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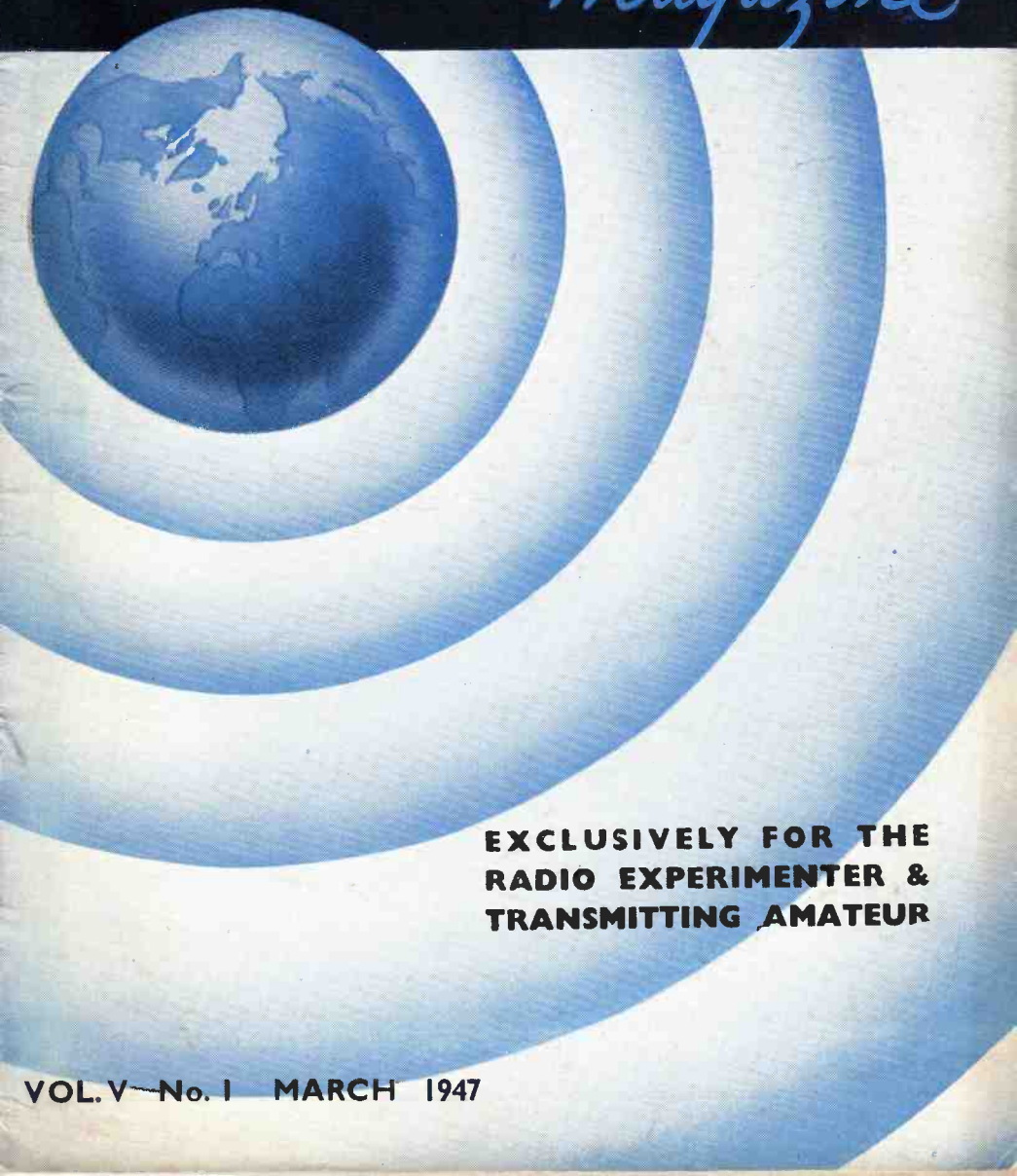
The SHORT WAVE Magazine



EXCLUSIVELY FOR THE RADIO EXPERIMENTER & TRANSMITTING AMATEUR

VOL. V—No. 1 MARCH 1947

SHORT WAVE MAGAZINE

FOR THE RADIO AMATEUR AND AMATEUR RADIO

Vol. V. MARCH 1947 No. 44

CONTENTS

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EDITORIAL

Birthday

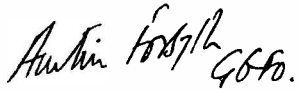
The issue before you is the first of a new volume, and so we can look back on twelve months' endeavour in this difficult post-war period.

Endeavour certainly, but what of the achievements? On the technical side, the *Short Wave Magazine* has done much for 58 mc working, a sphere of activity new to most amateurs; we have provided practical designs for equipment covering all communication bands; we have introduced techniques new to Amateur Radio; we have instituted valuable services for readers; and we have encouraged and sustained new writers. We have given much attention to assisting the Club movement, and we have devoted a good deal of space to matters connected with the ethics and traditions of Amateur Radio. And so we intend to go on.

Naturally, our activities have not passed unnoticed. We have our detractors. Our motives are called in question by the muddy-minded, but features, styles and ideas developed by the *Magazine* are faithfully imitated.

What modest success we may have achieved in these last twelve months is due to many factors. Pre-eminently, to the sustained support not only of our readers, which we gratefully acknowledge, but also of our advertisers, without whom no publication of any merit can expect to live.

It is very much to the benefit of all with any sort of interest in Amateur Radio that the *Short Wave Magazine* should be a success—not merely because it enables us to provide better material and services, but because success means strength. And a strong, independent periodical of the character of this *Magazine* has a large and important part to play in the future expansion and development of Amateur Radio.



Band-Switched Exciter

Notes on a Practical Design

By **P. W. J. GAMMON (G3VB)**

Though the switching of RF circuits must almost certainly introduce losses, these can be tolerated in a flexible exciter unit capable of giving sufficient RF output to drive a high powered PA. G3VB's design incorporates several interesting features which are an improvement on conventional arrangements.—Ed.

THE unit to be described has been in use for the last six months and has been proved consistent and reliable. Apart from band-switching, certain other features are incorporated to make the unit as versatile as possible. These are :—

Provision for mains or battery operation (12v or 6v) to cater for portable work,

Heater economy switch for use when all stages are not in operation,

Provision for crystal control on 7 mc and above, primarily for drive to a succeeding 58 mc doubler,

VFO drive on any band, 1·7-28 mc,

Provision for oscillator keying for break-in working,

Switch to reduce receiver blocking when netting* on to spot frequency.

Circuit

6V6's are used as being easily obtainable and economical in heater consumption. The final 6V6 (V4) acts as a buffer on all bands except 28 mc, where it operates as a doubler. The RF output, with 300v HT, is of the order of 10 watts at an input of 15-20 watts. By substituting a 6L6 for V4, with increased plate voltage, the unit makes a useful low powered Tx. It has been used with success on 1·7 mc with the 6V6 final, modulation being applied to plate-and-screen by the jack provided.

The full circuit arrangement herewith shows that keying of V1, V2, or V3 is obtained by a single-section Yaxley-type switch (2 × 5-way with following contacts), arranged to earth the return leads of the stages not being keyed.

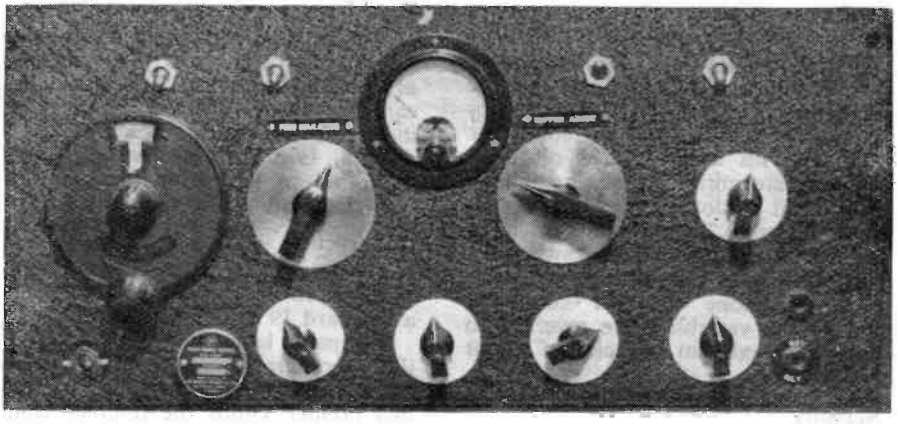
Bias for all stages except the VFO is obtained by a combination of cathode resistor and grid leak. The values chosen give little variation of standing anode current under keying conditions, although the operating point of the valves is alternating between Class-A (without drive) and Class-C (with drive). This holds the total load on the power supply fairly constant under keying and avoids regulation trouble, which is especially useful with a rotary transformer. Under these conditions a 120v HT battery can be employed for the VFO supply, since the low current required is well within the capabilities of a standard capacity battery. Cathode bias is retained when using V2 or V3 as crystal oscillators since ample drive is available for V4, and RF crystal current is reduced.

The 6 or 12v heater facility is given by an octal socket on the chassis and the use of a suitably strapped plug. On the 12v position, the heaters are left floating to avoid complications when using the same battery for other equipment. S6 switches out V1-V2 heaters when these stages are not in use ; switches S1-S4 apply HT to those required. Metering of all plates is obtained by a conventional switching arrangement using S15. Care must be taken in the selection of this switch to see that the contacts are non-shorting between positions.

VFO—V1

The VFO is a conventional ECO cathode-tap circuit but needs careful treatment if a really good keying

**This is an Army signals term which in amateur parlance is synonymous with single-channel operation. Two or more stations working a round-table on the same frequency would be said to be on the same net.—Ed.*



Panel layout of the exciter. The slow-motion dial at left is for VFO tuning and all operating controls are conveniently arranged. Switching provides for metering in the plates of all four stages.

characteristic is to be obtained. Of the various keying arrangements tested the one shown was found to give best results. Tests were made on 28 mc local working by netting the VFO on to crystal frequency and switching from VFO to crystal. Reports indicated no change in tone quality, and entire absence of chirps.

The grid leak R1, instead of being in the usual parallel circuit with the grid condenser, is returned direct to earth. This, together with keying in the earth return of the cathode coil, gives an excellent keying characteristic. The plate supply is neon-stabilised at 130v, and the normal plate current runs at 10 mA. The netting facility is given by R2 in series with the screen, normally short-circuited. Using this arrangement with an average O-V-1 no difficulty in netting was experienced due to blocking of the receiver, but a frequency shift of a few hundred cycles is apparent on 28 mc when the net switch is restored.

After an initial warm up of about five minutes, frequency/temperature variation is not sufficient to warrant any special measures, but a temperature compensating 200 $\mu\mu$F padder can be used if desired. On 1·7 mc the plate circuit is left aperiodic and ample drive is available for the buffer. This allows the grid to be on 1·7 mc and avoids the need for an 0·9 mc oscillator operating in the medium waveband. On 3·5 mc and above the plate circuit is tuned to boost the 2nd harmonic output of the oscillator.

Crystal Oscillator V2

With the switch in the CO position th ecrystal is applied between grid and earth. The ·01 μF series condenser prevents the appearance of DC voltage across the crystal on tritet position with the key up. The plate circuit is conventional with a feed for capacity to V3 or *via* band-switch S9 to V4. C31 is introduced by S10 to compensate for the capacity lost when coupling from V3 to V4 on 14 or 28 mc. Normal plate current is 20-25 mA.

Tritet Oscillator V3

With the switch in the tritet position the short circuit is removed from the tuned cathode coil. At the same time the crystal is applied to V3 grid and V2 grid is earthed. The plate circuit is tuned to 14 mc and is provided with capacity coupling feed to the band switch. Normal plate current is 20-25 mA.

Buffer Amplifier V4

This is a conventional plate-neutralised amplifier with switched tank circuit and output link. A 50 × 50

$\mu\mu$F butterfly type split-stator condenser is used. The three low frequency ranges have additional fixed padders.

Plate-and-screen modulation can be applied *via* the jack, the screen resistor being fitted with a 0·5 μF shunt for audio. With drive applied off resonance plate current should reach 60 mA, and unloaded resonance dip should drop to 20 mA. Some efficiency is lost, of course, due to the switching. Neutralising is obtained with a standard Eddystone O-4 $\mu\mu$F condenser having the variable plate reversed to allow a maximum capacity of about 1 $\mu\mu$F.

Stability

Under tuned conditions no spurious oscillations are observable. However, if HT is left applied to stages not actually in use spurious oscillations may appear. Stability is increased by a small amount of negative feed back between L2 and L3 in the form of a single-turn link line. The link should be reversed if anti-phase is not obtained at first.

Tracking

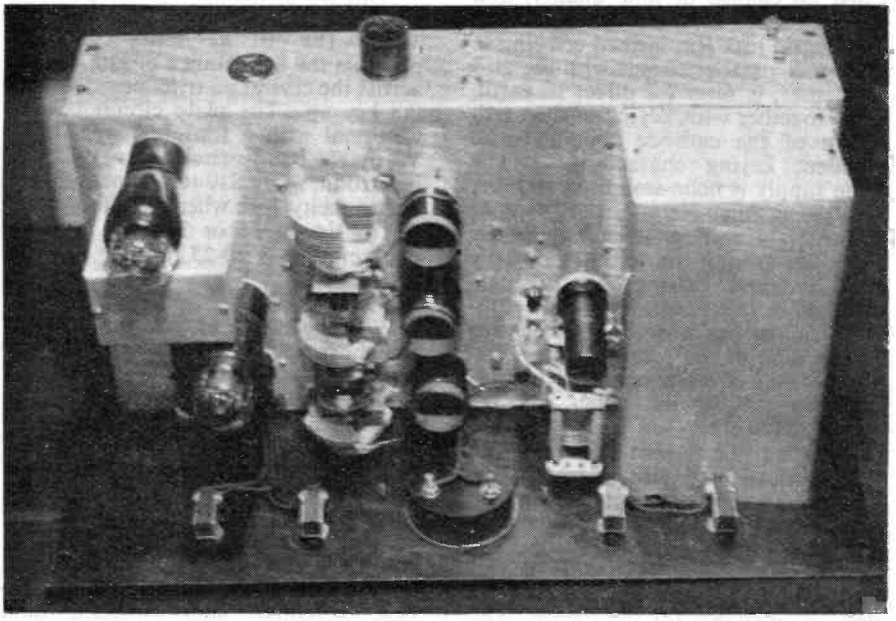
C1, C2 and C3 are ganged to reduce the number of controls. The tracking of these three circuits is not critical and can be easily effected by leaving inductance trimming loops on L2, L3 and L5. Grid current drive to V4 will be found to be reasonably constant over the limits of the various bands.

Construction

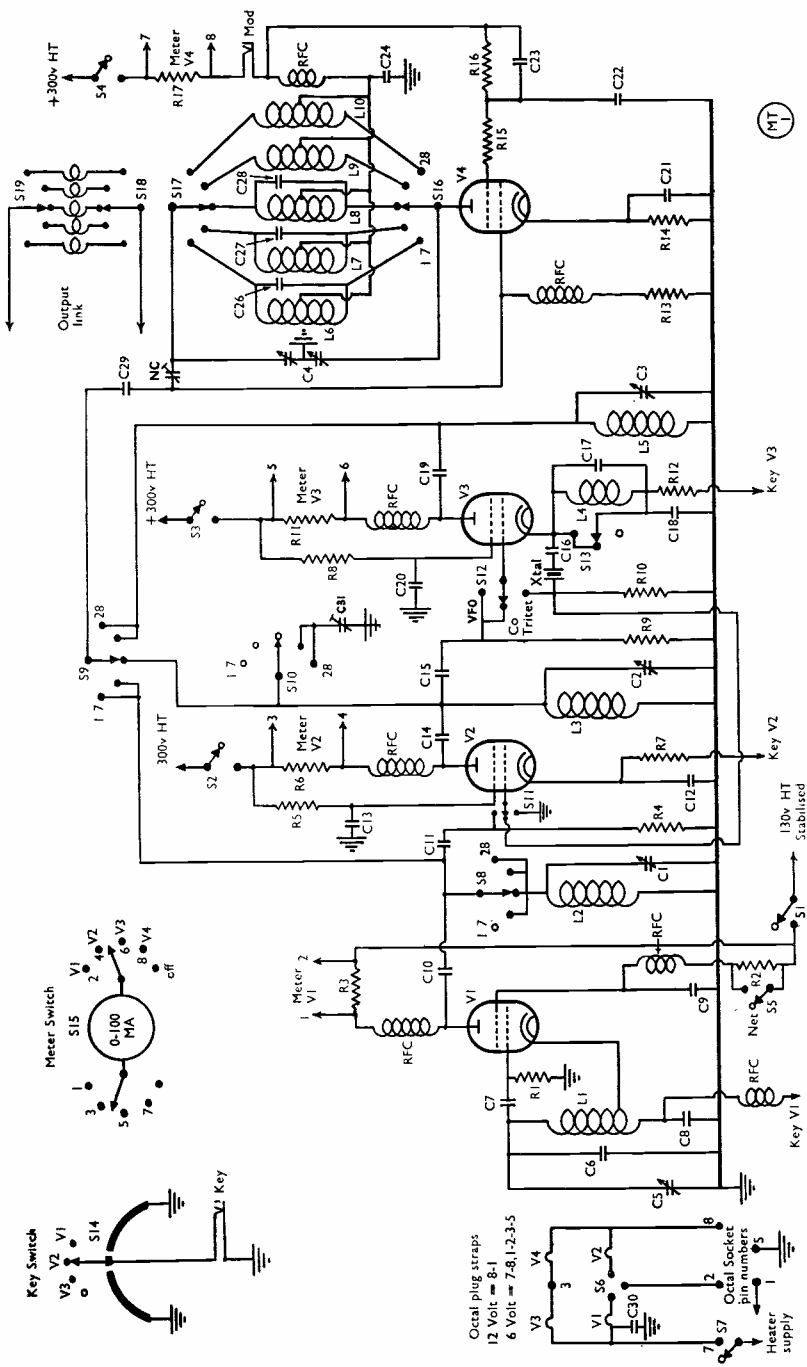
The chassis is of 18 gauge aluminium, 17 ins. × 10 ins. × 3 ins., and the panel a standard 19 ins. × 8¾ ins. steel.

The panel layout may be seen from the photograph. The slow-motion dial controls the VFO tuning, and the two pointer knobs the doubler gang and BA tank tuning respectively. S1, 2, 3 and 4 are located along the top of the panel. The various tap switches, "NET" switch, and crystal holder are grouped along the bottom of the panel and are mounted under the chassis.

Referring to the view of the chassis, the screened VFO tuning condenser can be seen to the rear left hand of the top view, and in a corresponding posi-



Chassis view of the unit. The whole BA output coil and switching assembly is contained in the screening can on the right



The circuit in detail of G3VPB's band-switched exciter. Necessarily somewhat complicated, it needs to be carefully studied with the text in order to unravel the switching. With a 6L6 at V4 in place of the 6V6, the unit becomes a useful low-power transmitter.

tion underneath is the grid coil assembly screening can. The three doubler plate assemblies are mounted above the chassis with the 3·5 mc circuit at the rear, 7 mc in the middle, and 14 mc immediately behind the panel.

The BA switched tank coil assembly is at the right hand end adjacent to V4, and is also screened.

Switches are ganged as follows: S8-S9-S10; S11-S12-S13; S16-S17-S18-S19. These are respectively the main frequency selector switch; the CO/VFO change-over switch; and the BA tank assembly band-switch.

On the rear edge of the chassis are mounted the heater switches S6 and S7, the power and octal heater sockets, and link output terminals.

