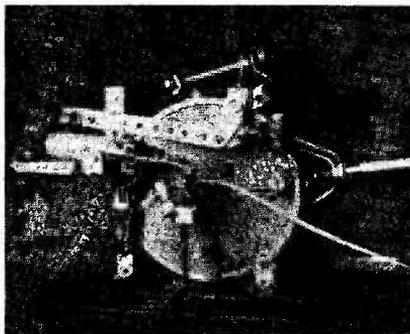
Modifications

The working of this model on high-speed Morse appealed to a friend who had purchased one of the commercial inkers advertised at that time; but he found that it would only record slow-speed stuff, having a very long and heavy armature carrying an inking wheel which (in contradiction to a statement made in the original article)

The business of recording Morse signals has fascinated amateurs since the earliest days, and after the 1914-18 War some very fine telegraph instruments came on to the surplus market. Our contributor discusses a recording unit he made more than 25 years ago for taking high-speed Morse.—Editor.

was not driven in the opposite direction, but ran free, the lower edge dipping in the ink, and the top revolving against the tape when marking.

He therefore wished to exchange, and as the clockwork motor of his was far superior to the writer's, there was no trouble about that! The governor was altered for higher speeds as required, and another relay made with syphon tube; a much-improved model resulted. However, things could not be allowed to stop there. The next move was to fit an electric motor drive, followed by omitting the relay carrying the syphon tube and mounting the tube directly on the top of the armature of the polarised relay, as in the Creed undulator; this worked quite well. A further improvement was to feed the ink through a short piece of cycle valve rubber from a container *via* a small tap, this simplifying starting and stopping the flow, and giving an easy means of regulating it according to the speed. No special ink was used at any time—a thin writing ink was found to be quite satisfactory, as no part of the drive came into contact with the marking while wet.



A syphon recorder for taking Morse signals, built by G4LC many years ago. The main points relating to its design and construction are covered in his notes.

