

*The*

6<sup>D</sup>

# SHORT-WAVE MAGAZINE

Exclusively for the  
Short-Wave Listener,  
Experimenter and  
Transmitting Amateur

**JUNE**  
**1939**

—  
VOLUME III  
NUMBER 4

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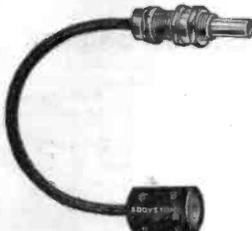
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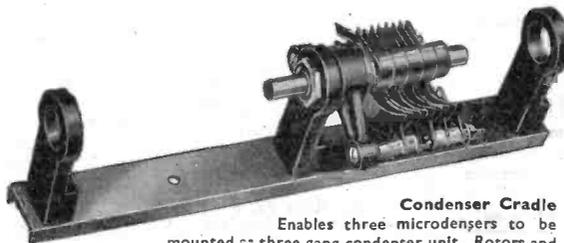
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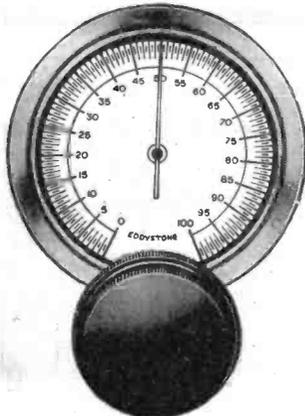
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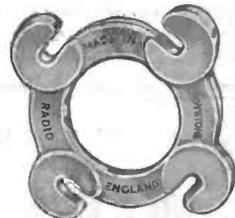
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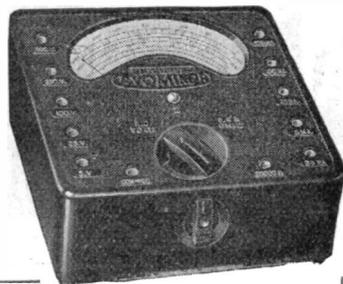
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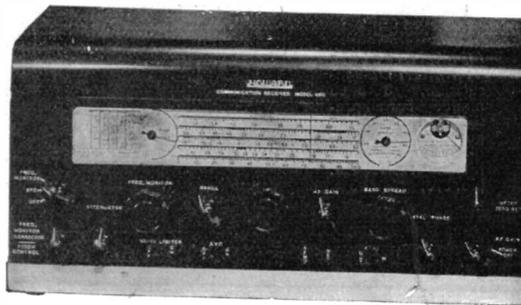
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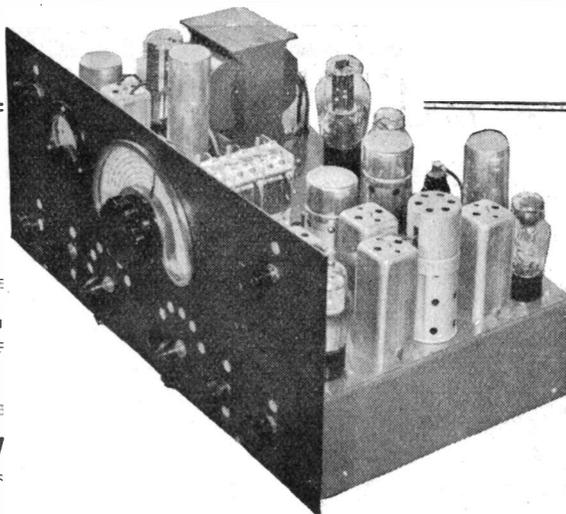
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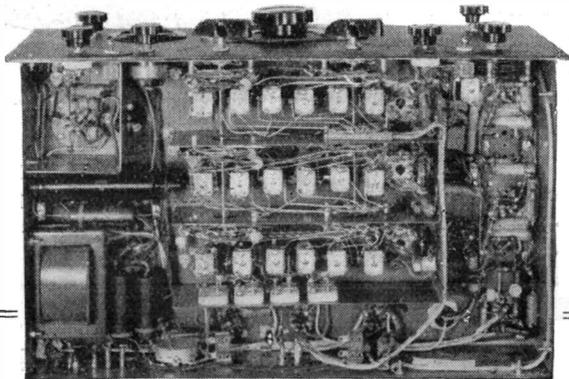
A sample receiver has been submitted to the Press for their criticism, and any advice and tip that has been given has been acted upon forthwith. If you really believe in the slogan of Hamrad, "Hams for Hams," the 140 is the only logical receiver for you to use. It was designed by G6JM and G6MJ, ably assisted by H. Wetzel, Esq., Chief Engineer of J. McClure, Ltd., and production has been constantly watched by G8KZ, G8ZD and 2FYS.

