

1/6

SHORTWAVE

Magazine



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

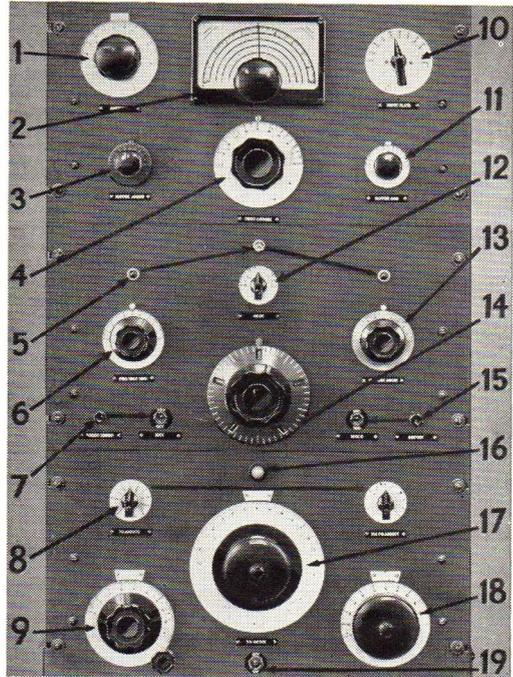
VOL. V No. 6 AUGUST 1947

WEBBS Radio

FOR DIVERSITY OF STOCK

THIS DISPLAY PANEL SHOWS A FEW ONLY OF OUR Dials & Panel Fitments

- 1 Eddystone No. 637 S.M. Dial, 3½" dia. scale. Engraved 0/100 black on matt silver. Vernier provided. Reduction 10/1 £1/-/-
- 2 Eddystone No. 598 Full vision S.M. Dial. Escutcheon 6" × 4½". With one ivory scale and two spare printed scales for home calibration. Reduction 10/1 19/9
- 3 Eddystone No. 597 Precision miniature S.M. Scale dia. 2". Indicator provided. Engraved white on black. S.M. 10/1 13/6
- 4 Webb's 4" Direct Drive. Engraved black on white. 0/100. With 2½" instrument knob 6/9
- 5 Bulgin dial lamp holder, type 19 2/3
- 6 Muirhead D130A Direct Drive, scale dia. 2½". Complete with skirt knob 13/6
- 7 Igranic closed circuit Midget Jack 2/3 (Also Webb's Indicator Discs for jacks and switches) 4d.
- 8 Webb's Indicator Scales, 1½" dia. 6d. Eddystone 1027 Miniature Pointer Knob 9d.
- 9 Muirhead D131BV S.M. Dial, scale dia. 4". 0/180. Drive ratio 6/1 19/6
- 10 Eddystone No. 62 Pointer Knob and Scale, dia of scale 3" 2/-
- 11 Eddystone No. 639. Precision miniature 2" dial. Reduction 10/1. With indicator. Engraved black on silver 15/-
- 12 Eddystone No. 425 Miniature Pointer Knob and Dial, scale dia. 1¾" 1/8
- 13 Raymart TXJ Knob and Scale, scale dia. 3" 3/11
- 14 Muirhead "H.R.O." S.M. Drives, type D115A £6/14/- type D206A £7/2/6
- 15 Webb's Transmitter labels 1¾" × 1½" 4d.
- 16 Bulgin Pilot Lamp Holder 3/9
- 17 Muirhead D111AV S.M. Dial Scale dia. 6". Reduction 50/1 £3/3/-
- 18 Muirhead D111AV Precision 4" Dial. Ratio 50/1 £2/8/-
- 19 Toggle Switch D.P. D.T. 3/9



This illustration shows only representative range of rack and instrument indicators. Racks are also available for full 63" assemblies, panels in all other international sizes, assembly brackets and chassis, etc.

Webb's Indicator Scales. Calibrated black on white ivory discs 1½" dia. with ⅜" centre hole. Available in various Oscillator, Amplifier and Receiver markings, all at 6d. each.

Webb's Indicator Discs. For Switches and Jacks, 1½" dia. centre hole ⅜". White engravings on black background. In various markings for Receivers, Transmitters, etc, all at 4d. each.

Webb's Transmitter Labels. Engraved white on black with 8 B.A. fixing holes. Size 1½" × 1½". In 30 markings for Transmitter use, all at 4d. each.

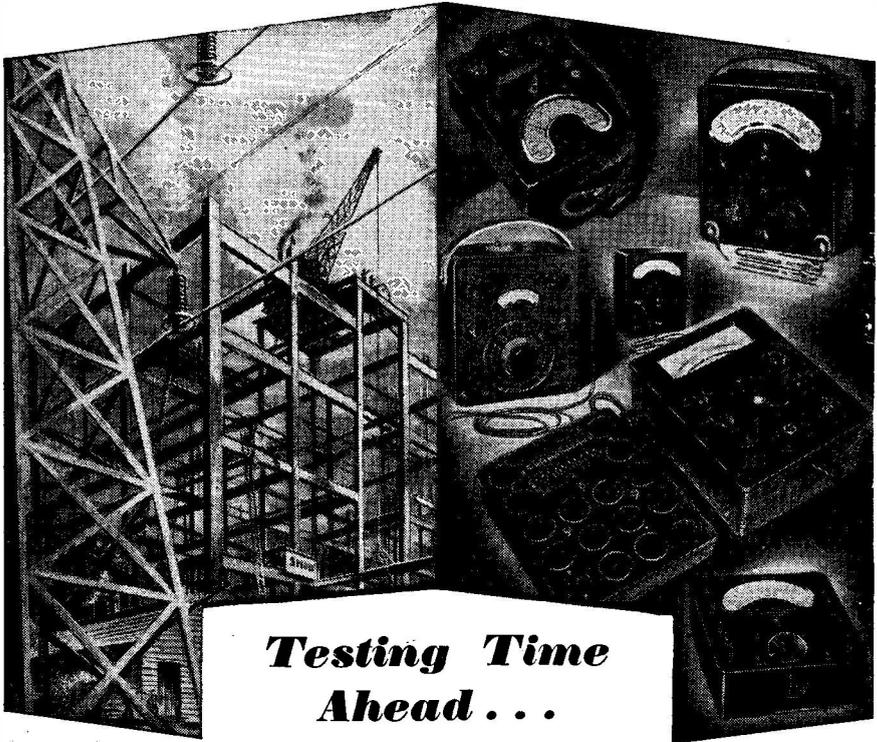
THESE COMPONENTS ARE MOUNTED ON:—Webb's 31½" rack assembly comprising bottom fender, pair of 31½" uprights and pair of backstays. Drilled to international standards. Finished smooth black. £3/-/-

Webb's 10½" black crackle international rack panel 9/9

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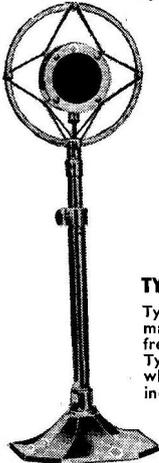
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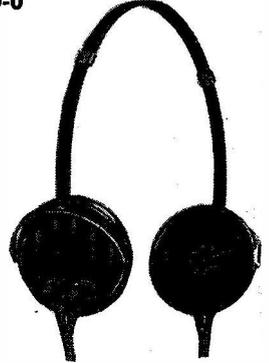
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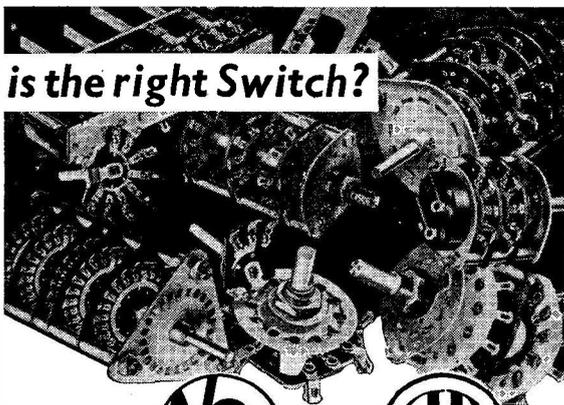
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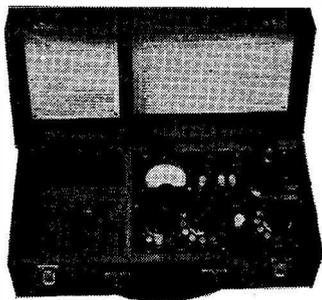
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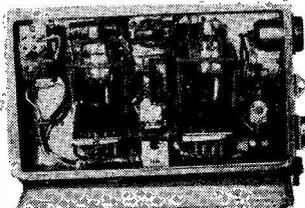
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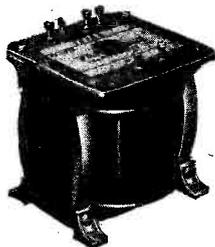


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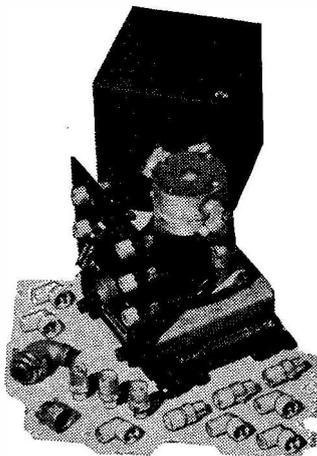
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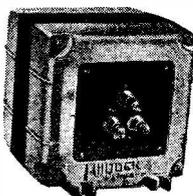
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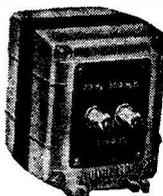


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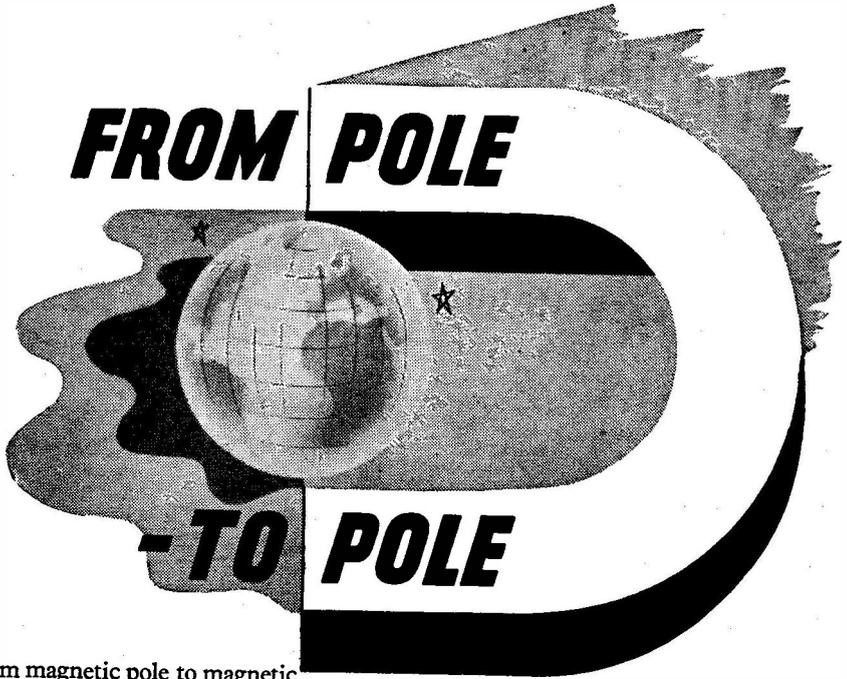


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FOR THE RADIO AMATEUR AND AMATEUR RADIO

Vol. V.

AUGUST 1947

No. 49

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Editor: AUSTIN FORSYTH, O.B.E. (G6FO). **Advertisement Manager:** P. H. FALKNER

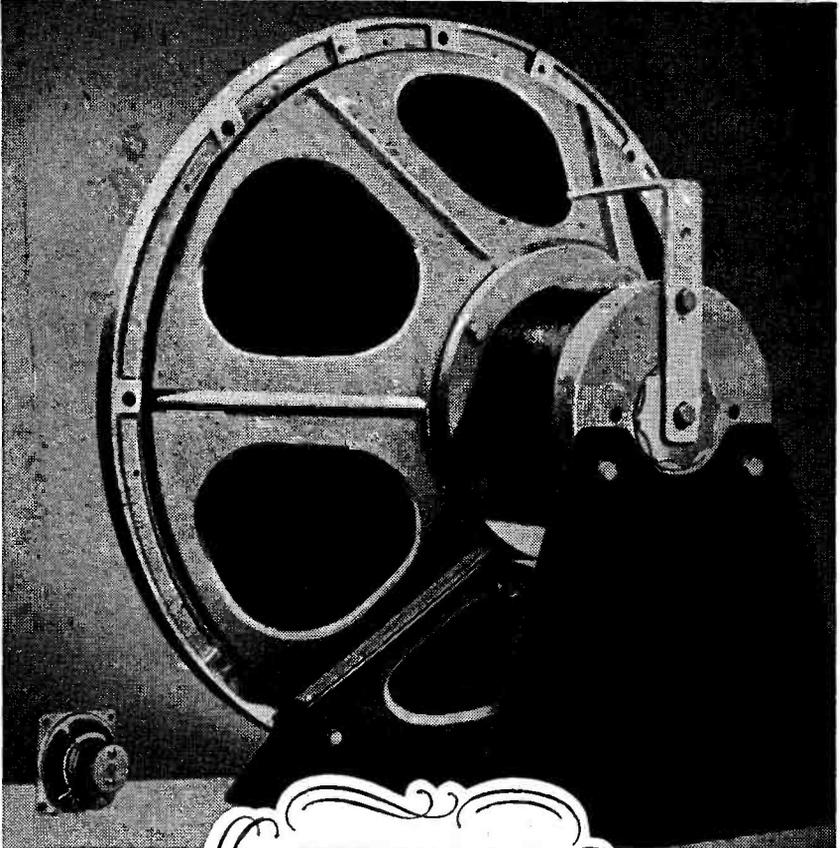
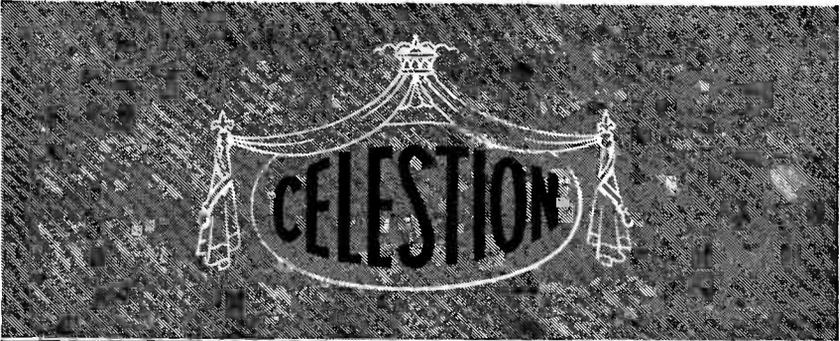
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EDITORIAL

Experiment

We keep talking in this space about the early days of Amateur Radio, to an extent which may cause readers new to the game to wonder what happened then that does not happen now.

Well, the answer is; quite a lot. Of his own choosing and almost from necessity the holder of a transmitting licence in the 1919-1928 period did a good deal of pure experimental work. Experiment was, in fact, the basis upon which our licences were granted.

It was during this period that the short waves were being explored, almost entirely by amateurs working on their own initiative. This in turn demanded the development of new techniques, methods and apparatus, so that the pioneer was performe an experimenter.

When looked at in retrospect, the practical value of this work cannot be over-estimated. The original thinking in the spheres of theory and the design of equipment has stood the test of time, and many of the amateurs of those early years are the leading technicians in the radio industry of to-day.

In this new era, however, one sees little or no evidence of amateurs breaking new ground for its own sake. It is true that nowadays the scope is severely limited; commercial and Government-sponsored technical organisations, with their vast facilities and trained personnel, are busy with research and development over the whole field of radio. One has to remember, when we as amateurs talk of 100 mc as "VHF", that during the war radar apparatus was *mass-produced* for the centimetric wavelengths at frequencies as high as 10,000 mc!

In Amateur Radio, the present emphasis is on communication for its own sake—which is why most of us had our licences in the first place, anyway. The question is whether there is any direction technically in which amateurs can pursue an original line, whether or not it may happen to have any immediately useful application.

Austin Frost 6660.

Amateur Band Receiver Design

Why Wide-Coverage Receivers?

By W. J. CRAWLEY (G2IQ)

(We are glad to bring this interesting and thoughtful discussion before those many readers anxious to obtain real efficiency on particular amateur bands. Our contributor draws attention to the unfortunate effects of compromise design in the commercial product and shows that the better approach for the amateur—not usually interested in reception outside his own bands—is a common IF/AF amplifier operated with converters designed for the amateur frequency ranges required. A suitable IF/AF channel is discussed in detail, with constructional and alignment data.—Ed.)

IN the writer's opinion it is rather a deplorable fact that the majority of amateurs have ceased to make their own receivers. Many, indeed go the whole hog and use factory built transmitters as well as receivers, but they are beyond redemption!

The present tendency is to regard the commercial all-band communication receiver (usually American made) as the ultimate and something far better than can be built by the average amateur. It is not disputed that many of the American receivers are very good, but there is no reason whatsoever why any amateur worthy of the name should not construct a receiver which, electrically, is equal to the best, and better than most commercial sets. Moreover a considerable saving in cost may be assured, especially when one considers the inflated prices of American sets, most of which must be at least eight years old!

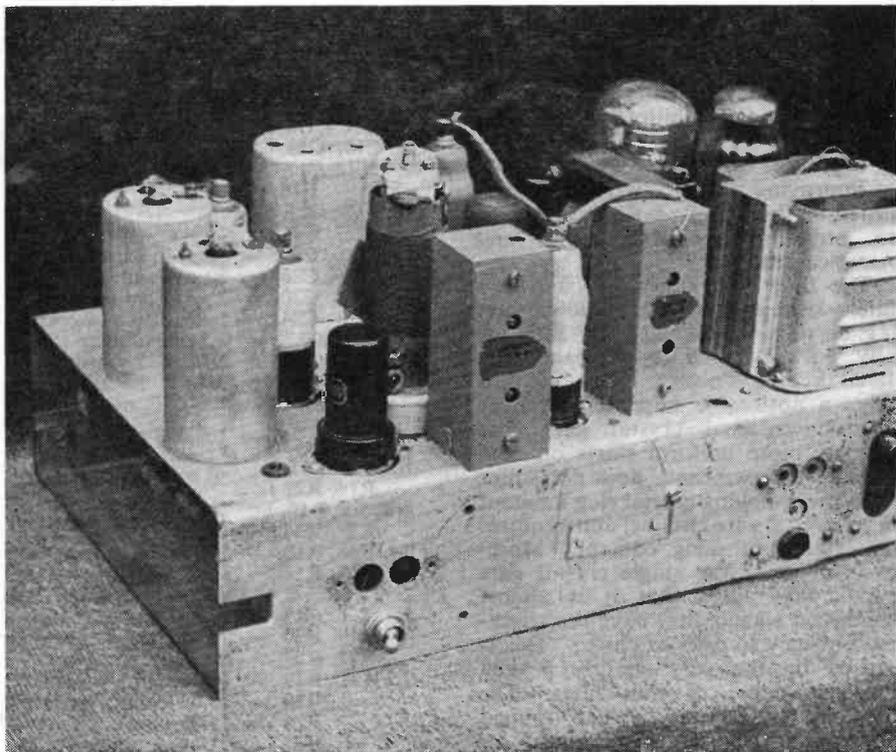
Objections to All-Band Receivers

Let it be said at the outset that the writer does not favour all-band receivers. All the American receivers tested by him show a marked falling-off in sensitivity on the higher frequencies and particularly on the 28-30 mc band. In addition, the signal/noise ratio on this band is always inferior. The reason for this loss of sensitivity on the ten-metre band is almost always due to the use of valves which do not give appreciable gain on the higher frequencies. One

has also to take into account the losses due to switching of coils and those due to the use of very small coils of low Q.

In some cases the performance may be improved by the addition of a pre-selector stage, but in most receivers it was decided that a combined mixer-oscillator valve that performs well up to say 10 mc, does not maintain its performance at 30 mc. Indeed, the writer is of the opinion that above 20 mc a different technique should be employed in the design of both mixer and RF stages. Therefore, it is maintained that a receiver designed to cover all bands must be a compromise. Whilst a fair performance may be obtained on the lower frequency bands with quite ordinary valves of the 6K7, 6K8 class, the higher frequencies, particularly 30 and 60 mc, do require special valves, components and design to obtain comparable results.

Another objection held against the average communication receiver is the practice of "ganging" the RF and IF sensitivity controls. The RF stage of any communication receiver should under normal circumstances be run in its most sensitive condition—that is with the cathode nearest the earthy end of the gain control—in the interests of signal/noise ratio. In most receivers, however, this is impossible owing to the fact that the IF gain is also correspondingly increased as the control is turned up. This alone militates against a good signal/noise ratio, for it is well known that noise is a function



General layout of the IF/AF amplifier. 3 mc IF transformers to front centre ; two 110 kc units in round cans to the left front and one in an oval can behind. The 6SA7 oscillator coil cover has been removed to show the cathode tap and air-spaced trimmer.

of the pre-mixer stages. The solution is separate controls for both IF and RF stages.

How much IF Gain ?

Whilst on the subject of IF gain, a further bee buzzes in the writer's bonnet! Many times when visiting other stations he has noted their pride at exhibiting some remote DX coming in at S9. Admittedly, the noise emanating from the loudspeaker has been S9, but a glance at the controls shows that the IF gain is at maximum, and de-tuning from the S9 signal produces a noise level which shows S6 on the meter and is enough to split the eardrums. Whilst not wishing to enter into any controversy regarding

S-meters and their calibration, it is sufficient to contend that an S report is only useful when compared with the noise level. One amateur on five metres always gives his report of 'phone as so many dB above the noise level, which does mean something.

A receiver which cannot bring up a strong signal to S9 without having to resort to full IF gain is lacking in sensitivity. For this reason it is contended that a good receiver should work with its RF stage flat out (unless local conditions dictate otherwise) and its IF stages as near minimum as possible. The function of the IF stages in a communication receiver is not to provide gain so much as to determine selectivity.

Selectivity

In these days of increasing activity, the pleasure of working, especially on the DX bands, depends to a large extent upon the ability of one's receiver to "winkle" out the elusive DX in the babel of QRM. Two methods of improving the selectivity have been tested by the writer—both are superior to anything encountered in any American receiver!

The first uses a crystal band-pass filter with a passband of 300 cycles (*i.e.* crystals 465.0 kc and 465.3 kc) for CW work, or a wider passband (say 1,500 kc) for 'phone. This method gives a noticeable improvement over the conventional crystal gate, has steeper, more uniform skirts on *both* sides of the passband, does not suffer from the annoying crystal ring inherent in all crystal gate circuits, and requires no external phasing control. Moreover, users of the single crystal gate circuit will agree that it is almost useless on signals that have the slightest tendency to drift or chirp. This is caused by the very sharply peaked response curve of that filter. The bandpass filter has a flat topped response, making it more useful on signals that drift or wobble.

The other method, which is the one the writer particularly likes, is to get away from the conventional intermediate frequency of 465 kc and return to 100 kc or so. The selectivity achieved with six tuned circuits at 100 kc could only be achieved at 465 kc by using a prohibitively long chain of IF amplifiers. The selectivity of an amplifier using three transformers at 110 kc would be a revelation to most amateurs. In addition, an amplifier of such high selectivity and in which most of the available gain is discarded will compare favourably on the score of noise level over the conventional 465 kc amplifier. There is one drawback to the use of such a low IF, however, and that is second-channel interference at the higher frequencies. This is easily overcome by interposing a further higher IF channel between the signal frequency and the low intermediate frequency.