NEW QTH's

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

- | | | | |
|----------------|--|--------------|---|
| G2CZO | V. Spence, 5 Bamford Road, Thornaby-on-Tees, Yorkshire. | G2BSN | R. E. Sedgwick, 8 St. Margarets Road, Springfield, Chelmsford, Essex. |
| GW2DHW | G. V. Haylock, c/o 63 Lewisham Hill, London, S.E.13. (Station at Prestatyn, North Wales). | G3AJS | J. Binning, 150 Upton Park Road, Forest Gate, London, E.7. |
| GM2FXN | A. J. Wylie, 42 St. Mary's Road, Downfield, Dundee. | G3BMY | I. T. Cashmore, 105 Long Lane, Blackheath, Birmingham. |
| G2HMB/A | N. F. Tomlinson, R.A.F. Caravan Site, Lyneham, nr. Chippenham, Wilts. | G3CBE | R. H. Hill, 23 Dene Path, South Ockendon, Romford, Essex. |
| G2YV | D. Whitehouse, 67 Hatherton Road, Cannock, Staffs. | G3CMN | J. C. Sargent, 232 Elphinstone Road, Hastings, Sussex. |
| G3AZO | C. J. Veale, 56 Gifford Terrace Road, Mutley, Plymouth. | G3CTN | R. T. Poeton, 37 West Broadway, Henleaze, Westbury-on-Trym, Bristol. |
| G13BUL | W. H. Hills, 4 Railway Road, Armoyn, Co. Antrim. | G3CUZ | L. Keates, 54 Nab Hill Avenue, Leek, Staffs. |
| G3CGE | R. Gardner, 42 Norham Avenue, Shirley, Southampton, Hants. | G3FGY | T. Darn, 42 Laurel Avenue, Ripley, Derbyshire. |
| G3CVE | P. Heaton, 10a Edward Road, Christchurch, Hants. | G3FLB | G. W. Nailor, 66 Cypress Grove, Swindon, Wilts. |
| G3DMZ | S.R.D.E. Amateur Radio Society, Somerford, Christchurch, Hants. (Tel.: Christchurch 1030). | G3FLR | H. Priestley, The Cottage, Daniel Fold Farm, Rochdale, Lancs. |
| G3FJE | Shefford and District Radio Society, 20 North Bridge Street, Shefford, Beds. | G3HIA | H. C. Young, 65 Factory Lane, Blackley, Manchester, 9. |
| G3FXA | G. W. Spray, 255 London Road, Bexhill-on-Sea, Sussex. | G3HRT | R. G. L. Tillett, Hill Head, Telegraph Lane, Norwich, Norfolk. |
| G3GLW | P. B. E. Willis (ex-MDSAL), Martin-Delle, Anstey Lane, Alton, Hants. | G3IJ | C. C. Harris, Whiteways, White Lane, Ash Green, Surrey. |
| G3GVG | G. W. Harrison, 84 Burlington Road, Thornton Heath, Surrey. | GW4FW | B. A. Parsons, 34 St. Ann's Crescent, The Green, Pembroke. |
| G3GXQ | W. E. Roberts, 8 Highbury Place, Leeds, 6., Yorkshire. | G4GR | J. McK. Archer, Fairholme, Old St. Mellons Road, Marshfield, Mon. |
| G13HDC | Dr. I. P. Smyth, 33 Clarendon Street, Derry. (Tel.: Derry 2019). | G8KW | R. Sheares (ex-DL2KW/DL4KW), 136 Birchwood Road, Wilmington, Kent. |
| G3HEY | D. F. Collings, 233 Forest Road, Fishponds, Bristol. | G8TD | W. H. Dyson, Clare Green, Edgend, Nelson, Lancs. |
| G3HJJ | D. W. Cox, 55a High Street, Harlesden, London, N.W.10. | | |
| G3HLG | D. E. Johnson, Long Lane, Barnby, Newark, Notts. | | |
| G3HLV | J. Martin, 33 Birchington Road, Crouch End, Hornsey, London, N.8. | | |
| G3HLY | H. J. Lawn, 29 Kimberley Road, Lowestoft, Suffolk. | | |
| G3HMR | G. B. Moser, 41 Hayle Road, Maidstone, Kent. | | |
| G3HNY | C. K. Ashton, A.C.A., 46 Orchard Avenue, South Shore, Blackpool, Lancs. | | |
| GW3HPN | E. B. Nunn, The Bell House, Llandegveth, nr. Caerleon, Mon. | | |
| G3HRJ | J. T. Gordge, 1 Wessex Gardens, London, N.W.11. (Tel.: MEA. 2021) | | |
| G3HWK | C. R. Hawkins, 9 Sanctuary Road, Gillingham, Kent. | | |
| G3IRE | R. Ireland, 4 Carlton Terrace, Portslade, Sussex. | | |
| G3IS | N. W. White, 59 Eastlands Road, Rugby, Warks. | | |
| G4LS | L. W. Skipper, 148 Boston Manor Road, Brentford, Middlesex. | | |
| G4SH | H. V. Scott (ex-E17F/G150T), Lorcarno, Haslemere Road, Liphook, Hants. | | |
| G4SM | G. A. Muirhead, 99 Drewstead Road, Streatham, London, S.W.16. (Tel.: Streatham 3929). | | |
| G6NF | A. D. Gay, 156 Devonshire Way, Shirley, Surrey. | | |
| G8QZ | H. O. Sills, 29 Briar Gate, Long Eaton, Nottingham. | | |

CORRECTION

- G3HEC** W. Dorrell, 270 Spotland Road, Rochdale, Lancs.

CARDS IN THE BOX

Operators listed here are invited to send us name, call sign, address and stamped envelope for the delivery of cards held for them in our QSL Bureau. Each month, a certain number of cards for G stations are undeliverable because we are without the QTH of the addressees—where we have the QTH, or it appears in any published list, the cards are forwarded automatically by direct mail. As we are also the U.K. forwarding agents for the *Radio Amateur Call Book*, addresses sent us for appearance in "New QTH's" will in due course be published in the *Call Book*. Send your QTH and request for appearance to: BCM/QSL, London, W.C.1.

G2ATP, 2DL, 2LZ, 3CNG, 3DHU, 3EDI, 3EWW, 3FPY, 3FUL, 3FVE, 3FZB, 3GBP, 3GKV, 3GRE, 3GRT, 3HIQ, 3HKG, 3HKR, 3HMY, 3HNJ, 3HNK, 3HNP, 3HNU, 3HOH, 3HZR, 4LQ, 60Y, G13FPT, GM3GNE, 3GPK, GW3BOX, 3FBB, 3GYV.

CHANGE OF ADDRESS

- G2AAAN** J. H. Clarke, 1 Dukes Avenue, Theydon Bois, Essex. (Tel.: Theydon Bois 2012).