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"I think this design has all the desirable features required in an Amateur Band Communication Receiver, and, at its price, should be a very popular model. Messrs. Hamrad Wholesale Ltd. are to be congratulated on their enterprise in going out to produce a type which, on all points, takes an effective place in the very complete range now on the World's Market."

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Input resistance	- - - 2 Megohms	Price complete with Cathode Ray Tube and Valve	<b>£8.8.0</b>
Input capacity	- - - 10 $\mu$ F (approx.)		

**R**OUND this cathode ray tube unit can be built a complete modern oscillograph. An amplifier and linear time-base can be added *at any time*.

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The  
**Short-Wave Magazine**

No. 6, Vol. III.

JUNE, 1939

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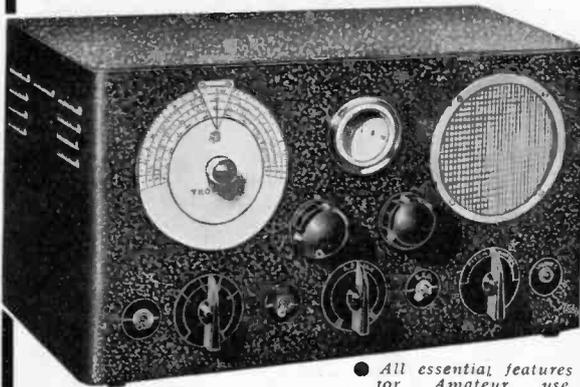
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# Definition

Editorial

FROM TIME TO TIME someone queries whether the holder of a transmitting licence who equips himself throughout with commercial apparatus—more often than not even installed by the supplier—can rightfully call himself an amateur.

The answer probably lies in how his friends and admiring family will describe him—"Oh, he's an amateur broadcaster!"

To us, it has always seemed that experimenting amateur transmitters are those who construct all their own equipment and rely as little as possible on anything in the nature of bought apparatus. The immediate reply of the commercial station owner is that nowadays there is really little to be learnt by building from components and that so far as he is concerned, he is either (a) busy investigating propagation—meaning DX—which necessarily requires something stable, like a ready-built transmitter and receiver, or (b) that he wants to get into Amateur Radio but has no time for study and constructional work.

All these arguments have almost equal validity, and there is also the complicating factor that to-day it is possible to buy a very good communication receiver for less than the average amateur would spend in building an inferior one. Thus the tendency, though the reason is not necessarily the same, for buying ready-made transmitters—and if transmitters, why not a complete station?

But it is also true to say that there is a great deal of knowledge, experience and intellectual pleasure to be gained from building one's own equipment. Furthermore, there is the striking fact that the amateur who buys complete shortly after getting his licence usually gives up entirely sooner or later—to him, Amateur Radio is merely a passing fancy, a phase in a plethora of side interests, like motoring, tennis, photography or stamp-collecting.

The only moral we can draw from this is that in truth it takes all sorts and conditions to make the world of Amateur Radio, just as it does the greater world outside, merely adding the suggestion that the means to acquire unlimited quantities of apparatus gives real pleasure only to the amateur who is and always will be an experimenter at heart.