Table of Values

IF/AF Amplifier Unit	
C1, C5, C11, C15, C26, C33	= .01 μ F, 400 v. tubular
C2, C3, C4, C6, C7, C12, C13, C14, C16, C17, C18	= 0.1 μ F, 400 v. tubular
C8, C9, C21, C23, C25	= 100 μ F, mica
C10, C22	= 50 μ F, variable
C19, C28	= 50 μ F, silvered mica
C20	= 2 μ F (but see text)
C24	= 1 μ F, 250 v. working
C27	= 0.5 μ F, tubular
C29, C34	= 25 μ F, 25 v. working
C30, C31	= .05 μ F, 400 v. tubular
C32	= 500 μ F, mica
R1, R6, R10, R15	= 100,000 ohms, $\frac{1}{4}$ -watt
R2, R9, R11, R16, R22	= 50,000 ohms, $\frac{1}{2}$ -watt
R3, R8, R12, R17, R24	= 3,000 ohms, $\frac{1}{2}$ -watt
R4, R13, R18	= 500 ohms, $\frac{1}{4}$ -watt
R5, R14	= 10,000-ohm wire-wound potentiometers
R7	= 10,000 ohms, 1 watt
R19, R20	= 75,000 ohms, $\frac{1}{4}$ -watt
R21, R27	= 0.5 megohm, $\frac{1}{4}$ -watt
R23, R29	= 1 megohm, $\frac{1}{2}$ -watt
R25	= 33,000 ohms, $\frac{1}{4}$ -watt
R26	= 1,000 ohms, $\frac{1}{2}$ -watt
R28	= 0.5 megohm potentiometer
R30	= 0.5 megohm, $\frac{1}{4}$ -watt
R31	= 100,000 ohms, $\frac{1}{4}$ -watt
R32	= 300 ohms, 1 watt
V1 EF39, V2 6SA7, V3-V4 KTW71M, V5 EB34, V6 L63, V7 EBC33, V8 6V6	
IFT1, IFT2	= Denco 3 mc IF transformers
IFT3, 4, 5	= 110 kc IF transformers
Output trans-former	= 7,000 ohms load

Such a system, known as the double superhet, has become standard practice among 60 mc enthusiasts and is also gaining favour at 30 mc. The standard communication receiver is tuned to a fairly low frequency, say 1.6 or 3 mc, and separate converters are used for the signal frequency. Thus, the expensive communications receiver costing anything from £50 upwards is relegated to the function of an IF amplifier alone, and its elaborate tuning mechanism,

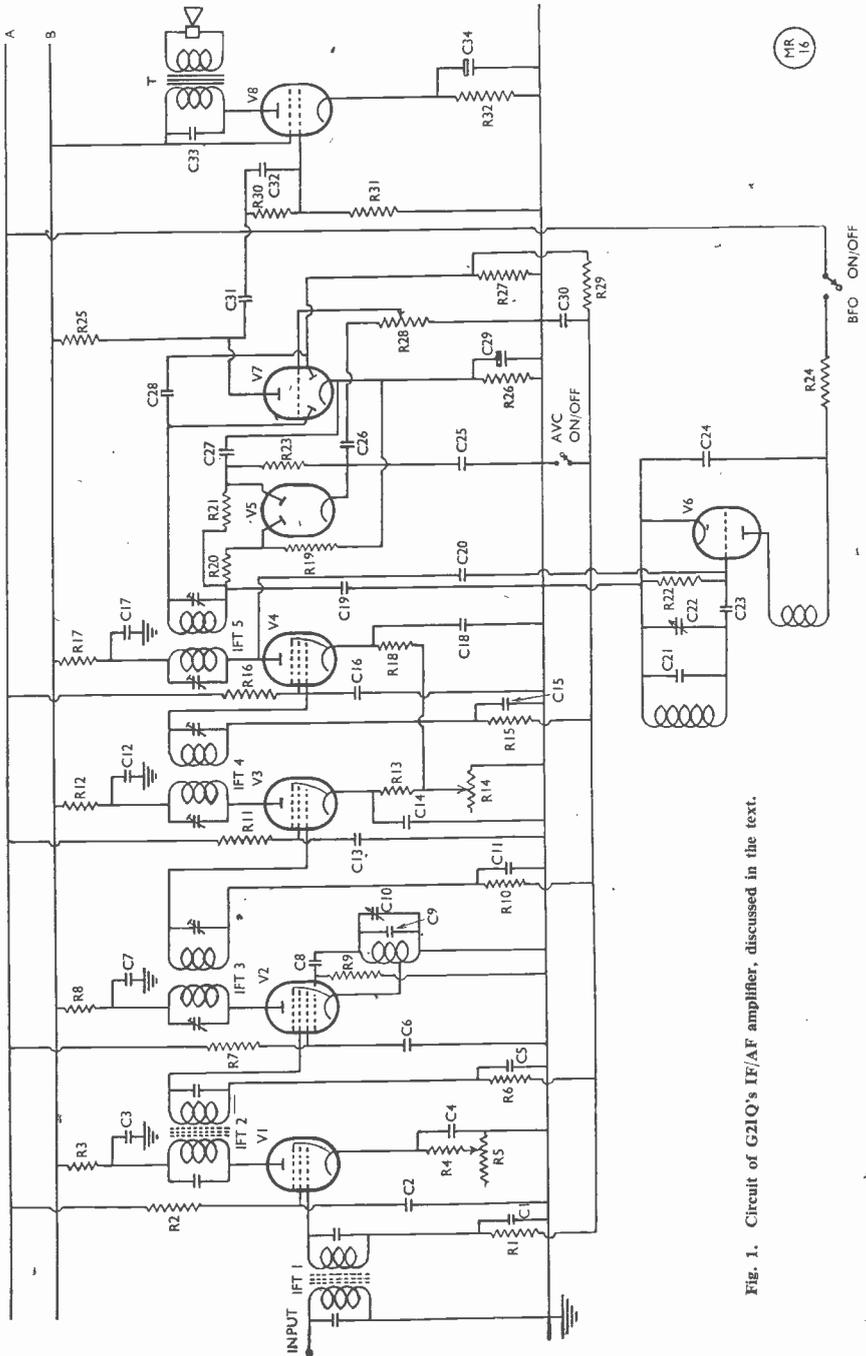


Fig. 1. Circuit of G210's IF/AF amplifier, discussed in the text.

its complicated coil-switching, its ornate finish, become redundant!

Alternative to the A.B. Receiver

The logical conclusion would appear to be not to use an all-band receiver at all, but to make an IF amplifier using two channels, one of low IF to determine the desired selectivity and one of higher IF, the frequency of the latter being high enough to obviate any second-channel trouble at HF. Such an amplifier could have all the necessary controls incorporated which would be common to all bands used; it could be designed for optimum efficiency on the fixed frequency at which it is to work: it could utilise pre-set tuning. In fact, once made, it is unlikely that any changes need be contemplated over a period of years. The improvements in receiver design likely to be effected in the future will concern the signal-frequency stages alone and as in the contemplated design these are separate units, alteration is an easy matter involving one small chassis only and not the whole receiver.

The use of separate converters on each band might at first sight appear to be rather an unwieldy system, requiring somewhat complicated change-over from one band to another. This is not the case. The converters in use at the writer's station obtain their power from the IF/AF amplifier transferred by one 5-pin plug and the only other connections to each converter are those of aerial and output. Three plugs only therefore require altering for band change, hardly one minute's job.

Three converters are sufficient for best efficiency, with one for 60 mc and one for 28 mc. The other may be designed to cover the bands the operator wishes to use and may utilise either coil-switching or plug-in coils. The coils on both the 28 and 60 mc converters are wound to cover the amateur band *only*; thus, the selector tuning is solely that of the bandspread condenser which is of such capacity as to spread the band about 70 deg. on a 100 deg. dial.

Design of Suitable IF/AF Amplifier

Apart from the very low second IF channel and unusual valve line-up, the amplifier about to be described is quite conventional.

Some comment on the valves is indicated. The 3 mc amplifier is a conventional var/mu RF pentode of the EF 39 class. The second mixer/osc position requires a valve of good frequency stability, particularly under the application of AVC. An examination of the characteristics of valves available for this position shows that type 6SA7 gives high conversion gain together with exceptionally small frequency shift. For the 110 kc amplifiers Osram KTW-71M valves are used. These low heater consumption valves were chosen because of their lower mutual conductance (high gain is not wanted here) and because of their low noise-level.

Other items requiring comment include the noise limiter, a most important adjunct to those who are unfortunate enough to live in busy areas. After many experiments with different methods, the one indicated—a modification of the Dickert system—was adopted. Two crystal diodes, types 1N34, gave a slightly superior clipping action, but as it appears unlikely that such useful gadgets will be imported during our lifetime, it was decided to use a system the components for which were more easily obtainable. Quite a few local amateurs have used this circuit and agree that it does give the answer to noise limiting.

The voltage regulator, a Cossor S 130, provides constant voltage to the oscillator anodes and the various screening grids are fed from this supply. The AVC is simple and needs no comment. The AF amplifier is conventional and the only departure from orthodoxy is in the resistor/condenser combination R30, R31, C32. This serves to give the audio response a lift in the higher frequencies to compensate to some extent for the "top" lost in the selective second IF chain.

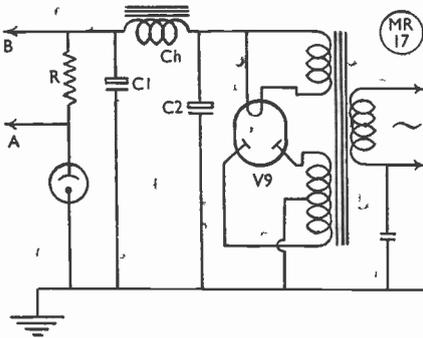


Fig. 2. A suitable power pack for the IF/AF amplifier. Stabilised HT is taken off at A.

Table of Values

Fig. 2. Power Supply Unit

R	= 4000 ohms, 10-watt
C1	= 16 μ F, 450 v.
C2	= 8 μ F, 500 v.
Ch	= 10/20 Hy choke
V9	= UU5 (or U50)

Transformer to give 250 v. at 100mA, 4 v. 3 amps., 6.3 v. 3 amps.

Construction

The amplifier is constructed on a 14 in \times 9 in \times 3 in chassis. As no attempt has been made to extract high gain from any stage, no special precautions need be taken against instability, and in fact, under no circumstances has any tendency towards instability been experienced. The 3.0 mc IF transformers are standard Denco slug-tuned types, mounted so that the trimming apertures face the edge of the chassis. Unless this position is adopted difficulty in trimming will crop up owing to other components being in the way!

The oscillator coil for the 6SA7 valve, which may be tuned to 3.110 mc or 2.89 mc, is home wound on a 1 $\frac{1}{2}$ -in paxolin former and consists of 50 turns of 24 gauge silk-covered copper wire, tapped 12 turns from the earthy end. This coil is enclosed in a cylindrical can 2 $\frac{1}{2}$ in. diam. \times 4 in. long, through the top of which a $\frac{1}{2}$ in. hole is bored to allow access to the variable 50 μ F air-spaced trimmer which is across the coil.

Some difficulty may be experienced in obtaining 110 kc IF transformers as most manufacturers have ceased to make them. The writer visited two or three local radio service shops and found that all of them had one or two of these desirable objects in the junk box and were prepared to dispose of them for a few shillings to anyone who was dull-witted enough to want them! One kindly fellow even tried to dissuade us from wasting our money on such old-fashioned gear, explaining that nowadays it was the custom to use an IF of 465 kc, in his opinion a much more satisfactory channel! The types eventually used by the writer appear to have been made by Varley and Plessey, and there is no reason why almost any type of transformer should not be used provided the constructor is satisfied that it covers the correct frequency.

A further IF transformer was dismantled and one winding used as the BFO coil, about 50 turns of 36 or 38 gauge silk-covered wire being scramble wound over the top of the coil as a tickler winding. The BFO coil tunes to the correct frequency with a fixed 100 μ F and a variable air-spaced 50 μ F. The spindle of the latter is brought through the front of the chassis to permit variation of the pitch, and the whole assembly—BFO coil, condensers and valve holder—is surrounded by a screen of 18-gauge aluminium 2 $\frac{1}{2}$ in. deep and 7 in. long, bent to the desired shape and bolted to the chassis. The condenser C20 consists of a piece of insulated wire from the grid of the 6J5 which is wrapped once around the 2nd KTW71 plate pin. This, and other wires entering the BFO compartment, pass through a $\frac{1}{2}$ in. hole in the 18-gauge screen, drilled before assembly. In the author's version a twin potentiometer combining R14 and R28 was brought into service, but it will perhaps be more convenient for most constructors to use separate controls.

The wiring is quite straightforward and no special precautions need be taken provided that all the plate and grid leads of V1, V2, V3 and V4 are enclosed in shielded systoflex, or

similar screened wire is used. It has not been found necessary to use shielded grid caps for these valves, and even with the gain flat out the set is perfectly docile. Some advantage is to be gained by bolting two or three solder tags to the screw holding the valve holder to the chassis and returning all earth wires (including one side of the heater) connected with that stage to the one spot.

Alignment

Since the receiver is to work at one fixed signal frequency, namely 3 mc, the difficulties normally encountered in aligning a communication receiver are obviated. The signal generator is tuned to 110 kcs and the signal injected at the control grid of the 6SA7. It is advisable to un-solder the connection to the grid pin of this valve during this operation. Should an output meter not be available a reliable indicator may be improvised by connecting a 0.5 voltmeter across the cathode resistor of one of the KTW71's. As the IF transformers are brought into tune the AVC causes an increase of bias at the grid of the KTW71 with a corresponding decrease in current through the cathode resistor. Tune the IF transformers therefore for *minimum* voltage across the cathode resistor.

When the 110 kc transformers are

in line it is a simple matter to tune the generator to 3 mc and inject the signal at the input terminals. The 3 mc transformers will be found to require very little adjustment and the only critical tuning is that of the oscillator coil. If this has been correctly wound two resonance points will be found as the trimmer is swung round. The one of higher frequency should be chosen. Should there be any sign of break-through from 3 mc signals when the amplifier is in operation, simply adjust the oscillator trimmer slightly until the offending signal has disappeared. If the trouble persists it may be necessary to alter the input frequency to say 3.2 mc or 2.8 mc and re-align all through accordingly, but in practice the writer has found 3.0 mc remarkably free from trouble of this nature.

Operation

Concerning the operation, very little need be said. The writer usually works with the 3 mc gain control at near maximum, the AF control about half way on, and varies the output with the 110 kc control. This is normally at about a quarter way in, but those who like their signals "meaty" may prefer to use more 2nd IF gain.

The writer hopes shortly to deal with sensitive converters for use with the amplifier described here.

TUNING WITHOUT SEEING

A correspondent in *QST* asks someone to invent panel meters which would enable a blind amateur transmitter to tune up his equipment without assistance.

It has already been done. We know of an active G, blind from birth, who not only tunes his transmitter but also constructs all his own gear—surely a wonderful example of the triumph of the spirit.

His meters are without the usual glass fronts and the numbers are picked out by small protuberances in various combinations, which of course are memorised by the operator. It is then only a matter of the delicate touch, which all blind persons soon acquire, for him to check his meter readings. We have watched this particular G change bands and tune up the gear

with all the ease and certainty of someone who could see what he was doing. Truly an impressive demonstration.

BURGOYNE CO-AXIAL CONNECTOR

The making of an efficient and weather-proof co-axial cable connection to an aerial is an easy matter with the Burgoyne connector, which provides a quick and well-engineered method of doing an essential job. It is made of aluminium, with steatite insulation, and also serves as the centre insulator on a $\frac{1}{2}$ -wave doublet; assembled, the connector weighs but 12 ozs.

The price of the Burgoyne Connector is 24s. 6d. net, of Messrs. Mail Order Supplies Co., 24 New Road, London, E.1. Their new illustrated catalogue, free to readers on application, lists a wide range of useful gear and is well worth having.

The Neon Stabiliser

Simple Device with Many Uses

By J. HUM (G5UM)

(As explained in this article, close voltage control over wide changes of load is very desirable in a number of applications. The neon tube, little used in amateur stations except as an RF indicator and its virtues not fully appreciated, is an easy and effective means of ensuring a stabilised HT supply.—Ed.)

THE properties of the neon bulb are known to most radio experimenters. Few amateurs have never "struck" a neon on their transmitting tank coils, and felt that glow of pride which coincides with the glow provided by the RF.

Those who bothered to take thought would soon have realised that neon indications of RF are—just indications; quantitatively they are almost valueless and a thermo-ammeter in the tank circuit gives a more accurate picture of what is happening than does a neon. Yet in many amateur stations this is the only purpose to which the neon is put. Pretty when visitors call, but not to be compared with the more prosaic but infinitely more valuable uses of the basic neon bulb in other forms of service, notably as a means of stabilising power supplies and feed voltages to transmitter and receiver stages generally.

Theory of Operation

The theory of operation of the neon stabiliser is simplicity itself. A neon bulb if connected across a source of voltage will glow when its "striking" potential is reached, namely, 130 to 150 volts. It will hold that source of voltage steady irrespective of fluctuations in the supply, and will enable an unvarying DC output to be obtained.

A voltage of double that value can be controlled by two neons in series; and of treble the value by three neons in series, and so on.

As can be seen from Fig. 1, the neon is connected across a source providing 150 volts. The regulated output is about 130 volts. This slight voltage drop is inevitable because the neon itself draws a small current from the supply. After all, it cannot be expected to provide a nice glow for no expenditure at all!

This brings us to the question which some experimenters will immediately begin asking: How much should the neon

glow? And the answer is: As little as possible. For the greater the glow the heavier the current drain. The optimum condition at which to aim is that the neon just glows when the DC supply which it is controlling is delivering its full load.

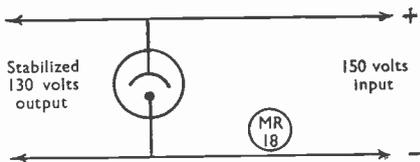


Fig. 1. Basic circuit of the neon stabiliser.

When the load is removed the voltage of the source will rise and the neon glow will increase in brilliancy.

Now it may well be that the supply voltage being controlled exceeds considerably the voltage it is desired to control. If it were connected straight across the neon stabiliser it would not merely cause

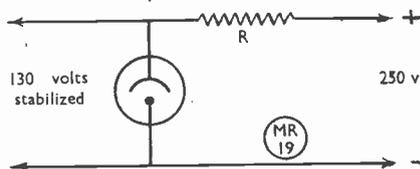


Fig. 2. Showing the use of a dropping resistor.

an extremely brilliant and sensational glow but—much more practically—it would pass heavy current through the neon and probably cause its early demise.

In such cases, therefore, a series resistor must be employed to protect the neon. Certain types actually incorporate such a resistor in their bases, but in most instances one will need to be provided externally, as shown at R in Fig. 2. The

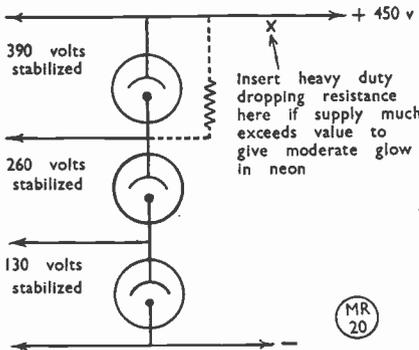


Fig. 3. Three neons used as a potential-divider stabilised supply. If difficulty is experienced in striking, a resistor connected as shown dotted will help.

value of this resistor will obviously depend on the voltage to be dropped and the current consumed by the equipment being fed, plus the current consumed by the neon.

In practice, therefore, it is preferable to provide at R a wirewound variable resistor which can be adjusted according to circumstance. It should be set at such a value that the neon just glows when the equipment being operated is switched on and taking full current. A 10,000 ohm 10-watt wirewound resistor would be suitable for this position where heavy current is being taken from the stabilised supply, but for more modest demands, such as single valve oscillators in receivers where only a few milliamps are being consumed, a much smaller resistor will be found adequate. As always, the true answer is: Try it for yourself!

An elaboration of the simple "Single neon" stabiliser is shown in Fig. 3. Two neons in series will provide approximately 260 volts stabilised output, three will provide about 390 volts, and so on. As used in Fig. 3 the three neons provide a form of potential divider, but with the great advantage over normal resistor types of potential divider that they offer stabilised output as well. As can be seen, a voltage loss of 60 volts is assumed; for 450 volts in a maximum of 390 volts out is achieved. This is accounted for by the current consumption and consequent voltage drop entailed by the neons themselves.

The value of 390 volts, incidentally, is not to be expected in every case. Some neons are claimed to give control in steps of 150 volts, in which case the output

figures indicated in Fig. 3 would read "450 volts stabilised," "300 volts stabilised" and "150 volts stabilised" respectively, and the DC input value would need to be increased to about 500 volts.

Practical Applications

Many different varieties of neon stabiliser are available, from tiny "pea-lamp" types frequently used for controlling the HT feed to the local oscillator of a superhet, up to heavy duty versions for transmitter work. Bases vary from miniature bayonet cap up to large "special bases"—though the fact that many British neon stabilisers employ the standard British 4-pin valve-base is a considerable convenience, since most amateurs have 4-pin or 5-pin valve-holders somewhere about the place. In these 4-pin neons the "grid" pin and the "anode" pin are connected to the two electrodes of the stabiliser. Either of them can be connected to HT positive; the neon does not mind which way round it is operated. Occasionally one of the "filament" pins is connected to a "starter" electrode inside the neon. This should go to HT positive.

Before obtaining a neon stabiliser study the available types as listed in a valve data sheet and relate it to the job in hand. For most purposes one or more Cossor S130 stabilisers will be found of considerable service. Here are some of the uses to which it can be put.

In the All-EF50 TRF Receiver

Although the All-EF50 TRF receiver received CW admirably on 5 metres it was found to be much trickier to operate for the reception of telephony. Minute

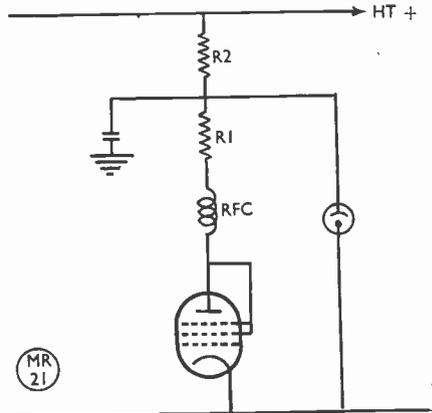


Fig. 4. Stabilised HT feed for the detector in the "All EF50 TRF Receiver".

fluctuations in power supply would cause so much degeneration when the detector was just off oscillation that the received signal would disappear entirely. The connection of a neon stabiliser across the detector HT feed line completely cured this trouble and at the same time so reduced the mains hum level that the receiver sounded almost "battery operated" even at 60 mc. The method of connection is shown at Fig. 4. The decoupling resistor R2 must be of sufficiently high rating to carry the combined currents of the detector valve and the neon.

In High-power Modulator Stages

As is well known, in tetrode modulator stages of the push-pull 6L6 type so commonly employed to-day, increased audio output can be achieved if the screen voltage supply is held at a steady voltage and not allowed to perform excursions in sympathy with the anode voltage. The method of meeting this requirement is depicted in Fig. 5, where two S130 stabilisers are seen holding down a pair of push-pull screens to approximately 250 volts. The value of the dropping resistor R1—as explained earlier—will need to be selected by experiment, and to be rated to carry screen and neon currents additively.

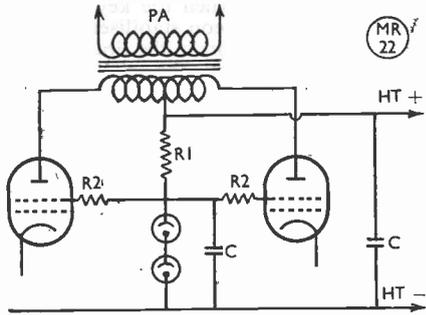


Fig. 5. Stabilised screen supply for push-pull modulator stage. C is 8 μF decoupling; R1, power resistor to drop HT to about 250 volts; R2, 50-ohm anti-parasitic resistors.