HERE & THERE

Authoritative Comment

Addressing the British Association in Edinburgh on August 13 last, Sir Edward Appleton—one of our most distinguished physicists and a world authority in the realm of telecommunications and radar—delivered himself of some trenchant opinions on the subject of the wavelength war between the nations which has become so serious on the short wave bands. The substance of Sir Edward's comment was that short wave frequency allocations urgently require revision and that if that could be left to radio engineers rather than to propagandists, more effective use could be made of the short wave spectrum with due regard to the needs of all. And that is rather what *Short Wave Magazine* has been saying at intervals for the last five years.

Youngest YL Operator ?

From G2ATM of Nottingham comes a note that Barbara Jordan has passed her GPO Morse Test at the tender age of 14 after studying the Code for four months only. Barbara is an operator on G3FYN, the station of the Guilford (Nottingham) Secondary Girls' School Amateur Radio Club, who are rightly proud of her achievement and claim her as the youngest YL operator in this country. And by the same post we had a letter from a would-be transmitter of mature years asking for our advice, as he had passed his R.A.E. but is quite unable to get enough Morse to take the Test—though he has been trying for more than two years.

Studying for the R.A.E.

The next Radio Amateurs' Examination to be held by the City and Guilds of London Institute will be during May, 1952. In preparation for it, the following classes, providing recommended courses of study, are being formed :

Ilford : At the Ilford Literary Institute, Cranbrook Road (Central London Tube) on Wednesday evening; the fee is 7s. 6d. for the 8-months' R.A.E. course, and enrolment should be effected by personal attendance any evening between September 10-13, 7.00-8.30 p.m.

Previous successes on this course have been 14 out of 18 passed R.A.E. and 18 out of 23 passed GPO Morse Test.

Brighton : At the Preston Technical Institute, Preston Road, commencing on September 17 and each subsequent Monday until the examination in May. The fee is 7s. 6d. and the chief instructor is F. R. Canning, A.M.I.E.E. (G6YJ), as last year.

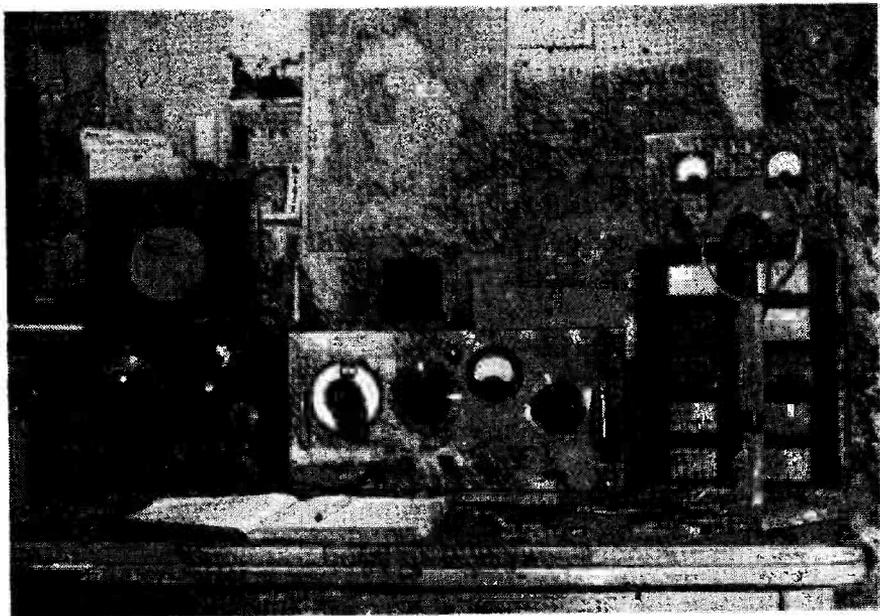
Brentford : At the Brentford Evening Institute, Boston Manor Road, Brentford, Middlesex, on Wednesday evenings 7.00 to 9.00 p.m., commencing on September 19; the fee for the 8-9 months' course is 10s. and the chief instructor is again E. J. Pearcey (G2JU).

Wembley : At the Wembley Hill Evening Institute, Wembley Hill School; for enrolment and full details attend during the week September 10-14, 7.00 p.m. onwards. A. J. Bayliss, B.Sc. (G8PD) is in charge.

All these courses give excellent instruction at negligible cost under teachers who are themselves qualified and active operators. They are doing a great service for amateurs and Amateur Radio, and we would like to see similar classes at every Technical College and Evening Institute in the country. In most cases, where there are enough potential students to make an organised class worth while and a qualified teacher (preferably holding an amateur licence) is available, it is only a matter of asking the Principal if something can be arranged.