Table of Values

Band-switched Exciter

C1	= 200 $\mu\mu$F	R4, R9, R10	= 50,000 ohms, 1 watt
C2, C5	= 100 $\mu\mu$F	R7, R12	= 400 ohms, 2 watt
C3	= 50 $\mu\mu$F	R5, R8	= 27,000 ohms, 1 watt
C4	= 50 $\mu\mu$F, split-stator	R13	= 5,000 ohms, 1 watt
C6, C26	= ·0002 μF mica	R14	= 400 ohms, 3 watt
C7, C11, C15, C17, C27	= ·0001 μF mica	R16	= 10,000 ohms, 1 watt
		RFC	= Pie-wound RF chokes
C8, C9, C12, C13, C16, C18, C20, C21	= ·01 μF mica	S1, S2, S3, S4, S5, S7	= SPST toggle
		S6	= 3-point toggle
C10, C14, C19, C22, C24	= ·002 μF mica	S8, S9, S10	= 5-position, 2-wafer rotary
C23	= 0·5 μF	S11, S12, S13	= 3-position, 2-wafer rotary
C28	= 30 $\mu\mu$F mica	S14	= 5-position, 1-wafer with following contacts
C29	= 15 $\mu\mu$F mica	S15	= 5-position, 1-wafer with non-shorting contacts
C30	= 0·1 μF		
C31	= 3-30 $\mu\mu$F air-spaced trimmer	S16, S17, S18, S19	= 5-position, 2-wafer ceramic
NC	= 0-4 $\mu\mu$F neutralising condenser (see text)	V1, V2, V3, V4	= 6V6G (or GT or M)
R1	= 100,000 ohms, 1 watt	Meter	= 0-100 mA
R2	= 1 megohm, ½-watt		
R3, R6, R11, R15, R17	= 30 ohms, ½-watt		

COIL DATA

Coil	Band	Former	Wire	Turns	Length	Padder
L1 VFO Grid	1·7 mc	ceramic	24	40	Closewound	Tap at 12 t
L2 VFO Plate	3·5 mc	paxolin	20	26	,,	-
L3 CO Plate	7 mc	,,	16	15	,,	-
L4 Tritet Cathode	7 mc	,,	20	9	1 in	100 $\mu\mu$F
L5 Tritet Plate	14 mc	,,	16	9	1¼ in	-
L6 BA Plate	1·7 mc	,,	20	46	Closewound	200 $\mu\mu$F
L7 ,, ,,	3·5 mc	,,	20	23	,,	100 $\mu\mu$F
L8 ,, ,,	7 mc	,,	16	20	,,	30 $\mu\mu$F
L9 ,, ,,	14 mc	,,	16	15	,,	-
L10 ,, ,,	28 mc	air	14	10	Self-supporting on switch	-

Note: All coils 1-in. diameter.

A Noise-Silencer Unit

Notes on a Practical Design

By W. R. LUCKETT, A.B.I.R.E.

Operators of superhet communications-type receivers without a noise silencer will find that this easily constructed unit will eliminate all the intermittent crashes that cause so much damage to the ear drums, also considerably reducing the less annoying but nevertheless troublesome noises that originate from motors, signs, and so on.

Power is derived from the receiver power pack, which should have sufficient reserve to supply the 23 mA that this unit consumes. The heaters require 6·3 volts at 1·2 amps, and if they cannot be fed from the receiver transformer, it would be quite satisfactory to wire them in series and feed them from the mains *via* a 680 ohm 0·3 amp line cord or dropper.

Construction

The original unit caused a loss of gain in the receiver, which had only one stage of IF amplification, so it was decided to incorporate an extra stage of IF amplification in the unit. This extra stage was also found to improve the noise silencing action. However, if it is proposed to use the unit with a receiver which already has two stages of IF amplification, then it could be omitted.

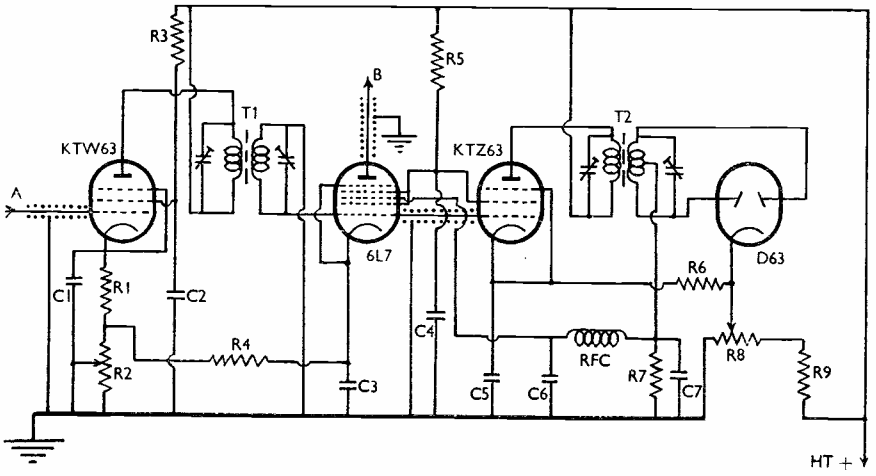
The diode type IF transformer used was home-made, although these are obtainable commercially. Metal valves were used in the experimental model, but if these are not obtainable, the glass counterparts should be substituted with metal shields. Variations in physical layout may be tried, but it is essential to keep all leads as short as possible.

The input screened lead A is connected to that side of the IF transformer lead which is normally taken to the valve grid. The IF amplifier valve itself is removed, and the output screened lead B is connected to the valve holder anode socket; that is, to the primary of the receiver second IF transformer. HT and earth leads are connected to convenient points, and the heaters supplied as described above.

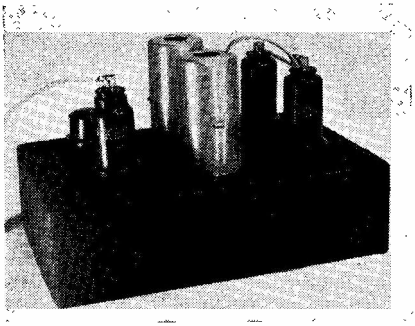
Alignment

For the alignment of the unit a signal generator is useful but by no means essential.

Start the alignment procedure by ad-



Circuit of the unit, operating in the IF stage of a superheterodyne receiver. *See text for discussion.*



The unit complete as built by our contributor.

justing the receiver first IF transformer. Follow up with T1 in the unit and then the second IF transformer in the receiver. The receiver should now operate in the normal way, R2 giving control over the IF gain.

T2 should next be aligned. This is best done by connecting a voltmeter across R7, and tuning for resonance.

R8 controls the amount of voltage fed into the suppressor grid of the 6L7 and therefore the amount of silencing action.

Table of Values

Noise Silencer Unit

R1	300 ohms, 1 watt.
R2	10,000 ohm potentiometer.
R3	47,000 ohms, 1 watt.
R4	250 ohm, 1 watt.
R5	47,000 ohms, 1 watt.
R6	350 ohm, ½-watt.
R7	100,000 ohms, ½-watt.
R8	5,000 ohm potentiometer.
R9	30,000 ohms, 1 watt.
C1	0·1 μF.
C2	0·1 μF, paper.
C3	0·1 μF, paper
C4	0·1 μF, paper.
C5	0·1 μF, paper.
C6	100 μμF, mica.
C7	50 μμF, mica.
T1	Inter-stage IF transformer.
T2	Diode type IF transformer.
V1	6K7, or KTW63.
V2	6L7.
V3	6J7 or KTZ63.
V4	6H6 or D63.

"TIME MARCHES ON"

The note under this head on p. 739 of the February issue raises again the question of who actually was first to hear an American amateur signal across the Atlantic. G8OK (Birstall) writes at length on the subject of G. W. Benzie's claim to have heard 2QR, New Jersey, on October 6, 1920, followed three weeks later by reception of the same station by G. M. Miller of Aberdeen. In Benzie's case, the receiver was built from parts supplied by G8OK.

The Americans have always discounted these claims on various grounds, and the arguments arising from this controversy have been lost in the mists of time. While much on the matter was published on both sides of the Atlantic towards the end of 1920, the fact remains that 2QR, in circumstances that are still obscure, subsequently withdrew his verification of Benzie's reception.

EMDO COILS

They are turning out strip-supported coils wound in long lengths of up to 2 ft. and 2 in. in diameter. The idea is that you buy your coil "by the yard" and chop off whatever size tank coil you require.

Coils are available in 15 and 18 SWG enamelled wire, either close, double or treble-spaced by the diameter of the wire, and being wound on machines, are true for size and spacing. Some prices are: 15 SWG double-spaced, 2 turns for 2d.; 18 SWG close-spaced, 5 turns for 2d.

Messrs Emdo, Ltd., Ace Works, Moor Lane, Staines, Middlesex.

THE SHORT WAVE LISTENER

Due to Government restrictions on the industrial use of power, we were unable to produce the March issue of the *Short Wave Listener* due out on February 20.

Provided that such cuts do not again affect periodical production, the next issue of the *Short Wave Listener* will appear on March 20 and will be dated March/April. All direct subscribers entered prior to February 20 will be credited one month to cover the missed issue.

It is hoped that the April issue of the *Short Wave Magazine*, due on April 2, will appear on time.

Transmitter Construction—Fresh Thinking

Suggesting Alternatives to the Stereotyped Rack-Panel Assembly

By J. HUM (G5UM)

It cannot be denied that at the present time a certain monotony is apparent in the design of many amateur transmitting stations. To qualify this somewhat provocative statement the writer should add that he has in mind not the widespread use of a 6V6-6L6-807 line—which is, after all, an electrical design that has proved effective and economical; rather, he wishes to challenge the almost universal employment of rack-and-panel construction.

Time and again, in station descriptions and photographs appear the meter-besprinkled rack-and-panel transmitter *plus* the American-built communications receiver, the whole being calculated to impress the eye—though whether it impresses the *ether* without the inefficient expenditure of lots of unnecessary watts is another matter.

To get straight to the point, far too many amateur stations tend to look alike these days, and the writer believes that that is not a good thing, for it may stultify the initiative and individuality which the British amateur has always shown in the past.

If your aim is to build yourself a wonderful station (more accurately, a wonderful-*looking* station) and use it as little more than a broadcaster, then this article is not for you. But if your interest in radio goes farther than pounding a key or talking into a microphone then you may care to travel a little further in the present company.

The Re-start

Upon the resumption of amateur transmission a year ago the writer had available for radio purposes a smallish top back room and an assortment of chassis on which were being built modulators, exciter units, power amplifier stages and power packs. In common with a thousand or two other people, his object was to get back on the air with the least possible delay. Accordingly, the various chassis were hurriedly completed and fitted with standard 19-in. front panels, and a four-tier relay rack was ordered in which to accommodate them. To exclude dust it was considered desirable to have a steel cover which would lift on or off the back of the rack and completely enclose all its units.

The intention was to build a transmitter that would be the last word in flexibility, and a brief description of it will now be given followed by an opinion as to why it fell short of the ideal.

The layout consisted of this four-tier rack arrangement, built up as follows:

Lowest position: Power pack.

Second position: Modulator employing push-pull 6L6 valves in the output stage.

Third position: Band-switched exciter unit' comprising 6V6G CO followed by a 6L6 frequency doubler.

Top position: Two 807 PA stages. The second PA stage comes into use only on 28 mc, when the first 807 functions as a doubler.

The first and second tiers are so straightforward that no further description of them is needed. Further details of the other two chassis may be of interest, however, to show the methods adopted in the search for flexibility.

The Exciter Unit

In the exciter unit the 6V6G has a seven-way switch on its grid circuit, to bring in any one of six crystals or, if desired, the output from the Franklin oscillator (in the latter case the 6V6G then functions as the buffer-amplifier stage for the Franklin).

This rapid selection of the grid excitation frequency would be nullified unless equally rapid selection of the 6V6G anode frequency were also provided. Therefore two coils are included, tuned by a 300 $\mu\mu$F condenser. One is proportioned to give 1·7 mc with the tuning condenser full in and 3·5 mc with it full out. The other gives 7 mc with the condenser full out. Either of these coils is brought into the 6V6G anode circuit by means of an ordinary receiving-type Yaxley switch. Poor practice? Normally, yes. But remember that the amount of RF handled is quite small. *Secondly, several sets of contacts on the Yaxley are paralleled,* thus reducing their effective resistance and providing increased contact surface.

We now have our flexible 6V6G exciter valve. We dispose of its output in one of two ways—either to the 6L6 frequency doubler on the same chassis or to the first 807 stage on the chassis above. This is

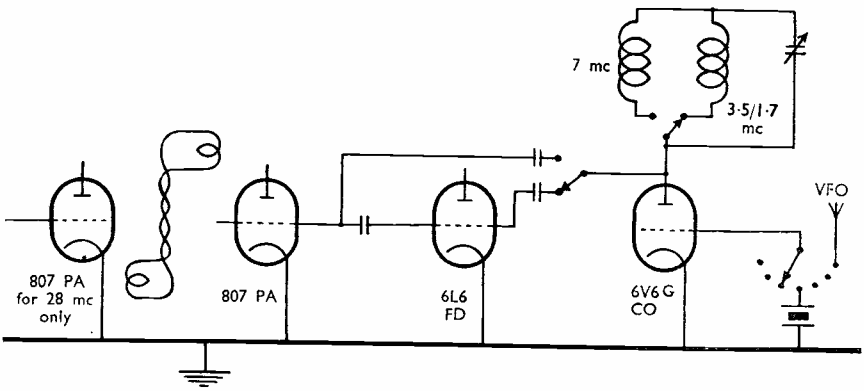


Fig. 1. Stage layout for the form of construction suggested by G5UM. The following combinations are possible: (a) 6V6 1·7 mc-807 PA ; (b) 6V6 3·5 mc-807 PA ; (c) 6V6 7 mc-807 PA ; (d) 6V6 7 mc-6L6 FD 807 PA 14 mc; (e) 6V6 7 mc-6L6 FD-807 FD-807 PA 28 mc.

effected through another Yaxley switch, again with paralleled contacts.

The 6L6 doubler stage has a fixed coil in its output circuit resonating to 14 mc only. It is never used on any other band. Its output is permanently tapped into the grid of the first 807 stage.

The Power Amplifier Unit

As already stated, the PA unit contains two 807 stages. The second one is permanently tuned to 28 mc, and its input and output coils and links are not normally removed. The first 807—the one taking drive from the exciter unit—is used as the PA on bands other than 28 mc ; on "10" it doubles.

All of this makes by no means easy reading. In diagrammatic form, however, its simplicity and flexibility become immediately apparent. The layout is therefore shown (Fig. 1) as a block drawing ; no circuit diagrams are given, since standard straightforward circuits and values are employed.

The sequence of operations is now as follows :

1 Select crystal frequency required (or VFO),

2. Switch in CO tank coil required,

3. Rotate "output switch" to give drive direct to first 807 for fundamental operation or *via* 6L6 for harmonic operation,

4. Insert plug-in tank coil to first PA,

5. If operation on 28 mc is required, bring up link coil to first PA tank.

The Modulator

But flexibility does not end there. The modulator output is switched so that it is available on either the first PA or the second. Details of the switching arrangement employed are given in Fig. 2.

With the layout described it is possible to set up the equipment on the desired band, adjusted ready for operation, within three minutes.

The Disadvantages

Having built up our edifice in this way, providing us with a neat, all-band transmitter, what more could we want ?

And there you have the kernel of the writer's argument ! What more do we want ? A great deal. Here are the factors that caused dissatisfaction with the equipment within a few months of its completion.

1. The rack-and-panel system needed a dust-cover to enclose it. That dust-cover

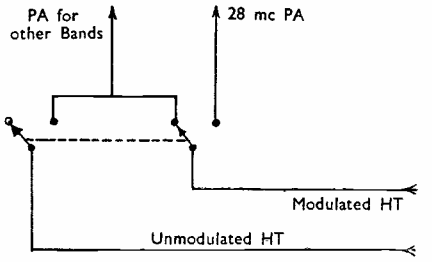


Fig. 2. Switching of the modulated and unmodulated HT feeds to the PA's.

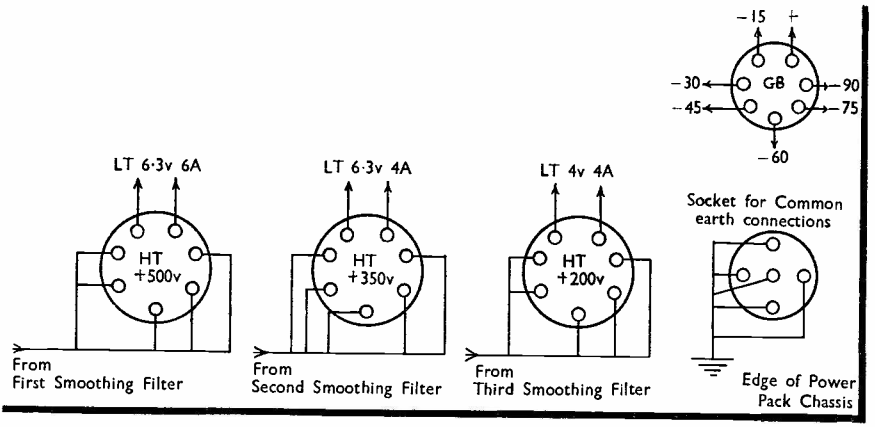


Fig. 3. By bringing out the power supplies to a number of chassis mounting valveholders, equipment can be tapped in for power as required.

had to be removed completely to permit access to the four chassis, and particularly to permit PA coil changes. The alternative was to leave the cover off and let the dust in. It was !

2. The time taken to change the PA coil seemed disproportionate compared with the rapidity with which frequency could be changed elsewhere in the transmitter. The answer to this problem can be provided by:

(*a*) A turret of coils for each band (a complicated job mechanically),

(*b*) Separate coils permanently fixed in position each individually switched (wasteful of chassis space, little less complicated than a turret system, and demanding considerable care in the switching of RF),

(*c*) The provision of a separate PA stage for each band, with switched exciter output. (Admirable if expense no object !)

(*d*) Adherence to the traditional system of individual coil-changing but speeded up by the provision of some form of automatic spring contact to eliminate the tedious fiddling with wing nuts so often encountered ; positive contact here is vital and one is not too sure that the "banana split" plug-in coils commonly seen really give it.

Further saving of time can be effected by hinging the whole of the PA chassis on its relay rack so that it can be swung out for easy access (ample slack being provided in the power supply leads at the rear).

The design already described, it will be observed, approaches about halt-way to requirements (*c*) and (*d*), in that for 10 metres a permanently-tuned PA is included, while for the other bands a separate PA with individual coils is employed.

3. We have left until last our major criticism of the shortcomings of rack-and-panel construction. Quite apart from its inaccessibility and other comparatively minor drawbacks it has one other much more serious disadvantage : it is *that it immobilises a great deal of equipment that is often required for other purposes in the station.*

The writer had this brought home to him in very practical form when he wished to use the power pack, the modulator and the exciter unit in conjunction with equipment not in the rack.

"Then why not merely build up the other equipment on to a standard chassis and include it in the rack, too ?" That is an obvious question. The answer is equally obvious ; *it is seldom possible in planning a rack-and-panel layout to take into account every possible addition you may want to make to it over the next few years.* Or if it is, you will probably need a ladder alongside it to get to the top of it as you build more and more on to it as the years go by !

Unit Construction

The writer does not pretend to have the answer to this problem, and a great deal of thought is being given to it at the present time. It does seem clear, however, that that answer comes (at least in part) in two words : *Unit Construction.*

We can anticipate another question here:

"Well, if rack-and panel construction is not unit construction then what is it?"

Agreed ; it is—but in an inflexible form. The ideal, as one now sees it, is *that every unit in the transmitter should be as self-contained and flexible as possible.* Now to outline one or two ideas on this point.

Power Pack

Each individual output—whether HT, bias or heater—is taken to a socket from which it can be tapped off by a wander plug whenever required. For this purpose the writer employs a number of discarded 7-pin valve sockets mounted on the power chassis, with their heater pins connected to the various LT outputs of the mains transformer and the remaining five pins of each commoned to an HT positive supply. High voltage power can thus be tapped off to any number of equipments in use. If several outputs are available separate sets of sockets must obviously be provided, preferably taken to a number of commoned sockets as described above (see Fig. 3).