The Franklin Oscillator

A well-regulated power supply is a *sine qua non* in any variable frequency oscillator used for transmitter control. Neon stabilising will often be found to afford all the difference between a chirpy, obviously-VFO note and a pleasant-sounding, almost T9 note. Particularly if a chain of decoupling resistors is employed, as in the Franklin oscillator, can a chirpy note be produced, because the HT voltage

DATA ON TYPICAL NEON STABILISERS

Type	Base	Characteristics
Cossor S.130	British 4-pin	Max. striking voltage 180 v. Normal operating voltage 115-135 v. Control range : 10 mA to 75 mA
Mullard 7475	British 4-pin	Max. striking voltage 140 v. Normal operating voltage 90-110 v. Normal burning current 4 mA
Marconi STV.280/40	British 5-pin	Max. striking voltage 280 v. Normal operating voltage 280 v., 210 v., 140 v. and 70 v. at four different cathodes. Cathode consumption 30 mA
Marconi STV.280/80	British 5-pin	Outputs of 282, 205, 143 and 73 v. at four different cathodes at approx. 40 mA average consumption

Result of test carried out at G5UM with S130 neon stabiliser and "All-EF50 TRF Receiver" :

Consumption of stabiliser with receiver on : 20 mA
 " " " " " " off : 30 mA
 Output of stabilised power pack with receiver on : 100 volts
 " " " " " " off : 100 volts

rises considerably when the key is lifted. With the aid of a neon stabiliser, the use of decoupling resistors in the Franklin can be avoided entirely, the circuit being shown in Fig. 6. A small receiving-type 150-volt power pack is employed, the neon acting as a very effective cushion to voltage rises when the key is up. The value of C is not critical when the oscillator is operated on 1.7 mc; anything from .001 to .1 μ F will suffice—preferably mica. Greater output will, of course, be obtained if the HT voltage is doubled and two neons are used in series instead of one.

Similar neon stabilising can be effectively applied to other forms of VFO, such as the electron-coupled and transitron varieties.

Conclusion

As will have been quite evident, this article does not attempt to go into great detail on the subject of using neon stabilisers. Its purpose is primarily to

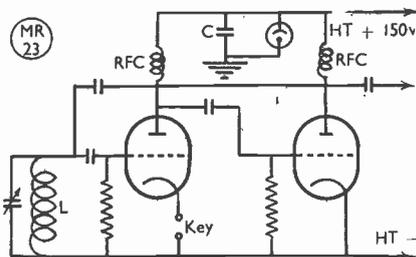


Fig. 6. Franklin oscillator with stabilised HT feed and no decoupling resistors.

encourage experimenters to take some practical interest in them, and by so doing to obtain the improved stability and ease of operation of both transmitting and receiving equipment which are so essential on the amateur bands to-day.

Twenty-Metre DX Forecast

New Series of Predictions

By I. D. McDERMID (GM3ANV)

(The problem of knowing when conditions should be right is of never-ending interest to the DX operator. Though the accurate prediction of DX conditions still remains an extremely difficult matter, a vast amount of research and record-keeping was undertaken during the War in order to meet Service requirements in regard to reliable point-to-point working over great distances. We shall be publishing for the next few months regular special forecasts for 14 mc, prepared by GM3ANV. DX operators are particularly asked to check these predictions with their own results and to let us know how they are working out.—Ed.)

THE newcomer to DX working and, indeed, the older hand, are often somewhat bewildered by the way in which conditions on the DX bands change, not only from hour to hour, but also from month to month. Although this article is not going to dwell on the various factors underlying oblique propagation with their many interesting peculiarities, these complications should be kept in mind when considering the following.

The charts to be described were evolved as a result of determining the nature of ionospheric conditions which could be expected if certain factors remained constant. In other words, supposing each capital city in the world had a transmitter, each coupled to a similar aerial system

directed to the United Kingdom, then with what field strength would these transmissions be received in this country, assuming the ionosphere to be in a normal average state for the time of year under consideration, with no complications like sporadic-E, Dellinger storms and fade-outs? That was the problem to be unravelled, and with the aid of a steam-driven and water-cooled slide-rule the graphs shown here materialised, the following assumptions having been made:

(a) That for the sake of simplicity in the calculations, 1 kW be radiated from a short vertical resonant aerial, which gives a vertical radiation angle of 40 deg. or less; a similar aerial system being used for reception. That is, omni-directional

radiation has been assumed, and the effects of beam aeriols on the radiated signal have been ignored ;

(b) That the 14 mc band remains open for 24 hours of the day. This may be so at this time of the year, but as we all know, in winter the band shuts down after dark. However, the actual time of this closing down is a variable factor, and depends on conditions, and so has not been brought into the general calculations. Actually, it is quite useful, since it tells one just how the various zones are behaving at the time the band opens in the morning, with the result that if, for example, one zone* is decreasing in strength rapidly at that time, then one should try for that zone as soon as the band starts opening up, and before it fades right out ;

(c) That the transmitters on which the calculations have been based are situated in the country, state or district, capital city or equivalent, for each zone prefix used ;

(d) That average ionospheric conditions as based on many years' observation throughout the world have been used, and so actual conditions may be either better or worse than is depicted ;

(e) That the influence of the E layer has been ignored, and all calculations have been based on F layer reflections only. Once again, the presence or absence of the E layer is too uncertain to be predictable, apart from its "transparent" or "blanketing" influence when it is present, but the observant operator should be able to tell whether "E" is present, and make allowances for it ;

(f) That the effects of the Auroral Zones have been neglected, thus airily brushing aside another complication. These zones, encircling the Polar regions, are the narrow bands in which ionospheric storms begin and, in the case of the

North Zone, spread southwards as the intensity of the storm increases and develops. Hence, if a Great Circle path passes through one zone twice (e.g. W6-G), or touches both zones once (e.g. ZL-G), or travels along one zonal path for a considerable proportion of its distance (e.g. J-G), then that signal is liable to considerable attenuation, even by mild storms. In this country we are in an unfortunate position, since the Northern Zone passes over Southern Greenland, south of Iceland, and over the north coast of Scandinavia, with the result that when the zone is enlarged by solar activity, it can cover the whole of Great Britain and extend to the latitudes of northern France. The result of this is that the only direction in which a signal can reach the "F" layer is roughly southerly in direction, which accounts for the preponderance of South American and African signals, and the complete absence of North American and easterly signals during the period of the solar activity. Even the author, who lives some 400 miles north of London, has found that this much distance nearer to the Northern Zone can exert an influence, particularly on the 28 mc band ;

(g) Although there is the 11-year sunspot cycle to be brought in to complete the complicating factors, it is considered that the usefulness of these charts remains unaffected.

Coverage of Charts

So much then for the factors on which the computations for the charts have (not) been based, and now for a general discussion on the charts and their uses.

As will be seen, calculated field strength in microvolts per metre has been plotted against hours GMT, and each month has been split into three sets of curves. This has been done purely to avoid having too large a family of graphs on the one sheet. The division used has been to group the zones roughly into continents, the resultant groups in most cases showing a similarity in slope characteristic. Thus the division has been made into :

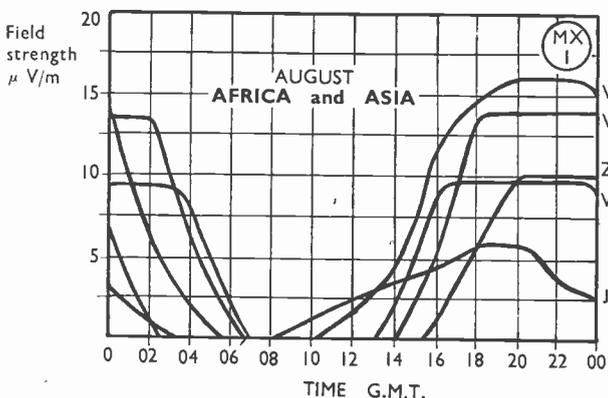
- (a) North and South America,
- (b) Africa and part of Asia,
- (c) Australasia, the Pacific, and the rest of Asia.

The reason for overflowing part of Asia into the third group is that, as will be seen on examination, the curves go through a transitional stage from the VK type of curve to the ZS type, and one or two areas, such as J, have distinct peculiarities during some months, which

* (The word "zone" is used in the sense of area in this article—Ed.)



He's getting the real gen at last.



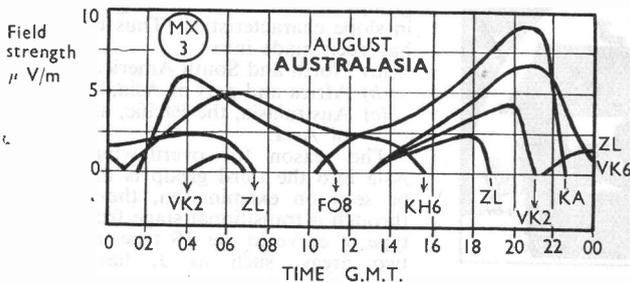
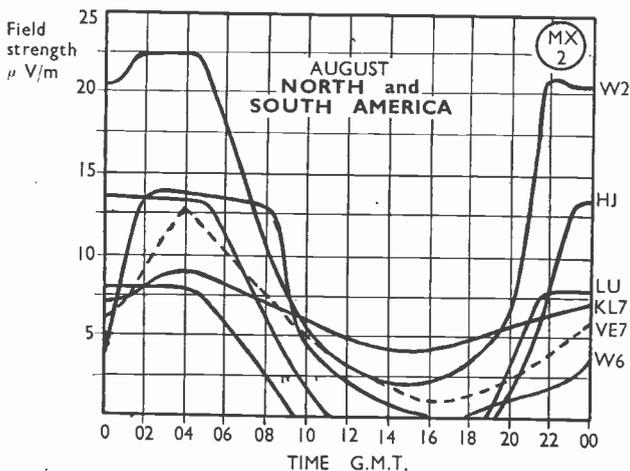
would cause confusion if not separated from the other curves.

Use of the Charts

These charts can be used in a variety of ways, and it must be remembered that a general picture of conditions can only be obtained by examining all three charts simultaneously. One obvious use is to determine the best time of the day for a given month when contact with a certain area should be easiest. Or, again, if a certain area is heard at a given time, then those areas which have a greater calculated field strength at the same time, and which arrive via approximately the same route, should also be audible.

The local time at the other end of the link should of course be considered. For example, in the early morning, W2 is shown to have a considerable field strength, which might be thought to mask say W6 with QRM. However, all normal W2 operators should be fast asleep at that time of the morning, and so that problem should not be serious, although ... well, some people do suffer from insomnia radiotelegraphia and allied complaints!

VK and ZL will be seen to show two periods of activity; one due to the East route and the other to the West route. The afternoon period results in a higher calculated field strength in this country, but signals may be lost due to interference



from other areas, such as Africa, Asia and Europe. Hence, although the early morning period results in a lower field strength, it may be possible to maintain contact with that area with greater ease, since the main sources of interference would be the Pacific and western districts of America and Canada. Further, unless the European boys are after the same game, interference from them should be considerably reduced.

Whilst interpolation between zones is permissible, and in this way large areas of the world's surface may be covered, it should be pointed out that extrapolation is risky, and will most probably lead to wrong conclusions.

From the above, it will be seen that a general picture of the manner in which the various areas fade in and out during the daily and monthly cycle, as well as the manner in which the individual areas behave when they are coming through, can be obtained. It is hoped that the publication of these charts, with relevant notes, will assist those of us who are interested in long-distance communication in landing some of those sought-after areas which the 25-watt man finds so elusive.

Intelligent operating, with a thought to the difficulties under which some of the stations are labouring—such as the local atmospheric conditions experienced at this time of the year in Africa, Central America, around Malaya and in India—coupled with a general working knowledge of the ionosphere and its characteristics, should

prove a useful adjunct on the hard-pressed 14 mc band. To this end, it is to be hoped that some of the excellent inter-Service publications which were produced during the war years concerning propagation will be made generally available.

Predictions for August

Generally, conditions, which are poor at this time of the year, are starting to show a slight improvement over July.

The nature of the curves concerning Australasia should be noted. In the afternoon period, signals become of gradually increasing intensity until a peak is reached, after which they very rapidly fall away to inaudibility. Whereas signals from this area remain at about the same intensity as in July, signals from Asia start coming in earlier in the afternoon. As a point of interest, it will be seen that the curve for J is transitional between the Australasian and African types of curve.

With regard to the American curves, the main interest is centred around the steep recovery of signal strength between 1900 and 2200 GMT, and in the fact that between about 0700 and 0900 hours, W6 is seen to produce a stronger signal than any W2 who should happen to be on. This is one of the few months of the year that this phenomenon is to be seen on these graphs. The VE7 curve has been made a broken line simply to avoid any confusion which might exist between so many nearly parallel lines.

AMBITIOUS DESIGN

The July issue of *CQ* carries an article describing the construction of a 10-metre "Lazy-H" aerial system, with reflectors and directors, the whole thing rotatable through 360 degrees. The interesting point is the rotation of this massive affair. The tower structure is supported and turned on a Fortress gun-turret, sunk into the ground, remotely controlled and indicated, and using a mercury contact pool for the feeder lines. *Very ingenious.*



807's AS QRO MODULATORS

An article in July *Radio News* shows that a pair of 807's in class-AB2 will provide 120 watts of audio power with 750 volts on the plate, the speech drive chain being 6SJ7-6J5-6F6.

RECEIVER CRYSTALS

Messrs. Piezo Crystals, Ltd., of Hadresham, Outwood, Redhill, Surrey, offer ceramic-mounted crystals of small size in the 450 kc to 3.0 mc range for use in receiver IF stages.

These crystals can be paired and accurately matched for double-crystal band-pass circuits.

THE Y.L.R.L.

This is the Young Ladies' Radio League, thought to be the only organisation of its kind in the world—some might say one is quite enough, anyway! But we don't mean to be churlish. This club is for licensed YL's only and they ask for membership throughout the world. If you qualify, write Helen Cook, W6MWO, 359 South Rexford Drive, Beverly Hills, Calif., U.S.A.

DX COMMENTARY

ON CALLS HEARD, WORKED & QSL'd

WAZ has undoubtedly provided the chief excitement of the month, and the appearance of C8YR (Zone 23) on the 14 mc band has completely changed the appearance of the list! We now have no fewer than five "top-scorers" triumphantly heading the roll, but not one of them is yet entitled to use the mystic letters "WAZ" on correspondence or cards (or even cheques) because they are all awaiting confirmation from one or more Zones.

As explained in the April issue, p.96, we shall need to see those 40 cards as final confirmation; so when they have all arrived, please send them in immediately by registered post, marking the packet WAZ Roll. After checking, they will be returned. The first lot to be received will be mounted and reproduced as a photograph in this feature.

The first British post-war score of 40 was achieved by G5BJ (Birmingham) on May 2, 1947, when he worked UAØKQA for his Zone 19 contact. He had already worked AC4YN, on 'phone, nearly a year before, and so had no worries about Zone 23. 'BJ, at the time of sending in his claim, was the *only* "40," and thus would have headed the list.

Then your anxious commentator collected his Zone 23 on June 18, 1947, and, by virtue of having worked a few more countries than G5BJ, appeared to be all set for the top of the list himself. He was feeling very bad about this, and wondering what sort of ruderies it might call forth from the boys, when *three* letters arrived. These were from G2PL, G5DQ and G5YV, who all worked C8YR on July 15. So G2PL (Wallington), by virtue of his enormous total of countries worked, goes to the top, amid what we are sure will be a clamour of congratulation. Well done, Peter. Meanwhile G6ZO is gnashing his teeth in Ankara, Turkey—of which more anon. But there is no doubt that when Jim returns, his technique in rolling in Zone 23 will be worth watching.

The WAZ list is longer than ever, and there seems to be no doubt that we shall have to raise the minimum score as time goes on. When some of the progressive types lower down really start picking up

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

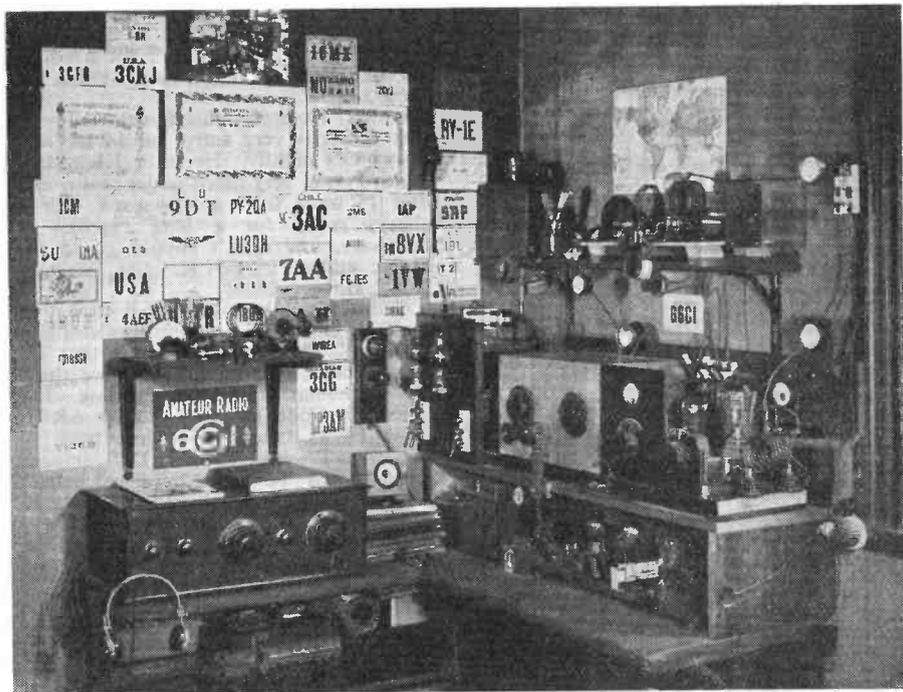
the DX in the winter season we foresee a list of about thirty calls, all with scores of 40 or 39. Meanwhile, for goodness' sake don't be discouraged if you are low down in the list; remember that it is quite something to appear in it at all, and think of all the would-be DX-chasers who have not yet made the score of 30.

As a matter of fact, DX-chasing in this way is a highly skilled and very strenuous occupation. The target of 40 Zones is well worth shooting at, but there must come a time when one feels that one wants to sit back a little. The next target would appear to be the somewhat remote one of 200 countries! This should be quite possible at the present time, but only to the specialist. Your commentator himself feels much more like sitting back and just working DX friends again, allowing any new countries that drift in by accident to add themselves to the total. After all, there *are* two sides to Amateur Radio; one can either chase new DX and therefore condemn oneself to a lifetime of working weak signals through QRM, or one can settle down to long ragchews with old friends (whether DX or not) and enjoy the luxury of two-way QSO's with good signals both ways. How d'you like yours?

On the purely DX theme, however, there is of course plenty of scope for WAZ working on the basis of bands—to show the cards for 40 Zones worked on 7 mc would certainly be an unparalleled achievement! We are considering WAZ band listings, and will have more to say about this later.

The Month's Postbag

Mail is heavier than ever before, and unfortunately lots of newsy letters will have to be dismissed in a sentence or two; but they are none the less greatly appreciated for all that. 14 mc DX has been uniformly good; some of the 28 mc addicts say that the band has still been open, but it is rather suspicious to note the number of them that have appeared



This interesting photograph is of G6CI, Kenilworth, as the station was in the winter season of 1928-29. The usual 10-V-1 Rx of the period is on the left, with a 10-metre Tx on the shelf above, using an LS5D in TPTG. On the right wall is a 20-metre TPTG round a UX210 (the Type '10 of blessed memory). Below is what for those days was an elaborate CO/ED/PA, using DE5B-DE5B-DE1. Don't those valve types strike a chord! Other equipment in view includes power supplies, modulator and moving-coil microphone, all home-built. By 1929, 65 countries had been chalked up at G6CI, including WFA, the First Byrd Antarctic Expedition.

on 14 mc! The spivs have been very active, although there seems to be a tendency among the DX stations to listen farther away from their own frequencies than formerly. We have scrapped our VFO for the time being and use a fairish number of crystals, having found that the probability of raising a station by putting in a crystal within about 15 kc of him is just as high as when using a VFO (spiv-fashion or otherwise!).

G3DO (Sutton Coldfield) tells us that VR6AA (Pitcairn) will be operating shortly on 'phone on 28792 kc, and wants this to be made known. 'DO collected an extra zone during the month and is only waiting for the notorious No. 23 to get into the top flight. G3BXN (Harrow) sends some useful information received over the air from UAØUA. There are three stations known to be in Zone 19, and they are UAØKFA, UAØKFC and

UAØKQA. UAØUA himself is at Chita, in Zone 18.

Unusual plea from G2DF, who is also GD2DF/A when he is at Ballasalla, I.O.M. He says the new prefix and the suffix make the call look and sound so improbable that people think he's a pirate. We gladly proclaim that he isn't; and if you're looking for the Isle of Man as a new country, look out for that call GD2DF/A—but it is a brute, isn't it? Try and send it for yourself. Full address in "New QTH's," by the way.

G8NY (London, N.8) passes on a message from VE7AIE to the effect that the road and street listed against his name in the Call Books is incorrect, and that his QTH is just "New Westminster, B.C." G8NY has just become active on 14 mc and enjoys the early morning conditions; he has been working XE, TG, VE7 and so on.

WORKED ALL ZONES

Maximum Possible 40

Total Prefixes Listed 217

Station	Post-war Zones Worked	Post-war Countries Worked	All-time Zones	All-time Countries
G2PL	40	167	40	185
G5DQ	40	144	?	?
G5YV	40	141	40	152
G6QB	40	135	40	157
G5BJ	40	126	40	159
G6ZO	39	166	39	174
G2WVW	39	142	39	142
G8KP	39	135	39	159
G2CDI	39	132	39	132
G2AJ	39	131	39	131
G3DO	39	129	39	142
G3FJ	39	127	39	130
G5RV	39	121	?	?
G5WM	39	120	39	120
D2KW	39	118	39	118
G6BS	39	117	39	138
G3AAK	39	114	39	114
G8IL	38	123	40	146
G8RL	38	115	38	132
ON4JW	38	110	?	?
G3OD	38	109	38	110
G3ZI	38	107	38	115
GW3AX	37	110	37	114
G5CI	37	109	37	111
G2VD	36	112	37	120
G6WX	36	95	37	117
G6PJ	36	64	36	116
G2CNN	35	107	35	107
G5MR	35	76	36	88
G8OX	34	99	34	99
G2AO	34	84	38	116
GM2UU	34	84	36	109
G8IP	33	88	36	103
G2LC	33	85	38	104
GW4CX	33	78	33	78
J4AAK	33	57	33	57
G8FF	32	78	33	87
G3VA	31	101	31	102
G2WQ	30	76	37	111
G5OQ	30	74	32	102
G2VV	30	74	32	91
G6BB	30	64	31	81

G2CDI, the 28 mc Wizard of Stokenchurch, has departed for Barbados, leaving behind him a score of 39Z and 132C. His last additions before going off the air were UJ8AC and 8AD, FQ3AT and F8EX/FC. The latter has puzzled many people, but the "FC" means Corsica, not Clipperton Island.

G3CBG (H.M.S. *Superb*) recently visited Denmark in the course of the Home Fleet summer cruise, and writes about the hospitality and efficiency of Danish amateurs, particularly OZ7UU, with whom he spent some time. (He located him by the usual method of following the feeder of a 10-metre beam!) The Danes are short of lots of gear, such as transformers, and their rigs are consequently of the makeshift and home-brewed type (in other words, *real* amateur stations).

G6BS (Luton) is moving back to his

old QTH at Cambridge, from which excellent DX was worked in 1926, and will therefore be off the air for a while. He, like many others, is only waiting for Zone 23.

G6XS (Ashton-under-Lyne) tells us that EP3H is very active on 14 mc and works G's nightly. He is in Khuzistan, South Persia, very much under cover, and uses 15 watts from a Vibrapack. He is always ready for a long ragchew if necessary, and QSL's should go to his home address: G3LK, 13a Western Road, Hove.