*Austin Foster  
Adfo.*

# 56 Mc Notes

By  
A. J. Devon

## More G DX — Long Wire Results — Theories — Tests and Schedules

AGAIN THIS MONTH we have more than we should like to report and discuss than there is space in which to do it, so without further preliminaries, here are the main results of the May Test Period. Well supported, conditions were not too good but better than in April. G8LY worked G5BY (49 miles) for the first time, and though there was QSB on that contact, a curious fact is that 2ADZ (Ewell, 42 miles) in the same line found G8LY's signals quite steady. G6YL up in the North kept long watches and identified only her local, G5QY, but R. J. Lee, listening at Heathfield, logged G6FO (145 miles). G5WU (Penarth) received G5BY (134 miles) and G2BI (50 miles), but G6CW and G8JV say there was nothing unusual noticed in Nottingham during the Test Period. G8NM of Barnsley heard several unidentified signals, mainly carriers which badly needed keying, and listened for half-an-hour to an unknown 'phone operator who, coming in at R7-8, finally signed off with "Over to you"!

The Croydon-Newport path was open again on the Friday of the Test Period, a good contact G5BY-G6FO holding long enough for G5BY to put over some very interesting aerial tests. The W8JK beam was swung slowly from horizontal to vertical, the signal persisting at G6FO till the aerial was almost truly vertical, when it disappeared. Bringing the beam back brought the signal in again at gradually increasing strength, till at one point—estimated by G6FO as being about 15 degrees off the flat—it reached a maximum. It was during this Test that G5WU first heard G5BY.

G6QZ was cheered by the logging of a new station on May 10, G5UK (Southend, 80 miles) who was heard consistently for nearly two hours at a best strength of RST-449 at 2157 BST. On the 12th, G6QZ worked G6DH (Clacton, 58 miles) but schedules with both these stations failed on the following days.

Several local interest reports were also received, and some further details of reception will be found under the appropriate heading in the "Calls Heard" section of this issue.

An interesting point is that many people mention the logging of a strong carrier at the HF end of this band—whatever its origin, it is evidently being heard all over the country. Our present suggestion is that it must be either a Service test transmission, using QRO from some advantageous location, or a police 'phone opening up somewhere in the Midlands.

### ● June/July Test Periods

These scheduled tests, instituted in February this year and intended to continue till the end of the summer at least, are undoubtedly very popular, as all our 56 Mc correspondents comment on them and

promise regular support. For the next two months, they are accordingly fixed as follows:

June 14-18, July 5-9, inclusive.  
2000-2230 nightly, Saturdays 1400-1600.  
Sundays 1100-1300, 1430-1600 and 1830-1930,  
all times BST.

Stations are also asked to come on earlier than 2000 BST whenever possible, and as usual, all participants are particularly requested to let us have a report as soon as they can after the closing date each month, as thus we are able to deal with them in the following issue.

So look over the band on Wednesday evening next, and come on as much as you can from then until Sunday evening. Somebody is certain to be on somewhere, so call and listen at regular intervals—then let us have those reports.

### ● Long-Wire Aerials

Now for some data on further work with the bent long-wire aerial which has been mentioned and described in these Notes from time to time.

G5WU, located not far from G6FO, put up a 10  $\frac{1}{2}$ -wave bent end-on aerial during the May Test Period and was immediately rewarded. Hearing not only G2BI and G5BY as already mentioned, he found that stations at intermediate distances were well up in strength and was himself reported for the first time by G2BI (Calne, 50 miles). The interesting thing here is that the latter was not received at G5WU till he too had gone over to a similar aerial, and thus it would seem only a matter of further testing to bring about a two-way contact: this has been tried for over a long period using other types of aerial, without any success at either end.

But that is not all; on May 17 G5WU was heard by G2MV (Coulsdon, 132 miles). Admittedly, this was a good night, as G2MV also logged other DX (see "Calls Heard") but the fact remains that on many previous occasions G6FO had been reported from the same locality as being "in QSO with G5WU," without the latter being heard at all. The curious thing is that G2MV is only a matter of five or six miles south of Croydon, where G5BY was on watch for G5WU at the time, on a very careful schedule, but failed to hear the Penarth station. This "selective reception" of a distant station at near-by points accords with the recent Nottingham experience, mentioned in last month's Notes.