Modulators

For maximum flexibility the two ends of the modulation transformer secondary should be taken to a pair of stand-off insulators or a couple of well-insulated sockets (telephone-type jacks are inadequate and frequently flash-over at peaks of modulation). Take the HT+ connection from the modulator transformer primary to a third insulator. Label each insulator (or socket) to identify it. The modulator can then be connected into PA stages as and how required—and it can also be used as a separate amplifier if ever required for that purpose.

Exciter Unit

At least down to 20 metres condenser coupling will be just as effective as link coupling—and a great deal less cumbersome. Why not, then, bring the output of the CO and each doubler stage to a separate fixed condenser connected to a wander-plug and socket arrangement permitting outputs to be selected at will ? It is not so easy to dogmatise here, of course, as the design of exciter units is more subject to individual variation than that of modulators and power packs.

Form of Construction

If desired, the various output points of the different chassis can be mounted on the vertical front panel, thus "bringing out everything to the front." Generally, though, horizontal mounting will be found to be more mechanically (and electrically) sound, with the exception of the variable controls, which can be mounted on angle brackets at the front edge of the chassis. Significantly, nearly every constructional design in this *Magazine* has so far recommended a mechanical layout along these lines in preference to the more conventional "standard rack chassis" which, if a thing of beauty, is hardly a joy for ever.

On the question of accommodating the various chassis of a unit-construction transmitter readers will have their own ideas. A plain whitewood cupboard with four or five shelves in it is almost ideal ; power packs occupy the lower shelves, working up to the aerial tuner at the top. The whole lot shuts up when not in use, and the only evidence of radio about it are the mains lead entering at the base and the aerial feed-through insulators on the top. But remember that no inter-stage screening is afforded by wooden shelves ! Each chassis should therefore stand on a metal tray.

Another scheme is to employ a steel filing cabinet, preferably of the type fitted with detachable shelves. It will, of course, be more expensive than wood, and rather less easy to drill and work upon.

A third method utilises a number of square metal trays horizontally mounted in tiers, and secured at their corners by vertical members. Chassis placed on them will be effectively screened from one another, yet need not be bolted down as in the more conventional relay rack system. Moreover, the equipment is accessible from all four sides. The one drawback is that this form of openwork "kitchen oven" construction is far from dustproof.

Conclusion

It has not been attempted in this article to give a point-by-point description of unit transmitter construction. The intention, rather, has been to suggest some fresh thinking on the whole subject of transmitter design, in the hope of persuading readers that the stereotyped methods are not necessarily the best.

PAPER

Just as we put this issue down, the edict went forth from Paper Control of a general reduction in paper, applying to periodicals.

Since it is our firm intention to maintain the size and quality of the *Magazine*, this must mean that our circulation will have to be reduced by a like amount.

New Amateur Organisation

Summary of Opinion

A very large number of readers have now expressed their views on this subject. About 60 per cent. are entirely in favour, without qualification, of a new British association open only to holders of transmitting permits.

The remaining 40 per cent. are either wholly opposed to the suggestion, or qualify tentative agreement by making various reservations or stipulations of one kind or another.

Of those against the proposal, the majority criticise the management of the existing organisation, but feel that no good purpose would be served by encouraging an opponent. Practically all who have written, either for or against, have fears as to whether any new association could secure official recognition as a representative body. While some assert that they would not join a society supported by a "commercial interest" (meaning, presumably, the *Magazine*) others say that an association managed by a concern with such an interest would be a guarantee of service and efficiency.

Many consider that in spite of what they feel to be possible dangers in a splitting of the ranks in this country, amateurs should nevertheless have the choice of joining a competing society. In other words, an organised opposition, provided it kept the well-being of Amateur Radio as its objective, could do much good.

Most of those in favour consider that any new association must avoid the cardinal error of admitting a large unqualified, i.e. non-transmitting, membership. A few well-informed observers argue that the most important task it would have to undertake would be that of obtaining proper recognition for Amateur Radio in the quarters that really matter.

About 15 per cent. of those who have written express themselves as well satisfied with the present organisation and consider that any criticism of or opposition to it is either unfounded or prejudiced, or inspired by base motives.

Conclusions

Our own appreciation of the situation leads to the conclusion that a new transmitters' association could count upon 1,500-2,000 members in twelve months. This would be followed by the support of the majority of licence-holders (of whom there are now roughly 4,500) if the association succeeded in proving itself worthy.

Official recognition would be ensured when the association could claim to represent the majority of *licensed transmitters* in the country. In any case, the views of an active and organised minority could not be ignored.

Powerful support would be forthcoming from the very beginning. The new society—supposing it undertook from the outset to provide all necessary services and publications free of charge—could expect to become financially stable with 2,000 members at an annual subscription of 25s.

With a membership not exceeding 3,000 these free services could include an attractive monthly publication of a reasonable size. The present paper restrictions (which the best judges consider will have to remain for a long time to come) would in any case limit the size of the association's journal.

And there for the moment the matter rests.

QSL BUREAU—NEW QTH

The abbreviated address is now BCM/QSL, London, W.C.1. It can be used throughout the world. Put this address on your cards and give it over the air.

As explained in the December issue, all cards for G's received from overseas by our QSL Bureau are accepted for free delivery. Where the address is not in our lists, we ask for it through the *Magazine*. Direct subscribers are entitled to free use of the Bureau in both directions.

BCM/QSL, LONDON, W.C.1

DX COMMENTARY

ON CALLS HEARD, WORKED & QSL'd

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

Greetings once more ; at least we are still on the air, even if we have had to observe "quiet hours" on occasions ! Your commentator never discovered if there were many battery rigs on the air during the power cuts, because he had nothing with which to listen !*

The season of Contests is upon us, and already the first half of the ARRL affair is over. Whatever your views on Contests, you have to admit that they teach us something by bringing a whole lot of people on at the same time. One or two surprising facts emerged from the first half of the CW section ; for one thing, we didn't realise how well the W6's, W7's and VE7's came over on 14 mc between midnight and 0200—in fact, one hardly realised that they came over at all at that time of night. But there they were, complete with "watery" echo, just as if it were six o'clock in the morning.

DX Summary

All bands have been open except for brief lapses on 28 mc. On that band the conditions have not favoured VK and ZL, but have drifted back to the type that bring in Central and South Americans, South Africans and W's. Later in the year we predict a return of stations in the Pacific and Oceania during the mornings. 14 mc has been open for almost anything going, with a surprising outburst of South Africans on many evenings. 7 mc, underneath three thick woolly blankets of local 'phone, has been teeming with W's, VK's, ZL's and all sorts of DX signals that come in much better on the other bands anyway. Incidentally we were most amused, and almost pleased, to have a ZL contact on this band wrecked by one of the 7 mc diehards who sent "SK" six times on the end of his QSO (blotting out the ZL's call) and then started up his next call with "Dah-de-dah-de-dah" *seven* times (blotting out the ZL's repeat). The point is that all the SK's and the other things were completely wasted watts of the non-informative, non-get-you-anywhere variety which only the rank bad operator ever perpetrates. And the fellow dripping these particular ones is always agitating for better operation on 7 mc. Ah, well—let it pass !

*(*The activity during the "off" periods suggested that many stations have stand-by battery equipment—or have they !—Ed.)*

Competitive Dept.

Country-counting has become such a racket nowadays that it is almost impossible to compare one man's claim with another's. The latest published list (*QST*, February) contains many alterations and, although an excellent list if everyone were to adopt it as standard, will merely confuse the issue still further. (For instance, if you count Tasmania as separate you can now delete it.) Fortunately, we can report the timely arrival of the WAZ (Worked All Zones) scheme, of which you will find all the details in our next issue. Using this system, while there may be a dispute about whether a certain place does or does not count for a country, there is no dispute about the Zones—their frontiers are drawn on the map.

If, when you see the details, you can claim to have Worked All Zones you have really done something ; and the difficulty increases steeply as you get up to about 36 or 37. So please digest the WAZ data carefully when the April *Magazine* appears and let us have your claims. Before the war only three stations in the world had worked all zones—our own G2ZQ (the late John Hunter), ON4AU and J5CC. How many post-war WAZ claims shall we have ?

28 mc

Tom Hall of ZD4AB (Koforidua, Gold Coast) has been giving lots of people a new country on the band ; his 25-watt 807 puts a nice consistent signal over here. He has worked G6ZO on 28, 14 and 7, by the way. Tom tells us that ZD4AE and 4AG are both in Accra, but not active, and that ZD3AF is GM3AFG operating in Nigeria. ZD4AB has met Harold Owen (from whom some more Calls Heard appear this month) ; the latter hopes to be on the air himself before very long.

G3AAK (Broad Hinton, Wilts) has now started up on 28, but has struck poor conditions at the week-ends. By the way, this can only be a coincidence, but conditions *have* been poor at week-ends more often than during the week.

W6IWS (Brookdale) and W6MI (San Diego), two Californian readers of this feature, are waiting to give any G stations a W6 contact. They both put in fine signals over here and can be heard almost any day at about 1630 GMT. G6QB (Bexhill) has worked the former 40 times and has had about 20 QSO's with W6MI.

G2CDI (Stokenchurch, Bucks) now has 98 countries with 70 confirmed, all on 28 mc.

Odd items worth comment on 28 mc are the terrific burst of VE6 and 7 stations on February 1 (long time back, but very spectacular), and the appearance on the band of CR4AA (QTH wanted), NY4AB, ZK1AH (Cook Is.), HH3L, CP1AP and that terrific 'phone from OIX7 (Helsinki). The latter station is hardly an amateur, but he works us, anyway. Quite a few new countries hidden amongst that lot !

14 mc

G2DZ (Daventry) reports a falling-off of 14 mc since the beginning of the year, but still works his DX pretty consistently. He collected XABU (Rhodes) for a new country, and worked Doug Borden of W1BUX, who was his very first W QSO in August 1929. G6BB (Streatham) has collected ZD4AB, EA9AI and "the usual VE7 and KL7." Alan Brown of VK3CX (Canterbury Victoria) sends a nice list of Calls Heard and says he's been having a wonderful time renewing old acquaintances. He has knocked off 145 countries to date, and is now using an 807 with 40 watts. Incidentally, he worked F3CX, HK3CX and ZL3CX in quick succession. VK3CX makes our mouths water by rattling off callsigns like ZK1AB (Cook Is.), VR2AA (Fiji), VK4OS (Papua), K6OBL/KM6 (Midway) — none of them DX to him, but to us . . . .

G8KP (Wakefield) has worked CR9AA and CR9AN. G5LH (Horbury) specialises in ZS and South American countries, but also collected CR4AA. G3AAK (Broad Hinton) remarks on the fine conditions for W6 and 7, VE7 and 8, KH6 and KL7 on most days between 1600-1730 and 1930-2130 GMT, despite the barrage of East Coast Americans. He also finds the Far East coming in late (2300). ZL's predominate during the 0700-0900 session, and VK's are better at 1400-1500, with South Americans best from 1000-1100. 'AAK doesn't seem to miss much on 14 mc, one way and another. And he uses a 200-ft. "long wire" on all six bands from 1·7 to 58 mc.

Harold Owen (Tafo, Gold Coast), having received a new HT battery, is active again, and reports some interesting stuff like ZK1AH and W6WDN/KW6 ; he says that the old 0-V-1 has a tough job now, trying to sort out all the strong ones on 14. He finds ZS 'phones very keen on working at the CW end of the band, and adds that "their CW boys have some terrible notes among them."

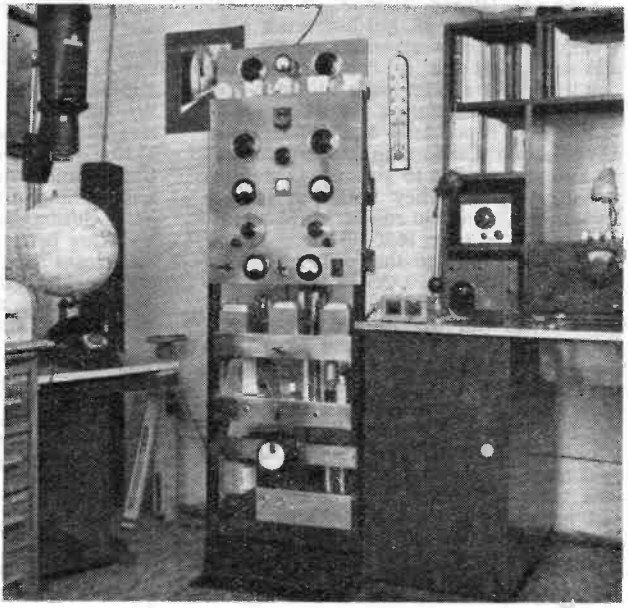
7 mc

G2CP (RAF Yatesbury) has worked NY4CM *and* received his card. He also tells us that YI6T is now YI2WM (RAF

Yes, this was in the old days ! G2AK, G8MC and G3FD (l. to r.) operating portable at Brixham in 1937. The Tx, a 42-6L6 in CO/Tritet-PA, is still in use and covers all bands 1·7 to 28 mc ; the modulator is 6N7-P/P 6N7. The whole outfit is powered from a 300-volt 150 mA converter run off the 12v. car battery. The Rx at the time was a straight 1-V-1.

Shaibah). Another nice 7 mc contact was with YV5AP — this with 18 watts input to an 807. G6BB has brought his well-known "early-bird" technique to bear on 7 mc, and has worked most of what is going, but says "Can't something be done about those commercials ?" (We know what *we'd* like to do to them !) G2DZ has also added 7 to his repertoire and has been very surprised to get 589 reports from the States at 0930.

GC2CNC (Jersey) runs 5 watts on 7149 kc, and has given lots of people their first GC QSO. He would like to see a power restriction of 25 watts put on the band—and he probably will, if things go on as they are ! He finds VFO and high-power the most malignant combination yet invented for stealing and spoiling QSO's. He worked GEZAA on the band, giving QTH as "RAF Norfolk," but rather suspected . . . Best bag was ZC6AA.



The transmitter at ON4WX is a tiered job, standing on the left of the operating desk

G5GK (Burnley) has worked VK, ZL 1, 2, 3, PK6, ZS and W6 and 7. He found February 13 a good morning for W6, working four of them before the power went off at 0900. G5WC (Upper Norwood, S.E.19) has unearthed KV4AA (Virgin Is.), UJ8AD, CT2XA, ZS1EL, and UG6AB, all with 20 watts to an 807. He has had a go at clearing up the Russian call-signs, and says that UO5 is Bessarabia, UG6 Armenia, and UI8/UJ8 both Turkestan. UR definitely appears to be Estonia, but we maintain that UR1BF *must* be a pirate !

G4AY (Tunbridge Wells) claims to have worked the "Rudest Ham" on 7 mc —an OK station who called CQ. 'AY replied, and back came the OK with "Do you know what is DX ? Hr do not work G"—and he had not even called CQ DX ! This strange message was promptly followed by another CQ. G4AY finds 7 mc particularly hard work on account of commercials, service stations and high-powered G 'phones.

G6QB told a 7 mc station he was going down to 28 mc ; the said station replied "OK—get on with your child's-play, OM" ! G6QB is therefore particularly pleased to record that the station concerned was heard calling "CQ DX" on 28 mc for an entire afternoon recently without, apparently, getting a single contact. The penalty of being too grown-up ?

3·5 mc

Quite a few interesting things have happened on this band. G3ATU (Roker, Sunderland) has worked TF3K (QTH in list), HA1KK, UA3AU (QTH given as Berlin !), OE7DF and OE9AA. 'ATU uses 10 watts to a 6L6 CO and has had some 250 QSO's in two months, all on 3·5 mc. G6ZN (Horbury) continues to fling his 3 watts about on the band, and has worked 24 countries with it ! G5LH (Horbury) has started up on 3·5 and is disgusted. Says he, "Ye Gods, what a band ! One mass of 'phone, most of it rotten, all over the band—seven-way QSO's—talk about anything but radio." But in spite of it all he worked ten countries, including W2, in less than a week.

The operating position at ON4WX, Courtrai, Belgium.

Miscellany

Most of the miscellaneous letters deal with the subject of cleaning up. The writers will probably be interested in what "The Old Timer" has to say on page 51. G3BGS (Kidlington), after excusing himself as "one of those cocky G3-plus-3's," says there is far too much of "Let's get on the air, anywhere, so long as we can yap," and until this selfish attitude is eliminated, *plus* much of the piffle voiced and keyed, then there will be no improvement in the state of the bands. 'BGS is in favour of a more commercial type of procedure ; he says, "There's no danger of leading to rubber-stamp QSO's—for what *are* most of them already? . . . Station replies, QSO something like this : 'ROK (all one !) GE om tnx fer call, ur RST 569 (repeated about six times) hr 150 watts PA pse QSL QRU? GE om om . . . AR.' Give me, give me QSL and I am happy, sort of thing." Perhaps not everyone will agree with that, but when G3BGS concludes, "Cut out selfishness and co-operate," there are no two ways of thinking about it.

G8TT (ex-XACD) has a few cards left, if anyone who worked XACD has not received one. . . . Lund University, Sweden, are testing a transmitter to be used on their South American expedition this summer—call SM7UZ, frequency 14200 or 14260. . . . OIX7 (Helsinki) is run by the Finnish Broadcasting Corporation. 600 watts on 28 mc.

Don't be misled by calls with the prefix "K" in future—they will be just plain USA. Some districts have exhausted the alphabet in "W" calls, and the 9th, for instance, is starting right away with the series K9AAA. U.S. possessions are being cleaned up fast. Our old friend WØNVF/KG6, for instance, now signs KG6AL, and all the K6's and K7's are speedily being issued new two-letter calls in the KH6 and KL7 series.

G3ATL is a sea-going operator who reaches some interesting places. Writing from Curacao, he reports meeting VP5JB in Kingston, Jamaica (QTH in list), who will be on the air after April 1 between 1100-1400 and 1900-2300 GMT with 200 watts on 14 mc. He will be looking for G stations specially.

G2AHL (ex-VU2AD) sends a long list of VU QTH's—too long to publish, but they will be kept for reference should anyone urgently need one. Now he is "just another G" he records a few details of VU2AD : WAC, 'phone and CW, 42 countries in 107 days of activity. He

reminds us that the India-Tibet Ragchew Net is on the air every Sunday morning on 14 mc, and is attended by AC3SS, AC4YN, and some seven VU's. (Keep your VFO's off them !) They all hope to be crystal-controlled on one channel before long. By the way, G2AHL is one who answers last month's problem—the 'phone transmission with no microphone or modulator. He suggests, quite rightly, that the owner just sat and bellowed at the transmitter. G6FU (Surbiton) offers the same solution. No, it wasn't a microphonic valve—more likely condenser plates.

Piracy Dept.

We would like to know how many of these reported cases of piracy are real malicious stuff and how many are caused by misreading of call signs. It is hard to believe that anyone deciding to go on the air without a licence would be so stupid as to use an existing call-sign—but one knows there's no limit to stupidity in some quarters. At all events, there seems to be quite a lot of it going on. G3AII (Whitley Bay) has had his call going out from the Tyneside area since last summer, although for much of the time he has had no transmitter himself, and has never operated on 1·7, where most of the trouble takes place. . . . G8QD (RAF Debden) hears himself working USA on 3·5 mc and has also received cards for imaginary QSO's on 7 mc. . . . G3OF (Dunstable) has received several QSL's, including a pink one from the GPO, for bands he has never been on, and he wishes the pirate would at least remain *in* the bands. . . . G5BU (Barking) has also been notified by the GPO that his call is being used—not in the amateur bands at all.. . . . G2VV (Hampton) has been receiving cards from Russia and USA for contacts he didn't make. So there are five suspected cases of piracy in one month—not a very encouraging sign of the times.