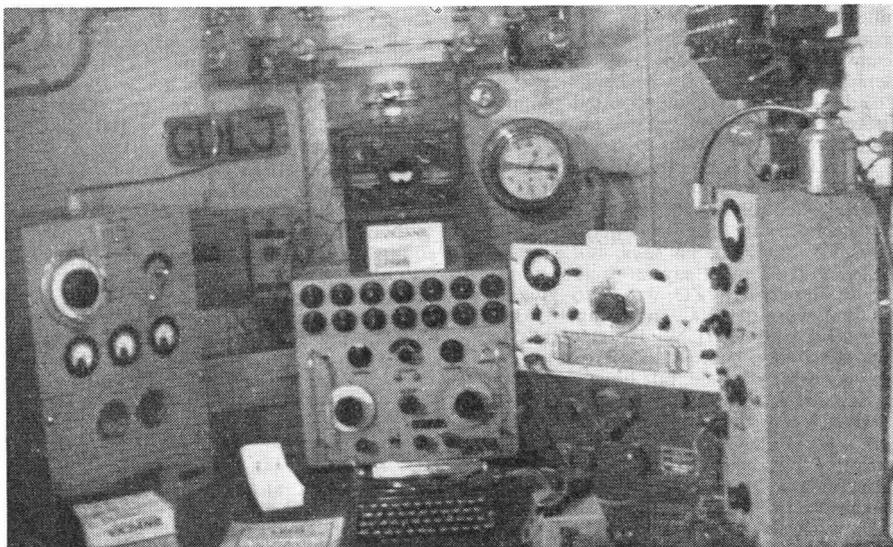
G6BB (Streatham) thinks it time that the "T" in the RST system was straightened out. He rightly points out that T8, in one table, is pure DC—but we think that particular table is out of date. The official T Code as published by ARRL gives T8 as "Good DC—just trace of ripple," T7 as "Near DC—smooth ripple," and T6 as "Modulated—slight trace of whistle." So that there is now no provision, as in the old table, for wobbly notes. Only way now, 'BB, to deal with some of them is to say "T6X" or "T6 with wobble."

G3BH of Birkenhead is on his way to Buenos Aires and Montevideo, where he intends to make some direct QSO's with LU and CX stations. He hopes, on future trips, to be able to come on the air; this time he will only be able to listen.

G2FZO (Moreton-in-Marsh) had his aerial blown down, and he couldn't hitch it up quite so high as before. Since then he has done nothing but work DX which was not formerly possible! His list (25 watts to an 807) includes VK, ZL, VU7BR, ZC6DD, NY4CM, VE8MJ, KH6IJ, YT7GB(?) and CS2LAX, who is said to be in Lisbon.

GW3ALX (s.s. *Pencarrow*) listened halfway across the Atlantic on 1.7 mc, following our suggestion, and has sent in a nice list of Calls Heard—some of them from just about mid-Atlantic. G6PJ (Sheffield) has our old PT15 PA on the air with 130 watts, and has been getting around a good deal, although he lost W7ANN/C1 to the spivs, he says. G5YV (Morley), in addition to hitting 40 Zones, has put his country total up with a jump, collecting ZS3F, XE1FU, ZD2KC, ET3Y, EL4A, FQ3AT, VP5FR, TI2RC, KZ5AP and lots more.

GM2UU (Stranraer) has been down in Kent and Hampshire, and finds that we in the Sunny South apparently receive a different set of signals from the GM boys in their native land. He says that in Scotland they seem to get W's, VE's and



General view of VK2ANE, operated MM on s.s. *Chertsey* from August '46 to February '47, using 14 mc. The Tx, a 6V6-PT15 CO/PA, is on the right and ran 35 watts input, with suppressor-grid control. Receivers were a BC-348-R and an Australian Kingsley KCR-11. VK2ANE/MM WAC'd five times and rolled in a total of 34 countries, all on 'phone; over 200 VK's were worked. The ship's own gear, for MF only, is in the cabinet on the left.

KH6's better than we do, but we score when it comes to Asiatic and South African signals. 'UU has also added half a dozen or so new countries, including YS1MK and YN1HB, both of which we ourselves would like very much.

7 mc DX

Last month's remarks about 7 mc brought forth some comment, as we hoped. G5GK (Burnley) finds DX still good if you avoid QRN conditions, and has worked HR1AT, ZL, VE 1, 2 and 3, and all districts U.S.A. except the 6th and 7th. He had the other districts and the ZL in a single three-hour session.

G4QC (Liverpool) has worked W1, 2, 3, 4, 8, 9, VE, FA and HH, and has heard KZ5FS and KP4EL; hopes to bag them later. GC3GS (Jersey) finds 7 mc very interesting but adds "If the spivs who normally infest the DX bands would stay away instead of appearing on 7 and saying 'Nothing doing on the other bands, old chap, so I just bring the whole 150 watts on 40 and am sure to raise someone,' things would be better." 'GS also deplors the way a man who has been working on 14 will persist in telling someone on 7 all about his wonderful DX, without even

being asked. And he adds a reinforcement to our earlier remark—consistent working with selected stations at certain times has just as much appeal, in its own way, as "DX fly-catching." And 7 mc is undoubtedly the home of "the old faithfuls."

G2HKU (Sheerness) still raises W's in the mornings on 7 mc but has been inclined to forsake it for some DX on 14. He only gets about three hours per week on the air, and only has one crystal, which puts him on 14180, but he has raised W6, KP4, VE, VO, XE, VK, ZL and all that—with QRP, too.

From Overseas

A notable volume of overseas mail this month includes some very interesting items. LI2CL (El Adem) writes to say that he has been issuing "LI" calls, under his authority as RAF Signals Officer for the locality, to amateurs in the Cyrenaica division of Libya only. The Tripolitania division (T1NS and TR1P) is outside his sphere of influence. The LI's in Cyrenaica at present are LI2BO, 2CL and 2JC. "KUFRA" is closed, Cpl. Oliver having been posted. LI2CT and LI2DA have been heard, but are *not* in Libya. (Of course the prefix LI is really assigned to

Norway, hence the genuine LI2B.) When official calls in the "M--" series are issued, LI2CL says there will be at least four new stations opening up in the Benghazi area, and perhaps two in Tobruk. He adds some pointed remarks about SWL reports, which have been transferred to the *Short Wave Listener*.

Jim Kirk (G6ZO) is in Ankara, Turkey, on business, and sends a long list of Calls Heard, selections from which appear in that section. He has borrowed an S.20R from TA3SO who, he says, is "a grand sport," but he can't say more about him. Before departing, 'ZO wrote to give us his final score of 166C, including FQ3AT, F8EX/FC and HS1LN. He also tells us that there is a KH6KL/ZC3 on 14 mc, who sounds very nice, but he is said to be leaving for KC6 shortly.

HB9CE (Zurich) offers to handle all QSL's for LZ1XX, YR5AH and all YU stations, but states that LZ1AK and HE2UD are "phoneys." He will be in Liechtenstein in September, operating under call HE1CE. *And he will QSL!*

ON4JW (Brussels), sending in a nice WAZ score, says that ON4AU (who was WAZ before the war) is still their No. 1 DX-man, and he thinks his score would give the G's something to think about. We are hoping to see it by next month. 4JW adds that he knows ON4TA has scored 39Z and 127C post-war.

Harold Owen (Tafo, Gold Coast) is now ZD4AM. Congratulations, Harold—we have been waiting to see that for some time. He sends another list of G Calls Heard, and hopes to be looking for G contacts himself by about the end of August. Licence conditions out there are identical with those of the U.K., except that there is no 150-watt class.

A long and interesting letter from ZC1AL (Transjordan) tells us that he opened up in March and is the *only* ZC1 station in operation. He works 'phone on 14200 and 14300 kc between 1500 and 2200 GMT. Here are his chief dislikes: (1) G stations working each other on 14 mc; (2) D \dagger and XA stations using enormous power and gigantic aerials and calling CQ for hours; (3) Spivs who QSY on to the frequency of the station he is working, in the hope of busting their way into a contact; (4) High-powered VFO's who QSY to avoid QRM and don't bother to listen first on their new frequency; (5) Stations who say "QRU, QSL, 73's" as soon as they get his QTH, before he has time to say anything at all; (6) SWL's who do not enclose reply coupons. We have printed these com-

ments because a DX station's viewpoint is always worth knowing. We agree with it all except possibly the last one—what's wrong with QSL Bureaux? ZC1AL had quite a time opening up a station in the desert, especially with the type of mains supply that slips from 220 to 180 volts—but it has been worth the effort.

MD5AK (MELF) has gone "QRO" with 25 watts, and has worked 29 Zones and 114 countries in 32 days. (Oh, the joys of being at the DX end!) 'AK suffers from a new scourge—the type of VFO-hound who slides up and down the band while calling CQ and just steadies down towards the end, when he's signing. Considering his station can only work

DX QTH'S

C4CK	Box 163, Kunming, China.
CP1AX	R. Maldonada, Panagra, La Paz, Bolivia.
FT4AC	M. Deschot, 99 Rue d'Isly, Tunis.
HH5E	Pan American Airways, Port-au-Prince, Haiti.
KA6FÄ	Box 392, Ilo Ilo, Panay Island, Philippines.
KG6AV/VK9	AP0 246, c/o PM, San Francisco, California.
KZ5AP	Box 293, Gatun, Canal Zone.
KZ5DX	France Field, US Army, Canal Zone.
KZ5NB	US Submarine Base, Balboa, Canal Zone.
PK1RI	Box 190, Batavia, Java.
PK6AX	VERON, Box 400, Rotterdam-Holland. (<i>Station on Celebes Is.</i>)
ST2KA	Box 300, Khartoum, Sudan.
TF3HG	Box 5, Reykjavik, Iceland.
TF3MB	Box 1080, Reykjavik, Iceland.
VE80G	c/o AOC 11 Group RCAF, Stevenson Field, Winnipeg, Canada.
VP4TAX	5 Saddle Road, Maraval, Port-of-Spain, Trinidad.
VP5PU	AP0 845, c/o PM, Miami, Fla. (<i>Station on Cocos Island</i>).
VS6AN	A. P. Rosario, Top Floor, 227 Nathan Road, Kowloon, Hong Kong.
VU2KM	J. C. Brown, HQ 2 Coy., Southern Command Sig. Regt., Bombay 5.
W5FFW	H. E. Davis, 1419 West Archer Street, Tulsa 6, Oklahoma.
XZ2KM	379 Dalhousie Street, Rangoon, Burma.
YS1JR	J. Rodriguez, Cojutepeque, El Salvador.
YS3PL	Prudencio Llach, San Salvador, El Salvador.
ZC1AL	c/o Post Office, MAFRAQ, The Arab Legion, Transjordan.

two hours a day, four or five days a week, it seems that MD5AK is doing some good stuff there.

J4AAK (Miho, Japan) finds himself the B.C.O.F. "DCM" of the Far Eastern Amateur Relay League, organised by the American lads out there. He, too, talks about the difficulties of getting on the air and keeping on when there's no junk-shop just round the corner. Apparently, too, the Chinese 'phones cause a brand of trouble all their very own; they seem to correspond to the French spitch of the 30's. In their DX Club out there, J3AAD is leading with 85 countries, followed by W2CDJ/J2 with 82, J2AHI with 67 and J4AAK with 57. J2's, 3's and 9's are too numerous to mention, and all seem to have BC 610's "souped up" to 1 kW. A little list of Calls Heard and some nice QTH's complete the contribution from J4AAK/G4LV.

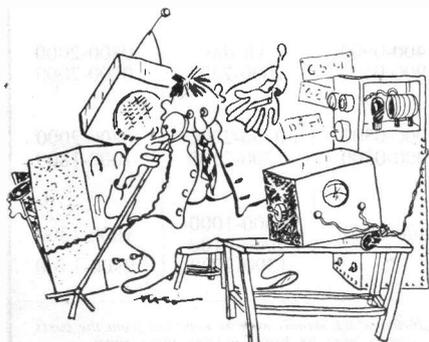
D2FV and D2DM (B.A.O.R.) both ask for their QTH's to go in the list, but unfortunately we have found that by the time space is available, and the list appears, these types have invariably been posted! D2FV runs 20 watts to an 807 and does well with it, but is shortly moving to the top of a hill and erecting a respectable aerial system. 'FV comes from Woodford Green, and wants to contact any of the chaps there—G2BCX, 4GA, 6SG or 8TL.

Shorts

G3BDS (Worcester) worked RUDY1 on 7 mc—anyone have any dope on this one? G5DQ (Cambridge) got KM6AA on Midway, VR6AA, CR6AI, PK5LK and W6YAW/AK (Korea) together with all sorts of other things. G8IL (Salisbury) has added quite a number of countries,

with HH, CR6, UR2, MD5, ZD2, VS6, and finally comes up with MD6AJ (Shaibah). Does this mean an official MD5 district? G2SA (Burnham-on-Crouch) has been hearing nice things like C8YR, ZK1AG, ZD9F, KS4AE and VU7JU. He strongly disapproves of the commercials in the LF end of 14 mc. Don't we all? G5RV (Chelmsford) suggests we start writing rude letters about them. Shoot 'em in—we're prepared to act as collector.

G2WW (Penzance) is working up a fine score of countries (142 at present) and only wants Zone 1 for top score. Recent acquisitions were GD, CR6, FQ3, KV4 OA, UH8, VP5, VU7, ZD2 and ZS3. But he also heard CR8AC (Goa?), FL8AE, KS4AC and 4AE, VR6AA, W3EKK/VK9, ZD6DT and lots of other good stuff he has not yet worked. Watch G2WW for the top of the ladder one of these days. G2WQ (Manchester) had an interesting string of QSO's one evening—July 12—in this order: TF3MB, J9ANL, PK6SA, ZE2JH, ZS3D, PY6AJ and KL7UM. Certainly mixing things up a bit there. G3AOC (London, S.W.17) complains that he was working FT4AC when five American spivs parked on the frequency and smothered the FT completely. He suggests that any VFO operator not completely lost to the finer feelings might shift just a *teeny* bit when he is obviously QRM-ing someone



We always get S9 plus with BBC quality.

ANYTHING FOR YOU?

Cards await in our QSL Bureau the addressees below, whose full QTH's we do not know. If you are in the list, please send a stamped addressed envelope of a suitable size, with your name and callsign, to BCM/QSL, London, W.C.1. The cards will be forwarded on the next G clearance.

G2AJS, 2AOA, 2ATY, 2AXN, 2AYY, 2BMH, 2BUV, 2DLJ, 2FCS, 2FZK, 2JT, 2OR, 2RJ, 2RN, 2TZ, 2XK, 3AAF, 3ABC, 3ABR, 3ADD, 3ADM, 3AGG, 3ALF, 3AST, 3AVE, 3AXW, 3AYO, 3AYU, 3AZ, 3BBK, 3BCF, 3BCH, 3BDI, 3BGR, 3BHV, 3BKD, 3BKH, 3BKQ, 3BKR, 3BLP, 3BMH, 3BPZ, 3BSR, 3BUU, 3BVI, 3BCA, 3CEL, 3CLD, 3QV, 3NR, 3XD, 4BI, 4HW, 4IF, 5QC, 6KL, 6PZ, 6VY, 8DJ, 8IB, 8IF, 8KX, 8KY, 8UT, 8WO, GD3AGC, 3BBS, G13IA, 5UW, GM3AOR, 3BQA, 3KD, 4AA, 8RJ, GW2FGJ, 3AGB, 3AZQ, 3BYZ.

working on crystal. G6VC says that W5FFW (Tulsa, Okla.) finds that many G's need Oklahoma for WAS; if any have worked him and not received a card, will they drop him a line? Full QTH in panel. G2VD (Watford) comments on UA3AG/Ø, who says he is in Zone 19. VD has also worked EP3H, UH8KAA, UJ8AD and W5IMT/KS4, to mention only a few.

G5WC (London, S.E.19) has brought in some nice stuff, including HP4Q, UN1AO, CM2JK, VP5FR, and "all the usual." He had a possible QSO with a ZM6 busted by the spivs. G2AIS (Loudwater, Bucks) sends a useful list of QTH's and some DX Calls Worked, complete with times. As he rightly says, if people working unusual DX would quote the time, it's rather more interesting than the frequency in these days of VFO's. We haven't the space to give his list this time, so we're keeping the goods under the counter for ourselves! G8IP (Hampton) uses a very unusual aerial (of necessity) consisting of a 66-footer for 14 mc and a 52-footer for 28 mc, physically joined at a current loop. The contraption is fed by co-ax. at that point. Loading coils are used at the transmitting end, and the DX worked on this affair includes calls like ZD2KC, KH6IJ, VE8OG, UH8KAA,

FQ3AT, PK6WS and lots more. It works!

G2PL (Wallington), who now triumphantly heads the WAZ list, has worked, since last month, MX3PA, LU1ZA (South Orkneys), EA7A, KP6AB, HS1IN, FQ3AT, F8EX/FC and PK4 (at last!). But he has heard, and still wants, ZM6AC and 6AF, YJ1AB, KB6AB, KM6AA, FC2B (Clipperton) and KH6KL/KS6. Some of that is real DX, by any standards, and it still would be if you had a BC 610 and a rhombic.

G5VQ (Westcliff) has been knocking them off well, with FQ3AT, CR7AD, C7HY, KL7AD, J3AAD, J4AAK, HZ2TG, ZD4AB and all that sort of thing! Trouble with DX reporting nowadays is that there's so much stuff around that it does not mean very much. Things that would have made our eyes pop out in 1938/39 just come in, are worked, QSL and are QSL'd, and disappear again. Too bad—but perhaps by 1950 it will be a thrill to work a W6 again!

Well, so much for this time. Next month's deadline is August 15, first post; and please help by putting WAZ claims on postcards and not hiding them in the middle of long, newsy letters. We like both, but prefer 'em separated. Good hunting, and keep an eye on 28 mc!

DX FORECAST FOR AUGUST 1947 (ALL TIMES GMT)

	7 mc	14 mc	28 mc
NORTH AMERICA			
East and Central	2300-0600	1800-0700	Erratic
West Coast	0500-0600	{ 1700-2200 0300-0700	Unlikely
CENTRAL AND SOUTH AMERICA	2300-0600	2000-0800	1400-2000
AFRICA :			
North of Cancer	1400-0900	All day	0800-2000
South of Cancer	1900-0600	1600-2300	0700-2000
ASIA :			
West of 75 deg. E.	2000-0300	0700-2200	0800-2000
East of 75 deg. E.	2000-0500	1300-2100	1000-1800
OCEANIA :			
VK, ZL, ZK, ZM, VR etc. ..	0400-0800	{ 0600-1000 2000-0100	1000-1300
PK, KA, KB6, KG6, KM6 ..	?	1300-2000	0900-1300

NOTE.—The times given above are the most likely periods during which signals may be expected from the parts of the world indicated. Under unusual conditions, signals may be heard outside these times.



The other man's station

G2BCX

Illustrated is G2BCX, the station owned and operated by F. C. Judd at 111 Maybank Road, South Woodford, London, E.18. The AA call 2BCX was allotted him as far back as 1934, the full permit being forthcoming in March 1946. The photograph above shows the station, all ready to commence operation, as it actually was on the day the ticket arrived.

Starting up on 28 mc, G2BCX is now equipped for all bands except five metres, and is licensed for 'phone operation. The transmitters are crystal or VFO controlled at will, and arranged for full BK working.

The main Tx covers the 3.5, 7, 14 and 28 mc bands, with an additional unit for 1.7 mc which can also be put on 3.5 mc for QRP working on that band. For 'phone, cathode modula-

tion is used on both transmitters. All control and change-over motions are relay-operated. The station receiver is a superhet with all the "usual refinements" and covers 1.5-20 mc; a separate converter is used for the 14 and 28 mc bands, feeding into the main receiver at an IF of 2 mc.

Most of G2BCX's operation is on 14 mc, and all continents have been worked with a W3EDP aerial, this being used for transmission on all bands. An additional $\frac{1}{2}$ -wave dipole is available for 14 mc and a separate receiving aerial is used.

One of the outstanding features of G2BCX is that all equipment—including receiver, side-operated Morse key and microphones—is home-constructed. In these days, that is a particularly creditable achievement.

CALLS HEARD

Please arrange all logs strictly in the form given here, in numerical and alphabetical order and on separate sheets under appropriate headings, with callign and address on each sheet.

14 mc

J4AAK, RAF Station MIHO, B.C.O.F., Japan.

G2AHU (549), 2FDF (569), 2FZ (449), 3AVK (449), 3AZ (579x), 3BDQ (458), 3QD (439), 5FK (56/79), 6RB (339), 6ZO (459), 8AC (559), 8OJ (339).

ZD4AM, West African Cacao Research Institute, Tafo, Gold Coast Colony.

CW: G2AAN (44), 2AHP (55), 2AMX (558), 2ATF (33), 2BAB (45), 2BAG (45), 2BMC (33), 2CDI (43), 2CIX (558), 2CLL (56), 2CNN (56), 2CXO (567), 2CXQ (558), 2DFH (558), 2FCV (45), 2FDC (55), 2FDF (568), 2FGX (44), 2FXO (55), 2HFO (55), 2HJV (44), 2HOJ (44), 2KG (568), 2LA (44), 2LI (33), 2LS/P (44), 2LU (56), 2QO (568), 2SB (567), 2UT (56), 2XB (32), 3ABR (33), 3AGR (44), 3AKU (44), 3APB (448), 3ARE (55), 3ASG (44), 3ASQ (44), 3AUP (45), 3BCS (56), 3BLG (32), 3BUU (33), 3CS (553), KP (338), 3LB (44), 3LL (55), 3NZ (348), 3QV (55), 3RQ (56), 3SN (43), 3SR (44), 3VN (55), 3VP (44), 4BD (558), 4FN (44), 4GR (33), 4HW (45), 4IC (446), 4KG (448), 4KI (448), 4LW (44), 4AO (44), 5BZ (558), 5CG (558), 5DQ (447), 5FG (54), 5HH (447), 5JF (44), 5KZ (557), 5LI (46), 5MF (44), 5MU (448), 5NV (458), 5PP/P (55), 5RF (55), 5RP (568), 5VB (568), 5XD (338), 5XW (55), 5YV (458), 5ZA (55), 6BQ (44), 6CW (566), 6GN (56), 6HC (55), 6HF (55), 6NV (458), 6OY (558), 6PM (458), 6SS (32), 6UA (55), 6WI (44), 6XT (557), 8AW (348), 8BQ (458), 8DD (578), 8DL (448), 8FC (55), 8GD (446), 8GP (43), 8IG (56), 8IH/P (44), 8IP (44), 8KP (448), 8LO (33), 8MZ (438), 8NV (567), 8PP (448), 8UG (54), 8UN (33), 8I2KR (44), 8UR (32), 5UW (44), 8M3AHQ (44), 8W3ZV (567). (June 1-June 30. RS values in brackets: T9 unless otherwise stated. Receiver: 0-V-1.)

G6ZO in Ankara, Turkey.

June 27, 1800-2000 GMT.

G2DM, 2FWW, 2OS, 2SB, 2YS, 3AAM, 3BU, 3BW, 3BXP, 3GX, 3IV, 3LL, 3TY, 3WS, 4IC, 4OI, 5CI, 5LI, 5YV, 6BQ, 6GN, 6KP, 6UT, 6WP, 8AW, 8FC, 8JR, 8M3AHQ, 8W2XZ, 3ZV.

June 29, 1230-1700 GMT.

G2AND, 2BAG, 2BGP, 2CJH, 2CLL, 2DDM, 2FCJ, 2FDF,

2FMC, 2FRW, 2FSS, 2FT, 2HFP, 2HLN, 2YS, 3AGN, 2APZ, 3AUC, 3AVE, 3AZ, 3BQR, 3BUU, 3FJ, 3FS, 3IQ, 3LL, 3MA, 3SR, 3TY, 3XV, 3YT, 4AR, 4IC, 5BJ, 5CG, 5FK, 5SR, 6IC, 6UR, 6XX, 8FC, 8HH, 8HO, 8JR, 8KU, 8PL, 8TI, 8UT, 8ISUW, 8W3ZV.