Other new contacts took place on May 5 and 8, when G6CW and G8JV, both of Nottingham, worked G2WD (Water Orton, 38 miles), there being inexplicable variations in signal strength from station to station on the different days. Then on May 16, G6CW went portable with a receiver at G2XS (Kings Lynn), hearing G8JVs 'phone at Q5, R5 solid, dis-

tance 68 miles. This is fine going and should ere long establish a useful experimental link Nottingham-Kings Lynn. G8JV has recently blown himself a converter using 1852-6K8, but presumably G6CW had his 1-v-1 for taking in G8JV at Kings Lynn.

### ● Snowdon Again

From David Mitchell, GW6AA, who has done much interesting and useful experimental work from the summit of Snowdon, to say nothing of having given many people a DX signal to copy, comes full details of his proposed tests from there again this year, over the period July 5-10. Note that we have arranged our July Test Period to correspond, though his schedule does not commence until the 7th, and presumably the 10th will be occupied in packing up.

All GW6AA's transmissions will be CC, mainly CW, and receivers will be available for taking all types of signal though, as he says "It is hoped that CC will predominate." There will be several aerial systems, directional and rotatable, polarised both ways. Ten-minute "Test" calls on automatic CW will be made at regular intervals, and his schedule is:

July 7—1900, 2000, 2100.

July 8—1400, 1600, 1800, 2000, 2200.

July 9—1000, 1200, 1400, 1600, 1800, 2100, 2200.

These are calling times, all BST, and the aerial system in use will be given out, also code groups to identify the transmissions. These code groups must be repeated back in the case of listeners' reports, which will all be welcome and acknowledged. Additionally, on July 7, 8 and 9, general information transmissions on telephony will be made at 2200, 1700 and 2000 BST respectively, giving details of any stations heard, with an additional schedule for the same purpose at 0945 BST on Sunday, July 9.

Schedules with CW stations over 150 miles from Snowdon are also desired, and those wishing for them are asked to write immediately to David Mitchell, GW6AA, The Flagstaff, Colwyn Bay, North Wales.

There is no doubt that a properly organised Test of this description is of considerable value and, whatever the results that may be achieved, GW6AA is to be congratulated on his painstaking enthusiasm. His enterprise involves man-handling a large quantity of gear under very difficult conditions, for Snowdon's summit is notorious for the weather it is capable of offering even in the summer, when gales of terrific violence occur without the slightest warning.

G5TX (Newport, I. of Wight) has worked some 20 stations on the band to date and is anxious to fix up good schedules. He is very well equipped, as described last month. Like us all, he is bothered by these unidentifiable 'phone carriers, stray harmonics and other strange noises heard so frequently on 56 Mc.

On May 9 G6CW was listening round and heard G2VG (30 miles), G3IQ (48 miles), G2NV (QRB?) and G6IH (75 miles) all calling or working one another, and though he tried for over two hours with CW and 'phone, he was unable to attract their attention. G6CW also remarks that it is evident many stations do not use the same aerial for both transmission and reception, though experience indicates that it is almost essential to do so when working outside local distances. This is a point worth

bearing in mind, otherwise one is heard by stations which cannot be received and reception occurs in directions not covered by the transmitting aerial. This is really one more argument for the omnidirectional type of aerial, radiating in both planes, and used for transmission and reception.

G6IH (Malvern) is undoubtedly getting out very well on 56 Mc; he is constantly received in many directions and over the May Test Period, was heard regularly at Newport, on 'phone, working G2NV, G8ML, G3QO and G5WH.