Aerials

To stimulate a little technical discussion, we should like to hear from some of the Windom enthusiasts about how they think their aerials work. We use one, and always imagined we knew something about it, but have recently had a slight shock. If you think a Windom feeder does *not* radiate, you will probably be interested in a little argument in which G5WW (Felixstowe) and G6QB have recently figured. Perhaps, before we go any further, some of the DX kings who use Windoms would

DX FORECAST FOR MARCH 1947 (All Times GMT)

	7 mc	14 mc	28 mc
NORTH AMERICA :			
East and Central	2230-0930	1200-0900	1200-1900
West Coast	0100-0700	1600-1900 0500-0800	1600-2000
CENTRAL AND SOUTH AMERICA	2200-0300	2100-0500	0900-2100
AFRICA :			
North of Cancer	All day	All day	0900-1600
South of Cancer	1700-2200	1500-2300	1100-2100
ASIA :			
West of 75° E.	1600-2200	All day	0900-1400
East of 75° E.	1700-2200	1300-2000	0900-1300
OCEANIA :			
VK, ZL	1500-2100 0800-1000	0800-1700	1000-1400
PK, KA, KG6, etc.	1700-2100	1300-2000	1000-1400

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.*

Transmitting readers are invited to send items for DX Commentary to L.H. Thomas, G6QB, the "Short Wave Magazine," 49 Victoria Street, London, S.W.1, to reach him as early as possible in the month. SWL reports are only included in DX Commentary if they are of direct interest to transmitters.

like to put in a spoke. No prizes offered, but all provocative contributions gratefully received.

Contests

The ARRL DX Contest (second half) will be fought out during this month. Will those readers who take part in it seriously please send along their scores as a matter of interest? They will be too late for the April issue, but we would like them, all the same. Several G stations cleared the 10,000 mark during the first half of the CW Contest, but the going will be harder during the second half, because so many of the W stations will already have worked their quota of three G's on 28 and 14 mc. Perhaps 7 mc will turn up trumps this time. Incidentally, we want to find out whether the chap who worked 'phone all through the CW Contest will come on CW during the 'phone week-end! But we don't imagine he has a key.

WAS

Anyone interested in working all American states might be glad to note the following calls, supplied by G3TK. WØECM and WØWBX are Nebraska; WØZTL is North Dakota; WØEZL is Colorado; W7QAP is in Arizona, 7SBD in Utah and 7ONG in Nevada. W7TJ is in Wyoming and W5LFH in New Mexico. All are active on 28 mc. And we can add, from our own list, W7KEV (Nevada), WØFQK (Colorado) and W5LW (Oklahoma). All the States mentioned seem to cause a slight hold-up in WAS. Incidentally, G2CDI with his 25 watts of 28 mc 'phone completed WAS on February 12, and G3FJ (Slough) his on February 21. Anyone else able to claim WAS with 25 watts?

Acknowledgments and grateful thanks to all who have written or supplied information. Dead-line for next month is the first post after you have read "DX Commentary"! We are late out, due to the official restrictions on all publications and the April issue will be in production by the time you see this. So please write immediately. Good hunting all round—and keep those VFO's under control.

DX QTH'S

C6KL	Box 409, Shanghai, China.
CR4AA	Cape Verde Islands—QSL *via* R.E.P.
CR6AS	Jose Sanches, CBC Station, Luanda.
FF8WN	c/o P.A.A., Dakar, French West Africa.
G3BFP/VQ4	QSL to 5 Ridgemont Avenue, Croydon, Surrey.
HA1KK	P.O. Box 185, Budapest, 4 Hungary.
HZ1AB	APO 816, c/o P'master, N.Y.C., U.S.A.
KL7CF	Box 1134, Fairbanks, Alaska.
KL7GG	Box 307, Anchorage, Alaska.
LX1AO	Jean Oswald, Avenue Pasteur, Luxembourg City.
LX1BG	Box 179, Luxembourg City.
OE9AA	Richards, APO S/565, Klagenfurt, Austria.
OIX7	Finnish Broadcasting Corporation, Helsinki.
OX1B	APO 858, P'master, N.Y.C., U.S.A.
TF3K	Box 61, Reykjavik, Iceland.
TR1P	AACS, APO 498, US Army, Tripoli, Libya.
VP4TE	Maj. L. Kerr, C.S.O., British Army, Trinidad.
VP4TJ	Electronics Office, Navy No. 117, Fleet P.O., N.Y.C.
VP4TZ	Post Signals Office, APO 869, c/o P'master, Miami, Fla., U.S.A.
VP5JB	J. B. Duncan, 5 Central Avenue, Newton Square, Kingston, Jamaica.
VP9F	R. Fox, Texas Manor, St. Davids Island, Bermuda.
VP9K	Cavello Bay, Somerset, Bermuda.
VS7FF	Box 433, GPO, Colombo, Ceylon.
VU2BX	J. Bullick, Rungamuttee Tea Estate, Mal P.O., Dooars, N. Bengal.
XE1FB	Apartado Postal 77, Queretaro, Mexico.
XU6GRL	International Dept., Ministry of Information, Nanking, China.
YV5ABQ	P.O. Box 1247, Caracas, Venezuela.

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 callsign and address on each sheet.

OVERSEAS

1·7 mc

Alois Weirauch, OK1AW, Mestec Kralove 9, Czechoslovakia.

G2CZH (449), 2HW (449), 2YY (439), 3AAK (559), 3RV (339), 5BK (449), 5RI (559), 6QK (449).

3·5 mc

Alois Weirauch, OK1AW, Mestec Kralove 9, Czechoslovakia.

G2DBW, 3BAZ/A, 3QF, 3WL, 5GJ, 5XY, 6HB, 6TR, 8KG, 8OM, 9TK, GM2NQ, 3AHQ, 3BEB, GW3AL.

7 mc

T. F. Hall, ZD4AB, Box 100 Koforidua, Gold Coast.

G2ALH, 2DAK, 2DZ, 2FDC, 2LC, 2MI, 2PU, 2ZA, 3BA, 3GX, 3HK, 3JW, 3SP, 5DQ, 5GK, 5LI, 5LP, 5VB, 6HC, 6KP, 6UF, 6ZO, 8GC, 8TD, 8TK, 8VD, 8VG, 8QR, GI5UR, GM3ANO, 3BKR.

Cpl. Clark, GM2HIK, No. 2 F.B.U., M.E.L.F.

G3FW, 5WC, 6ZO. (*Received in Suez Canal Zone.*)

H. Owen, West African Cacao Research Institute, Tafo, Gold Coast Colony.

CW: G2ALH (44), 2PU (55), 2VD (43), 2ZA (557), 3AUK (44), 3SM (56), 4KS (44), 5BM (46), 5GK (45), 6HK (45), 6ZO (55), 8GC (44). (*January* 14-31: *RS values in brackets; T9 unless otherwise stated. Receiver: O-V-1.*)

14 mc

H. Owen, West African Cacao Research Institute, Tafo, Gold Coast Colony.

CW: D2GQ (458), 2VB (56) EI9N (558), G2AHP (44), 2AJS (56), 2ANR (32), 2AVP (44), 2BAB (44), 2BQC (55), 2CLL (56), 2CNN (56), 2DZ (57), 2FDR (44), 2FMM (44), 2FMT (55), 2FNF (55), 2HAJ (45), 2HOJ (55), 2IM (558), 2KF (55), 2LU (55), 2MI (56), 2NM (57), 2QO (57), 3AAV (55), 3ABH (55), 3ACA (56), 3ACC (57), 3ADN (44), 3ADY (458), 3AQF (55), 3ASL (55), 3ATD (54), 3AUB (44), 3BDQ (578), 3DA (45), 3FC (56), 3IH (44), 3JZ (55), 3MZ (45), 3NY (35), 3VA (56), 4DR (448), 4IN (57), 4JB (56), 4KI (44), 4KS (568), 4NB (558), 4OI (57), 5BD (44), 5CI (568), 5GT (55), 5HV (568), 5LC (44), 5MF (33), 5MR (56), 5NL (43), 5NV (57), 5OB (57), 5SK (56), 5UI/A (45), 5VB (568), 5WI (578), 5WP (578), 5YU (578), 5YV (557), 6BS (55), 6GH (55), 6GM (568), 6GN (57), 6HB (56), 6KP (57), 6PR (57), 6TC (55), 6UT (44), 6ZA (45), 6ZO (56), 8FF (57), 8FL (44), 8FW (56), 8LG (55), 8MZ (55), 8OJ (56), 8QY (57), 8RL (55), 8UG (56), 8WL (57), GC2FMV (34), GI2OY (44), GM3ANV (34), 3PK (45), 3XB (568).

(*January* 14-31: *RS values in brackets; T9 unless otherwise stated. Receiver: O-V-1.*)

A. G. Brown, VK3CX, 8 Mangarra Road, Canterbury E7, Victoria, Australia.

G2BQC, 2BQR, 2FXQ, 2LU, 2NK, 2PL, 3AAK, 3ACC, 3AVK, 3CC, 3JO, 3LR, 3TN, 3VO, 3XD, 4AR, 4GZ, 4IN, 5BJ, 5CI, 5JO, 5LI, 5LP, 5NI, 5SK, 5VB, 5WI, 5YU, 5YV, 6CL, 6FB, 6JF, 6JZ, 6NF, 6QB, 6RB, 6VB, 6VC, 6VD, 6WR, 8BP, 8KP, 8ON, 8QD, 8QM/A, 8TC, 8TK, 8UT, 8VH, G5KW/ZC1, G6ZO/I, GI6TK, GM3RL, GW3ZV.

FIVE METRES

G3HS, Lindsey House, Faringdon Berks.

Heard: G2YL (339), 2MV (238) 3FJ (569), 3AAK (599), 4IB (229) 5MA (559), 6LK (559), 6FO (449) 8MG (579), 8QX (59), 8WV (338) (*February* 8-9 *only. Rx: EF50 Converter with HRO. Aerial: Indoor dipole.*)

G2IQ, 44 Tapton Hill Road. Sheffield, 10.

G2AK, 2HQ, 2MR, 2MV, 2YL, 3IS, 3MY, 3APY, 4AJ, 5BD, 5BY, 5GX, 5JU, 5LJ, 5MA, 5MQ, 6CW, 6GF, 6HY, 6LK, 6LF, 6MN, 6OS, 6VA, 6VX, 6YO, 6YQ, 6YU, 8IC, 8JK, 8JV, 8VN, 8UZ. (*All heard or worked December* 29-*February* 8.)

G5GX, 39 Corby Park, North Ferriby, Near Hull, Yorks.

G2BOO, 2FJD, 2HQ, 2IQ, 3APY, 3BIG, 3DA, 3MY, 3PL, 3ZK, 4JJ, 5BD, 5JU, 5LL, 5MQ, 5PW, 5UA, 5YV, 5XK, 6BX, 6CW, 6GF, 6MN, 6VX, 6YO, 6YQ, 8IC, 8JV, 8NM, 8UZ, 8SX, GM3OL. (*Heard or worked jointly by G5GX/G6OS.*)

G3BW, 53 Hill Top Road, Arrowthwaite, Whitehaven, Cumb.

Worked: G2HHB, G5MQ, 6WR, 6YQ, GM3OL. (*All between February* 6-12. *Rx: EF50-EC52 converter into SX-16. Aerial: 3-element rotary.*)

G5LJ, 32 Pilkington Avenue, Sutton Coldfield, Warks.

G2AK, 2IQ, 2MR, 2MV, 2NV, 2XC, 2YL, 2ZV, 3ABA, 3ANN, 3APY, 3IS, 4CR, 4LU, 5BD, 5JU, 5MA, 5MQ, 5TX, 5WH, 6CW, 6GF, 6LK, 6OH, 6SL, 6US, 6VX, 6XJ,9 6YQ, 6YU, 8JV, 8QX, 8QY, 8RS, 8UB, 8UZ, 8VN, II4AY. (*Total of stations worked post-war.*)

QSL BUREAU RULES

(1) Use of the Bureau both ways is open only to readers who obtain either the *Short Wave Listener* or the *Short Wave Magazine* from us on direct subscription. Cards from overseas are, however, accepted without restriction for free delivery to any British amateur.

(2) The Bureau can only handle cards for amateur stations and is prepared to accept them for amateurs throughout the world.

(3) Cards should be forwarded to us in fully stamped envelopes addressed BCM/QSL, London, W.C.1. This is a full and sufficient address from any part of the world.

(4) When sending the first batch of cards, enclose three stamped self-addressed envelopes of a suitable size for return QSL's.

(5) All such return envelopes must be marked "QSL Bureau" in the top left-hand corner.

(6) No communications of any kind, other than the cards, return envelopes and certain printed forms that will be supplied to users, should be contained in packets addressed to the QSL Bureau.

(7) Cards inwards to the Bureau can be forwarded as frequently as may be desired. Cards outwards to Bureau users will be cleared fortnightly.

First Class Operators' Club

Activity Report—Third Membership List

Apart from the regular monthly notices appearing in the *Short Wave Magazine*, circular letters have been instituted as being a rapid method of consulting members on matters that need urgent attention. These circular letters also serve another purpose, in that they are bringing members into close personal touch with one another.

Contest

Plans are being made for a Club contest next autumn, which will be open to non-members. Details will appear in the *Magazine* in due course.

Club Periods

Members have been asked, through a circular letter, to vote on the question as to which times and on what days they consider it best to hold these. In the meantime, the club periods as already published will hold good.

Operating Standards

One of the main objects of the revived Club is to uphold the standard of operating, and under that heading comes good manners on the air (Rule 1). A lapse on the part of a member was recently reported, which came under severe censorship. Immediate action was taken, strongly backed by the membership. Actually, the infringement was a small one of the sort that often occurs, but it is the intention that the F.O.C. will insist upon strict observance of the Rules on the part of all members.

Against this case, we have a word of grateful thanks from a newly-licensed amateur for the help and encouragement he received from one of our members.

Election Notice

In accordance with Rule 3, the following are declared active F.O.C. members on the current list :

J. Peach, Hawkinge (G5JP) ; T. P. Douglas, M.B.E., Daventry (G3BA) ; W. R. Metcalfe, Ashford (G3DQ) ; and R. Challis, Dartford (G8UT).

All correspondence regarding the F.O.C. should be directed to the honorary secretary, Capt. A. M. H. Fergus, G2ZC 89 West Street, Farnham, Surrey (Tel. Farnham 6067).

CRYSTAL EXCHANGE

In accordance with the note appearing on p. 759 of the February issue, here are the first offers. Insertions in this section are free of charge, but "buy or sell" notices cannot be accepted for Crystal Exchange. Requests should be set out in the form shown, and all negotiations conducted direct.

G2TG, 40 Netherburn Road, Sunderlan
Has 6500, 6220, 5930, 5900, 5790, and 5590 kc, in holders. Wants 3530 kc or near.

G3ALH, 54 Wyncliffe Gardens, Leeds, 7.
Has 3633 kc. Wants 3550 kc. or near.

G3AWQ, 81 Rye Hill Park, Peckham Rye, London, S.E. 15
Has 7150 kc. Wants 7025-7045 kc.

G3IH, 67 Kedleston Road, Leicester.
Has 7192 kc. Wants 7020 kc or near.

G6BB, 35 Criffel Avenue, London, S.W.2
Has 7098 and 7186 kc. Wants 7020 and 9360 kc, or near.

ERSIN MULTICORE

A considerable development in the packaging of cored solder wire is the production of their new Size One carton, which possesses considerable advantages over the reels previously supplied.

Containing three cores of non-corrosive flux, the wire is wound in such a way that it can be pulled from the carton as required without becoming tangled. Alloys and gauges available are identical with those previously produced, and the cartons contain a specified length equivalent to the 1 lb. reels, without any increase in price.

60/40 alloy, 14 SWG, contains 56 feet and costs 6s. the carton ; 60/40 in 18 SWG, 151 feet, is 6s. 9d. ; 40/60 in 13 SWG, 36 feet is 4s. 10d. ; and 40/60 in 16 SWG is 5s. 3d. with 83 feet in the carton.

Messrs Multicore Solders, Ltd., Mellier House, Albemarle St., London, W.1.

FIVE METRES

By **A. J. DEVON**

Contest Analysis
News from the North
RF Amplifiers
Rotary Beam Design

WE hope those who follow this column will not think that *Magazine* interest in 5-metre work is waning because we are now at the other end of the make-up.

Rather, the Editor's intention is that "Five Metres" should become the VHF section of the *Magazine*, encompassing all matters of interest in the 30-60 mc region, in anticipation of the time when we hope to have some new (and usable) bands between 60 and 500 mc. The change is in accordance with certain small alterations in style and layout introduced with this issue—No. 1 of Vol. V. Since, due to the large amount of general material pressing on our pages each month, the saving of space has also become a matter of urgency, this article is now being set in a smaller type-face.

It is hoped that these alterations will enhance the value and interest of the 5-metre section. Our surveys suggests that at a fair estimate there are now about 300 G's active on the band, so that the space is well justified, particularly as 58 mc is the only experimental band, in the strict sense, that we now possess.

The Contest Analysis

So with that, to our muttons. The Contest analysis tables appear herewith and though the event itself is now three months old, the data has not spoilt in the keeping.

As expected, the general analysis (Table No. 1) shows the great advantage enjoyed by stations operating in busy Zone A areas, under the conditions that prevailed. We have already commented on this point and explained—as is indeed obvious—that had better conditions materialised at any time during the Contest, this advantage would have been largely neutralised. Even under good GDX conditions, it is only the properly equipped and well-operated stations that can work the DX.

The effect of eliminating Zone A (all stations up to 50 miles distant) is shown in Table No. 2 and is of considerable interest. Though G6VX is again the leader by the very comfortable margin of 100 points—he put up a splendid performance, which was due to first-class equipment and excellent operating, as well as steady activity throughout the period—there is a considerable re-shuffle with the other placings. No less than ten stations making a fair showing in the general list do not get a place at all when Zone A is washed out.

On the other hand, several with a poor place in Table 1 (due to this lack of local activity) show their real worth in Table 2. G3PD (up 20 places), G5BD (up 18) and G4OS (up 11) are outstanding examples.

Near the top, G5BY with his 126 points in Zone D, moves from equal 5th to 2nd. G5BY's excellent Zone D total was obtained from the full seven contacts each with G5MA, G6LK and G6VX. The latter got most of his Zone D score from the Devon stations, G2BMZ (36) and G5BY (42). He collected 104 points in Zone C, all from the Midlands, which gave him 26 contacts with seven stations. G5BY made no Zone C QSO's. It is, however, noteworthy that his total score comes from eight stations only, of whom three were locals !

An indication of the Zone A activity in the Home Counties is given in the scores run up by G2YL and G6OH, who though well placed in Table 1, made no contacts outside Zone A, so do not appear at all in Table 2.

It is fair to say that in view of the very disappointing conditions during the Contest period, November 23 to December 8, any stations scoring in Zones C and D did extremely well. Most-entrants got something in Zone B, and there is no doubt that at times Zones C and D were there to work for those who could.

Equipment

The transmitter used in each case is intentionally omitted from the analysis, since in every instance standard methods of generating the RF were employed—in fact, the cooking of the soup is the least of the difficulties on 58 mc. Aerials and receivers are, however, of the utmost importance and it is certain that to be successful on "five," these two links in the chain must be made as good as possible.

If one of them is to be emphasised, it is probably the receiver that requires most attention, since when conditions are right for GDX, almost any sort of aerial will bring the stuff in—even if it will not put it out very well.

But for serious work under average conditions, they must both be good.

Practically every type of receiver and aerial figure in Table 1; in the space available it is unfortunately not possible to go into great detail. The usual arrangement is a two- or three-stage converter working into a superhet, but the fuller information given in the logs shows there is a wide divergence as between the circuit, the valve line and the type of valve used for these converters.

The majority worked with rotary beams, many of them indoor—G6CW's fine showing is a demonstration of what can be done with a properly designed and matched indoor array.