June 30, 0500-0545 and 1930-1945 GMT

G2AJS, 2BQC, 2CNN, 2FMM, 2FSR, 2HNO, 2LC, 2NP, 2XJ, 3AAN, 3AZ, 3BI, 3BLN, 3DM, 3QV, 3YH, 4IC, 4MU, 5BZ, 5KZ, 5LI, 5YV, 6BB, 6BQ, 6GH, 6GN, 6PY, 8FF, 8GD, 8IW, 8JR, 8PL, 8RL, 8VG, 8ISHU, 6YM, 8W2XZ,

July 1, 1715-1745 GMT

G2CLL, 2FDF, 2FSR, 2KM, 2NP, 8VV

July 5, 0500-0550, 1230-1250, 1430-2000 GMT

G2ABK, 2AHL, 2AVC, 2BQC, 2CJH, 2CNN, 2CZH, 2FBA, 2FDC, 2DFE, 2FK, 2FNV, 2FO, 2FWW, 2FXQ, 2HFO, 2HOJ, 2MI, 2PL, 2QO, 2SA, 2VD, 2VY, 2WQ, 2WV, 3AGN, 3AMO, 3APZ, 3AU, 3AUZ, 3AVK, 3AYA, 3AZ, 3BC, 3BWY, 3CDG, 3FJ, 3IH, 3KP, 3LL, 3SB, 3TK, 4AD, 4AR, 4AU, 4CF, 4DH, 4FN, 4GI, 4JB, 4MU, 5CI, 5DQ, 5IV, 5LI, 5TG, 5UX, 5VU, 5YV, 6BB, 6BQ, 6JF, 6NV, 6OY, 6RC, 6RS, 6UF, 6XA, 6XT, 8AL, 8DN, 8GO, 8HH, 8II, 8NF, 8OH, 8RC, 8TR, 8ISUR, 8M2FQG, 3AXO, 4MQ, 5SC, 8CH, 8SQ, 8W3ZV.

7 mc

G6ZO in Ankara, Turkey.

G2DAG, 2QX, 3BBZ, 5GK.

1.7 mc

GW3ALX aboard S.S. Pencarrow bound Montreal from Swansea.

June 20, 2215-2315 GMT. Position 52N, 12W.

G2KO (36), 5UF (57).

June 21, 2200-2300 GMT. Position 53N, 17W.

G2DWN (34), 2HW (55), 3JK (34), 3PU (45), 5UF (46).

June 22, 2200-2300 GMT. Position 53½N, 22W.

G3AAB (56), 8RO (45), 8W2BG (45).

June 23, 2200-2230 GMT. Position 54N, 25W.

G2OO (44), 5BD (55).

June 24, 2200-2230 GMT. Position 54N, 30W.

G2OO (45), 3ANY (44), 5UF (45), 8QD (34), 8I6FB (55). (RS given in brackets. Receiver Marconi CR300 with 25 ft. vertical aerial.)

FIVE METRES

G2KF, Havencroft, Eden Bridge, Kent.

Worked: F8NW, FA8BG, 8IH, G2FI, 2KI, 2LC, 2MC, 2MR, 2MV, 2NH, 2NM, 2QV, 2UJ, 2XC, 2YL, 3BLK, 3BR, 3PF, 4DN, 4IG, 4KD, 5BD, 5NY, 5MA, 5MA/P, 5PY, 5UM, 6FO, 6LK, 6NB, 6OH, 6OT, 6UH, 6VX, 6XM, 8DV, 8GX, 8IG, 8KZ, 8SM, 8TS, ON5G, PAØPN.

Heard: F3JB, G2BMZ, 2OJ, 3AAT, 5MR, ON4F. (All June 6-July 20.)

G6LK, Warham Lodge, Bridge Road, Craneleigh, Surrey.

Worked: F3HL, 3JB, 8LO, 8NW, 9AQ, FA8BG, 8IH, I1AY, 1XW, OK2MV, 3ID, ON4IF, 4KN, 5G, PAØPN, SM5BA, 5YS, ZB1A, 1AC, 1E.

Heard: HB9CD, OK1FF, ON4DJ, OZ7G, PAØUM. (All June 16-July 21: 32 QSO's outside G during period.)

G2NH, 75 Woodlands Avenue, New Malden, Surrey.

Worked: G2AOK, 2IQ, 2XC, 3APY/P, 4IG, 4LU, 4MR, 5BY, 5IG/P, 5LO, 5MA/P, 5MQ, 5RP/P, 5WP, 6CW/P, 6MN/A, 8DM, 8GX, 8KZ, 8SK/P. (Representing 20 Counties worked with 6 watts during day July 20.)

G2ADZ, Lloft Wen, Ardmillan Lane, Oswestry, Salop.

Heard: F3HL, 3JB, 8KR, 9AQ, 9GN, FA8BG, 8IH, HB9CD, I1AY, OK1AA, 1AW, 1FF, 1SE, ZB1AC, G2AK, 2ATK, 2HX, 2IN, 2IQ, 2MA, 2NV, 5BM, 5GX, 5JU, 5LI, 5VM, 5XV, 6CW, 6YU, 8WL, 8UZ. (All G's over 50 miles distant.)

G2MC, 2MR, 2MV, 2NH, 2XC, 3AAT, 3FD, 5BY, 5MA, 5WP, 6LK, 6VX, 6XM, 8DM, 8DV. (All over 150 miles distant. Reception period June 22-July 18.)

GSZT, Burnbank, Goosewell Hill, Eggbuckland, Plymouth, Devon.

Worked: FA8IH, G2NM, 2VH, 2XC, 3AAT, 3HW, 5BM, 5MR, 6LK, 6VX, I1AY, I1XA(?)

Heard: FA8DI(?), G3ID, 4LA, 6IX, 6OH, SM5FA (SA?). (Period July 10-18.)

SWL, 122 St. Andrews Road, Coulsdon, Surrey.

F3HL, 8NW, FA8BG, 8IH, ON4DJ, 4IF, 4KN, 5G, OK1FF, OZ7G, PAØPN, ØUN, ZB1AB. (Period June 22-July 19. Rx: Modified HRO. Aerial, 4-element beam.)

SWL, Canon Gate, Reigate Hill, Surrey.

F8GH, 8NW, 8OL, 9AQ, FA8DH, 8IH, G2AOK, 2BMZ, 2IQ, 2NM, 2VH, 2XC, 3AAT, 4AP, 4LU, 5BM, 5BY, 5CM, 5GX, 5IG, 5MQ, 6CW, 6YU, OK3ID, ON4DJ, 4KN, 4IF, OZ7G, PAØPN, SM5TH, 7XK, ZB1AB, 1AC. (Period June 22-July 21. Rx: 3-stage Converter. Aerial: Rotary beam.)

G6MN, Castlemount, Worksop, Notts.

F3HL, 8BG, 9BG, FA8BG, 8IH, G2ATK/P, 2FJD, 2HQ, 2HX, 2IQ, 2MA, 2MV, 2NH/P, 2OI, 3AUH, 3APY/P, 3DA, 3DG, 3FN, 3MY/P, 3TN, 3ZK, 4BB, 4BI, 4IJ, 4LU, 5BM, 5BD, 5BY, 5GX, 5MA/P, 5MQ, 5RP/P, 5VM, 6BX, 6CU/P, 6CW/P, 6HY, 6HX, 6LC, 6OS, 6SQ,

6VA, 6VX, 6YO, 6YQ, 6YU/P, 8IC, 8JV, 8NF/P, 8NM, 8NS, 8QX, 8UZ, 11DX. (Heard or Worked during month.)

SWL, 33 Kemball Street, Ipswich, Suffolk.

F3HL, FA8BG, 8IH, G2CUA/P, 2KG, 2MR, 2MV, 2NH, 2NM, 2PU, 2TK, 2XC, 3BXE, 3WS, 4IG, 3BD, 5GX, 5IG/P, 5MA/P, 5PY, 5QK/P, 5WP, 6AG, 6DH, 6LK, 6VX, 6XM, 6YU, 8JV, 8QM/P, 11AY, ON4DJ, 4IF, 4KN, 5G, PAØPN. (Period May 13-July 20. Rx: Converter! 1-V-2. Aerial: 2-element beam.)

SWL, 6 Guildhill Road, Southbourne, Bournemouth, Hants.

CW: G2BMZ, 2DW1, 2KF, 2MC, 2MR, 2NH, 2NM, 2XC, 4MR, 5BM, 5BY, 5MA, 5VM, 5WP, 5ZU, 6CW, 6UV, 6VX, 6YU, 8GX, 8RS.

*Phone: G2BMZ, 2CUA, 2MV, 2NH, 2NM, 2XC, 5BY, 5WP, 6LK, 6YU, 8DM, 8KZ, 8QX. (All June 17-July 2, 1900-2359 DST.)

CW: F8NW, G2MV, 2QV, 2QY, 2XC, 5BM, 5BY, 5MA, 5MR, 5PY, 6DH, 6VX, 8RS.

*Phone: G2BMZ, 8KZ. (All on July 3, 2127-2304 DST.)

CW: G2BMZ, 2NH, 2VH, 5BY, 5MU, 5ZT, 6DH, 6FO, 6LK, 6VX.

*Phone: G2BMZ, 2NM, 5BY, 5MA, 6LK, 6VX. (All July 4-19, 2100-2300 DST.)

G2XC, 34 London Road, Widley Portsmouth, Hants.

F8NW, G2AK, 2IQ (175), 3APY/P (160), 3BXE, 4LU (160), 5BD (180), 5IG, 5JU/P, 5MQ (190), 5VM, 5ZT, 6CW/P (165), 6DH, 6YU, 6MN/A (170), 8QX, 8UZ (160), 8WL, ON4KN (210), PAØPN (215). (All worked during month; distances in brackets.)

G5BM, Berrville, Arle Drive, Cheltenham, Glos.

Worked: FA8BG, G2AH, 2ATK, 2HX, 2IQ, 2OI, 2XC, 3AAT, 3APY, 3BY, 3YH, 4LU, 5BK, 5VM, 5XV, 5ZT, 6CW, 6LK, 6MN/A, 6SQ, 6VX, 6XM, 8DM, 8JV, 8QX.

Heard: FA8IH, G2NH, 5WP, 8DV, OK1FF. (Period June 18-July 16.)

FIRST CLASS OPERATORS' CLUB

PRESIDENT: GERALD MARCUSE, G2NM

HON. SECRETARY: CAPT. A. M. H. FERGUS, G2ZC

The Club has now decided upon its autumn Contests, of which there are to be two, and for both of which prizes are offered. One of these is open to non-members.

The first is a marathon and a "members' only" affair, starting on October 1, the winner of which will be the first F.O.C. member to work 95 per cent. of the Club membership by a given date; the only rules are that contacts made by schedule or during Club periods do *not* count.

Open Contest

The second is a Contest open to all comers, and is divided into three sections: (A) Inter-FOC QSO's, (B) Transmitting non-members with FOC members, and (C) Short wave listeners. Scoring will be on the following basis:

(A) Inter-FOC contacts, and members' contacts with Non-members:

Inter-FOC: 4 pts if over 100 miles;
2 pts under 100 miles;
FOC/Non-members: 3 pts over 100 miles;
1 pt under 100 miles.

(B) Non-members' contacts with F.O.C. members:

4 pts over 400 miles
3 pts over 300 miles
2 pts over 200 miles
1 pt over 100 miles, or under

(C) SWL Section

Rules were given in the August issue of the *Short Wave Listener*.

The open transmitting contest will take place on November 1 on 1.7 mc, November 8 on 3.5 mc, and on November 15 on 7 mc, during the period 1700-1900 hrs. clock time only on those days.

All logs submitted for any section of the Contest must show RST, QTH and distance claimed for the station worked, as well as RST given by the operator claiming.

The conditions of this Contest are such as to call for snappy operating, since the period is two hours only on each band.

Membership Election

In accordance with the Rules of the Club, the following have been elected to active membership of the F.O.C.:

J. Croysdale, G5US (Frimley, Surrey); V. H. Penfold, G3JZ (Haywards Heath, Sussex); S. A. Herbert, G3ATU (Sunderland, Co. Durham); B. Brondum-Neilsen, OZ7BO (Klampenborg, Denmark); S. B. D. Young, G2YY (Berwick-on-Tweed); D. F. Craig, G3AWF (Kirkcaldy, Fife); Capt. H. Beaumont, G6HB (Kempton, Bedford); V. H. Curling, G6VC (Northfleet, Kent); L. Cooper, G5LC (East Molesey, Surrey) and F/Lt. G. P. Morgan, G8DV (Wrecclesham, Surrey).

All applications for membership and correspondence regarding the F.O.C. should be addressed to the Honorary Secretary, Capt. A. M. H. Fergus, G2ZC, 89 West Street, Farnham, Surrey (Tel.: Farnham, Surrey 6067).

READERS'

half-guinea

IDEAS

The last lot appeared in our May issue. If you have an original hint, tip, wheeze, kink, wrinkle, or just a good idea, describe it in your own words with a sketch or diagram and send it in. We write it up and you get the half-guinea.

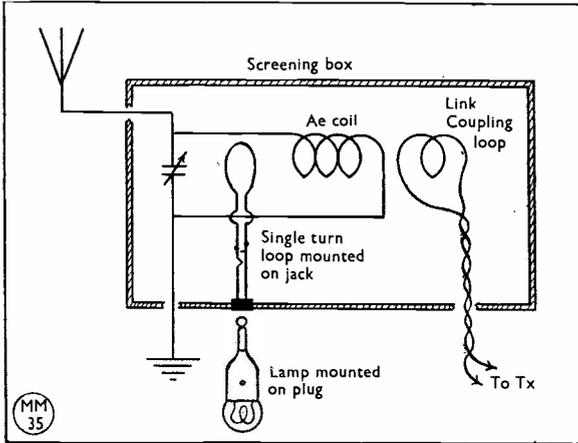


Fig. 1. G2ZC has a completely screened aerial coupling unit, mounted separately from the transmitter, to which it is link-coupled. The flash-lamp bulb plugs into a fixed link for tuning-up purposes.

Loop-Lamp Device

G2ZC has an aerial tuning unit completely enclosed in an aluminium case, placed near the aerial lead-in. This tuner is link-coupled to the transmitter. It was at first a problem to adjust the box without taking the box to pieces in order to couple up a loop-lamp RF indicator.

The problem was solved (Fig. 1) by arranging the usual single-turn loop to be fixed inside the box in relation to the aerial tuning coil, this loop being mounted on an ordinary telephone jack fitted to the side of the box. The flashlamp bulb is wired across the corresponding jack-plug and for tuning-up purposes it is simply a matter of plugging in the bulb, removing it after "max. RF" has been satisfactorily achieved.—From Capt. A. M. H. Fergus, G2ZC, 89 West Street, Farnham, Surrey.

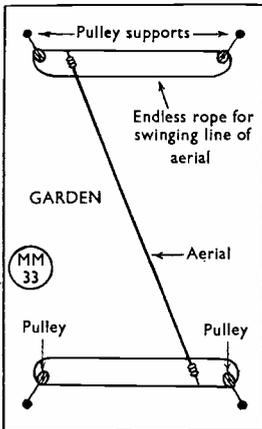


Fig. 2. G3ALW's method of altering the directivity of his aerial. The line of the wire can be changed by swinging the ends between the suspension points, using pulleys and an endless rope.

Changing Aerial Directivity

With facilities for only a $\frac{1}{2}$ -wave wire slung across the garden, G3ALW found that some control over the directivity of the lobes could be obtained by carrying the ends of the aerial on endless ropes run through pulleys fixed to two suspension points (separated as widely as conditions permit) for each end of the wire—see Fig. 2.

Manipulation of the ropes then enables the line of the aerial to be altered through quite wide angles, depending upon how far apart the pulleys can be fixed. Even under the worst site conditions, (e.g. a very narrow garden) a change of only 20 deg. would give a worth-while alteration to the direction of the lobes. Feeders present no difficulty in the application of this idea if due allowance is made for the fartherthest reach.—From F. G. Baker, G3ALW, 41 Horsham Avenue, Kinson, Bournemouth, Hants.

Change-Over Switch

This idea (Fig. 3) employs a small see-saw weighted down on one side (receive position) and thrown over to transmit by means of a relay. Switching as required is effected by arranging for stiff-wire contacts to dip into mercury cups, the "cups" themselves being old valve caps. By adjusting the height of the cups relative to their position with the see-saw or switch arm, switching sequence or delayed contact can be arranged. The actual relay mechanism employed depends on the type of relay available, and is simply a matter of arranging a suitable motion to hold over the arm.

At G3BK, the main function of the switch is to change over the aerial from "send" to "receive"; a piece of cab-tyre cable is run along the arm and the ends bared for dipping into the mercury cups. The aerial feeder line is brought into this cable at the balance point on

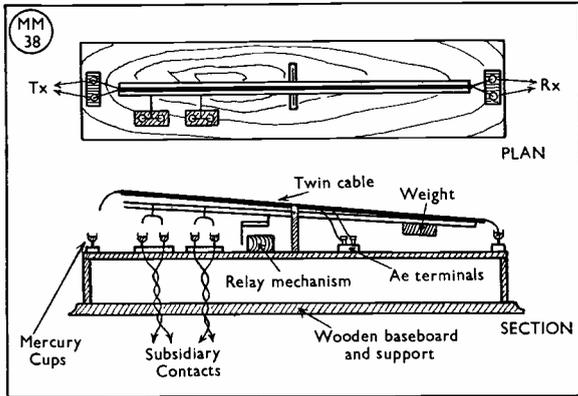


Fig. 3. G3BK's ingenious change-over mechanism, using a home-made relay-actuated mercury switch.

the see-saw, a flexible connection being provided. A two-way switch in the Rx HT circuit is wired to work the relay, all change-over motions being thereby controlled by the one switching action.—From F. Crabtree, G3BK, 28 Regent Avenue, March, Cambs.

Points on 9-pin Valves

Many readers will be obtaining ex-Government valves of the 9-pin type, the commonest being the VR136 (RF pentode, now the RL7 or EF54), the VR137 (triode, RL16 or EC52), and the VR91 (RF pentode, EF50).

It is easy to confuse the EF50 and the EF54, though the pin connections are quite different; the EF54 has four cathode connecting points (pins 4, 5, 7, 8) and a better VHF performance than the EF50. The suppressor is internally connected in the EF54, whereas in the EF50 it is brought out.

EF50's or VR91's have been made by several British and American manufacturers, including Sylvania. EF50's of this particular American make have a grid-cathode capacity $2 \mu\mu\text{F}$ higher than the British-made types. Early British EF50's had much thicker pins than the later version, which often suffer from poor socket contacts; the pins should be carefully cleaned before use.

The CV66 oscillator triode is not interchangeable with the EC52 (VR137); the CV66 has two anode connections (pins 4, 5) and four grid connections (pins 2, 3, 6, 7). Both the EF50 and EF54 make very good mixer valves, with grid injection to the EF54 and either grid or suppressor to the EF50. And even if they are burnt out, their casings, easily removed, make excellent screening cans for small coils!

—From L. Trammer, G6TG, Wandsworth, Scalby Road, Burniston, Scarborough, Yorks.

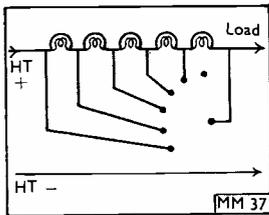


Fig. 4. G4QK uses 230-volt 40-watt lamps as power dropping resistors for low-voltage adjustment of a high power transmitter. The switch allows selection of different voltages.

Dropping HT Voltage

When adjusting a high-power stage it is as well to reduce plate voltage so as to avoid damaging the valves when the plate current runs away. If the power transformer is not tapped or heavy-duty series resistors are not available, ordinary 230-volt 40-watt house lamps can be used where the supply current is of the order of 150 mA. By connecting several lamps in series (see Fig. 4) and using a selector switch, the voltage can be varied over a wide range. Use a switch with plenty of spacing and make sure everything is properly insulated.—From J. B. Roscoe, G4QK, Springdale, Woburn Sands, Bletchley, Bucks.

"All-Mains" Battery Receiver

G8FP is running an R.1116, a 7-valve battery job, from the mains in the manner shown in Fig. 5. A 1000-ohm relay is energised from the 2-volt LT supply to the first valve in the receiver, and serves to switch mains power to the HT eliminator and trickle charger; the LT accumulator is permanently floated across the latter.

The action of the "on-off" switch in the receiver automatically connects LT to the relay when the set is switched on, since the relay voltage is taken from across the filament pins of one valveholder. The relay is wired as shown in the diagram, and thus applies mains power to the HT and charger units. If the LT load is about equal to or less than the trickle charge, the receiver becomes virtually all-mains. The idea is of course applicable to any battery Rx.—From W. Kirkland, G8FP, 31c Middle Street, Yeovil, Somerset.

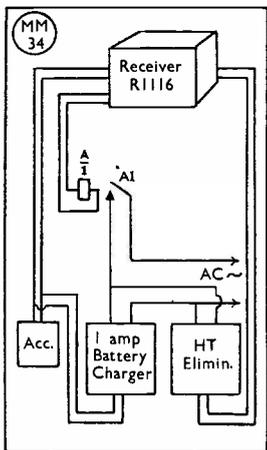


Fig. 5. G8FP's arrangement for operating his battery R.1116 off the AC mains. The 1000-ohm relay is energised from a valve socket in the receiver; switching the set to "on" brings in the HT eliminator, the LT accumulator and the trickle charger.

FIVE METRES

By A. J. DEVON

*Three New "First Countries"
Many European Contacts
DX Predictions
Increasing Interest and Activity*

THE active 5-meteorites will not need to be told that this has been another exciting, interesting and fruitful month, both for GDX and the Europeans. The band has opened wide on several occasions, and much productive work has been possible for a large number of operators.

Three excellent new "Five-Metre Firsts" fall to be recorded—G5BY/OK2MV on June 22, G6LK/ZB1AB on June 30, and G2XC/ZB2A on July 22—all duly entered in the box appearing herewith. These contacts reflect great credit on the operators who made them and are a fitting reward for the patience and hard work which the G's concerned apply to five metres.

A listener report of particular interest from W. H. Pierce (Reigate Hill) records the reception of ZS1AX on June 30, during the period 2100-2145 DST, when much other DX was heard or worked by G's. We have it *via* G5BY that ZS1AX (with ZS1B, ZS1CN, ZS1P and ZS1T) was certainly on the air then, but the frequency used for this 5-way ZS1 schedule every Monday evening is 58.5 mc, and not 57.8 as given by W.H.P.—so sad to say the reception cannot be definitely confirmed. It is not at all improbable, however, as conditions were exceptionally good and on that same evening YI2CA was heard by G5GX and G3ALY, at 2150 DST. This also is not finally substantiated at the time of writing, so for the moment we shall have to leave these reports as interesting probabilities.

With eleven European countries now in the box (or bag) it can be said that 58 mc is not only giving us results well up to expectations for this season but that these results, as regards both incidence and distance, compare well with those being obtained on 50 mc on the other side of the Atlantic.

This is, of course, largely due to the increasing European activity for which we in G have had to wait so many years. But with the FA's, ZB1's and ZB2A in the DX category now on the band with good equipment and regular operation, the picture has altered completely even from a year ago. As well as these, the F, HB,

I, OK, ON, OZ, PA and SM stations can be relied upon whenever conditions serve. And when there is no sporadic-E to help us across to Europe, there are several G stations on the south side who can maintain the link with the nearer Continentals on ducting. G6DH (Clacton), in particular, now has a pretty tight grip on the ON's and PA's!

As for last month's record, the European story is covered in detail in the Summary of Activity which will be found in these pages. This shows that as far as actual results go, the outstanding dates were June 22, June 30 and July 16—but in fact something interesting happened practically *every* day. Such a showing would have been undreamt-of last season, though for years we have maintained in these columns that they ought to be possible if the Europeans were there, and kept there.

Incidence of Sporadic-E

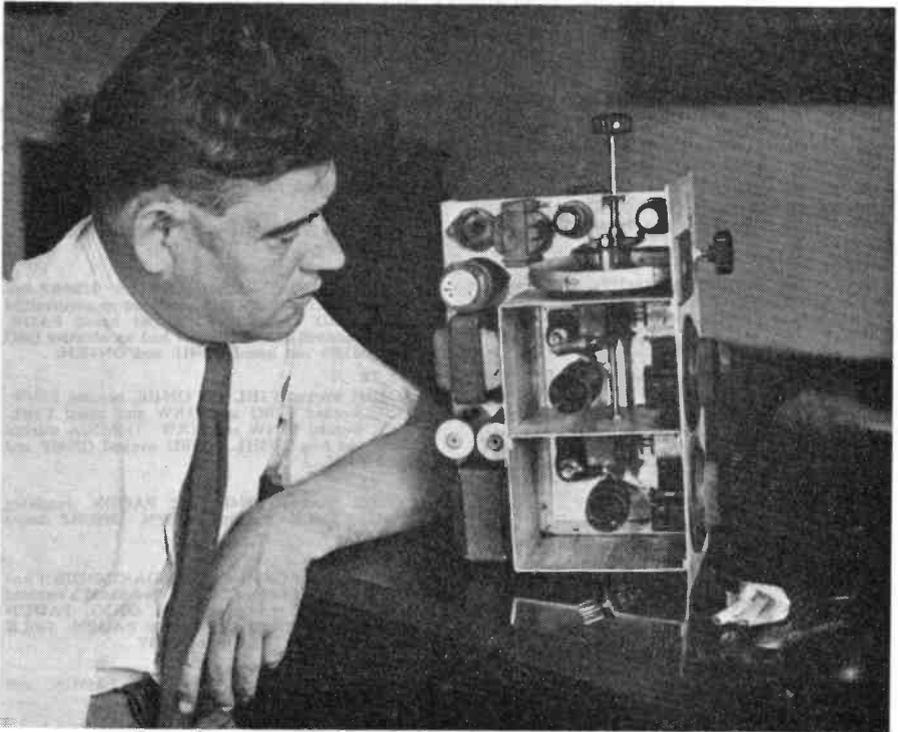
Though results have apparently been obtained almost daily, it is important to differentiate between the various influences which produced these results, as summarised under "Propagation Conditions" in this feature last month.