TV Sound Adaptor

The August issue of our *Short Wave Listener and Television Review* includes an interesting practical article on the construction of a fixed-tune adaptor unit for TV sound reception, for use with any available audio amplifier, such as is provided through the "pick-up" terminals of an ordinary BC receiver. Coil details are given for the London, Midland and North sound frequencies. Copies of this issue are available at 1s. 7d. post free, on application to our Office at 55 Victoria Street, S.W.1.



The other man's station • DL2QQ

THIS month we illustrate DL2QQ, operated by Cpl. O. N. Johnson at R.A.F. Fassberg, B.A.O.R.23, who is in married quarters and so is able to run his station on "home comfort" lines.

The transmitter at present in use is VFO 6AG7-FD 6K6-FD 6L6-PA 807 at 45 watts input, modulated by a pair of 6L6's in Class-AB1, with a speech amplifier consisting of 6SJ7-6J5-6SN7. The whole of this equipment is built into a single receiver cabinet, all circuits being metered and controlled by switching on the front panel. This is a rational design making for economy of space and portability.

Receiver at DL2QQ is an HRO-M, and the aerial systems available—subject to change at any moment, as he says—are a Vee-beam for 14 mc, firing West and with two full waves in each leg; a folded dipole aiming North-South;

and a long-wire for Eighty. Auxiliary equipment includes a home-built oscilloscope for modulation monitoring and a heterodyne frequency meter.

Activity at DL2QQ is mainly phone working on Twenty and Eighty, with occasional appearances on Forty; the log to date shows almost 1,000 contacts with 49 countries in four continents, all in the relatively short space of seven months.

The operator at DL2QQ remarks that he is due for repatriation at the end of December, the home QTH being in Barrow-in-Furness. And when he is posted back to the U.K., we think he will be able to leave B.A.O.R. with the satisfaction of feeling that he has been able to make his contribution with all those other DL2's who are so successfully flying the flag of British Amateur Radio in Germany.

Always mention the Short Wave Magazine when writing to Advertisers—It Helps You Helps Them and Helps Us

The Month with the Clubs

FROM REPORTS RECEIVED

Last month we commented briefly on the new rules for MCC—the Sixth Annual *Magazine Club Contest* on the Top Band. Copies of these Rules have now been sent direct to the Hon. Secretaries of all those Clubs who have reported to us during the past six months—with the exception of the new Clubs who have sent in their first reports for this issue.

There are a good many Clubs who habitually enter for MCC, but rarely, if ever, send in a monthly report. These Clubs do not appear on our "Activity List," and may, therefore, not have received their copies of the rules. They can, of course, obtain them by writing to the address shown below. Any Secretary who has not had a copy may apply similarly.

Note the MCC dates: November 10 to November 18 inclusive. We hope there will be as strong an entry as ever, to give our new rules a fair chance of working themselves out. This year it will be purely an inter-Club affair, with no outside contacts, and no differentiation whatever in the scoring system.

Deadline for next month's reports will be **first post on September 12**. The address for all material—notes, photographs and so on—is "Club Secretary," *Short Wave Magazine*, 55 Victoria Street, London, S.W.1.

And here follow the reports from 28 Clubs

East Surrey Radio Club.—At the August meeting Mr. D. Lloyd gave a talk on the Alignment of Receivers, using his own easily-built signal generator. One of the sets aligned during the evening was a communications receiver built by another member. The Club's silver G5LJ Trophy will be awarded to the member who submits, before November, the best piece of home-built equipment. Anyone who can help them with permanent premises in the Redhill-Reigate area is asked to get in touch; meanwhile, meetings are held at the Barn Room, Reigate, 7.45 p.m.

title on account of the profusion of licensed members. The Club now has its own station G3GIS, and meets every Friday at 7.45 in the Redcliffe Community Centre. Everyone with an interest in Amateur Radio will be welcomed and, as well as the regular meetings, there is a net on 1980 kc every night from 1930 onwards. Lectures, demonstrations and Morse classes have all been organised, and a Listeners' Section is also under way.

Eccles and District Radio Society. — Eight entrants all passed the May R.A.E., so an

Association of North Western Radio Societies.—This Association was recently formed by representatives from the Chester, Liverpool, Merseyside, Wirral and Wrexham Societies. Quarterly meetings will be held to exchange ideas and to carry out group activities. Support from other North Western Radio Societies is invited, and further particulars may be obtained from Mr. W. G. Lloyd, 124 Tarvin Road, Chester. It is hoped that this announcement will stimulate some further interest and support from the north-west corner.