Finally, on the subject of gear, nobody tried to do anything with "squish" receivers or unstabilised transmitters. With one or two harmless exceptions, every signal we heard was of excellent quality, most of the operation being on CW.

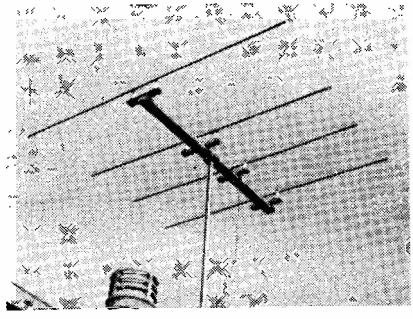
Check Logs

In addition to the stations named in Tables 1 and 2, the following operators, who for various reasons were not able to participate fully, sent in check logs: G2CUA, G2HHB, G2KG, G3ABA, G3BW, G3DA, G3OO, G3WS, G5JU, G5LJ, G5PY, G5TH, G6HX, G6KB, G8MG, G8TV, GM3OL and GW6OK. These were most useful and we were particularly glad to see some new faces from the North—G2HHB, G3DA, G5TH and GW6OK—amongst them.

General Comments

With one querulous exception, everyone said they enjoyed themselves, and that they thought the Contest a great success. Many were kind enough to thank us for laying it on. The boot is on the other foot—we are more than grateful for the support given and the interest shown under what for most operators were extremely trying conditions.

We must also mention the excellence of the logs and the mass of valuable data—which will keep us interested for a long time yet—contained in them. We feel a little guilty on this point in that it has really not been possible to do them full justice. We should like particularly to mention G6VX's entry, which was a model for all logs. Clearly set out, with every relevant detail, he provided in addition a complete analysis of his own working, the whole covering some 15 pages of typescript.



This is the photograph which should have appeared over the caption on p. 725 of the February issue! Sorry, G4AJ, but somebody's hands were crossed when the photographs were listed.

Many of those taking part mention the friendly and sporting atmosphere that pervaded the proceedings, and comment on the high standard of operating procedure shown by most of the entrants.

Two operators, quite properly, asked why we did not apply a power limitation and require a signed declaration of innocence in this respect. Naturally, the point was considered, but we felt that it should be taken for granted that all stations would be operated in accordance with the regulations. After all, this is a matter which must rest upon the conscience of the individual. If he is prepared to incur the odium of his fellows by using more power than he ought, the mere signing of a blood-chit is not, in our view, likely to prevent it, nor to make him a better man. In contests of this nature, certain weaknesses in the rules are inevitable and must be accepted. This is one of them.

The next *Magazine* 58 mc Contest is already under consideration, and our proposals will appear in good time. A word of thanks to those who have made suggestions as to the rules.

Current Affairs

During the last month or so, there have been quick patches of good conditions, and in the North, particularly, many new paths have been opened. With the change in the weather as we write, the band will probably become livelier for longer periods.

With some 35 useful and interesting reports on February activity for the remainder of our space, here are some news points.

THE SHORT WAVE MAGAZINE

5-METRE CONTEST

NOVEMBER 23 TO DECEMBER 8, 1946

(See p. 533 November issue for Rules)

ANALYSIS TABLE No. 1

Place	Callsign	Location	Score	Number of Stations Worked	Points per Zone Worked				Receiver	Aerial
					A (0-50)	B (50-100)	C (100-150)	D (150-200)		
1	G6VX	Hayes, Kent ..	334	68	92	30	104	108	2 RF-Mixer-Oscr., 1·7 mc IF	4-element rotary
2	G5MA	Ashtead, Surrey ..	221	61	105	20	12	84	Modified HRO	3-element rotary
3	G6LK	Cranleigh, Surrey ..	188	64	108	10	28	42	No information given	
4	G6CW	Nottingham	152	30	24	20	84	24	956-954-955, 12 mc IF	4-element indoor
5	G2XC	Portsmouth	148	36	32	84	32	—	3-stage Converter, 4 mc IF	3-element rotary
	G5BY	Thurlestone, S. Devon	148	8	6	16	—	126	3-stage Converter, 1·6 mc IF	8-element rotary
7	G2BMZ	Torquay	128	9	8	2	40	78	Superhet, EF50 RF, 3 IF	8-element rotary
8	G2MR	Surbiton, Surrey ..	105	50	83	14	8	—	EF54 RF, modified FBXA	3-element rotary
9	G4AJ	Basingstoke	104	38	54	18	32	—	No information given	4-element rotary
10	G3CQ	Havering-atte-Bower	103	48	79	24	—	—	9-valve Superhet	4-element rotary
11	G6YU	Coventry	95	26	25	46	24	—	RL16 g.g. RF-X61M FC/81X	3-element rotary
12	G4IG	Beckenham, Kent ..	82	41	76	6	—	—	Acorn RF, Mixer, 1·6 mc IF	4-element indoor
13	G2YL	Walton-on-Hill, Surrey	81	46	81	—	—	—	EF50 RF, modified HRO	3-element rotary
14	G6OH	Ascot, Surrey ..	77	44	77	—	—	—	1-V-1 acorn	3-element rotary
15	G5AS	Kingston, Surrey ..	76	42	70	6	—	—	7-stage 5-metre Superhet	3-element beam
16	G8JV	Nottingham	73	20	21	32	20	—	3-stage Converter, 10 mc IF	4-element rotary

17	G8UZ	Sutton, Notts ..	72	15	10	46	16	—	0-V-1	2-element beam
18	G6YQ	Liverpool	71	16	13	32	8	18	954-954, 155 kc IF	3-element indoor
19	G2WS	Beckenham, Kent ..	68	34	62	6	—	—	1-V-1	Indoor rotary dipole
20	G6UH	Hayes, Middlesex ..	67	34	61	6	—	—	Halicrafters 5-10	2 prs. spaced dipoles
21	G3APY	Sutton, Notts ..	66	16	16	30	20	—	EF54-EC52, 3·5 mc IF	4-element indoor
22	G5LQ	Chiswick, London ..	62	34	62	—	—	—	TRF EF-50	8 ½-wave long wire
23	G6VA	Warlingham, Surrey	60	36	46	10	4	—	EF54-EF50 RF	No information
24	G8TS	Farnborough, Hants	57	31	57	—	—	—	EF50-EF50 RF/Mixer, 1·6 mc IF	Dipole
25	G4OS	Chester	54	16	14	28	—	12	RF, mixer, Oscr., 1·2 mc IF	3-element beam
26	G3IS	Rugby	52	20	24	28	—	—	EF-50 g.g. RF, Converter	3-element indoor
27	G6FO	Penn, Bucks.. ..	50	26	38	12	—	—	Modified S27, g.g. RF	12 ½-wave long wire
28	G2NH	New Malden, Surrey	48	27	42	6	—	—	Modified HRO	No information
29	G4CI	New Malden, Surrey	47	32	43	4	—	—	3-stage Converter, 3 mc IF	3-element indoor
30	G3CU	Tooting, London ..	46	27	42	4	—	—	9-valve Superhet, 9·75 mc IF	4-element indoor
31	G8LY	Basingstoke	45	21	31	14	—	—	Modified HRO	3-element beam
32	G6FU	Surbiton, Surrey ..	44	24	44	—	—	—	National 1-10	2 indoor dipoles
33	G6NA	Guildford, Surrey ..	40	22	40	—	—	—	Modified TR1143	14-ft vertical
	G5BD	Mablethorpe ..	40	7	2	26	12	—	No information given	
35	G5OJ	Ewhurst, Surrey ..	35	22	35	—	—	—	0-V-2	12 ½-wave long wire
36	G5OO	Harrow, Mddx ..	32	24	28	4	—	—	S27	Rotary dipole
37	G2UJ	Tunbridge Wells ..	31	14	19	12	—	—	11-stage superhet	2-element beam
38	G8QY	Birmingham.. ..	30	14	22	8	—	—	EF50 Converter, 2·9 mc IF	Long wire
39	G3PD	Oldham, Lancs ..	28	9	8	20	—	—	No information given	3-element beam
40	G2FFY	Westerham, Kent ..	27	17	27	—	—	—	4-stage straight	3-element fixed
41	G5UM	St. Albans, Herts ..	23	15	23	—	—	—	TRF EF50 Straight	Indoor dipole
	G3BY	Ashton-u-Lyne, Lancs	23	10	13	10	—	—	954-954 Oscr./Mixer	3-element indoor
43	G4CG	Wimbledon, London	21	14	21	—	—	—	S27	2-element rotary
44	G6MN	Worksop, Notts ..	9	5	7	2	—	—	No information given	

SHORT WAVE MAGAZINE
5-METRE CONTEST
SHOWING PLACINGS WITH ZONE A ELIMINATED

ANALYSIS TABLE No. 2

Place	Callsign and Location	Score
1	G6VX Hayes	242
2	G5BY, Thurlestone	142
3	G6CW, Nottingham	128
4	G2BMZ, Torquay	120
5	G5MA, Ashtead G2XC, Portsmouth	116
7	G6LK, Cranleigh	80
8	G6YU, Coventry	70
9	G8UZ, Sutton, Notts	62
10	G6YQ, Liverpool	58
11	G8JV, Nottingham	52
12	G4AJ, Basingstoke G3APY, Sutton, Notts	50
14	G4OS, Chester	40
15	G5BD, Mablethorpe	38
16	G3IS, Rugby	28
17	G3CQ, Havering, Essex	24
18	G2MR, Surbiton	22
19	G3PD, Oldham	20
20	G8LY, Basingstoke G6VA, Warlingham	14
22	G2UJ, Tunbridge Wells G6FO, Penn, Bucks	12
24	G3BY, Ashton-under-Lyne	10
25	G8QY, Birmingham	8
26	G2NH, New Malden G4IG, Beckenham G6UH, Hayes, Mddx G2WS, Beckenham G5AS, Kingston	6
31	G3CU, London G4CI, New Malden G5OO, Harrow	4
34	G6MN, Worksop	2

G4LU (Oswestry) is maintaining good schedules with Birmingham (G2AK and G5LJ) and G5BD (Mablethorpe). G6US and G8UB, also both in Oswestry, have likewise got into the Midlands. Others active in this district are G3AFI, G3AHX, G3ASC, G2NX and G2FHI. G2APW (Oswestry) distinguished himself by working G2AK at S9 on the evening of February 16, with 0·75 of a watt. The distance is 55 miles.

On this power economy theme, G2YL worked G4AJ over 36 miles with *no* watts to the PA and 11·5 in her doubler. She cracks at us by saying this feat was probably due to the five elements in G4AJ's mysterious 4-element beam shown here last month ! We have eaten a lot of dirt over this already, so that's enough !

GM3OL (Dumfries) confirms that he worked G6YQ (Liverpool 123 miles and not 139 as previously reported) for the first time on January 25. Since then, he has had many contacts on schedule with both G5MQ and G6YQ, and has also worked G4OS (Chester, 135 miles). The southerly stations are watching these developments and there have been several attempts by G5MQ and G6YQ to connect G6VX with GM3OL, who is on 59448 kc every evening, except Tuesdays, from 1900 onwards. G5GX (Hull, 164 miles) has heard GM3OL.

G3BW (Whitehaven) is out of his misery at last, and has most generously given us some undeserved credit for it It seems that immediately after reading our comment in the last issue, he went on the air and worked G5MQ and G6YQ (90 miles) and got a 589 from G3DA (Handforth, Cheshire). Straight off, just like that, after months of patient trying ! So G3BW is now happily banging a signal round the North-West and is ready for anybody. He reports G2HHB and G6WR as two new locals active.

G3DA has an 807 in the final, with a 3-element rotatable beam in the roof space, and a 9003-9003-954 converter working into an R.1155. Best QSO's, excluding semi-locals like Liverpool and Oldham, have been G5GX and G6OS in Hull, with GW6OK (Colwyn Bay) and G5BD on the other coast heard. G3DA makes a number of interesting observations. He not only hears the " weak, unidentifiable 'phones " that bother us all so much, but some of them beam to GI, since G6YQ confirms the same effect. G3DA, who says he is at the " sharp end " (59440 kc) of the band, himself always signs on CW when finishing a 'phone

transmission—a practice often advocated in this column, which all 5-metre stations could adopt with profit. G3DA asks us to say that though his call may be known to many of the southerly stations because he was operating in Hounslow till November last, he will be DX if they hear him now.

G5GX, who teams with G6OS in their joint forays on five, turns in a list of 32 stations heard or worked by them, of which no less than 16 are calls new to us. This is an indication of the growing activity in the North—see Calls Heard. It was not till after hooking G5BD that G5GX/G6OS really got to work on the band; like many others, they found the receiver to be the vital factor. Once this had been properly appreciated, they were surprised to find how easy it is to get out and around. G5GX has a concentric-line converter using 954 RF and 6K8 mixer-oscillator, with four 3-element fixed beams looking N, S, E and W. This combination, with the converter working into an HRO, produces good readable signals from transceivers in Leeds and Bradford, 60 miles away. G6OS uses an S27 with 9001 pre-selector and a 4-element rotary beam. The pair of them are now gunning for the GM's with 5-element beams in view.

G4JJ/G8NM have opened in Barnsley, also as a double act and are on every evening from 1900. They will be very glad to accommodate stations over 50 miles distant for schedules, and ask for reports. Well, good luck to you both and let us know how you get on.

G3MY (Sheffield) operates from a QTH in the lowest part of the city, surrounded by four main roads and in close proximity to infernal machines like lifts, X-ray and diathermy apparatus—all producing an unbelievable hash, as we can well imagine. He has a 3-element beam above roof level, which helps a bit, and is able to get out to Hull, Worksop, Sutton-in-Ashfield and Mablethorpe as the best DX so far. G3MY, with G2IQ, is doing much work on receivers, and at present has an RL7 RF stage with an EC52 mixer feeding to a 5·2 mc IF channel which is again converted through a crystallized 6J8 to 465 kc. Some of the fruits of their join efforts appear in G2IQ's article in this issue.

GM6JJ (Burntisland, Fife) who had a lot of experience on the band pre-war, is another Scot to make an appearance. The rest of the active GM's are still looking for G's, with GM2DI (Wishaw, Lanark) tipped as likely to succeed first, as he is well equipped and on regularly.

G.G. RF Stages

The articles on grounded-grid, or common-grid, technique appearing in our November and December issues have stimulated a good deal of work along the lines suggested. Though some who have tried the circuit report excellent results well up to expectations, others are disappointed.

The fact is that the wide acceptance of the g.g. input circuit obviously tends to make it unsuitable for noisy locations, when the undoubted capabilities of this type of RF amplifier are masked by an increase in noise disproportionate to the gain that can be obtained. Nevertheless, the arrangement is well worth a trial where the local noise level is low. We quoted G4DN on this question of noise in the December issue, and G2IQ and G5BY have since confirmed it from practical experience.

G2IQ has also found that of all the "special VHF" valve types now available —including the 9000 series and the 6AK5 —the RL7 (Mullard EF54) is much superior on the score both of gain and signal/noise ratio.

London-Paris Network

We mentioned this project, put forward by the French, last month. Their stations on the Channel coast are F8AA (Boulogne), F8LR (Berck), F8NW (Hardelot), F8PJ (Boulogne) and F8ZF (Boulogne). It seems that F8LR and F8NW "hear G's on 58 mc" and that the 5-metre network back to Paris operates regularly every evening from 2030 to 2200. Power up to 100 watts is used, and on Sundays as many as 30 stations are on the band from 1000 onwards. The only frequency given is that of G8AV, who is spot on 60 mc. All the others are understood to be within the limits of our band.

The idea is to run a regular relay chain between Paris and London, later to be extended to other parts of both countries. If you are interested, please put a card in the post to us. G5MP (Hythe) has opened the ball.

F9DI (Moreuil, Somme) is a reader of this column and listens on 58 mc. He promises full reports on any G's heard. Merci, cher OM.

Shorts

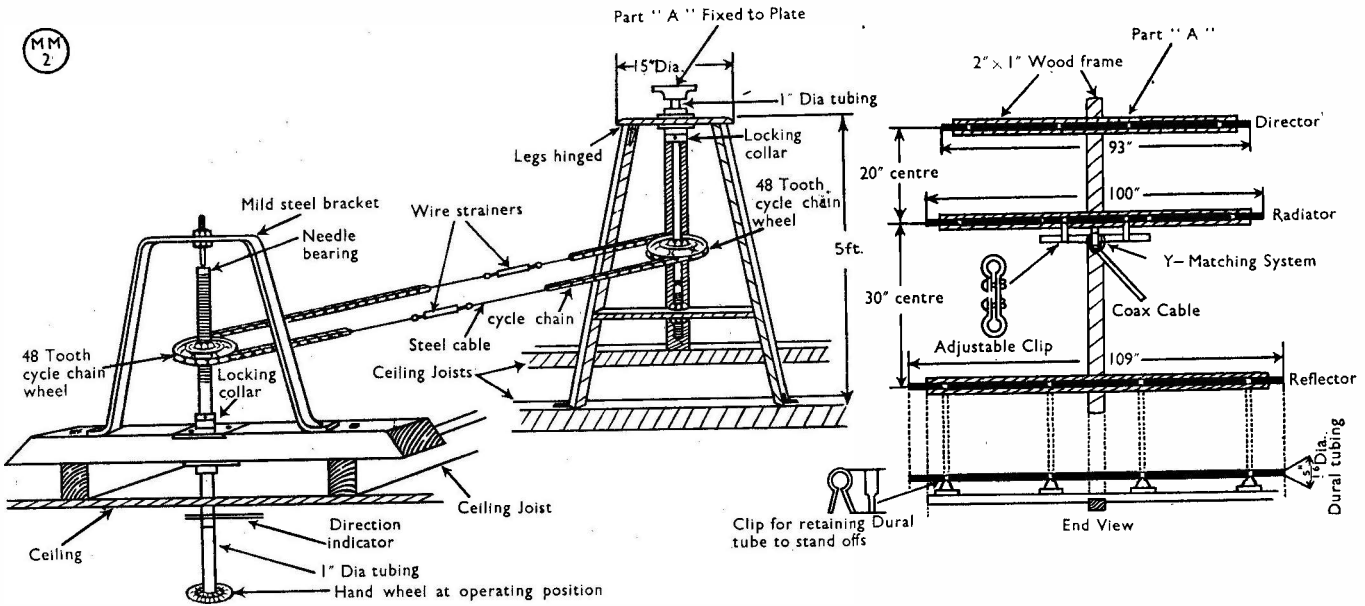
The most westerly G, G2JL (Penzance) is getting ready for it . . . G3HS (Faringdon, Berks), is on and looking for contacts. . . The MR's now active are G2MR (Surbiton), who is well known on five, G4MR

MOUNTING & ROTATING MECHANISM

For

INDOOR FIVE-METRE BEAM

Designed by W. J. BUTLER, G5LJ



The 5-metre indoor array shown here is due to G5LJ (Sutton Coldfield). As many readers will know, it shoots a very fine GDX signal round for him. The drawings are fully dimensioned and all necessary details are given, so that there is no need for any explanatory text. A number of operators are already using a beam based upon this design.

(Slough) and G5MR (Felpham, Bognor); we welcome a first report from the latter. He is on 59056 kc most days after 1800, and having only started recently, is busy getting acclimatised.... G8DF (Epsom) will be about soon, and G4LX (Newcastle) asks for reports.... G8QX (Malvern) is active and was heard on February 12 by G2UA (Harrow), who is on 58624 kc with a 9-stage Rx with EF50 RF.... Further afield, ZS6DO is making automatic hourly transmissions on 58528 kc, and may well be heard just at this season.... WØZJB, VHF editor of the American *CQ*, tells us that the big news with them is Pacific break-through on January 26, when J9AAK on Okinawa worked KH6DD and W7ACS/KH6 on Oahu, conditions remaining stable for several hours. . . . VK2NO has now worked all Australian states except VK6 on 50 mc, which means distances up to 1,000 miles. . . . ZL1NF has heard VK2AZ, and there is a rumour that a W6 has been received in ZL's North Island. . . . All this is VHF DX of a kind to stir anyone's blood, as the distances involved are relatively colossal.