In a most useful log, keyed in such a way that it is very easy to pick out the significant factors, G6DH gives sporadic-E openings as having occurred on June 22-28 inclusive, June 30, July 10-12 inclusive, July 16-17, and July 22. The actual period of these openings varied from the early morning to the late evening, so that for many of them there was little or no activity on the band.

Incidence of Ducting

The near-European and the GDX working can be attributed not to sporadic-E but to ducting—a subject which has been so well covered in recent issues that there is no need to discuss it further here.

We are, however, ourselves a little puzzled as to why some of the real DX signals—ZB1 and FA—should often be so consistent and so steady when they are alone on the band. It has frequently been noticed that they come up out of what appears to be a dead band, quite without the usual signs of sporadic-E conditions



OK2MV, Hodinin, with his 58 mc receiver. He holds, with G5BY, the "Five Metre First", for OK/G.

—such as loud commercial harmonics, Europeans showing up at good strength before suddenly fading out, and generally an unstable path when QSO's are made.

While it is inconceivable that such steady long-distance signals as the FA's and ZB1's, over land and during broad daylight, can be due to any possible temperature inversion effect, their behaviour does not quite correlate with sporadic-E results as usually observed. And why should these DX stations, during times of normal activity and for quite long periods, be the *only* signals to be heard? The answer would appear to be single-hop F-layer reflection—and if that is so, then the MUF on the North-South path has been going much higher than anyone expected; or indeed, than has been reported by the usual agencies.

Trend of Conditions

Against our known results for this month, Ferrell's predictions for CQ gave the period June 25-30 as likely to be good

(it was), July 3 very good (in fact, we only got near-Europeans on ducting over here), July 4-8 quiet, and July 9, 11, and 12 good. July 11-12 certainly gave us European results, but not to any outstanding degree. He also bills July 16 as "quiet," whereas for us it was one of *the* days of the year. July 22-23 Ferrell predicted should be good; reports so far received suggest that they were average value only in Europe.

It is obviously both unfair and misleading to attempt any direct correlation between these predictions—which are specifically for 50 mc over the North American Continent—and the results obtained in Europe on 58 mc. But it is interesting to see whether they can be regarded as any sort of a guide to conditions on this side of the Atlantic.

Without going into a lot of detail, it can be said that Ferrell's predictions, while certainly indicating the *trend* of conditions, do not give any reliable indication of day-to-day results to be expected in Europe. On the other hand,

SUMMARY OF EUROPEAN FIVE-METRE ACTIVITY

June 22-July 23

June 22

OK2MV worked G5BY and G6LK. G6LK heard OK1FF, OK3ID and OK4IDT. G5BY worked FA8BG and FA8IH. G6DH worked PAØUN and heard FA8BG and FA8IH. G2KF worked FA8BG. G5BD heard FA8IH and FA8BG.

June 23

G6LK worked PAØPN, and G5BD heard FA8IH. G6DH worked PAØPN, and heard PAØUM and ZB1AC.

June 24

G6DH worked ON4IF and PAØPN. G6LK worked I1XA, ON4KN, PAØPN. G5BY worked I1XW, and G5BD worked PAØPN, hearing F3HL, ON4DJ and ON4KN.

June 25

G6DH worked ON5G, PAØPN, PAØUN and PAØUM, hearing F8GH and ON4TD.

June 26

OK2MV worked G5BY, and heard F8LO, G2MV, G2XC and G6LK. G6DH worked ON5G, PAØUM, and heard PAØPN. G2KF worked ON5G and PAØPN. G5BY heard FA8IH.

June 27

G6DH worked PAØPN and heard ON4IF. G5BY received FA8IH and ON4IF. G5BD received PAØPN solidly for an hour, 1900-2000 DST.

June 28

PAØPN worked G6DH and G6LK. G6DH worked ON4KN.

June 29

G6DH worked PAØPN.

June 30

G6LK worked OK3ID, OZ7G (QSO), SM5BA and ZB1AB (first contact). Y12CA heard by G5GX and G3ALY. G6XM heard OK1FF, OK2MV, OZ7G, SM7CT and SM5TH. OK1FF worked G3DT, G5BD, G5BY, G5GX, G5MQ, GW5UO, G6OS and heard G2BMZ, G3APY, G3BY, GM3PL, G3TN, G5BM, G6DH, G6LK, G6VX, G8LY, GM8MJ, PAØGN, PAØPN and ZB1AB. OK2MV worked G2MV and G5GX, hearing also G2BMZ, G3APY, G5BY, G5MQ, G6CW, G6LK, G6XM and G8SQ. OK1AW worked G5MQ, and heard G2BMZ, G3TN and G5BY. OK-RP173 received G2MV, G5BY and G5MQ. OK3IT heard G6DH. G2XC worked OK3ID and heard OK1FF and ZB1AB. G6DH worked SM5KD and G2VH worked OZ7G for the OZ's first G contact. G5BY worked SM7CT. G5BD heard OK1AW, OK2MV, OK3ID, OK5DI, SM7BJ, SM7CI and ZB1AB.

July 1

G6DH worked ON5G. G5BY heard FA8IH.

July 2

G6DH worked ON5G.

July 3

G5BD worked ON4DJ. G6LK worked PAØPN. G5BY worked F8NW. G6DH worked ON4DJ, ON5G, PAØPN, hearing ON4KN. G5MP received PAØPN.

July 4

G6LK worked ON4IF. G6XM worked PAØPN. G6DH worked PAØPN, and heard F8ZF, ON4IF, ON4KN and ON5G. G2KF worked F8NW. G5BY heard FA8BG.

July 5

G6LK worked F8LO and ON4KN. G6DH heard ON5G.

July 6

G6DH heard ON5G.

July 7

G6DH heard PAØPN.

July 9

HB9BZ heard FA8IH.

July 10

G5ZT worked FA8IH. G5BY worked SM5FI and heard SM5FA.

July 11

G6LK worked ON4KN and SM5YS. HB9BZ had partial contact with SM5FS and heard an unidentified GM. G5BD worked SM5FS and heard FA8IH. G6XM received I1XM. G6DH had an abortive QSO with SM5FS and heard ON4IF and ON4KN.

July 12

G6DH worked F3HL and ON4IF, hearing F8NW. G2XC worked F9BG and I1XW and heard F3HL. G6LK worked F8NW and I1XW. G6MN/A worked F9BG and heard F3HL. G5BD worked ON4IF and heard F3HL.

July 13

G6DH worked ON4IF and PAØDX, receiving ON4DJ. G6LK worked PAØPN. HB9BZ heard F8YZ.

July 14

HB9BZ heard G4MH(?), GM2DA/GM8DH(?) and ZB1I(E?), G6XM heard SM5YS, and SM5YS received G2XC. G6DH worked ON4IF, ON5G, PAØUN and PAØUM, hearing ON4DJ and PAØPN. G6LK worked ON4IF. ZB2A heard G5BY.

July 15

G6DH worked ON5G, PAØPN, PAØUN, and heard ON4TD.

July 16

G5BY worked F3HL, FA8BG, HB9BZ, I1AY, I1XA, ZB1AB and heard I1DA and ZB1E. G6LK worked F3HL, F3JB, F9AQ, FA8IH, I1AY, ZB1AC and heard HB9CD, ON4DJ, ON4IF, ON4KN, ON5G, PAØUM, ZB1AB and ZB1E. G2ATK heard F3HL, F3JB and I1AY. G5MP received FA8IH. G2KF heard F3JB and FA8IH. G6XM logged F3JB, F9AQ, HB9CD, HB9BZ, I1AY and ZB1AC. G3DA worked I1AY. G2XC worked F3HL, F3JB, FA8IH and I1AY. G5ZT worked I1AY and I1XA(XJ?). G6DH worked FA8BG and ON4IF, receiving F3HL, FA8IH, I1DA, ON4DJ and PAØPN. G2KF worked FA8IH. ZB2A heard F3HL, F8NS, F8OG, F8OL, G5BY, G6DH, G6LK, G6UH, G8TS, HB9CD, ON4DJ, ON4IF, PAØGN, PAØUM. All were called without QSO being effected.

July 17

G6DH worked ON4DJ and ON5H, receiving PAØUN. ZB2A heard G3PN, G4LU, G5VX(6VX?), G5ZT, G6SO.

July 18/19

G6DH worked ON5G and heard PAØUN. ZB2A heard G6DH and I1XW.

July 20

G6DH heard PAØUN.

July 21

G6LK worked ON4KN, PAØPN, ZB1AB, ZB1E and heard ZB1AC. G5BY worked ZB1E and received ZB1AB and ZB1AC. ZB2A heard I1AY.

July 22

G2XC worked ZB2A (first contact). ZB2A also worked G8UZ.

July 23

G5ZT worked OK4ID.

at this season of the year, it is a pretty safe assumption that sporadic-E openings will occur, and with the present solar activity, that they will be quite frequent.

American opinion is that the MUF for the F2 layer should start going high—for paths east, west and south of North America—from about the beginning of September, the peak time daily being around 1800-1900 BST. During the last week of October and for the whole month of November, erratic 50 mc paths will form directly across the Atlantic to Southern Europe. G/W 50-58 mc contacts are not definitely expected even during this period, since the MUF is not thought to be going higher than 51 mc for what are predicted to be very best weeks from November 10 to December 5, when the active hours will be 1530-1730 BST. Thus Ferrell of CQ.

On this showing, *cross-band* 50/28 mc Trans-Atlantics should be fairly easily possible from late October till early December—anyway, we shall see when the time comes.

Of course, what we really want is a cross-band 50/58 mc G-W QSO, which would certainly be the outstanding achievement of the post-war era of Amateur Radio. We shall hear the W's all right; the question is will they be able to receive us. There is at least a chance of it this season, though on the predictions it does not look a very good one.

But when the band is open, do not forget to listen from 50 mc up in frequency, and if we get any Dellinger fade-outs, remember Condition (d) in "Propagation Conditions" last time. Incidentally, in that discussion on 5-metre propagation, we omitted to mention Condition (e)—Auroral reflection, which returns all signals from a northerly direction, with pronounced phase distortion, producing very rough CW notes and blurred speech from stations normally radiating clean transmissions. So that makes *five* different propagation factors affecting 58 mc working, which can be expected to manifest themselves severally, together or not at all! What a band!

Individual Cases

G5ZT (Plymouth) is the most westerly G active on the band and has had something of a struggle, which he describes in graphic detail, in getting further than G2BMZ (Torquay). His trouble was that though he could get the "sporadics" and could hear G2BMZ and G5BY working the GDX, he could not find the distant G's. The usual story, in fact! G5ZT

FIVE-METRE FIRSTS

France :	G2FA/F8NW, March 29, 1936.
Italy :	G5MQ/I1IRA, July 2, 1938.
Holland :	G2AO/PAØPN, August 17, 1939.
North Africa :	G5BY/FA8B, June 24, 1946.
Switzerland :	G5BY/HB9CD, August 22, 1946.
Sweden :	G5TH/SM5FS, May 24, 1947.
Denmark :	GM6KH/OZ7G, May 24, 1947.
Belgium :	G6DH/ON4KN, May 25, 1947.
Czechoslovakia :	G5BY/OK2MV, June 22, 1947.
Malta :	G6LK/ZB1AB, June 30, 1947.
Gibraltar :	G2XC/ZB2A, July 22, 1947.

built six receivers in two months, and also worked hard to produce an aerial which would bring the stuff in. The Rx is now 2 RF EF54-EF54 mixer-EC52 oscillator, with 8 mc IF into an AR88; the aerial is a 4-element beam, with open-line feeders, carried on a 36-ft. tower—and he is 300-ft. a.s.l., clear all round.

He was ready with this equipment by July 10, and by July 17 had achieved the results shown in Calls Heard. As G5ZT says, there must be many others struggling in the same way—and perhaps giving up the band because, thinking things were all right, with the gear, they yet achieved nothing. The trouble is nearly always the receiver, which cannot have too much time and trouble spent on it. Anyhow, G5ZT is well away now, and will be another good GDX station for many operators.

A very similar story comes from ZB2A (Gibraltar), who we are particularly glad to welcome to these pages. Cpl. Pye and his boys run a joint show down on the Rock and had been trying on 58 mc for *six months* before G5BY was heard—for the very first signal to be received—on July 14. They too had practically abandoned hope of ever doing anything. Well, their latest results appear in the Summary of Activity, and as ZB2A will be a new country on five for about three hundred

G's, they can look forward to a busy time ! ZB2A is there almost every evening from 2030-2330 DST, on CW, 58.5 mc.

G3DA (Handforth, Ches), now on the first rung of the Counties Worked ladder, is using a converted P.38 naval receiver, which has two EF54 RF stages, EF54 mixer, and 9002 oscillator, with 3 IF's on 10 mc. He comments on the appallingly low standard of operating and the poor quality of some of the portables up there on July 20.

G3BXE (West Wrating, Cambs) is yet another who is treading his first steps in Amateur Radio on five metres—in fact, it is the only band for which he is equipped. He opened with G5PY (London) for his first QSO ever on May 29, the day the ticket arrived, and has now made 56 contacts, with G2TK (Scarborough, 153 miles) as the best GDX, and 14 counties worked. Good show, OM. The Rx at G3BXE uses SP41's in RF and mixer stages, the aerial is a 4-element beam and the Tx has an RK34 in the final, running 17 watts. The primary power supply for the station is accumulators, as G3BXE has no mains connection—but he is installing a P/E generator set which he hopes will "make for more comfortable operating." Another good example of local difficulties being tackled successfully.

G5JU (Birmingham) is well located 600-ft. a.s.l. and has knocked off 20 counties, with 64 stations worked. Among those recently heard at G5JU have been G2AAW, 2AOK, 2CUA, 2ZG, 3BLP, 3DA, 6TO, 6XM, 8TO, 8US and GW4FW. This should be of interest in South Wales, Somerset, South London and North Devon. Among those worked are G5GX (Hull, often heard in daylight), G5WP (Woking), G5XV (Malmesbury, Wilts) G2RI (Leicester) and G2OI (Manchester).

G6UH (Hayes, Middx) who started up on "five" with G5BY in the 1930-32 period, rightly claims to be one of the oldest inhabitants of the band. Though he is in a very bad location, surrounded by steel-frame factory buildings and with a high noise-level, G6UH succeeded in working G5BY on June 27, for their first QSO for 15 years ! Well, it's a fine effort and in spite of his very real difficulties, G6UH on 58.59 mc has worked 80 stations for 285 contacts in 15 months using an indoor 3-element rotary.

G6MN/A (Worksop, Notts) now has his 14C, and is beginning to get out and about (*see Calls Heard*) ; he has G2XC as his best GDX so far, with G6SQ (Southport, Lancs) for a nice one in the other direction.

We are indebted to our good friend OK1AW for the considerable budget of OK news in the Summary. The OK's keep up plenty of activity on five, running frequent schedules and field days amongst themselves, but it is only in this last month that they have been really getting the results. OK1FF (Prague) has an ECO-FD-P/P PA Tx running 100 watts input, and a superhet Rx that will take CW, with a full-wave Windom for aerial. OK2MV's transmitter is shown here, and OK1AW's outfit is on the same lines. It must be remembered that the OK's are very short of good modern equipment, and to get on at all they have to make do as best they can ; most of them lost everything they possessed during the war. So do not let us be too critical of those rusty notes.

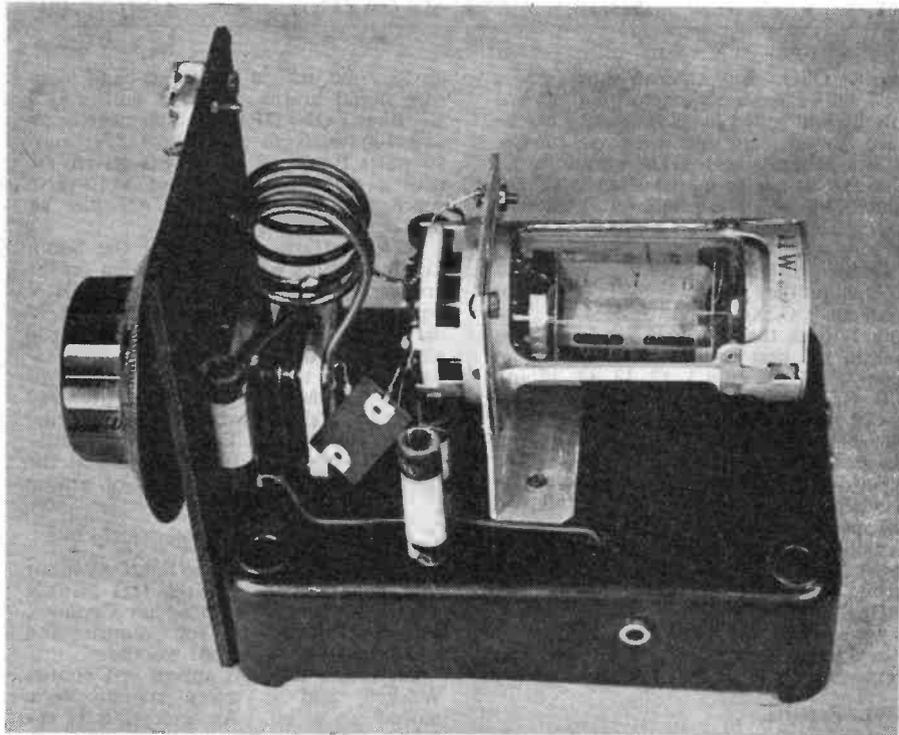
Keep It Clear

Both OK1AW and HB9CE (Zurich) raise a point which they particularly ask us to pass on through the *Magazine*. It is that more G's could be reported than are actually logged or called. The reason is that many G's do not sign clearly enough or often enough for a foreigner with but an imperfect knowledge of our peculiar language to get the call sign. There is too much of this "Gee-ni'-bee-'eff - off'n - clear - and - over - and - by - and - searching - the - band - come - in - somebody - please - kay" business (yes, we're beginning to get it even on five metres !) and not enough clean, steady sending.

What the Europeans want G 'phones to do is to use the phonetic alphabet with place names, call slowly and distinctly, repeat it several times, and then buzz the call into the microphone as a final check. And when on CW, sign three times even if working a local. We all know the Continentals are just as difficult for us to identify, but if the G's—who are much more numerous and are now being well heard all over Europe—would set an example in this respect, the effect would be reciprocal.

More Reports

G2ATK (Shirley, B'ham), on 58.68 mc and there most evenings from 2000 DST, runs a regular schedule with G8UZ (Sutton, Notts) and has a 6J5-6J5-6V6-6L6-807 transmitter into a 3-element rotary, with a Type 26 converter and an AR-88. G2ATK worked G5BY for his fourteenth county. On July 20 he was portable at Henley-in-Arden, where the outstanding signals were G2IQ, G2NH/P, G2OI, G3APY/P, G3MY/P, G3TN/P, G4LU, G5MA/P, G5MQ, G6CW/P and



OK2MV's SEO 5-metre Tx, using a German LS50 valve with 50 watts input. The note is a little rough.

G6MN/A, all of whom averaged RST589 over distances of from 60 to 100 miles.

G6XM (Farnborough, Hants) with his new 4-element beam on which much time and labour have been lavished, is doing very much better as a result. This beam has 0.15 w/l spacing for reflector, 0.125 for first director, and 0.2 w/l between 1st and 2nd directors, all arrived at by experiment to obtain best forward gain. During the month he has worked nine over-100-mile contacts, representing between them seven counties, so it is not surprising to find G6XM well up in Counties Worked. He has also been in on the European stuff, as shown in the Summary. G6XM's Rx is a modified CR100 with a 3-stage converter; he has found that a 955 triode mixer with grid injection gives better signal/noise ratio and conversion gain than any of five other valve types tried.

G5BY (Bolt Tail, S. Devon) has been heard by PAØPN (400 miles), which is the best report to date for what must have been ducting, since no sporadic-E was present over that path at the time,

the evening of June 16. In the other direction, G5BY heard ON41F (375 miles) on June 27, again a case of ducting. G5BY has, of course, had a large share in the European DX, as the Summary shows, and has had SWL reports from Austria, Germany and Switzerland. Hilton also found the ZB1 trio (ZB1AB, 1AC and 1E) in and steady for an hour on June 21, 2030-2130 DST, with not another signal on the band. Compared with last season, he finds that so far this year sporadic-E openings have been more frequent in the early evenings than at other times of the day. G5BY is using a new converter, which we hope to describe in an early issue.

G2KF (Eden Bridge, Kent) has got nicely under way and is doing very well (see Calls Heard) in spite of a difficult location. We think one of the most noteworthy contacts he has yet made was that with G2NM on June 23, when these two oldtimers, active from the earliest days of Amateur Radio, made their first direct radio contact again after a lapse of over 20 years. As a contact, it was just

another QSO. But what an entry for the log! G2KF has a 3-element beam, and to July 21 had rolled in 43 different stations since commencing operations on June 6. He hears the northerly GDX with difficulty as Eden Bridge is in the shadow of the North Downs. The ameliorating circumstance here is that the Continentals come in very well.

G2XC (Portsmouth) has re-opened with G6DH and they now have fairly consistent contacts. G2XC gives July 4, 5 and July 7-10 as the *bad* days for GDX this month, the best conditions obtaining on June 24, 27, 28, July 3, 12, 13, 14, 17 and 20. He worked 18 counties during the day of July 20, and has done well with the Europeans (*see* Calls Heard and the Summary of Activity).

G6LK (Cranleigh) found the month exceptional for DX, having heard Europeans nearly every evening; July 16 was the best day, which opened up first with local Europeans, later extending slowly to France, Switzerland, Italy and Malta. G6LK now has some notable achievements to his credit (*see* Calls Heard, Summary of Activity and the Panels).

SWL Reports

Once again we are very glad to see more of these, and as Calls Heard shows, our SWL's are certainly getting their full share of the results. W. H. Pierce (Reigate Hill), at an excellent location, hears the best of the stuff and is well equipped; he offers site facilities to any transmitter wishing to operate portable—*see* Calls Heard for QTH.

C. J. R. Francis (Ipswich) has G6DH as his nearest station, and always a good signal. C.J.R.F. puts in a useful Calls Heard list, the first we have had from his neighbourhood; his gear is home-built and he reads CW. Then we have an interesting letter from P. J. Towgood (Bournemouth) also with a good log, who received G6DH for the first time on July 3; northerly GDX has been poor in Bournemouth for some weeks now, with slow deep fading on the more regular signals, like G2NM and G6LK.

L. C. Blanchard (Cousdon) comes in with an excellent and most detailed report, full of news. His own record is well worth mentioning—133 different stations heard in eight countries, with 21 English counties. He has recently had QSL's from F8NW, FA8BG, ON4DJ, OZ7G and ZB1AB—QTH's available for those who may want them. Some details of gear are that FA8BG runs 100 watts to an 813

on 58.7 mc, with a 133-ft. all-band long-wire aerial and a superhet with 6AC7 RF stage; ON4DJ has a 4-element beam and 100 watts to an 829; OZ7G runs 50 watts PA input to a VFO-driven Tx, with a 4-element beam and a 10-valve super for 50-60 mc; ZB1AB has an S.27 and 25 watts input.