Bristol and District Amateur Radio Society.—This is the former Bristol and District Short Wave Listeners' Club, with a new

outbreak of new transmitting activity is confidently anticipated. Members exhibited gear at the Urmston Horticultural Show, and

a complete station, G3FMA/P, for which the GPO kindly put through a portable permit at very short notice, was one of the attractions. Meetings continue on Monday evenings at the Eccles House Club, Abbey Road.

Leicester Radio Society.—The programme for the coming session has now been arranged. On October 1 there will be a Film Show, to which a cordial invitation is extended to non-members—7.30 p.m. at the Clubroom. A Club magazine is to be published, with G3CCA as editor, and altogether an interesting series of events has been arranged.

Nottingham University Radio Society.—This Club runs the station G3DBP, under the supervision of G3BAC and G3DVV. An AR88 is on loan from the University authorities, and a BC348 and R1155 are also available. The transmitters operate on 80, 40, 20 and 2 metres. G3DBP is on the air every Wednesday afternoon during the University term, and also at other times.

Shefford and District Radio Society.—The recent fine weather has limited activity, but Field Day proved a great attraction, and over 120 stations were worked. Members are re-decorating the Clubroom; the station has been rebuilt and is active on 40, 80 and the Top Band. Several more "tickets" are on the way, and the latest enterprise is a monthly news-sheet.

Slade Radio Society.—Forthcoming events: September 14, Cinema Show by Messrs. H. & D. Wilson; September 16, Harcourt Trophy Midnight D-F Test; September 28, Junk Sale. The Annual Dinner will be held on November 9 at the Crown Inn, Broad Street, Birmingham.

South Manchester Radio Club.—The former Club premises at Church Schools, Northenden, are no longer available, and the Club meets at the cafe attached to the Tatton Arms on alternate Fridays. The three August meetings comprised a talk on Interference, by G3YB; a Film Show by the M.O.I.; and a talk by G3ESK on Clippers and Filters. Members will be notified when permanent accommodation has been arranged again.

West Suffolk Amateur Radio Society.—This newly-formed Club has met only three times, the last meeting being in the White Lion Hotel Clubrooms in Bury



When the Hull Group went out with G5PQ/J, operators were G2CPS, G3FCY, G3FKK, G3PL, G2XA, G2CNX, G5PQ and G2AAX.

St. Edmunds. On this occasion ten American officers from Lakenheath were present. A party has been arranged to visit G3DDK at Bungay, and a Club station is being planned and the gear assembled. New members will be welcomed—see panel for Secretary's QTH.

Wirral Amateur Radio Society.—This Club has recently held two D-F contests, which have been enjoyed by all who took part. Another will take place after the holiday period. On September 5 there is a Junk Sale, and on the 19th G2FNI will talk on the Cathode Ray Oscilloscope. The AGM will be on October 10 and it is hoped that many members will attend. All meetings start at 7.30 p.m. at the YMCA, Birkenhead.

Albany Radio Club.—Another newcomer, which meets at Childeric Road, Clifton Rise, New Cross, S.E.1. Classes will be held every Friday at 7.30 p.m. with the Club Tx, G3HPI, on the air. Morse and Theory will both be covered. First meeting September 7, and the Club will be running for MCC.

Army Apprentices' School Radio Club.—Also reporting for the first time, this Club meets every Tuesday at Arborfield, near Reading. The call-sign G3HOS is in active use, and there are some 25 members. Contacts with "Old Boys" will be welcomed, and can be arranged by schedule. See panel for Secretary's QTH.

Brighton and District Radio Club.—After an informal August the Club starts again with a very full programme. In September

and October there will be talks and demonstrations on Tape Recording, both by G5ZQ and by the Decca Co. September 18 will comprise the showing of the first of several of the Mullard Film Strips. A Dance is also being organised for mid-October.

Clifton Amateur Radio Society.—Attendances are still good, despite the holiday season. The Club Tx, G3GHN, is now on phone. A Junk Sale was held recently, and much equipment changed hands. Two members have emigrated—one to VQ2 and one to VQ4! Meetings are held every Friday, 7.30 p.m. at 225 New Cross Road, S.E.14.