### ● Theory

G2BI has been plotting cross-sections of the country between G5BY-G6FO, G6IH-G6FO, G2BI-G5WU and G2BI-G6FO, in every case finding high ground which should blank off reception. But. Col. Palmer puts forward two very interesting theories, which here we have space only to mention. The first is that the ground-wave radiation, on striking an obstruction—such as a range of hills—is diffracted or bent down over the crest in such a way as again to strike the ground further on, leaving a "shadow" immediately beyond the obstruction. The extent of this dead area and the degree of attenuation of the wave would of course bear relation to the energy radiated, i.e., QRO will get there where low power will not.

This certainly seems to fit the facts where medium-distance and DX contacts of the nature 50-200 miles are concerned, and QSB can be partly explained by changes in the "conductivity" of the ground over which the path lies. It is well known that ground-wave reception varies considerably at the edges of the effective area due to weather effects, which takes us a step further. To explain reception of G6IH at G6FO, where there is a peak in the path and near G6IH, G2BI suggests reflection of the wave round this peak, allowing it to travel straight down the valleys of the Wye and the Usk to Newport. This also is credible, since tests with self-excited portable apparatus in the very early days of 56 Mc showed time and again that it was possible to receive a signal on the "blind" side of a hill by reflection from the opposite slope.

### ● Stations Testing

Here are some times and schedules; G6QZP is to be out portable at Wymondham Waterworks, Wicklewood, Norfolk on July 9, using CC on 56340 kc, CW. The aerial will be a three-element rotatable beam and the receivers a 1-v-1 and a superhet. Schedules are wanted.

G8NM (Barnsley) and G6YL (Felton) are on schedule on Mondays to Fridays inclusive, from 1800 to 1840 BST, calling and listening for one another at 5-minute intervals. Any reports would be welcome.

G8LY (N. Waltham) calls "Test" at 2200 and 2230 on Wednesdays, 2145 and 2205 on Fridays, and is also on in the afternoons when possible at 1430, 1445 and 1500, all times BST.

G2ZV (Rustington) is there every night 2130-2300 BST and on Sundays at intervals between 1500 and 2300. C3YY (Brighton), a comparative newcomer to the band who previously did very well on the receiving side, is on most evenings around 2200 and also goes portable on the Downs at week-ends; he has worked distances up to 50 miles from the home QRA.

G5MP (Hythe) is on daily 0630-0700, 1415-1445, 1800 and 2000 BST. He suggests that known active operators wire one another when the band looks like opening.

# The Modern Two

By

Austin Forsyth, G6FO

(Editor)



## Up-to-date chassis built Two Stage Transmitter with Incorporated Power Supply

### PART I.

THE DESIGN PICTURED here will be of interest to many readers because it is an essentially simple circuit yet certain in operation, easily built but flexible as regards extension and the application of modulation. There is plenty of RF on three bands, and if required the frequency-range can be extended to 3.5 and 1.7 Mc. It is therefore particularly suitable as a first transmitter for a beginner, and represents sound design and constructional principles which can be made the *basis* of many similar types of apparatus.

As it stands, the "Modern Two" (we give our designs names which not only appear to describe them, but are easy to remember and record) is also a self-contained exciter for a high-power rig for, as shown by the illustration and circuit, the power supply is included; this is always convenient, and need not be extravagant, because the 150 mA at 450 volts available can be used to run other gear merely by opening switches S1 and S2 (see circuit) and tapping off from C14.

It is proposed to cover general points in connection with design and layout in this article, leaving until next month the final details as to values, construction and operation. Hence the somewhat naked appearance of the transmitter as it is shown here; it was purposely photographed early on so that the placing of the parts would be easier to explain.

### ● The Circuit

This is a 6L6 driving a Mullard PV06-20 (their equivalent to the American 807, in turn similar to the Osram KT8) in CO-PA, link coupled between the driver tank C5/L2 and the grid side C6/L3 of the PV06-20. The 6L6 is in triode, or straight CO on the fundamental frequency, and a combination of leak and cathode bias is used throughout. This is not actually the best arrangement, but it does away with batteries and also the necessity for a bias power pack—which in any case need never be used on QRP equipment—while getting negative voltage from the main unit not only involves a loss

of plate voltage but also introduces unnecessary complication for apparatus of this type.