G2ADZ (Oswestry) one of the South London SWL's who used to listen on the pre-war G5BY-G6FO schedule, is QRX only at the moment but will be on 58.75 mc shortly. He has done extraordinarily well with an 0-V-1 receiver; only on *four* days during the period June 22-July 18 did he not hear a GDX signal over 160 miles—*see* Calls Heard. There's something about Oswestry for DX, on all bands!

G6PJ (Sheffield) is another still at the QRX stage, but is in process of getting things lined up.

Counties, Countries and 100-Up

The panels showing the latest positions appear in the body of the text—G6VX still leads by a short head on Counties, with G6LK at the top for Countries and also leading with stations worked.

Seven new call signs appear in Counties Worked, and as many stations have moved up a bit. An exception is the Editor, who appears to have made no progress at all in the last three months.

If you qualify for inclusion in Counties or Countries Worked, or for 100-Up, let

FIVE-METRE COUNTRIES WORKED LIST Starting Figure, 3

Worked	Station
11	G6LK (F, FA, G, GW, HB, I, OK, ON, PA, SM, ZB1)
9	G5BY (F, FA, G, GW, HB, I, OK, OZ, SM)
8	G5BD (F, FA, G, I, OK, ON, PA, SM) G5MA (F, FA, G, GW, HB, I, ON, PA) G6DH (F, FA, G, I, OK, ON, PA, SM)
7	G2NH (F, FA, G, GW, HB, ON, PA) G5MQ (F, FA, G, GM, GW, I, OK)
5	G2KF (F, FA, G, ON, PA) G2MR (F, FA, G, I, PA) G5IG (F, FA, G, ON, PA) G6XM (F, FA, G, GW, PA)

us have the details, with any subsequent amendments, so that the records can be kept right up to date. For Counties, a list of call signs only for those claimed is required for checking purposes, and for Countries the list should give call sign and date of working the station for the country concerned. For 100-Up, a plain statement that so many different stations have been worked two-way is accepted.

And by the way, we are accepting new county claims from fixed stations only who work portables in new counties; but you cannot claim counties for yourself when out portable. GDX records are strictly as between fixed stations using the G prefix, operating their own gear from their own QTH's.

Portable Results, July 20

If anyone ever thought, seriously, that location does not matter much on five metres, they would have been forced to a very different conclusion when observing the results of the field exercise on July 20, when 5-metre portables were out all over the country.

All day, the band was full of great, fat signals from incredible distances and during the morning and afternoon 'phone contacts were made over paths which would normally be considered good for CW working after dark.

It was clearly a combination of good conditions, high activity and good locations which produced these remarkable results. At times, the band sounded rather like 40 metres on a Sunday morning, and reports of QRM were quite frequent. What a thing for five!

Twiddly Bits

G2HMI, G5YO, G8JO and G8KK are all active in South Shields and Sunderland, Co. Durham; G8JO is getting out and has worked G5BD and G6MN/A. . . . This will make G8JO the target for all the 5-metre GDX operators in the country; it's like being on a new island on 14 mc, OM! . . . G2NH/P, with his 6 watts from Alton, Hants, swept up 20 counties on July 20. . . . G2IQ (Sheffield) has been trying a long-wire aerial against the beam and finds there is not much difference even in the preferred direction; as he says, there must be something not right with the beam. . . . EP3H, Kuzistan, S. Persia, is there QRX with a 3-stage EF50 converter into an HRO, with a 3-element beam; we shall know as soon as he hears anything. . . . G5CM (Bognor Regis) in a bad location and afflicted with a colossal gas-holder as a near neighbour, is busy

FIVE-METRE COUNTIES WORKED LIST

Starting Figure, 14

Worked	Station
27	G6VX
26	G6LK(187), G2XC(145), G5BY, G5MA
25	G6XM
24	G2MR(154)
23	G2NH(151), G5BD
22	G6YU
20	G5JU, G8SM
19	G2YL, G5IG, G5MQ
18	G6OH(106), G4IG, G8UZ
17	G6CW
16	G2NM, G3AAK, G5BM, G5PY
15	G6FO
14	G2ATK, G3BXE, G3DA, G6KB, G6MN/A

Note: Figure in brackets after call is total of different stations worked; starting figure, 100.

rebuilding. . . G5BM (Cheltenham) wishes that his 58.7 mc signal would attract the attention of the Somerset and South Wales boys. . . . G3ASC (Oswestry) has had some really remarkable contacts with G5LJ (Sutton Coldfield) using a TBY8 $\frac{1}{2}$ -watt walkie-talkie, with 135 volts on 958 acorn oscillator; the distance is 57 miles—there is something about Oswestry! . . . G5MR (Felpham) finds his new 3-element beam much better than the old long-wire and is looking forward to some good new contacts. . . . HB9BZ (Zurich) reports on his recent results, which are covered in the Summary.

Closing Date—September

And so your exhausted A.J.D. leaves you once again, with his grateful thanks to so many correspondents for all their interesting reports and helpful and stimulating comments. This has been the biggest month yet, but the story is well worth the space—though the Editor, hard-pressed with much other good material, is rumbling about "four pages only in future."

The next date is August 19 *certain*—for the September issue. But Contest reports by August 11, please. All 5-metre material to A. J. Devon, c/o *Short Wave Magazine*, 49 Victoria Street, London, S.W.1 (ABBey 2384). 73 and BCNU.

NEW QTH's

This space is available for the publication of the addresses of all holders of new call signs, or changes of address of transmitters already licensed. All addresses published here are automatically included in the quarterly issue of the Call Book in preparation. QTH's are inserted as they are received, up to the limit of the space allowance. Please write clearly and address on a separate slip to QTH Section.

EI8Q	R. N. Stanton, Woodlands, Giamire, Co. Cork, Eire.	GI3BJL	Cpl. L. T. Adams, SHQ Signals RAF, Castle Archdale, Enniskillen, Co. Fermanagh, N.I.
G2AAN	J. H. Clarke, 16 Harcourt House, Cavendish Square, London, W.1.	G3BKF	J. M. Ivison, B.Sc., Dane View, Baddow Hill Crescent, Great Baddow, Chelmsford, Essex.
G2AIB	C. P. Sime, 33 Bywell Avenue, South Shields, Co. Durham.	G3BNP	H. R. Gowing, Rosedene, Roath Road, Portishead, Bristol.
G2AXQ	H. R. Walker, 3 Chapel Street, Wisbech, Cambs.	G3BNW	J. E. Bailey, 9 Heywood Road, Alderley Edge, Cheshire.
G2CNK	T. E. Bates, 12 Mansfield Road, Balby, Doncaster, Yorks.	GW3BOG	Capt. W. H. Riley, The Nook, Llancarfan, Barry, Glam., S. Wales.
G2CJY	W. Muller, 12 Sydenham Road, Smethwick, Staffs.	G3BOP	J. R. B. Hibbert, 351 Leasowe Road, Leasowe, Wirral, Ches.
GD2DF/A	F. A. Vost, The Creggans, Ronaldsway Airport, Ballasalla, I.O.M.	G3BPN	C. M. Gillman, 5 Lewis Road, Southall-Middx.
G2DKN	Dr. W. R. Gilmore, Walton Hospital, Liverpool, 9.	GM3BQA	J. S. McCaig, 9 Scott Crescent, Galashiels Selkirkshire. (Tel.: Galashiels 2464.)
GI2DKN	Dr. W. R. Gilmore, 19 Ormiston Drive, Belfast, N.I.	G3BQB	H. Nicholas, 87 Elm Terrace, Dudley, Worcs.
G2DOJ	D. Godwin, 29 Kingdon Road, West Hampstead, London, N.W.6.	G3BQH	E. Sherlock, 134 Liverpool Road, St. Helens, Lancs.
G2DUV	14 Carolina Road, Thornton Heath, Surrey.	GM3BQN	J. B. S. Giffillan, M.A., Homeston, William Street, Helensburgh, Dumbartonshire.
GI2FHN	E. R. Sandys, 5 Donegall Park Avenue, Belfast, N.I.	G3BRT	G. Parfit, 20 Redland Park, Redland, Bristol, 6.
G2HCA	61 Rippingille Road, Great Barr, Birmingham, 22A.	G3BSL	E. Hardy, c/o 26 Lyndham Avenue, Burton-on-Trent, Staffs.
G2HOP	J. H. Parrish, Wothorpe, Near Stamford, Lincs.	G3BUE	J. F. Gomer, 266 Cowdray Avenue, Colchester, Essex.
G2VZ	H. W. Daly, 161 Limpsfield Road, Sanderstead, Surrey.	G3BUF	B. J. Fost, 4 Railway Cottages, Waggon Road, Hadley Wood, Barnet, Herts.
G2YC	H. J. Stannard, 30 Southfields, Hendon, London, N.W.4.	G3BUN	J. C. Gregory, 8 Vernon Road, Hornsey, London, N.8.
G3AAR	J. A. Hay, 84 Oxford Gardens, North Kensington, London, W.10.	G3BWH	R. Tulloch, 50 Hardman Avenue, Rawtenstall, Rossendale Valley, Lancs.
G3ABS	W. D. Heath, Wood Nook, Denby Dale, Huddersfield, Yorks.	G3BWS	L. Freeman, 125 Nelson Road, Gillingham, Kent.
G3ADE	R. L. Wade, Lindene, Empress Avenue, Marple, Stockport, Ches.	G3BYB	N. S. C. Priest, 7 Grange Road, Hayes, Middx.
G3ADI	N. Ward, 18 Willow Way, Crosby, Liverpool, 23.	G3BYS	K. Daniels, 85 Tolcarne Drive, Pinner, Middx.
G3ADM	G. H. Killick, Lemsford, Welwyn Garden City, Herts. (Tel.: Welwyn Garden 3954.)	G3BYR	COMS Crofts, Hildebrand Barracks, Harrogate, Yorks.
G3ADP	H. Waddington, 96 Woodhouse Road, Keighley, Yorks.	G3BZU	N. S. H. Cunham, 25b Kingston Crescent, North End, Portsmouth.
G3AGQ	R. C. Eldridge (ex-D2GQ), 10 Westridge Road, Southampton.	G3CBF	G. F. Kelly, 15 Earlswood Avenue, Thornton Heath, Surrey.
G3AII	H. W. Brunton, 26 East Parade, Whitley Bay, Northumberland.	G3CBW	H. Walker, 9 Chester Street, Middlesbrough, Yorks.
G3AJF	R. Elwell, 23 Princes Gardens, West Acton, London, W.3.	GW3CBY	R. Webb, 6 Hanover Street, Swansea, Glam., S. Wales. (Tel.: Swansea 82061.)
G3AWA	A. J. Woiwood, 22b Foxglove Road, Beckenham, Kent.	G3CCA	C. L. Wright, B.Sc.(Eng.), c/o 36 Woodstock Road, Mowmacre Hill, Leicester. (Tel.: Leicester 62042.)
G3AYK	T. Murgatroyd, 131 Queens Road, Halifax, Yorks.	G3CCC	H. Barnes, 4 Rossall Road, Cleveleys, Blackpool, Lancs.
G3AYT	43 Donald Avenue, Hyde, Cheshire.	G3CCF	R. R. Clarke (ex-FU2BN), 24 Cecil Road, Wallasey, Cheshire.
G3BAZ/A	J. Evans, 58 Parkwood Road, Isleworth, Middx.	G3CCV	P. W. Dryden, 53 Mount Avenue, Ealing, London, W.6.
G3BDJ	D. M. Kemp, 242a Goswell Road, London, E.C.1.	G3CD	S. Taylor, 68 Richmond Wood Road, Queens Park, Bournemouth, Hants.
G3BDN	J. C. Treby, 24 Fremantle Road, Barkingside, Ilford, Essex.		
GW3BHG	A. E. Hay (ex-G2KQ, 1921), Grey Gables, Buttrills Road, Barry, Glam., S. Wales.		

Here and There

New QSL QTH

The QSL Manager for the British (D2) Zone of Germany is now Capt. J. S. Howe, D2DS, Entries & Exits Branch, 100 HQ CCG (BE), Bad Salzuffen, B.A.O.R. He will handle all D2 cards both ways. *Amateur Radio journals, please copy.*

"Another Noise-Limiter Design"

Further to the article appearing in our July issue, an important point has arisen out of correspondence between G2AAN (the author) and G5BT. From this, it is clear that results with the limiter may be unsatisfactory if the input and output leads are run in the same screening braid. The test is to remove the 6J5; if signals disappear, then the limiter is working correctly. If signals are still readable without difficulty, then the self-capacity between input and output leads is too high.

The remedy is have an entirely separate single screened input lead coming up through the main chassis into the sub-chassis, and an unscreened output lead, spaced well away, to the volume control.

Boobery Section

Another error crep' in—quite a little one, but it still wants correcting. In the article "Simplified Coverage Calculations" in the April issue, page 91, Line 10 should read C in $\mu\mu\text{F}$, and not as given. E. N. Wright of Brough, Yorks, corrected us on this.

Crystal Exchange

The following wish to do business:

G3ARU, 69 Lord Avenue, Ilford, Essex.
Has 7375 kc in standard holder. Wants 3520 kc (or near) in holder.

G6BB, 35 Crittall Avenue, London, S.W.2.
Has 1780 kc crystal. Wants 7045 kc or near.

Candler System

Just to remind readers that their London Offices at 121 Kingsway, W.C.2. will be closed during the period August 2-11. They must have a break some time.

Swiss Outing

The Swiss National Mountain Day, now a well-established event in the calendar of

activity, takes place this year on August 24, during the period 0900-1300 DST.

Operation will be confined to 3.5 mc; stations will be entirely portable and limited to a total all-up weight of $13\frac{1}{4}$ lb. They are to be sited at a height of not less than 3,270 ft., the last 1,000 ft. of which must be tackled the hard way—on foot—with the station complete carried by the operator. Needless to say, the only power limitation is that any sort of mains connection is prohibited!

Some of the other rules are pretty stiff, too. Not only must all participants turn in the usual operating log (in duplicate), but the report must include photographs (a) of the station in action, and (b) the equipment packed up for the climb.

So any HB1's you may hear on 3.5 mc during the morning of Sunday, August 24, will certainly be earning their points.

Corrections

Further to the Test Report on their 5/10 Expander which appeared in our July issue, we are informed by Messrs. Radiovision (Leicester), Ltd., that normally the IF is set to 1.5 mc and not at 1.6 mc; this difference would account for the calibration error of 200 kc we noted on the 58 mc range.

Users of the Expander should of course operate their instruments as for a 1.5 mc IF channel, when the dial readings may be taken as accurate.

And Messrs. Taylor Electrical Instruments have asked us to point out that the sensitivity of their Universal Model 120A is 1,000 ohms per volt, and not as given in their advertisement on p. 311 of the July issue.

Dorothy Hall, W2IXY

Whether they may have worked her or not, many readers will know W2IXY as a personality. As has been widely reported, she is visiting this country and the Continent during the period August 1-September 4.

Mrs. Dorothy Hall will be writing about her tour exclusively for us and an article by her on the Amateur Radio aspect of her visit will appear in the October issue of our *Short Wave Listener*, due on September 18.

THE MONTH WITH THE CLUBS

FROM REPORTS

Activity seems to be maintained at a fairly high level. It is remarkable, however, to find that whereas some Clubs decide to close down completely for the month of August, others report attendances up to standard for June and July and propose to keep going.

There is this much to be said for keeping "open-house" during August: That members of other Clubs may well be on holiday in your vicinity. But this may only apply to Clubs in holiday resorts!

At all events, there is a very healthy continuity about the reports from many of the well-established Clubs and Societies which indicates that a very successful winter season may be expected. Field Days, D/F Contests, and portable events of all sorts are proving popular, and we look forward to hearing the results of many of these proposed affairs.

Reports for next month, please, by first post on August 13; those arriving after this will definitely not appear in next month's feature. (And there are always the odd half-dozen that do arrive just too late!) Address them to the Club Secretary, *The Short Wave Magazine*, 49 Victoria Street, London, S.W.1. And any photographs of Club meetings, events, gear or personalities will be welcomed.

Stockport Radio Society.—This club is closing for the month of August, so many members being away on holiday. The recent exhibition was very successful, although no DX was worked, the station being on 28 mc and the noise level in the centre of Stockport rather high; a photograph appears herewith. The next meeting, on September 1, takes place at the Textile Hall, Chestergate, at 7.45 p.m.

Brighton & Hove Group.—Members recently visited the Royal Naval Air Station, H.M.S. *Peregrine*, together with members of the Worthing Group, and were shown round the radio communication installations. At another recent meeting a lecture was given by Mr. H. G. Menage of Rothermel Ltd., on "Rochelle Salt Crystal Applications." Meetings are held fortnightly at the Golden Cross Hotel, Brighton; next in the series are on August 11 and 25, at 7.30 p.m.

Liverpool & District Short Wave Club.—In spite of holidays, attendances maintain a reasonable level. Work on the club transmitter, Morse classes, a visit to Speke Airport, and auction sales have made up the programme recently, and plans for the winter season are under way.

York & District Short Wave Club.—This club is not closing down for the summer, but continues to hold weekly meetings. Morse classes and Brains Trusts occupy most of the time. A club transmitter is projected, and new members will be heartily welcomed.

Coventry Amateur Radio Society.—The highlight of recent activities was a lecture by G5PP and G6TD on "The Velocity Factor in the Design of Low Impedance Feeders". A "Hints and Tips" evening will be followed by a Brains Trust and another "Ham Quiz", and the Annual General Meeting will be held on September 29.

Wirral Amateur Radio Society.—Only one meeting has been arranged for August—on the 27th—at the Y.M.C.A., Whetstone Lane, Birkenhead. The July meeting took the form of a very successful junk sale, at which prices tended to be lower than usual. Prior to that the Club had a lecture from G6VS (ex-VU2EU) on his amateur experiences in India.

Birmingham & District Short Wave Society.—Membership is steadily increasing, more interest being shown, in particular, in the Monday Morse classes. The August meeting will be held on the 11th, not the 14th as notified last month. Readers in or near Birmingham may be interested to hear that the Birmingham Central Technical College is running a course for radio amateurs, to assist them in passing the official examination.

Bradford Amateur Radio Society.—Old and new members continue to show interest by turning up regularly and some helpful suggestions for future programmes have been received. There will be no August meetings, but the Secretary will be "at home" to members and prospective members.

Radio Society of Harrow.—This club meets on alternate Wednesdays at Northwick Cafe, Kenton Road, at 7.30 p.m., and membership now exceeds 60. July meetings included a talk on "Atomic Fission Progress" by Mr. Eldridge, of the U.S. Navy, and one on "Watches and Clocks and their application to Radio" by Lt. Allen, R.N.V.R. A 5-metre Field Day is planned for September.

Edgware & District Radio Society (G3ASR).—Attendances still average between 30 and 40, and a very successful Brains Trust was held during July. It is proposed to hold a 1.7 mc D/F Contest on September 14, and non-members are invited to participate. The call-sign used will be G3HT/P, on telephony, and the assembly point will be Stanmore Station at 1300. The transmitter will be hidden

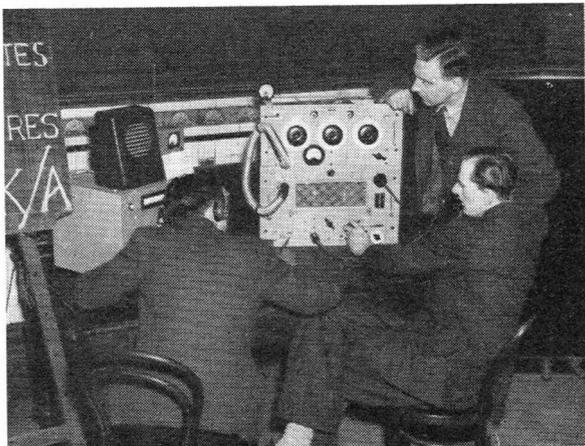
within ten miles of this point. There is an entrance fee of 1s. and prizes will be awarded to successful contestants. Intending competitors should get in touch with Mr. H. W. Pope (G3HT), 4 Gainsborough Gardens, Edgware, Middx., before September 5, forwarding their name, address and entrance fee.

Ashton-Under-Lyne & District Amateur Radio Society (G3BND).—Welcome to this club, a newcomer to these pages. It meets on the first Sunday of the month, at the B.R.C.S. Headquarters, but its transmitter is installed at Astral House, Stalybridge, where Morse classes and workshop facilities are provided. G5PX is in charge of instruction, and the number of pupils is on the increase.

Oswestry & District Radio Society.—Meetings are held fortnightly at the Oswestry Technical College. Formal lectures have been suspended recently, until after the A. G. M., and informal ragchews have been very popular. The club is shortly to visit Parkhall Training Camp to view the artillery radar equipment. G3ASC, a member of the club, recently worked over a distance of 60 miles on 5 metres with an input of half a watt to Walkie-Talkie equipment—a creditable and interesting feat. G4LU has received a 5-metre QSL from a German SWL!

Medway Amateur Receiving & Transmitting Society.—Members recently enjoyed a lecture by Professor Stoner on Valve Oscillators, and report learning a surprising amount about this essential department of transmitting technique. Meetings are held every Monday at the Co-operative Hall, Luton Road, Chatham—7.30 p.m.

Kingston & District Amateur Radio Society.—Permanent accommodation is being sought still, but meetings are held for the time being at Kingston Hotel. A very interesting talk was recently given by G8IP on the ever-green subject of "Aerials." Meetings every other Thursday at 8 p.m.



G4HK, with G2FWM on right, in charge of G4HK/A of the Stockport Radio Society, at a local exhibition recently.

Sutton & Cheam Radio Society.—Welcome to another newcomer. Formed in October 1946, this club has held fortnightly meetings ever since in "Ye Olde Red Lion", Park Road, Cheam. The average attendance is between 35 and 40. The July lecture was given by G2NH of the Quartz Crystal Co., Ltd., on the subject of cutting, grinding and processing quartz crystals. A full programme has been arranged for the coming season; meetings on first and third Tuesdays at 7.30 p.m.

Reading & District Amateur Radio Society.—Meetings are held on the second Wednesday and last Saturday of each month at the Palmer Hall, West Street, and attendances are being well maintained. Talks have been given recently by Mr. Peck (Messrs. E. Turner) on "Car Radio," and by the Society's President (Dr. C. G. Lemon) on "Ultra-Short-Wave Oscillations," with practical demonstrations. A D/F Contest was also held in the district, but competitors entering from Birmingham won the first prize!

Worcester & District Amateur Radio Club.—Meetings are held on the first Thursday of each month at the Victoria Institute, The Foregate, at 7 p.m. Members will be welcomed—Secretary's QTH in panel.

Romford & District Amateur Radio Society (G4KF).—The August programme is as follows: on August 11 Mr. D. H. Morley continues his lecture on Micro-waves; on the 18th there is an exhibition of members' home-constructed gear; and on the 25th Mr. M. Sorsky (G3BKD) gives the second talk on "Maths applied to Receiver Design." On September 1 there will be a Junk Sale.

Doncaster & District Amateur Radio Society (G3BCM).—With the advent of their call-sign, members are busy getting the Club transmitter together and hope to be on the air shortly. Ten members are licensed, and use the 1.7 and 3.5 mc bands most evenings. Morse classes continue for the juniors, who are very keen, and much further activity is contemplated for the winter season. Meetings are on Wednesdays at 7.30 p.m., at 73 Hexthorpe Road, and visitors are always welcome.

Worthing Group.—Yet another newcomer to our reports, and welcome. This Group was formed last October, and ended its regular meetings for the summer months in May. On July 13 H.M.S. *Peregrine* was visited (see Brighton notes). The Annual General Meeting will be held at 7.30 on September 4, at the Thomas

à Becket Hotel; the October meeting will take the form of a lecture on Radar, and in November there will be a junk sale. The Group's own news sheet ("The Rag Chew") keeps members informed of happenings.

Hounslow & District Radio Society.—Interesting and instructive talks have been given at recent meetings; Superhet Design is being covered stage by stage, and a member's modified R1155 has been examined and described in detail. A junk sale was also held in July. There will be no August meeting, but activities will recommence on September 3.