OK1KA waiting for DX on Krkonose Mountain, 5,000 feet a.s.l. No 58 mc G's have been heard recently in Czechoslovakia.

Transatlantic Records

We were glad to have a line from GM6RG (Galashiels), who mentions that he also was heard in the States pre-war on our old 56 mc band. On February 18, 1938, W1KTF copied and repeated back GM6RG's coded CW to prove reception. This was at 1600 GMT.

Reports and Calls Heard

Since the April issue will be well advanced when this one reaches you, we give the next firm closing date for reports (May issue) as April 22. However, anything in by March 19 latest will catch April so let us have it by then if you can.

Our grateful thanks for the response from the North this time, and we look forward to many more such reports. And now, what about the West, as well as GI and EI? The whole British Isles except these parts are covered in this month's story.

Please address all 5-metre correspondence to A. J. Devon, c/o *Short Wave Magazine*, 49 Victoria Street, London, S.W.1 (ABBey 2384).

NOISE SUPPRESSION

It is understood that it is to be made legally obligatory on operators to have all public vehicles electrically suppressed. This will be a great help, particularly in the busy districts. In many of these, 58 mc working and television reception is completely ruined by noise interference from trams and buses.

RF/Mixer Design For VHF

The Results of Practical Experience

By W. J. CRAWLEY (G2IQ)

The receiver is the clue to success on 58 mc. These notes will prove of great interest to all those groping for a solution to the problem.—Ed.

IT is the intention of this article to describe some of the difficulties encountered in endeavouring to build a receiver that would perform better than the average commercial superhet on 28 and 58 mc. This is not a constructional article in the strict sense and the design of the more orthodox stages in the receiver is not described. Most receivers have an adequate "back-end" (IF/AF amplifier). It is at the front that many of them seem to fail and these notes are confined to the question of RF and mixer design.

The receiver was first built about three months ago, primarily for 28 mc, but with 5 metres also in mind. The writer had never had the slightest desire to savour the sweets of 5-metre work until he started reading the excellent articles by A. J. Devon, and later, by G5UM. So great has been the influence of these articles upon him that he has been persuaded to desert the DX bands when within but three countries of his post-war century, and does not regret doing so for one moment!

The RF Stages

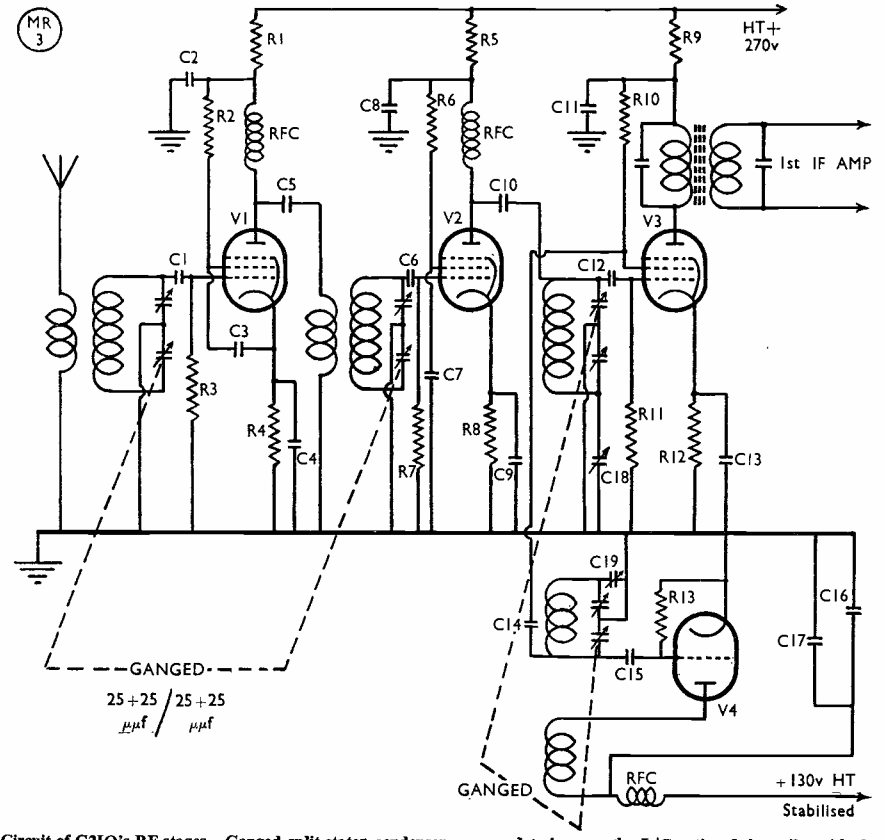
The set performed admirably on ten. Many local stations declared that DX regularly worked at G21Q was not audible on their American communications receivers. Two RF stages were employed, both giving extremely high gain. The first stage used a Mullard RL7 (now called EF54) in the interests of high signal/noise ratio. It is not generally realised that the EF54 is superior to the EF50 in many respects; in fact, its high mutual conductance makes it the ideal choice for VHF amplification, actually better than the acorns or midget types. The input conductance of the EF54 is higher than that of the EF50, and its comparative noise factor about half that of the EF50! In the second RF stage, where signal/noise ratio is not so important, an EF50 was used. Both stages were designed to work "flat-out"; that is, the maximum plate and screen potentials were applied, together with the minimum cathode resistor.

Mixer Design

The choice of mixer valve presented many problems. Most of the conventional mixer valves were tried, all with separate oscillator, but results were generally disappointing. When the conversion gain was good, the noise was high and *vice-versa*. The 6SA7, a valve used in most of the new American communication receivers, gave a fair account of itself, but it was not until the advice of G3MY was sought that really satisfactory results were obtained. Again the admirable RL7, with injection into its screen, gave results both in gain and in noise level much in advance of those obtained with other valves. A 9002 served as oscillator. Greater conversion gain was obtained by using the conventional grid injection with grid-leak bias, but the signal/noise ratio was inferior. The back-end was conventional with the additional refinements of a 465/465·3 bandpass crystal-filter with a 300 cycles pass-band for CW reception, and a modified Dickert noise limiter.

58 mc Problems

This arrangement did everything desired on 28 mc, but when towards the end of last December it was tried on 5 metres, it was obvious that drastic changes would have to be made. The experiences recently described by



Circuit of G2IQ's RF stages. Ganged split-stator condensers are used to improve the L/C ratio of the coils, with the high-efficiency EF54's for first RF and mixer stages. This arrangement is giving him excellent results on the 58 mc band.

G5UM were recalled in the vain struggle to reduce stray capacities ! The band was finally reached when the grid coils had been reduced to but one turn and that with the tuning condensers all out ! In addition, the gain was very poor and for some days reliance had to be placed on passed-on reports from nearby stations as to the effectiveness of G21Q's 58 mc transmissions.

Again G3MY came to the rescue with a suggestion of "split-stator" tuning. The two twin-gang 50 $\mu\mu$F tuning condensers were pulled out and the hacksaw applied to each set of stator plates ; by such drastic means they were converted into four-gang 25 $\mu\mu$F, or twin-gang split-stator 25 × 25 $\mu\mu$F ! The result was that it

Table of Values

RF/Mixer Design for VHF

C2, C3, C4, C7, C8, C9, C11, C13, C16	=	·01 μF mica
C5, C10, C14, C15	=	50 $\mu\mu$F ceramic
C1, C6, C12	=	100 $\mu\mu$F ceramic
C17	=	8 μF, 500-volt
C18, C19	=	30 $\mu\mu$F trimmers
R1, R5, R9	=	2,000 ohms
R2, R6	=	1,000 ohms
R4, R8	=	140 ohms
R3, R7, R11	=	330,000 ohms
R10	=	250,000 ohms
R12	=	4,700 ohms
R13	=	47,000 ohms
RFC	=	VHF RF choke
V1, V3	=	Mullard EF54
V2	=	Mullard EF50
V4	=	9002, or Mullard EC52

was possible to increase the size of the grid coils to 7 turns, 1 in. in diameter by 1 in. long. No mean inductance! The gain leaped up on 58 mc and the results compared favourably with the excellent gain on ten metres.

The advantages of split-stator tuning may clearly be seen by examining the circuit diagram given here. The minimum capacity obtained with this system is far below that obtainable by any orthodox method, and in addition, the valve capacity, instead of being right across the tuned circuit is in series with the earthy end of the split-stator condenser. Thus, its loading effect upon the tuned circuit is considerably reduced and a higher Q is possible. A further advantage at VHF is that the RF current is confined to the tuned circuit and circulates through the rotor shaft instead of through the frame and chassis.

Choice of IF

The last snag encountered now that the receiver was finally pulling 'em in was that of squegging between mixer and oscillator. This trouble was finally eradicated by moving the IF from 465 kc to 3 mc. The set was then made into a double-super with two stages of 3 mc IF amplification and two stages at 465 kc, with a 6K8 as second mixer/oscillator. In the interests of greater selectivity, later improvement has been obtained by changing the second IF channel to 110 kc.

It will be appreciated from the foregoing that the receiver now bears very little resemblance to the original with which the writer started out as the last word in receivers three months ago! The performance, however, is now satisfactory, and the set will serve until another "last-word" is contemplated.

More About VHF Propagation

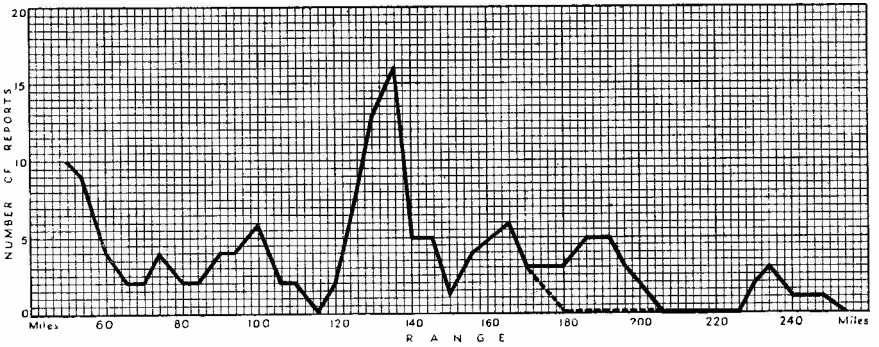
Reply to Critics

By **O. J. RUSSELL, B.Sc., A.Inst.P. (G3BHJ)**

(Our contributor's theory, expounded in the January issue, on the apparent existence of a 60-mile skip effect on 5 metres and the probable reasons for it was severely criticised by G2XC and G6DH in our last issue. G3BHJ now replies to their criticism, and we leave it to readers to form their own conclusions from the evidence presented by both sides. Bearing on this controversy, it is of interest that Sir Edward Appleton and R. Naismith of the Department of Scientific and Industrial Research have recently shown, in a paper read to the Physical Society, that fine meteoric dust makes a substantial contribution to the maintenance of the reflecting layers.—Ed.)

In connection with the writer's recent article, "Short Skip on Five"—*Short Wave Magazine*, January 1947—considerable interest appears to have been aroused, and he is glad to have had the opportunity of replying personally to several readers on certain of the points made. One particular question which has been put to him is whether the 60-mile peaking effect is not partly or even entirely due to the distribution of the stations. This factor was carefully watched throughout the period over which the work was carried out. There is certainly no apparent justification for such a suspicion. Furthermore, it is a significant and interesting fact that each of the three main peakings of the curve, Fig. 3 in the January issue (representing the totalled reports over a period in 1946) has no fewer than five distinctive features common to each peak. The separation of any such feature to the corresponding feature on the next peak is almost exactly sixty miles.

Yet more striking is the fact that all peaks are twinned, and the separation of the main twinned peaks, divided into the mean range of the twin peak, is a constant figure. Such consistency is obviously not the result of chance bunching of stations. G5JP clinches the matter. He has produced a curve analysing the distribution effect. This, when applied to the published curves, leaves the 60-mile peaking un-



The curve of Fig. 1, p. 671, January, revised by G3BHJ to include the additional reports quoted in the G2XC/G6DH discussion in the February issue.

changed. In view of this, and other factors, it is clear that the 60-mile peaking is a very definite phenomenon. The impartial approach to the problem in the original article, has been appreciated by many readers, and their comments have shown up interesting aspects of what is a complex question. In the writer's view, the result of further work on the lines suggested should be very interesting and helpful in elucidating the facts.

G2XC-G6DH Criticism.

So much for the purely objective criticisms. About the critique by Messrs. Heightman and Williams in the February issue, the least one can say is that they might have taken a more objective attitude, and to have refrained from committing so many errors of fact. In order to correct any misleading impression they may have created, it is necessary to deal with their points *seriatim.*

Relative Reception

First, they seem to assert that the writer is guilty of stating that 5-metre signals are equally strong and reliable at all the preferred ranges. Naturally enough, no such preposterous implication was made and no reader is likely to assume that. What we are concerned with is the arrival *at all* of a distant 5-metre signal irrespective of its strength or reliability.

Graph Construction

The second point raised in the G2XC-G6DH paper may perhaps be excused on the grounds of over-hasty reading. They remark on the fact that in Fig. 1 there are thirteen points over and including the range 60 to 120 miles. There are in fact thirteen such points over similar ranges in all of the graphs. With what is a tendency to inaccuracy, they state they can find only eleven points. It is clearly shown that the ten-mile-wide strips they criticise are actually spaced at five-mile intervals. Such a method of presentation is perfectly justified and in order. Obviously so, for each strip is in effect a *plus-or-minus* five-mile strip, and the placing of the points at a five-mile centre-to-centre separation is a logical optimum. It is unfortunate that G2XC and G6DH in their error use this supposed "anomaly" as the basis for their general denunciation of the writer's reliability and competence.

Their next blunder lies in dealing with mere facts. They in effect argue that certain distances were not included in the curve. It is true that the contacts and call signs they include are given in the August, 1946, issue, but not the distances ; these contacts were therefore disregarded. The distances quoted by G2XC and G6DH are no doubt correct, but it is surprising to see the graph produced by them when they bring in the distances not included by the writer.

This shows a clear 60-mile skip effect. What is truly extraordinary, however, is that no amount of manipulation can produce their graph from the actual figures, including their own additions ! While they have gone to some effort to bring in these additional figures, they have omitted others, presumably overlooking those included in "Calls Heard" in the August issue.

Fig. 1, amended to include the few extra distances quoted by G2XC and G6DH, is given here correctly. The dotted line indicates where the original curve for Fig. 1

on p.671 of the January issue deviates slightly due to these additional distances.

The foregoing suggests that the G2XC/G6DH curve is not altogether reliable as a basis for criticism.

Tropospheric Limitations

In the course of their argument they claim to have shown (with the assistance of some un-named "other workers") that long-distance VHF propagation is due to tropospheric refraction. Space is too short to criticise this insistence on tropospheric propagation, or preferably "ducting," but their assertion of "proof" is hardly justified. While it is admitted that there is a correlation between weather conditions and 5-metre propagation, the mechanism suggested by them does not, in the writer's submission, amount to proof. The facts, indeed, would seem to point the other way. If we accept the G2XC/G6DH hypothesis as justifiable, we have in effect a mechanism capable of reflecting equally *all* electromagnetic waves regardless of wavelength or frequency. However, observations have shown very definitely that VHF waves of slightly different frequencies fade independently of one another. This is highly significant. What is even more significant, if we are to accept the G2XC/G6DH reasoning, is that it is clear there is nothing to prevent light waves being reflected in exactly and precisely the same way. In fact, G2XC and G6DH use a nicely blended mixture of static electrical figures, converted into an optical wave expression, for the treatment of VHF waves ! If their thesis has provided us with anything at all, it is an explanation of the formation of mirages, an optical phenomenon sufficiently rare in this country to lead us to the irresistible conclusion that very possibly a great deal of what is presumed to be "tropospheric propagation" is more than somewhat of a mirage !

Television Reception at DX

Finally, it is an interesting fact that reports of vision reception of the television signals at long distances are also grouped into approximately 60-mile intervals. As might be expected, the layer height, quoted as 500 feet by G2XC and G6DH, does not necessarily apply. Also, despite their scepticism, the research workers Cowell and Friend investigated and measured actual layers at heights of from 5 to 30 miles, which reflected waves down to the VHF region. These are well within the hypothetical D-layer.

The writer would refer those who may have followed him thus far to his original statement, "These results (the 60-mile peaks) are highly significant, whatever the ultimate conclusion that is reached about them." The "ultimate conclusion," in accordance with the spirit of rational scientific enquiry, is still left open.

NEW QTH's

Only those which have changed since the appearance of the September, 1939, issue of the Call Book or were not included in it for fully licensed operation, or are now licensed for the first time, can be published here. All that do appear in this column will automatically be included in the next Call Book, now in preparation. The number of QTH's we can print each month depends upon space available. QTHs are inserted as they are received, up to the limit of the space allowance. Please ***write clearly*** *and address to QTH Section.*

G2ACA	V. L. Mayhead, 2 Springfield Road, Kingston, Surrey.
G2AIB	C. P. Sime, 2 Myrtle Grove, Cleadon Park, South Shields, Co. Durham.
G2ATZ	J. Harris, Wyncote, Hawkswood, Hailsham, Sussex.
G2BLQ	C. McLintock, Braemar, Walkerith Road, Morton, Gainsborough, Lincs.
G2BMS	J. R. Smith, 26 Durham Avenue, Heston, Hounslow, Middx.
G2BOK	H. M. Bawtree, 22 Shirley Avenue, Cheam, Surrey.
G2CSG	J. W. Green, 9 Springhill Road, Burnley, Lancs.
G2CYK	Capt. K. T. Harlow, M.B.E., 13 Stainburn Crescent, Leeds 7.
G2DPH	H. R. Brundrett, Bennington, Dean Row, Wilmslow, Cheshire.
G2FK	F. E. King, 101 Crowley Crescent, Croydon, Surrey.
G2FTS	R. F. Nugent, Field House, Windmill Hill, Hailsham, Sussex.
G2FZR	D. Hughes, The Pharmacy, Snodland, Kent.
G2HBQ	R. St. John, 218 Consort Road, Peckham, London, S.E.15.
G2HNC	K. Kilburn (*ex-VU2KL*), 8 Norbury Avenue, Bebington, Wirral, Ches.
G2VV	J. N. Roe, 5 Gloucester Road, Hampton-on-Thames, Middx.
G2VV/A	J. N. Roe, Sunnycroft, Middle Bourne Lane, Farnham, Surrey.
G2VZ	H. W. Daly, 161 Limpsfield Road, Sanderstead, Surrey.
G3ABU	E. J. Hayman, 61 Lichfield Avenue, Lummaton, Torquay, Devon.
G3ACC	Miss Margaret Mills, 59 Upland Road, East Dulwich, London, S.E.22.
G3ADT	M. M. Ward, 52 Poulton Avenue, Sutton, Surrey.