Gravesend Amateur Radio Society.—Meetings have continued informally throughout the summer. A Dinner and Dance is to be held on October 13, and other events arranged for the future include an outing and a 3.5 mc Contest.

Radio Society of Harrow.—The regular meeting place has a new name, now being the Roxeth Manor Secondary School, Eastcote Lane, South Harrow. The next few meetings are: September 7, Practical Night; 14th, Junk Sale; 21st, Practical Night; 28th, My First Year's Activity, by G3HBN (aged 17)—one of the Club's juniors.

Reading Radio Society.—The Society took an active part in the Reading Hobbies Exhibition, displaying a complete Phone Tx and a Hellschreiber. Dr. Lemon now has in course of construction a Helicopter, with a wing span of about 7 feet, which will be completely controlled by radio.

G2AHY runs his meetings of the Instructional Section on the second Saturday of the month. During August the Annual outing to the South Coast took place.

Salisbury and District Short Wave Club.—This Club's Tx is now active on 2 metres, several contacts having been made. 80-metre activity also continues, and several interesting QSO's have been made with other Clubs. A more ambitious transmitter will cover the 160, 40 and 20 metre bands. On September 9 there is to be a D-F Field Day. Club nights are Tuesdays, 7.30, when all visitors to the district will be made welcome, as well as new local members.

Sanderstead & Purley Amateur Radio Society.—At a recent meeting Mr. Webber, of the Sutton and Cheam Radio Society, gave a lecture and demonstration on Recording, much appreciated by all the members present. The September meeting will cover the subject of High-Fidelity. Meetings are held on the fourth Thursday, visitors being most welcome. The Hon. Sec. will be pleased to send their *News Sheet* to other Club Secretaries on request.

West Kent Radio Society.—Fortnightly meetings at Culverden House, Tunbridge Wells are resumed from the end of August, and many interesting features have been planned for the new session. Equipment for the MCC Contest is being built. Recent lectures covered Quartz Crystal Oscillators and Resonators and a number of Informal Nights. All interested in radio are welcomed—details from the Hon. Sec.

W.F.S.R.A. ("Bedfast Club")

—Response to recent appeals has been so good that the Club has had to start a "Book and Magazine Distribution Centre" on a full-time basis. John Gill of Leeds, a "bedfast" SWL, has undertaken this work. Letters pour in from recipients of parcels of magazines and books, from which it is obvious that the scheme is much appreciated. All readers with any useful, but unwanted, literature are asked to send it to John Gill, 30 Sholebroke View, Leeds 7, so that they may find their way to the right quarter. Those who would like to know more about the Club's other activities are invited to drop a line to the Hon. Sec. (see panel for QTH).

Birmingham & District Short Wave Society.

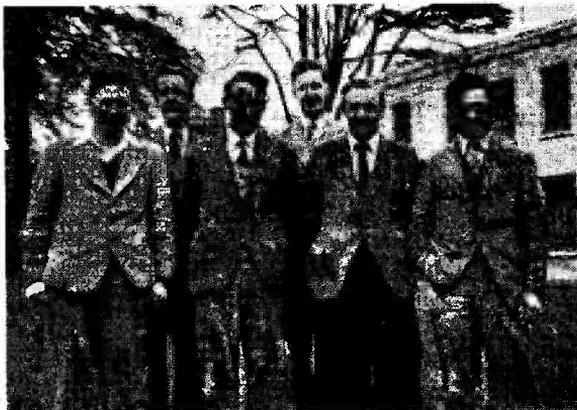
—The meeting on September 10 will be devoted to a demonstration of Tape and Wire Recording, by G2BFT. Those who wish to attend are asked to drop a card to the Hon. Sec., who will confirm the meeting place.

BTH Recreation Club, Rugby (Radio & Television Section).

—A very successful D-F Contest took place recently, with fifteen teams taking part. Ten of them found the transmitter, hidden nearly ten miles from the starting point. The transmitting party were somewhat surprised when the first team arrived, only 55 mins. after the start. Prizes were presented to the first three.

Chester and District Amateur Radio Society.

—Arrangements are well in hand for a Low Power Field Day on September 9, in which the Club will be taking



Some of the members of Nottingham University Radio Society, who operate G3DBP, on the air regularly in term time. The Tx is run on 80, 40 and 20 metres with a pair of 807's at 85 watts in the PA, modulated by p/p 6L6's. The station receiver is an AR88, backed up by a BC-348 and an R.1155, and aerials are a 66ft. dipole and 132ft. end-fed long wire.

part. Six out of eight entrants were successful in the recent R.A.E. Meetings continue at the Tarran Hut, YMCA Grounds, every Tuesday at 7.30.