North-East Amateur Transmitting Society ("N.E.A.T.S.")—Accommodation in Newcastle-on-Tyne has now been secured, and meetings will be held there, in rotation with those in Sunderland, North Shields and South Shields. The first of such meetings will take place on August 25, at 1 Jesmond Road at 8 p.m. All amateurs within reach of Newcastle are invited to attend.

Thanet Amateur Radio Society.—Activities have been suspended while the members have been cleaning up their new Headquarters and collecting gear together. Margate Council have recently made premises available in a large house set in spacious grounds, and discussion is rife on the most suitable type of aerial system to erect. Two more members (G3CBZ and G3CED) have recently been granted licences.

Wanstead & Woodford Radio Society (G3BRX)—Membership continues to average 30 per meeting, and meetings are still held weekly. Finding that the SWL members tended to be somewhat "shy," the plan was put into operation of splitting up into small groups at a meeting, with a transmitting member in each, to answer questions. This excellent plan has brought about greater understanding between SWL's and transmitters, and should be a useful tip for other Clubs.

Slade Radio.—The second of the D/F tests in the series for the Harcourt Trophy was held in July. Five competitors out of the ten starters succeeded in

locating the hidden transmitter, and Mr. C. Smart (the new Secretary) scored the highest number of points with 88.5. Further tests are arranged for August 31 and September 28.

Harrogate & District Short Wave Radio Society.—Members recently spent an interesting evening at the Leeds station of the BBC, where they saw a live show broadcast and were conducted round the Control Room, Third Programme transmitter and other items of equipment. On August 6 Mr. C. A. Norman of the G.E.C. is lecturing on "Recent Developments in Valves, and Cathode Ray Tubes," and on the 20th G8UY, an old-timer, will talk on "Modulation and Radiation," in the series on the Fundamentals of Radio. **Surrey Radio Contact Club.**—The monthly meetings are well attended, and in July there was standing room only, to hear G2IG lecture on "Noise Limiters." The next meeting will be held on August 12 at the Blacksmiths Arms, South End, Croydon, at 7.30. New members will be cordially welcomed.

Following are the names and addresses of the secretaries of Clubs whose reports appear in this issue. They will be pleased to give every assistance to prospective members.

ASHTON-UNDER-LYNE (G3BND). N. H. Brown, B.Sc., A.R.I.C., 63 Corporation Road, Audenshaw, Manchester.

BIRMINGHAM. N. Shirley, 14 Manor Road, Stechford, Birmingham, 9.

BRADFORD (Amateur Radio Society). J. H. Macdonald, G4GJ, Mayfield, Wagon Lane, Bingley. (Tel.: Bingley 965.)

BRIGHTON AND HOVE. J. R. D. Sainsbury, G8HV, 88 Lansdowne Place, Hove.

COVENTRY. J. W. Swinnerton, G2YS, 118 Moor Street, Coventry. (Tel.: Coventry 4578.)

DONCASTER (G3CBM). H. Flintham, 50 Burton Avenue, Balby, Doncaster.

EDGWARE (G3ASR). R. H. Newland, G3VW, 3 Albany Court, Montrose Avenue, Edgware, Middx.

HARROGATE. K. B. Moore, Spinney Cottage, 2a Wayside Crescent, Harrogate.

HARROW. J. F. A. Lavender, G2KA, 29 Crofts Road, Harrow, Middx.

HOUNSLOW. A. H. Pottle, 11 Abinger Gardens, Isleworth, Middx.

KINGSTON. A. W. Knight, G2LP, 132 Elgar Avenue, Tolworth, Surrey.

LIVERPOOL. T. W. Carney, G4QC, 9 Gladeville Road, Aigburth, Liverpool, 17.

MEDWAY. S. J. Coombes, Stanvic, Longhill Road, Chatham, Kent.

NORTH-EAST. J. W. Hogarth, G3ACK, 4 Fenwick Avenue, Blyth, Northumberland.

OSWESTRY. G. H. Banner, G3AHX, 6 Coppice Drive, Oswestry, Salop.

READING. L. A. Hensford, B.E.M., G2BHS, 30 Boston Avenue, Reading, Berks. (Tel.: Reading 60744.)

ROMFORD (G4KP). R. C. E. Beardow, G3FT, 3 Geneva Gardens, Whalebone Lane North, Chadwell Heath, Essex.

SLADE. C. N. Smart, 110 Woolmore Road, Erdington, Birmingham, 23.

STOCKPORT. D. Alimundo, G4HK, 154 Broadstone Hall Road South, Heaton Chapel, Stockport.

SURREY. L. C. Blanchard, 122 St. Andrews Road, Coudsdon. (Tel.: Uplands 3765.)

SUTTON AND CHEAM. E. Ward, G8GD, 83 Mulgrave Road, Sutton, Surrey.

THANET. A. J. Jeffrey, Rutland House, 9 Lloyd Road, Broadstairs, Kent.

WANSTEAD (G3BRX). R. J. C. Broadbent, G3AAJ, 24 St. Margarets Road, Wanstead Park, London, E.12.

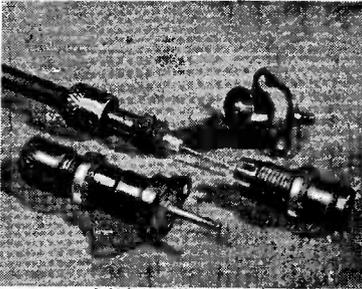
WIRRAL. B. O'Brien, G2AMV, 26 Coombe Road, Irby, Heswall, Cheshire.

WORCESTER. D. Higley, 1 York Place, Worcester.

WORTHING. G. W. Morton, 42 Southfarm Road, Worthing, Sussex.

YORK. G. W. Kelley, G5KC, 123 Kingsway West, Acomb, York.

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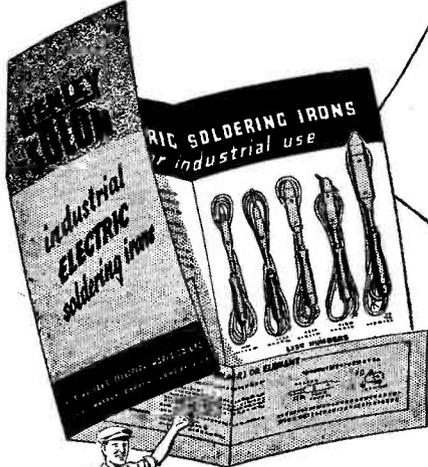
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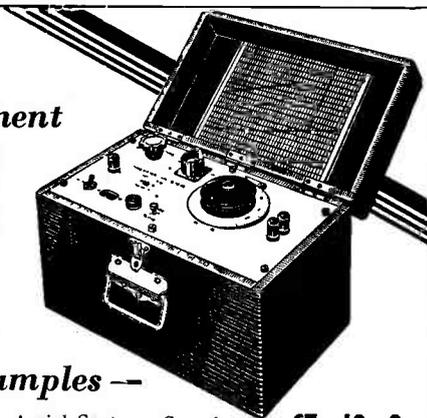
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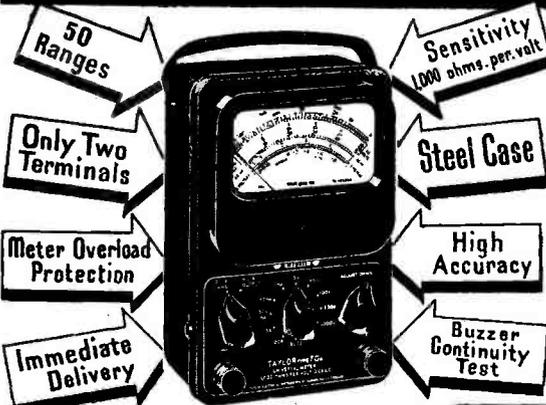
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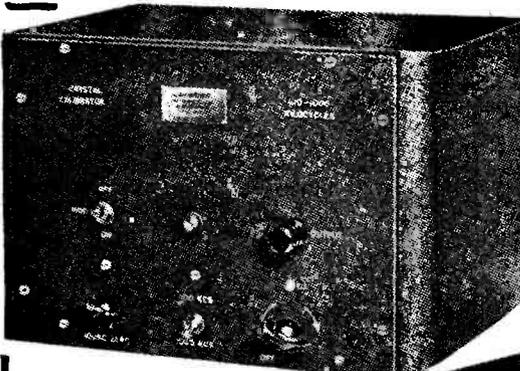
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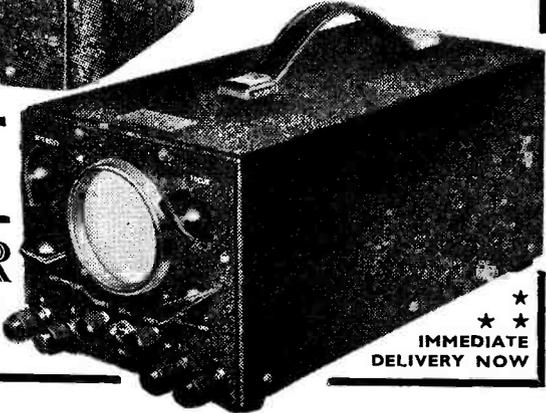
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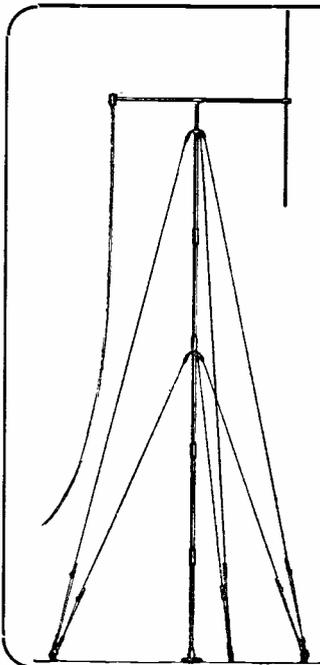
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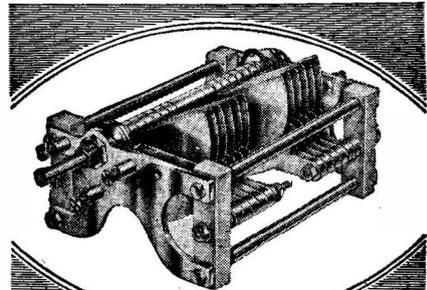
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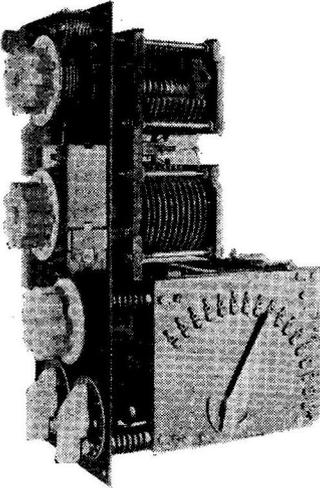
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FOR SALE.—3-in. CR Tube 3BPI and mounting (1), 2 x 2 (1) ; 6SN7GT (6) ; 809 (2) ; all brand new. Offers ?—Box No. 149.

CLASSIFIED ADVERTISEMENTS.—continued.

READERS'—continued.

HALLICRAFTER S20, AC Receiver, perfect. Original packing, circuit, 500 kc to 43 mc, £23 or near offer.—Box No. 150.

WANTED.—Dial and drive unit from BC211 or BC221 Wavemeter. Unserviceable complete, instrument considered at reasonable price.—Oxley, 31 Welbeck Avenue, Tunbridge Wells.

A COMPLETE 50-watt 'Phone/CW rig 230v. AC. Coils for 10, 20, & 40 metres, built in 33-in. rack black crackle panels. £40.—G2BYK, Welton Manor, Welton, Daventry.

SELL.—R.1155, No BFO or magic eye (regeneration for CW), otherwise perfect, with Power supply. £10 or offer, carriage paid.—Roberts, 88 Middle Street, Deal, Kent.

NATIONAL FB7, 10-160, Xtal, BFO, B-Spread, Separate Power Pack and Speaker. £20. Savage Mike, 20/-; 3-in. CRT with holder, 20/- All OK.—G4LA, 20 Hall Gates, Hexham, Northumberland.

H.R.O. SENIOR, New 1945, Complete with 7 coils, pack, speaker, rack, etc. Immaculate condition, offers. Type 38 Walkie-Talkie, £4. 50-watt Tx Push Button Selection, 'Phone/CW, complete, £26. Navy Type T.C.S. Tx 50 watts, converted for 20-metre operation, complete with AC Pack, £30.—Mount Green, Iolyn Park, Conway, N. Wales.

R.1155, Internal Power Pack, provision S-meter, 8-in. Speaker. Bargain. £25. Q-Max Converter and power pack, 2 coil blocks, 28 mc-56 mc. New, unused, £25. Details.—Saunders, 41 Kenley Road, East Twickenham, Middlesex.

OSCILLATORS, Type 145. Freq. 2-7.5 mc. Very popular. Almost unobtainable. A few available to callers only. What cash offers? G3LT, 89 Sandhurst Road, Kingsbury, N.W.9.

SALE: RF-60 by Raymart, CW, 'Phone, Class SABI, Beautiful quality, 3-deck, Black Crackle, Twin Power Packs, Coils 80, less Mike; Buyer collects. Offers.—Arnott, Yew Tree House, Cheddar, Stoke-on-Trent.

WANTED for binding: Clean copy of Number One, *Short Wave Listener*. Name Price.—Clarke, 39 Frankland Road, Croxley Green, Herts.

RECEIVERS for Sale. Hallicrafter S.27, perfect condition, £55. Telefunken battery communication receiver, 2RF, 3IF, 5-band turret, 3-5 to 30 mc, 100 per cent. spare valves in turrets, £15. Also brand new metal 6L6's, 12/- each.—12b Uxbridge Road, Kingston, Surrey.

EDDYSTONE 5/10-metre Converter. As specified in manual, complete with valves; used twice. £10, or offer.—9 Southfield Park, North Harrow, Middlesex.

SALE: All EF50 Receiver by G5UM, with power stage added. Complete with coils, 100-9 metres; Power Pack and spare EF50. Splendid bargain at £10 10s.—Box No. 151.

HAM'S surplus valves. EF50 7/6, EF32, EF36, EBC33 6/-. New or as new, guaranteed tested. S.A.E. List.—G3BBU, 38 Ashbourne Avenue, London, E.18.

H.R.O. COILS 3-5 to 7-3, 7-0 to 14-4 (band-spread) £4 each for quick sale.—Thomson, "Ross," The Gardens, Brookmans Park, Herts.

BC-348Q, 8 Valves BFO Crystal Fil., Transformer, etc. New condition 20 mc to 200 kc, Black Crackle. Reason for sale, Advertiser has two. Offers around £30. Eddystone pre-selector 2 valves, coils, etc. Unused, £10.—F. W. Davies, 19 Averil Road, Leicester.

SKY CHAMPION in excellent condition, for sale or exchange for Tx, Valves or Gear.—G5YV, 8 Ashfield Avenue, Morley, Yorks.

FOR SALE.—Ex-Govt. equipment American Service receiver, requiring only power supply and speaker; range 190 to 9,500 kc, 12-valve valves, suitable for car radio; 6 valve superhet, Price £5. One American communication receiver BC.348, 8-valve superhet 200kc to 18 mc, requires 6v. heater and 200v. HT supply, £10. Ex-R.A.F. Indicator unit in perfect condition, containing: 2 CRTs ECR30 and ECR60 equivalents; Cus3 Magnetron; One 807, three EA50, three SP61, one L63, one 0-1 mA f.s.d. 2-in. meter—one 24v. air blower AC or DC; 15 potentiometers and other numerous high voltage condensers and other components, £6. Ex-R.A.F. Type 37 mains driven calibrated oscillator, 20-80 mc, approx. 10 watts output 1 Suitable for VFO or small Tx, £8. Also large number of valves EF50, EA50, VR65, 6H6, etc., etc. 4/- each. 6-in. CRT 30/- each.—Box No. 152.

A FEW LF AMPLIFIERS, £8. Rect., EF50, Push-Pull 807's. First Remittances Received Secure.—Gordon, 46 Lynton Avenue, London, N.W.9.

1155 Ex-R.A.F. Rx completely modified, incorporating Ae. Switch, Headphone Jack and Tone Control. Has been stripped and sprayed cream cellulose. Nearest £12. Also another as originally bought. Nearest £10. Both working DC. Despatched free.—G13CDF, 63 Church Street, Portadown, Co. Armagh, N. Ireland.

SALE.—America's latest Short Wave Communication Receiver, covering all Bands. National New NC173. Thirteen valves. As new.—Apply Box No. 153.

NATIONAL FBXA Communications Receiver, 8 valves, crystal gate. General coverage 7-20 mc, bandspread 7 and 14 mc amateur bands. Complete with power pack, M/C speaker in cabinet and manual, £25.—Sanderstead 4237.

COMMUNICATIONS receiver MCR.1. Mains and battery operation, 3000-19 metres. Complete with power pack, 'phones, instructions and diagram. £7 10s.—Sanderstead 4237.

SALE.—Canadian Walkie-Talkie 58 set with AC power pack and rod aerial. Offers.—G3HJ, "Ballachree," Dunmail Drive, Carlisle.

TRANSMITTING VALVES.—Quantity, Condition, and price each, in brackets: R.C.A. 830B (two, used, 25/-); R.C.A. 1625 (two, new, 10/-); R.C.A. 1616 (one, used, 10/-); Hytron TZ40 (three, used, 20/-); Taylor TZ40 (two, used, 20/-); G.E.211 (two, new, boxed, 40/-); Taylor HD203A (two, new, boxed, 60/-); S.T.C. 2v/400A (one, new, 20/-); Eimac 150T (one, used, 50/-); Ken-Rad 832 (one, new, boxed, 35/-). All "Used" Valves are OK.—Box No. 155.

19-VALVE Vancouver Radio Laboratories communications receiver with 2 RF stages, mixer and separate oscillator, Xtal Filter, noise limiter, etc. Built in Xtal calibrator. For 110-volt AC operation. Requires some repairs but mechanically and electrically sound. With spare set of valves. Offers.

POWER SUPPLY and MODULATOR UNIT for Sale, consisting of: One power transformer, 2,300—1,750-0-1,750—2,300 volts, RCA, weight 100 lb. Two chokes and two condensers. One filament transformer. Four valve holders for 866A's. One modulator transformer to modulate a pair of 813's with a pair of 805's, all mounted on a base plate of 1/2-in. mild steel 1 ft. 7 in. x 1 ft. 10 in. x 3 in. deep (unwired). Modulator Unit (wired) consisting of two valve holders for a pair of 805's, input transformer, filament transformer for 805's, humdingers, etc. Also a pair of 813's. One RF meter 0-8 amps. One thyrton (voltage stabilizer). All unused. What offers?—Box No. 156.

EDDYSTONE 504 communication receiver, 30 mc to 580 kc in five switch bands. S-meter, BFO Xtal Filter, CW-'Phone Switch, etc., and all essential requirements. Perfect condition. Bargain, £45.—Write E. V. Main, Queen Street, Gillingham, Dorset (Tel. 80).

CLASSIFIED ADVERTISEMENTS.—continued.**READERS'—continued.**

FOR SALE.—National HRO Senior Complete. 900 kc-30 mc with band spread. Very good condition, new valves. Also Triplet Combination Valve Tester 110v. AC. Many other components of Transmitter Gear. Inspection Brighton.—Box 157.

R.1155 covers 160 to 20 metres. Geared tuning, power pack, perfect, £18. V55R band-spread expander, spare EF50, 6J5; perfect, £15; or £30 pair. 50-watt xmmitter 6L6, 807, 4 xtals, 20 and 40 metre coils, £9. Power pack, 750 v. 250mA, 6·3 v. 4a fil. txf., 2 GU50 £7, or £15 pair. WAC and 78 countries in 5 months. Dispose lot £42.—F/L Puyenbroek, R.A.F. Station Stradishall, Suffolk.

SX24Xtal. S-meter, etc. Bandsread on ham bands. As new, only recently used. £38, or offers to 60 Pebworth Road, Harrow.

H.R.O. Band Spread Coils required for Ham B2 Trans/Rcvr.—Price G2AYC, 11 Holmwood Road, Cheam, Surrey.

BC-342N RECEIVER. 1·5-18 mc. 2-R.F.'s; 2-I.F.'s; Crystal gate. 6F6 output. AC Power Pack. £30 or offer. R.1155, re-aligned, AC Power Pack, KT63 output stage. £15 or offer. Two R.1116's, re-aligned, one HT battery, accumulator and one pair 'phones. £7 10s. the lot. AC/DC TRF Quality Receiver, cathode follower output £6. Vitavox K12/10, 15 watt, 12 ins. speaker, unused. Price new £7 10, bargain at £6 10. Manning, 20 Speer Road, Thames Ditton, Surrey.

SALE.—Grampian, Type M.C.R.1. Microphone, a^c new, £3 10. American Hand Microphone (Carbon) with push-to-talk switch. Duralumin Cast Case. Ideal for portable rig 12/6. AR88.LF. Overhaul—Perfect, best over £45. G4BY, Tankerton, Kent.

TROPHY "8" 7-550 metres. A/C mains, perfect. £20. (80) Modern Radio Books. Bargain £8 10s. Also test equipment, etc. S.A.E. 62 Tixall Road, Stafford.

2 ONLY 6 band American 348 receivers, in perfect working order. 1 complete with power pack and speaker, nearest £22. Receiver only, nearest £18. Write Roberson, 73 Venns Road, Warrington, Lancs.

CLEARING station. Wavemeter, Valves, Components, Units too numerous to mention. Inspection invited or S.A.E. for list. G3BVI, Kilsby, Rugby, Warwicks.

TROPHY 6 Valver Rx freq. 44 mc to 550 kc. One owner, £12 or nearest. Write B.S.W.L. 2277, 452 Wortley Road, Rotherham.

A.R.88 for sale, minus cabinet and meter, otherwise in perfect condition. Reasonable offer. 6 Station Road, Solihull, Birmingham.

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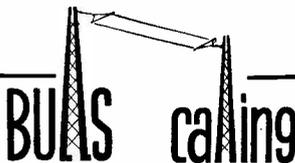
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VIBRATOR POWER PACKS. Input 6 v. 1 1/2 a., output 150 v. 25 ma. in steel case, with complete smoothing. Size 6 in. × 5 in. × 2 1/2 in., 40/-.

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Type 2.—40 v. 2 a. (Excellent for rewinding). 15/-
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Type 4.—865-0-865 v. Tapped at 760 and 690 v. 500 ma. Complete with L.T. trans. for rect. heaters 4 v. 3-sa. twice. Price £5.

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SHORT WAVE CONDENSERS. High-grade Ceramic insulation. Super Midget type. Single-gangs available in 10, 20, 50, 75, 100 p.f. (75 p.f. has double spindle for ganging). Price 2/6.

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500 ma.	3 in.	—	Proj.	M.C. D.C.	12/6
250/250	—	—	—	—	—
mic/A.	2 in.	100	Flush	M.C. D.C.	7/6
40 v.	2 in.	8 K	Flush	M.C. D.C.	7/6
2 1/2 a.	2 in.	—	Flush	Thermo. H.F.	7/6
4 a.	2 1/2 in.	—	Port.	H.W. H.F.	3/6
3 KV.	3 1/2 in.	1 meg.	Flush	M.C. D.C.	20/-
20 a.	2 in.	—	Flush	M.C. D.C.	7/6
40 a.	2 in.	—	Flush	M.C. D.C.	7/6
25 a.	3 1/2 in.	—	Flush	M.C. D.C.	7/6
25 a.	3 1/2 in.	—	Proj.	M.C. D.C.	7/6
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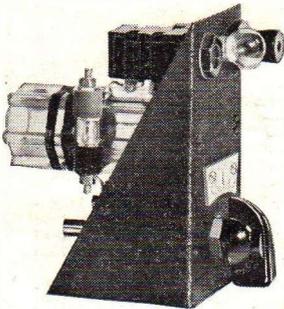


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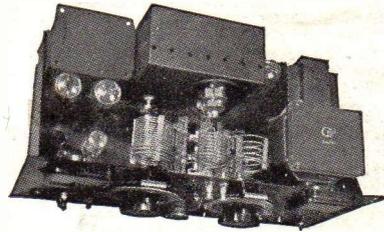
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