GM3AEI	K. N. Senior, The Cottage, Faladam, Blackshiels, Midlothian.
G3AEX	G. C. Fox, 99 Plaistow Lane, Bromley, Kent.
GW3AKB	W. J. Parry, 6 Craig Pandy, Tregarth, Bangor, N. Wales. (*Cancels GW3ARB*)
GM3AKK	J. B. Rimmer, 109 Crofton Avenue, Croftfoot, Glasgow, S.4.
G3ALL	N. Moor, Garcroft, Victoria Road, Pocklington, York.
G3AMX	C. Davie, 65 Blackburn Avenue, Tettenhall, Wolverhampton.
G3ANB	W. G. L. Creaton, 36 Church Road, Brightlingsea, Essex.
G3ANW	C. Paxton, 112 Brookfields Avenue, Mitcham, Surrey.
G3AQC	L. V. Mayhead, 2 Springfield Road, Kingston, Surrey.
G3AQQ	J. Kelsall, 109 Dunsmure Road, Stamford Hill, London, N.16. (*Tel.: STA* 8292).
G3ASD	F. Halstead, 34 Carlton Close, Luton, Beds.
G3ATF	C. Seaman, 21 Sydney Road, Bexleyheath, Kent. (*Tel.: Bexleyheath* 480)
G3ATK	E. H. P. Young, M.Sc., Ph.D., A.R.I.C., 19 Chandos Road South, Chorlton-cum-Hardy, Manchester, 21.
G3AUH	E. Ailmore, Junction House, Ironville, Notts.
GM3AUQ	J. K. Boyd, c/o 31 Irvine Road, Largs, Ayrshire.
G3AVT	E. Salisbury, 12 Wyreside Close, Garstang, Nr. Preston, Lancs.
GM3AWO	J. A. Fair, B.Sc., c/o 378 Perth Road, Dundee, Angus.
G3AWP	P. W. Gifford, 21 Bengal Road, Winton, Bournemouth, Hants.
GI3AXI	R. J. Boal, 234 Cliftonville Road, Belfast, N.I.
G3AXM	A. Aspinall, 95 Aldworth Road, Stratford, London, E.15. (*Tel.: MARyland* 2463.)
G3AXU	Capt. P. G. Keller (*ex-I1QR, XADZ*), 220 Hayes Lane, Hayes, Bromley, Kent.
G3AYA	L. E. Howes, 64 Cavendish Road, Brondesbury Park, London, N.W.6.
G3AZV	J. R. Mackenzie, 5 Allan Road, Newbiggin-by-the-Sea, Northumberland.
GW3BAZ	J. Evans, 9 Heol Dolwen, Whitchurch, Cardiff, S. Wales.
G3BBD	Capt. J. L. Townend, 131 Manygates Lane, Sandal, Wakefield, Yorks.
G3BBU	B. A. Toms, 38 Ashbourne Avenue, South Woodford, London, E.18.
GM3BCD	T. Simpson, 51 Argyle Crescent, Portobello, Midlothian.
G3BEH	A. G. Allen, 26 The Green, Kingsley, Staffs.
G3BEO	M. L. Richards, 50 Belle Vue Road, Ramsgate, Kent.
G3BEP	K. Morton, 44 Fairfield Street, Liverpool 7.
G3BEU	A. Calder, Merley, Chart Lane, Reigate, Surrey.
G3BEX	J. & R. Short, 112 Southwick Street, Southwick, Sussex.
G3BFL	H. Siebert, 125 Milborough Crescent, Lee, London, S.E.12.
GM3BGB	S. B. Jagger, 7 Prospecthill Street, Greenock, Renfrewshire.
G3BGS	R. H. Gammans, 133 Banbury Road, Kidlington, Oxford.
G3BHJ	O. J. Russell, B.Sc., A.Inst.P., 15 Reepham Road, Norwich, Norfolk.
G3BHT	B. G. Meaden, 10 Alfriston Road, West Derby, Liverpool 12.
G3BIH	J. Crankshaw, 24 High Street, Daventry, Northants.
G3BIX	J. d'A. Collings, 77 Kensington Church Street, London, W.8.
G3BJE	J. Dee, 1 Rupert Street, Reading, Berks.
G3CO	J. B. Kay, 5 Thornhill Avenue, Plumstead, London, S.E.18.
G3YM	L. W. Richards, 13 Gordon Place, London, W.8.
GM4HR	S. S. M. Ramsay, 17 Ellengowan Drive, Dundee, Angus.
G4QD	R. A. Delahunt, 30 Bridge Road, Bold, Widnes, Lancs.
GM4QV	J. Simpson, Hatfield, 10 Falkirk Road, Bonnybridge, Stirling.
G5MV	E. Mitchell, 11 Greylands Park Drive, Newby, Scarborough, Yorks.
G5YK	F/O B. M. Morrissey, Officers' Mess, RAF Station, Swinderby, Lincs.
G6PF	L. Parfitt, Brookwood Hospital, Knaphill, Woking, Surrey.
G6VD/A	W. M. Vendy, c/o A.M.W.D., RAF Station, Grove, Wantage, Berks.
G8DF	A. E. Mitchell, 38 Portway Crescent, Ewell, Surrey, (*Tel.: Ewell* 3068.)
G8QJ	D. M. Gledhill, 80 Cardinal Road, Eastcote, Middx.
G8TS	J. S. T. Ruddock, The White House, Rectory Road, Farnborough, Hants.
G8TT	G. A. Woods, (*ex-XACD*), 67 Station Parade, Harrogate, Yorks.

SUBSCRIPTION RENEWALS—CHANGES OF ADDRESS

Having now completed a year's working, a number of subscriptions are falling due for renewal. If yours expired with the last issue, the notice was in the envelope that brought you your February copy. If you did not find it (or have forgotten to renew) please take the necessary action!

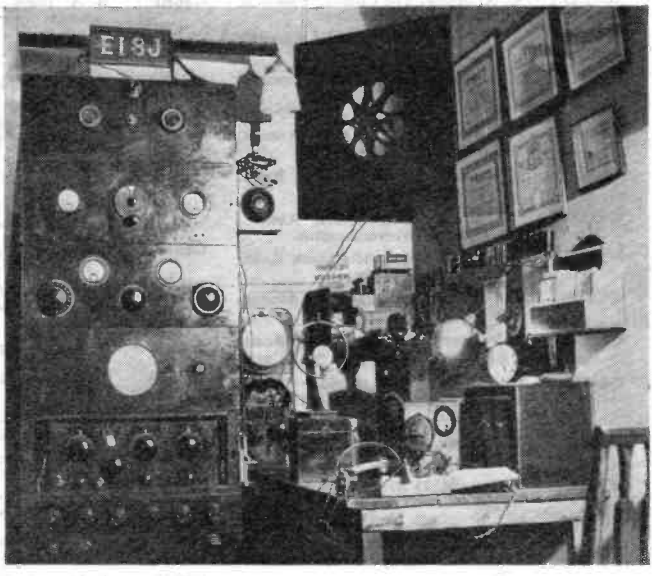
From now on, renewal slips will be going out with each month's issue as subscriptions fall due. It is only necessary to return the notice with your remittance.

And please inform us immediately of any change of address. The envelopes in which the issue is despatched are prepared in advance of the publication date, and copies may go astray if change of address is not notified till around publication day.

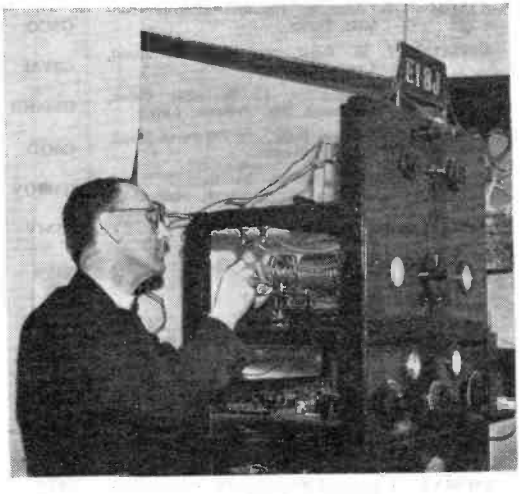
D

The other man's station

EI8J



THESE interesting photographs illustrate EI8J, the station owned by the Rev. N. F. H. Waring, 35 Wellington Road, Dublin, Eire. Operation is mainly on 7 and 14 mc, with occasional excursions to 1·7, 3·5 and 28 mc, with CW and 'phone on all bands. Inputs run 120 watts on CW and 60 watts on 'phone.



The transmitter is a wooden rack-and-panel job 6-ft. high by 2-ft. wide with 1-ft 9-in. plywood panels. The receiver and speaker are incorporated in the rack. The top panel carries the aerial tuning unit, with the RK20A PA below. The exciter is 6L6-6L6 CO-Buffer/Doubler, and the modulator (the RK20A is suppressor-grid controlled) is 6L6-6L6. The power packs for transmitter, modulator and receiver, with the necessary control switches, are carried on the lower decks of the rack.

The receiver is a 7-valve single-signal superhet, and like all the rest of the gear at EI8J, is entirely home-built. Aerials in use are a 132-ft. Zepp, with a doublet for 14 mc.

EI8J was first licensed in February, 1936, and a very careful card index is maintained, showing full details of all contacts—a total of 4,153 QSO's in 68 countries had been made as at December 4, 1946, and QSL's have been duly sent to every station worked for the first time.

WORKING SOME REAL DX

A B C C

By THE OLD TIMER

(What appears above has nothing to do with what follows below—unless it is to emphasise a condition we hope Old Timer will succeed in improving. Read it, anyway.—Ed.)

Look at the list of New QTH's this month. Reflect that similar lists appear every month and that they represent only a proportion of the new licences being issued. Then, if you have to, refresh your memory of the 7 and 14 mc bands by listening round for an hour or so.

These simple operations should convince you that we have got to do something for ourselves to make our hobby workable in future.

Here is a serious suggestion. The letters ABCC stand for " Amateur Band Courtesy Club." The only qualification for membership is the acceptance of certain rules of behaviour on the bands ; rules which will, in time, be clearly laid down by the members themselves in the light of experience.

For the time being, let us consider the thing briefly in reverse. You will *not* be eligible for, or even interested in, ABCC if you (i) Call CQ 45 times and sign twice ;

(ii) Use a VFO unscrupulously by parking it on the wanted station while he is still in QSO with someone ;

(iii) Make the amateur movement look ridiculous to the outsider by using fatuous abbreviations and phonetics and " Hi's " on 'phone (" Q R Madagascar " and so on are *out*).

(iv) Refuse to have anything to do with suggested schemes for band-planning, and, in particular, "insist on your rights" by using 'phone at the LF end of the bands.

(v) Come on the air and call CQ without first listening on the band and, in particular, on your own frequency.

(vi) Ignore any opportunity for co-operation, courtesy and a general contribution to the smooth running of Amateur Radio.

Now this is merely the preliminary notice. I am asking *every* reader of this note, if he considers ABCC a good idea, and one which he would support, to send his QSL card to us at 49 Victoria Street, London, S.W.1, marked " ABCC—In Favour."

And remember, this will not be a "Club" which you can only join if you have certain qualifications ; any amateur can become a member merely by undertaking to avoid selfish behaviour on the bands. If all those who like it will only take the trouble to say so, this can become something big, and possibly something extremely useful.

We all want to see the bands cleaned up ; here is an opportunity to do something about it. Please QSL !

THE MONTH WITH THE CLUBS

FROM REPORTS

The weather conditions have cut down attendances at some of the Clubs during the past month, but most of them report very successful meetings and encouraging support. There are also a few newcomers this time who swell our total to the record one of 38 Clubs reporting.

This is a clear indication of the health and vitality of the Club movement, and the value to Clubs generally of this feature. We are glad to have the opportunity of assisting in this development, which is of the greatest importance to Amateur Radio in that it is largely through the Clubs that new blood is recruited.

Incidentally, we would welcome more photographs of Club interest, and suggest that those Clubs with their own stations or workshops might consider having them photographed for appearance in "Month with the Clubs." Anyway, there's the idea.

Closing Dates

The restrictions on the use of industrial power have unavoidably delayed the appearance of this issue, which will not be generally distributed till the next is well in hand for April. It is therefore not possible to give a closing date for the April issue, except to say that if Secretaries will forward their reports immediately they see this, we will try and get them in. If there is a marked scarcity of reports for next month, we may drop " Month with the Clubs" till the May issue.

So if you cannot let us have your report in time, post the next to reach us by April 16 for appearance in May.

Address to Club Secretary, *The Short Wave Magazine*, 49 Victoria Street, London, S.W.1.

And here are this month's reports :

Edgware and District Radio Society (G3ASR).—The tenth anniversary dinner was held in January (followed by a visit to a pantomime !) and the flourishing weekly meetings have continued in spite of weather conditions. Talks have been given on television, superhet alignment and other subjects, together with a junk sale. The chairman, G4KD, recently crashed the BBC's roving microphone in " In Town To-night." Membership continues to increase.

Stockport Radio Society.—There is no report from this club other than a notice of change of secretary—new QTH in panel.

Coventry Amateur Radio Society.—The recent contest held with the Midland Amateur Radio Society was won for Coventry by G2LU. A brains trust at the last meeting was so successful that it overran the time considerably ! A transmitter for portable work during the summer has passed its tests—now for some summer.

Radio Society of Northern Ireland.—The committee cordially invite all interested in radio to attend a social evening to be held at Thompson's Café, Cornmarket, Belfast, at 6 p.m., on March 22. The cost will be 6s. 6d. per head. Further information from the secretary (address in panel).

Catterick Amateur Radio Club.—This club, a newcomer to us, meets every Tuesday evening at 7 p.m. Members, whether civilians or serving, will be welcomed—secret ry's QTH in panel.

Exeter and District Amateur Short Wave Radio Society.—Welcome to another newcomer —the inaugural meeting was held in February. Future meetings will be every Thursday at 7 p.m., and the club room is spacious—more members awaited ! A series of lectures and Morse classes has been arranged.

Romford & District Amateur Radio Society (G4KF).—Since the annual general meeting G3CQ continues as chairman, with Mr. A. E. F. Williams as vice-chairman. Forty members were present on this occasion. At a later meeting there was a lecture by the hon. treasurer on Beams. The venue is Mawneys Road Schools, Mondays, at 8 p.m.

Slade Radio.—This club has gone over to fortnightly meetings, and their programme for the current quarter has been arranged. On March 21, Mr. G. Brown (G5BJ) talks on Police Radio, and the following meeting will take the form of a brains trust. The club recently visited the local telephone exchange as a change from radio !

South Shields Amateur Radio Club.—This club is now in full swing, with lectures and demonstrations arranged to a weekly programme. Three groups have been organised, dealing with (i) valves, (ii) portable transmitting and receiving demonstrations, and (iii) construction of transmitters and receivers. Meetings are on Fridays, 7 p.m., at St. Paul's School Room, Westoe.

Surrey Radio Contact Club.—The February meeting, well attended in spite of arctic conditions, took the form of a talk and demonstration by G5BT on Modern Receiver Design. The next, on March 11, at The Blacksmith's Arms, South End, Croydon, at 7.30 p.m., will include a sale of surplus gear, of which quite a lot was left over from the December affair.

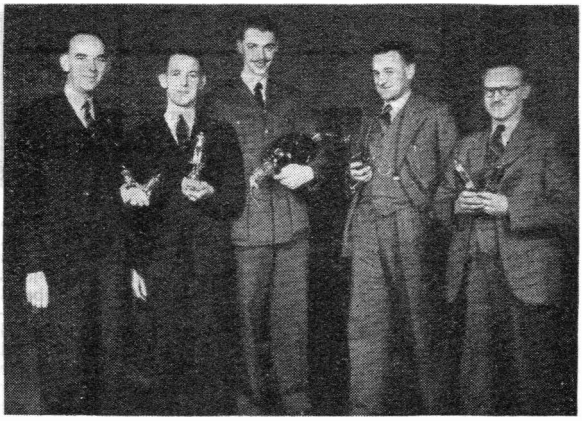
Midland Amateur Radio Society.—The last meeting was attended by 59 members and visitors, who heard a lecture on hearing aids and midget amplifiers, and also put questions to the technical committee. On March 18, there is to be a talk and demonstration by the Receiving Group; the Transmitting Group have their say on April 22. The February meeting was held on the 18th, the subject being Modulation, on which 52 members heard Mr. G. Lapworth stress the pitfalls likely to be encountered by the beginner.

Wanstead & Woodford Radio Society.—The club transmitter is now on the air on the 1·7 mc band every Tuesday night, and it is also proposed to issue a club news-sheet. This will appear for the first time at the general meeting, which is to be held on March 25. On this occasion it is hoped that all members will turn up and air their views. Ordinary meetings are held on Tuesdays at Wanstead House, near the George Hotel, and new members are especially welcomed.

Whitefield & District Radio Society.—This club invites all short wave listeners in the Manchester, Prestwich, Whitefield and Bury districts to get in touch and to attend one of their Monday meetings (7.30 p.m. at the Stand Grammar School, Whitefield). Morse classes are under way, and workshop facilities are being laid on, so that members may build their own apparatus at the club's premises.

Wigan & District Amateur Radio Club.—Weather conditions have seriously curtailed the club's activities this month, but constructional work in the workshop is proceeding, and application has been made for the club's own transmitting licence. Membership is increasing but still more would be welcomed.

Wirral Amateur Radio Society.—The last two meetings have covered the subject of Home Construction (short talks by members) and VHF Aerials (lecture). Full details of future plans are available from the secretary.



Grafton Bottle Party. Left to right: G2AHB, the Chairman, GW3ALE, G8DF and the Secretary.

York & District Short Wave Club.—A new club-room has now been acquired (29 Victor Street) and is open every Wednesday evening for Morse practice and discussion. The first and third Wednesdays, however, are mainly reserved for club topics. Meetings are very well attended, but there is room for new members and new ideas.

Stroud & District Amateur Radio Club.—They have now obtained comfortable premises at the Labour Club, Cainscross Road, and meet every Tuesday at 7.30 p.m. Morse instruction is given by G5WA, and three members are hoping to qualify for full tickets shortly. There is a special section for instructing junior members both in theory and practice, and a start has been made on building the club's own station.

Reading & District Amateur Radio Society.—The office of president of the society was recently accepted by Dr. Lemon (G2GL), who gave an interesting talk and working demonstration of the German Hellschreiber teleprinter system. Other subjects recently covered have been Economic Power Units (G5XB) and 160-metre DF Work (Mr. Peck). Membership increases and the meetings at Palmer Hall (6.30 p.m.) are flourishing.

Neath, Port Talbot & District Short Wave Club.—Membership is still increasing, and a recent talk by the chairman, GW5VX, on Amateur Radio, was very well attended. W8LRV was a welcome visitor at the last two meetings. The monthly venue is the Dock Hotel, Villiers Street, Briton Ferry.

North-East Amateur Transmitting Society.—The result of the recent DX Contest was a win for G4LX (Gosforth) with G2OS (Cullercoats) second and G2PN (North Shields) third. It is hoped to hold a Hamfest in Newcastle during April, but full details are not yet available. Members are active on all bands, with the bulk of the QRM on 14 mc.

A club is being formed to cover Derby and District, to cater for the increasing number of short wave enthusiasts in the neighbourhood. Further details may be obtained from J. F. Mathers, 54 Fife Street, Derby.

Nottingham Short Wave Club.—This club, originally formed in 1938, resumed activity last October, and is now flourishing again. As the members are mostly short wave listeners, weekly set listening periods are held, the logs being discussed at meetings. The club runs a query section, library, Morse class, and an instruc-

tion and demonstration group, the completed pieces of apparatus being awarded as prizes in listening contests. Their activities were recently described by the secretary in a talk on the BBC Midland Home Service.

City of Belfast Y.M.C.A. Radio Club (GI6YM).—GI6TK, the former secretary, has been elected president for the year. His successor's QTH is in the usual panel. The new premises have been taken over and GI6YM is on the air again. Wednesday is club night, and Morse practice classes are held on Tuesday and Thursday. Membership is over 100, many of whom are active at their own stations. Reports on GI6YM's transmissions on the 3·5, 7, 14 and 28 mc bands will be welcomed.

A club is now being organised in the Nuneaton district, probably to be known as the Nuneaton Amateur Radio Society. Will anyone interested please get into touch with A. R. Stringer, 6 School Hill, Chapel End, Nuneaton, for full particulars.

HI-Q Club, Giffnock.—Things are flourishing with this club, which has belaboured its brains trust with such subjects as break-in and all-band aerials. Members with transmitting licences keep a "local sked" every evening on 28 and 58 mc, and several of them are doing excellent work with very low powers. GM3ANV, the local crystal-grinding expert, has given himself fifteen equally-spaced spots between 14·0 and 14·8 mc—complete with switching.