Lincoln Short Wave Club.

—This Club re-opens on September 12, with a talk on Radio Fundamentals by the Chairman. For September 26 there is to be an outside lecturer, and on October

10, G3XM will talk on Lining Up a Receiver. A recent visit to Rugby Radio, made jointly with the Newark Club, was very successful.

Sutton and Cheam Radio Society.

—Meetings for the new session start on September 4; on September 18 there will be a talk on Aerials and Feeders. The Club's Secretary, Mr. L. Seaton,

NAMES AND ADDRESSES OF CLUB SECRETARIES REPORTING IN THIS ISSUE :

ALBANY : A. Meyers, G3EYE, 33 Old Kent Road, London, S.E.1.
ARMY APPRENTICES' SCHOOL : A./Sgt. M. Flynn, "A" Coy. A.A.S., Arborfield, Reading.
BIRMINGHAM : W. V. Shepard, 174 Gristhorpe Road, Selly Oak, Birmingham 29.
BOLTON : C. E. Picken, 139 Smithills Dean Road, Bolton.
BRIGHTON : R. T. Parsons, 14 Carlyle Avenue, Brighton 7.
BRISTOL : N. G. Foord, 71 Brynland Avenue, Bristol 7.
BTH : P. N. Prior, c/o Gen. Sec., Radio and Television Section, BTH Recreation Club, Rugby.
CHESTER : W. Lloyd, 124 Tarvin Road, Chester.
CLIFTON : W. A. Martin, G3FVG, 21 Brixton Hill, London, S.W.2.
EAST SURREY : L. G. Knight, G5LK, Radiohme, Madeira Walk, Reigate.
ECCELES : E. Rayson, 11 Hartington Road, Winton, Lancs.
GRAVESEND : R. Appleton, 23 Laurel Avenue, Gravesend.
HARROW : S. C. J. Phillips, 131 Belmont Road, Harrow Weald.
LEICESTER : L. Milnthorpe, G2FMO, 3 Winster Drive, Thurmaston, Leicester.
LINCOLN : G. C. Newby, G3EBH, 18 Birchill, Fiskerton, Lincoln.
NOTTINGHAM UNIVERSITY : G. M. Bayley, Radio Society, Union of Students, the University, Nottingham.
READING : L. Hensford, G2BHS, 30 Boston Avenue, Reading.
SALISBURY : V. G. Page, 32 Feversham Road, Salisbury.
SANDERSTEAD AND PURLEY : T. R. Young, G2AYM, 41 Lansdowne Road, Purley.
SHEFFORD : N. A. Eaton, 25 Stanford Road, Shefford, Beds.
SLADE : C. N. Smart, 110 Woolmore Road, Birmingham 23.
SOUTH MANCHESTER : R. Taylor, G3BVP, 12 Marton Avenue, Didsbury Park, Manchester 20.
SUTTON AND CHEAM : J. Harris, 143 Collingwood Road, Sutton, Surrey.
WEST KENT : L. King, G4IB, Glenisla, Maidstone Road, Lower Green, Pembury, Kent.
WEST SUFFOLK : C. A. King, 44 Bishops Road, Bury St. Edmunds.
W.F.S.R.A. (Bedfast Club) : J. Beavan, G3GBL, 296 Fore Street, Edmonton, London, N.9.
WIRRAL : A. H. Watts, G3FXC, 38 Sandymount Drive, Wallasey.
YEOVIL : D. L. McLean, 9 Cedar Grove, Yeovil.

has successfully passed the R.A.E. Note the Acting Secretary's QTH. in panel. Meetings are on the first and third Tuesdays of the month, at Sutton Adult School.

Yeovil Amateur Radio Club.—The Club Tx, G3CMH, has been on test with inputs between 5 and 50 watts. The operating layout has been improved, and a new transportable rack is a feature. It will be operating from a local fete in August, when it is hoped to give the public some idea of the workings of Amateur Radio.