Radio Society of Harrow.—G2TA recently gave an interesting talk on 6½-cm equipment; Morse classes continue at G5OO, and a small subcommittee has been formed to investigate all aspects of television and BCL interference. The information gleaned will naturally be available to all members, and may possibly be published. The March meetings are on the 11th and 25th at 7.30 p.m.—206/208 Kenton Road.

Kingston & District Amateur Radio Society.—Meetings are held on the second and fourth Thursdays at 8 p.m., and have been very well attended. Several sub-groups have now been formed among members specialising in certain aspects of Amateur Radio. Newcomers will always be welcomed at the Three Fishes.

Following are the names and addresses of the secretaries of the clubs mentioned this month. They will be pleased to give every assistance to prospective members.

ABERDEEN. A. D. J. Westland, 17 Beaconsfield Place, Aberdeen.
BELFAST (GI6YM). W. E. Caughey, GI2DZG, 67 Oldpark Road, Belfast.
BRADFORD (Amateur Radio Society): J. H. Macdonald, G4GJ, Mayfield, Wagon Lane, Bingley, Yorks.
(Short Wave Club G3NN): V. W. Sowen, G2BYC, Rushwood, Grange Park Drive, Cottingley, Bingley, Yorks.
BURY (G3BRS). C. Turner, G8NL, 4 Moreton Avenue, Whitefield, Nr. Manchester.
CANNOCK CHASE. K. R. Boot, G2FZG, 75 Beech Tree Lane, Cannock, Staffs.
CATTERICK. Cpl. Hall, Model Signal Office, Vimy Lines, Catterick, Yorks.
COVENTRY. J. W. Swinnerton, G2YS, 118 Moor Street, Coventry. (*Tel.*: *Cov.* 4578).
DERBY (*Proposed*). J. F. Mathers, 54 Fife Street, Derby.
EDGWARE (G3ASR). R. H. Newland, G3VW, 3 Albany Court, Montrose Avenue, Edgware, Middx.
EXETER. E. G. Wheatcroft, 7 Mount Pleasant Road, Exeter.
GIFFNOCK. (Hi-Q Club): J. D. Gillies, GM2FZT, 3 Berridale Avenue, Glasgow, S.4. (*Tel.*: *Merrylee* 4060)
GLOUCESTER. J. W. Dean, G2AZT, 100 Stanley Road, Gloucester.
GRAFTON (G3AFT). W. H. C. Jennings, G2AHB, Grafton L.C.C. School, Eburne Road, Holloway, London, N.7.
HARROW. J. F. A. Lavender, G2KA, 29 Crofts Road, Harrow, Middx.
KINGSTON. J. J. Hughes, 12 Hillingdon Avenue, Ashford, Middx.
MANCHESTER. H. Marshall, G4ND, 14 Greenway Close, Sale, Manchester.
MIDLAND. W. J. Vincent, G4OI, 342 Warwick Road, Solihull, Birmingham. (*Tel.*: *Solihull* 0413).
NEATH. S. Roberts, GW4NZ, 29 Chestnut Road, Cimla, Neath, Glam.
NORTH-EAST. J. W. Hogarth, G3ACK, 4 Fenwick Avenue, Blyth, Northumberland.
NORTHERN IRELAND. W. Gordon, 2 Shaftesbury Avenue, Ormean Road, Belfast.
NORTH-WEST KENT. L. Gregory, G2AVI, 18 Upper Park Road, Bromley, Kent. (*Tel.*: *Ravensbourne* 2071).
NOTTINGHAM. D. C. Johnson, 16 Lorne Grove, Woodborough Road, Nottingham.
NUNEATON (*Proposed*). A. R. Stringer, 6 School Hill, Chapel End, Nuneaton.
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 (G4KF). R. C. E. Beardow, G3FT, 3 Geneva Gardens, Whalebone Lane North, Chadwell Heath, Essex.
SLADE. L. A. Griffiths, 34 Florence Road, Sutton Coldfield, Warks.
SOUTH SHIELDS. W. Dennell, G3ATA/P, 12 South Frederick Street, South Shields.
STOCKPORT. D. G. Bagg, G4TO, 26 Priestnall Road, Heaton Mersey, Stockport.
STOURBRIDGE. D. Rock, G8PR, Flat 1, Block 1, Worcester Road, Summerfield, Nr. Kidderminster.
STROUD. K. D. Ayers, 1 Victoria Villas, Whiteshill, Stroud, Glos.
SURREY. L. C. Blanchard, 122 St. Andrews Road, Coulsdon, Surrey. (*Tel.*: *Uplands* 3765).
WANSTEAD. R. J. C. Broadbent, G3AAJ, 24 St Margarets Grove, Wanstead Park, London, E.12.
WHITEFIELD. E. Fearn, 4 Partington Street, Newton Heath, Manchester 10.
WIGAN. H. King, 2 Derby Street, Spring View, Wigan.
WIRRAL. B. O'Brien, G2AMV, 26 Coombe Road, Irby, Heswall, Ches.
YORK. G. W. Kelley, G5KC, 146 Melrosegate, York.

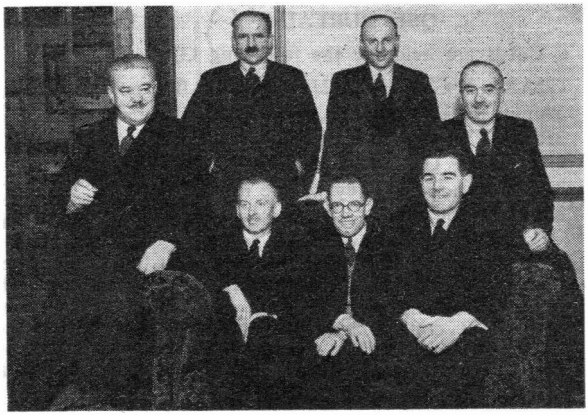
Gloucester & District Amateur Radio Club. — Fortnightly meetings at the Spread Eagle continue, and recent lectures have covered such subjects as magnetrons and cyclotrons. At some meetings, too, G3PZ's portable has been rigged in the club room and CW contacts have been made with Cheltenham members. The club's own transmitter is on the way—to be built in the club room by members from components contributed by all; some summer field-day work is expected.

Grafton Radio Society (G3AFT).—The weekly series of lectures covering the syllabus of the Radio Amateurs' Examination has proved very popular. The severe weather caused only a 5 per cent reduction in attendance, and the QRM in the canteen apparently remained undiminished. A further £80 worth of components have been ordered for the construction groups, including a handsome supply of tools for the bench work.

G4AY and GI3AWX would like to hear from any transmitting members of the R.A.F. Compton Bassett Amateur Radio Society with a view to arranging a reunion. Write G4AY at 9 Prospect Road, Southborough, Tunbridge Wells, Kent.

North-West Kent Amateur Radio Society.—Recent meetings consisted of a junk sale and a talk on a frequency meter by G2MI. The next, on March 28, takes the form of a lecture by G2WS on VHF propagation.

Oswestry & District Radio Society.—Recent lectures at the fortnightly meetings have included such interesting subjects as Transmitter Parasitics, Crystal Grinding, CRT's and Army Radar Practice, and the society was also able to visit the GPO station at Criggion, Montgomery. Several new call-signs have appeared in the neighbourhood, and there is still room for more members.



After months of schedule keeping, they recently met one another for the first time at Blackpool. Left to right, back row : G6KK, G2NY, G8OY, G3IM ; seated, G4HH, G3ABB and G6YV.

Bradford Amateur Radio Society (G3NN). — Recent meetings included a brains trust and a second lecture on the oscilloscope. On March 31 Mr. B. H. Briggs, B.A. (G2FJD) will talk on "Some wartime advances in time-bases." Fortnightly meetings continue.

Bradford Short Wave Club.—A varied programme of lectures has covered such subjects as Quartz Crystals, Acoustics, Naval Radio and synthetic church bells. Morse classes continue, and a visit to the local power station is in the offing. Visitors are always welcome.

Bury Radio Society (G3BRS).—Fine permanent headquarters have now been acquired, and a recent anniversary Hamfest was a great success. A visit to the BBC North Regional station also took place. The club station will shortly be on the air.

Cannock Chase Radio Society.—Two meetings have had to be cancelled owing to severe weather conditions, but business has been carried forward, and the March meeting will include a junk sale. The meeting place is the Black Horse Inn, Mill Street, Cannock, and new members will be welcomed.

Aberdeen Amateur Radio Society.—Membership is now 43 ; this is good going, as the first notice only appeared here in October. A club-room has been acquired, the rig is being built, and the club call-sign is anxiously awaited. Members have divided into groups for construction of equipment, dealing with the receiver, signal generator, frequency meter, and so on. The president is now GM5IP, with GM3BCL as vice-president. Two members are running a series of lectures in preparation for the Amateur Examination, and newcomers are taking advantage of the facility.

Manchester & District Radio Society.—This club was reformed last May, and now has over 100 members. Meetings are monthly, the next being on March 17 and April 22, at the School of Technology, Whitworth Street. Further details from the Hon. Sec.—QTH in panel.

Stourbridge & District Radio Society. — Recent meetings have taken the form of discussions on modulators, frequency measurement, and R.A.F. radar. New members will be heartily welcomed.

QSL BUREAU

Cards are held for the following G's:

G2ARI, 2FCS, 2FDT, 2JT, 2OR, 3ABC, 3ATU, 3AUB, 3BAM, 3BDN, 3FBC, 3RX, 3YV, 6HB, 6KL, 8DJ, 8GO, 8WO, GI3AXD, GM3AOR, 3BGA, 3KD, 3ND, 8MA, 8OI. They will be forwarded on receipt of QTH.

As announced elsewhere in this issue, the new abbreviated address (for world-wide use) for the *Short Wave Magazine* QSL Bureau is **BCM/QSL, London, W.C.1.** It could hardly be shorter or easier to remember.

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XA CARDS

Since the last notice appeared, XADZ has been posted, and Capt. P. G. Keller (G3AXU) informs us that the QTH for cards for all XA stations is now c/o Signal Section, Allied Force H.Q., Caserta, C.M.F., Italy. This should only be used for XA's whose address is unknown; wherever possible, send cards direct.

INTERNATIONAL TELECOMMUNICATIONS UNION

This is the title under which the world telecommunications conference is to function. At first, it was to have been held in Chicago; the next move was to Miami; the latest and probably the final *venue* is Atlantic City. But as long as we get our frequencies, it hardly matters where it is held! There is now no time for further argument on the amateur case before the I.T.U. meets in May, and it is safe to assume that the proposals to be put forward by the British official delegation have already been settled. However, there will be much discussion before the final decisions are boiled out.

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RADIO AMATEURS' EXAMINATION

The results of the November, 1946, examination came to hand just as we closed for press. 216 candidates sat (182 in May, 1946), 150 passed (145 last time), and the percentage of failures rose from 22 in May to 30 in November.

The examiners consider that a number of candidates sat without adequate preparation.

CLASSIFIED SMALL ADVERTISEMENTS

TRADE ADVERTISEMENTS

9d. per word, minimum charge 12/-. No series discounts; all charges payable with order. Insertions of Radio interest only accepted. Add 25% for Bold Face (Heavy Type).

RADIOGRAPHIC, LTD., 66 Osborne Street, Glasgow, C.1. TRANSMITTING VALVES. Have available the following types :—RK25, RK60, RK65, 6AC7/1852, 843, 865, 841, 832, 803, 872, 837, 813, 805, 955, 954, 6AB7/1853, 814, 836. 250TH, 100TH, 811, 9003, 9002, 829, 838, 860, 956. 800, 830, 815, 150TH, 282A, 832A, 50Y6GT, 6L6M,35T, 24G, TZ40, T200, 866, RK20, 1625, 807. All new and unused, guaranteed, Send S.A.E. for price list.—RADIOGRAPHIC, LTD., 66 Osborne Street, Glasgow, C.1.

HIGH grade metal cabinets, ideal for monitors, VFO, wavemeters etc. Plain, Black, Grey or Crackle Finish. 10/- each post paid.—G4LY, 208 Lower Parliament Street, Nottingham.

WE HAVE THE LARGEST STOCK OF ENGLISH AND AMERICAN RADIO BOOKS IN THE COUNTRY, INCLUDING MANY NOW OUT OF PRINT. Write or call for List, Modern Book Co., 19/23 Praed Street (Dept. V), London, W.2. Pad. 4185.

QSL CARDS AND LOG BOOKS, APPROVED G.P.O. SAMPLES FREE. ATKINSON BROS., PRINTERS, ELLAND, YORKS.

TRIMMER TOOL KITS (new) given in exchange for old Service Sheets.—BULLS (S.W.) 246 High Street, Harlesden, N.W.10.

RADIO RETAIL BUS. in large south coast town. Leasehold shop in main road £250 p.a. 18 yrs. unexpired. Main agencies. Good repair service. Large mail order section. Reason for disposal ill-health. Price for lease, goodwill, fixtures and fittings. £5,000 plus S.A.V. (approx £4,000). Full details of HENRY BUTCHER & Co., 73 Chancery Lane, London, W.C.2.

ALUMINIUM chassis and panels from 3/9 each. Plain or punched for valveholders etc. Prompt delivery.—E.A.D., 13 Bence Lane, Darton, Barnsley.

G6VS—25 watt transmitter, complete with valves, crystal, coils, meters, power pack, ready for immediate operation £30-2-6, rotational delivery ; Ten Watt ' Top Band ' transmitter ready shortly ; EF.54, EF.50, EC.52 valves ; large stocks of Eddystone, Labgear and Q-Max Equipment ; Q.C.C. Crystals, Pullin Meters etc. ; all types of constructional work undertaken.—G6VS, Carlton Music Salon, West Kirby, Cheshire.

KEEP permanent records of your circuits ! Complete blueprint 5/-, extra copies 1/3. Send sketches.—BCM/Manuscripts, London, W.C.1.

A COMPLETE LIST OF S.W. STATIONS W/LENGTH AND FREQUENCY ACCURATELY COMPILED PRICE 2/3.—HANDYSHOP, 109a CHURCH STREET, CROYDON.

MACCLESFIELD District : Comprehensive Stocks all Amateur gear ; Eddystone, Labgear, " Q Max ", Hallicrafter, etc. Receivers and Transmitters, bought, sold, and exchanged.—Johnsons (Radio) Macclesfield. Tel : 4080. (G3AFH).

A LIMITED number of meter-rectifiers by Westinghouse—New-Midget, tubular, ¾in. × ¾in. tag ends, half-wave, 6/9 each.—G2CDN, 87 Brixton Hill, S.W.2

READERS' ADVERTISEMENTS

3d. per word, min. charge 5/-, payable with order.

WANTED :—Circuit and Data Ex-R.A.F. E.1196 Transmitter/Receiver, buy, loan or hire, please help. —G3ALH 54 Wyncliffe Gardens, Leeds, 7.

SALE, Cheap. Ham Gear Eg., 807's 25/-, 6L6's 15/-, EF50's 15/-, R.A.F. Receiver £8. S.W. Communications Chassis £12. Valves, condensers, Mics, Gear too numerous to list, all cheap.—Jackson, 40 James Street, Barrow; Lancs.

SALE. Commercial Built (RGD) 100w Transmitter 10-60 mc, M.O./C.O., 807-807-807 P.P. Modr. 6C5-6C5 PP-807 PP. Plug-in Coil Units, CW, MCW, RT. WT 2 CWT in 2 cases. 110-250V 50 cy. Input. Offers.—Hughes, 12 Hillingdon Ave., Ashford, Middx.

EXCHANGE 1,100 volts 250 mA power pack for 750v 250 mA job or sell £6. Exchange Rothermel crystal mike for good Bug Key.—Box No. 115.

WANTED an A.R. 88 Receiver—A. J. Cryer, 33 Prince's Way, Fleetwood, Lancs.

EDDYSTONE components R.C.A. 100 kc xtal super job. Matched 210, 59 and other valves cheap. —G2HKU, 27 Unity Street, Sheerness.

WANTED:—*Short Wave Magazines*, Nos. 1, 3, 5, 6 1946. Offers to Sgt. Bushe, Sgt's Mess, R.A.F. Cranwell, Lincs.

NATIONAL 1/10, Complete Coils, less power pack, used for G/GM record, perfect £20.—G3BW, 53 Hill Top Road, Whitehaven, Cumberland.

R.C.A.—AR-88 Communications RX. 14 Tubes. 2-R.F. 3-I.F. stages, complete matched speaker, Service Manual and Phones. Nearest £55. Hallicrafter Super Skyrider SX.16., 11 Tube RX., Xtal., B.F.O. S-Meter. Bandspread 62 mc-550 kc £35. DB-20 £15. G-12 P.M. All perfect.—Taylor, 75 Edgehill Road, Winton, Bournemouth.

SALE—HY40 (new) 34/-, T20 17/-, RK12 (new) 26/-, RK23 27/-, RK23 fil trans 14/-, McElroy Senior Bug 47/-, Shure 85A Hi-Fi Xtal mike with table stand 6 gns., U.S.A. Signal Corps 8,000 ohm phones 25/-, Partridge 500 ohm to 15 ohm output transformer 30/-.—J. H. Clarke, 16 Harcourt House, Cavendish Square, London, W.1.

FOR Sale S.X.28 as new with speaker and spares. Also new H.R.O. with 9 coils 6 volt and 230 volt power packs. Offers to Sutcliffe, 69 Cleckheaton Road, Odsal, Bradford.

RECEIVER Hammarlund Xtal Comet Pro 8 to 250 metres £40. Preamplifier Preselector 17 to 200 metres self contained Power Pack £7.—G2NA, Shrubbery, Wood Road, Codsall, Staffs.

11 valve Marconi communication receiver covering 60 kc to 31 mc in six bands. Calibrated dial. Logging scale 18 feet long. Variable bandwidth from 100 cs to 6 kc. B.F.O. Octal valves with 2 R.F., 3 I.F., excellent performance. Would prefer exchange for miniature camera but consider sale.—Box No. 112.

SALE—Eddystone AW2 Coils complete. Lissen bandspread 3, 20-40 metres. Stamp Details.—K.R. Acton, St. Leonards, Exeter Road, Honiton, Devon.

HALLICRAFTER S20, A.C., Perfect, Stored during war, overhauled, circuit, £20. New 176 mc 10 valve superhet £6 15 0. New RK34, 10/-. Carr. paid. —Box No. 114.

1941 18v. Hammarlund Super Pro, 1250 kc to 40 mc. Complete with heavy duty power supply, tapped 210-250v, and 10" Jensen concert speaker. Fourteen watts output. High fidelity to single-signal selectivity : Continuously variable 16 to 3 kc, then 5 position crystal filter. Definitely finest phone/CW self-adjusting noise silencer obtainable. Just overhauled, scope aligned, laboratory tested. New tubes and crystal. Vernier dial specially hand calibrated for 3, 5, 7, 14, 21 and 28 mc bandspread—a non-standard feature. The prince of communication receivers, wonderfully sensitive, in beautiful condition. Offers above £105. Buyer collects, London. Box No. 116.

NATIONAL HRO, 1941. Carefully stored, used few hours only! Complete coils 50 kc to 30 mc and de luxe power supply, 10v taps, 200-250v. Oscilloscope aligned, peaked hambands, Exceptionally hot DX job, in first-class condition. Buyer collects, London. Offers over £95. Box. 117.

FOR sale. Canadian R103 Communication Receiver. 7 Valve. 1-2·6 mc. 2·5-7-0 mc 6-16 mc B.F.O. Switch. AF Gain. BFO Tone. Works 6V. DC. Grey Crackle Metal Cabinet. Built-in speaker. Telescopic aerial. Brand new. £22. COWIN, 125 WINTERBOURNE ROAD, THORNTON HEATH, SURREY.

HALLICRAFTER Skyrider Defiant complete Speaker, Phones. Offers to J. Miller, 240 Main Street, Rutherglen.

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