Bolton (Y.M.C.A.) Amateur Radio Club.—Recently formed, they meet each Tuesday from 7.30 p.m. at the Y.M.C.A., Deansgate, Bolton, where workshop and all club facilities are available. The club invites the support of all who are genuinely interested in short wave radio, the present membership roll being 20. Various activities are planned, and a

WELSH INDUSTRIES FAIR

Local amateurs were responsible for a fine effort in keeping GW3WIF on the air at the Welsh Industries Fair, in the new Festival Concert Hall, Sophia Gardens, Cardiff. More than 60,000 people are better acquainted with Amateur Radio as the result of this. A large stand (floor space 300 sq. ft.) was designed by GW5FN and GW3BZH, and housed a 150-watt transmitter, AR88 and BC312 receivers, together with scopes and panadaptors. Elaborate aerial systems were installed, and fairly good receiving conditions obtained.

Equipment displayed was the result of a constructors' competition held in conjunction with the Fair, and included transmitters, receivers, wavemeters, GDO's and so forth. The station was kept running eight hours a day and made nearly 300 contacts, all on phone.

useful programme is in hand for the winter season. It is also hoped to get back the transmitting licence held by the older formation of pre-war days in Bolton. Additionally to the note

on R.A.E. Classes appearing in "Here and There" in this issue, a similar class is being held on one evening a week at the Bolton Technical College, enrolment for which is now proceeding.

THE G CALL BOOK

The first and most complete and up-to-date list of British amateur stations to be published, containing over 6,500 U.K. callsign/addresses, *The G Call Book* is in great demand not only in this country but also in Europe. The price is 4s. 6d. post free, and we are asked to say that discounts up to 20% are being given on quantity orders of one dozen or more. While it is in every way regrettable (and entirely unnecessary) that two such Call Books should be on offer at the present time, the fact remains that *The G Call Book* published by Gage & Pollard is the more comprehensive as regards what is offered—which is a list of British amateur stations.

"PSE QSL"

This is the title of a regular feature appearing in our *Short Wave Listener & Television Review*, in which operators who want SWL reports, or observations on special tests, can have their requirements published. During the last five years, upwards of 3,500 such requests, from different amateur stations throughout the world, have appeared in "Pse QSL." The object of this feature is simply to bring together those transmitters actually wanting SWL reports and those SWL's willing to co-operate by giving them, on the understanding that all useful SWL reports are acknowledged by QSL card. If you want such reports, please let us have:

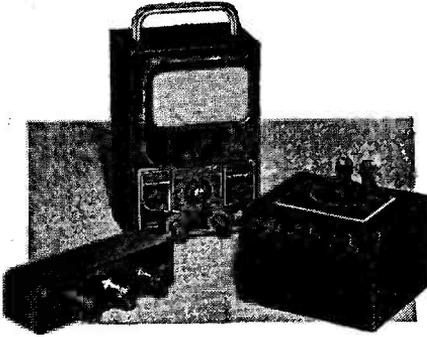
Callsign, address for QSL's, the band(s) on which observations are required, normal operating periods, type of transmission, area or direction from which reports are wanted, and any other relevant details. Your request will be published in the next issue of *Short Wave Listener* in which space becomes available in the "Pse QSL" list, and you will be notified when it appears.

RINGING OF A DISTANT BELL

The Summer 1939 issue of the *Call Book* shows that there were some 500 Japanese nationals licensed pre-war, in the callsign sequence J2AF-J8PH. Many of these chaps must still be there, bursting to get on the air again under their old calls. With the signing of the Japanese peace treaty in San Francisco, giving Japan virtually complete autonomy, presumably that will become possible.

GIFT SUBSCRIPTIONS

Now is the time to be thinking about Christmas presents! Why not buy your favourite DX contact a year's subscription to *Short Wave Magazine*—or get your XYL, or the YL, or your sister or your cousin to buy one for you—or, for that matter, buy one for yourself! For a year of 12 issues, the cost is but 24s., post paid home or abroad, and the address for orders is: The Circulation Manager, *Short Wave Magazine, Ltd.*, 55 Victoria Street, London, S.W.1.



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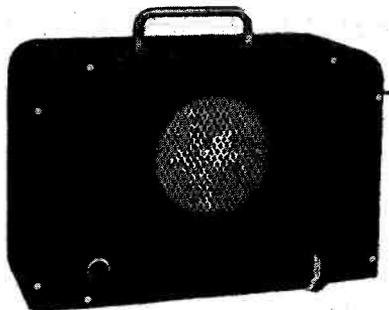
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Short Wave Magazine, Volume IX

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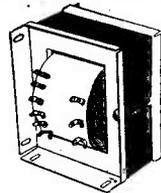
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Short Wave Magazine, September 1951

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