The CO bias resistors are at R1 and R2, and those for the PA R6 and R7. Note that the plate and screen voltage to both stages is tapped off separately, the values of the resistors being calculated to give the correct relationship between them; splitting the HT feeds in this manner keeps the PA stage screen voltage much steadier under keying, while the two resistor networks R3-4-5 and R8-9 become in effect two bleeders in parallel. This is in itself no particular advantage, and must be taken care of in the calculations, otherwise bleed current would run too high.

Keying is carried out at J1, and metering for the CO plate, PA grid and PA plate at J2, J3 and J4 respectively. The jack at J5 is for checking total current and the meter can be left plugged there when not otherwise engaged.

The peculiar shape of the neutralising condenser NC is to indicate that it is of unusually small dimensions and non-standard, owing to the very small capacity involved—something less than 2 mmF. Actually, neutralisation is not necessary on the model, but it is allowed for here, just in case somebody's wiring produces some unexpected back-coupling. The condenser itself can consist of two aluminium strips, widely spaced, or a pair of insulated wires, paralleled and protected by sleeving, themselves held in a piece of sleeving of larger bore.

The PA tank condenser is tuned by a Polar split-stator condenser C10, 35 mmF each section, with the HT fed to the centre point of the tank coil L4 via an RF choke; this tap is not critical, and can be obtained by counting turns on the coil.

### ● The Power Supply

A type 80 rectifier with its associated 450-0-450 volt 150 mA transformer T2 and condenser-input smoothing circuit supplies ample power for operating the transmitter, there being a separate transformer T1 carrying LT windings only for running the rectifier and transmitter valves, with a spare 6.3-volt output for other apparatus that may at some time

be used with the transmitter. For convenience, this extra winding is brought out to a three-point connector on the back sub-panel of the chassis.

The HT and LT transformers, also the 20 henry 200 mA smoothing choke Ch, all by Short-Wave Radio, Leeds. They are neatly housed in grey casings, with mounting feet, the leads coming out underneath and through the chassis.

The switch S3 is the main on-off and a mains filter is incorporated in the supply lead—not to keep noise from coming in, but RF from going out!

● **Layout**

The photograph gives practically all the information required, though there are several particular points to mention. The chassis is black-crackle finished steel, 20-ins. by 12-ins. by 4-ins. deep, which just comfortably accommodates everything, and the placing of the parts can be accurately determined by a study of the view.

Looking at the heading photograph, the HT transformer is upper left, with the LT one alongside, in front of which are the two smoothing condensers. The rectifier valve comes between the HT transformer and the smoothing choke (left foreground). Along the front sub-panel are the on-off switch S3, the tell-tale, switches S1 and S2, followed by jacks J1, J3 and J4. J2 and J5 were not fitted at the time the photograph was taken, but have been found helpful since.

Above S2 and first in the line of condensers is C5, with C6 alongside; both these are on the new

Eddystone type 1116 brackets, which give a fixed mounting height of 1½-ins. C10 is the last condenser on the right, and its fixing requires a word of explanation; actually, it is the same as was used for the push-pull RF amplifier described in a recent issue (see "100 Watts CW", p. 31, April, 1939).

The Polar 35 mmF twin-section condenser will be found to have a steatite base provided with four mounting holes and the requisite nuts and bolts. Two polystyrene (Trolitul) strips are cut and drilled to fit across each pair of holes, the strips having a central hole to take the terminal shank of a small stand-off insulator. Thus, the strips are bolted to the condenser base, and the stand-offs to the chassis. Shortened extension controls are fitted to each condenser, with suitable knobs.

The tank coil L4 is fitted across a pair of beehive insulators, placed at 5¼-ins. centres and accommodating coils 3¼-in. diameter wound with No. 14 enamelled wire on thin polystyrene strips, secured with Durofix. The white stand-off insulator between the beehives brings up the centre tap connection.

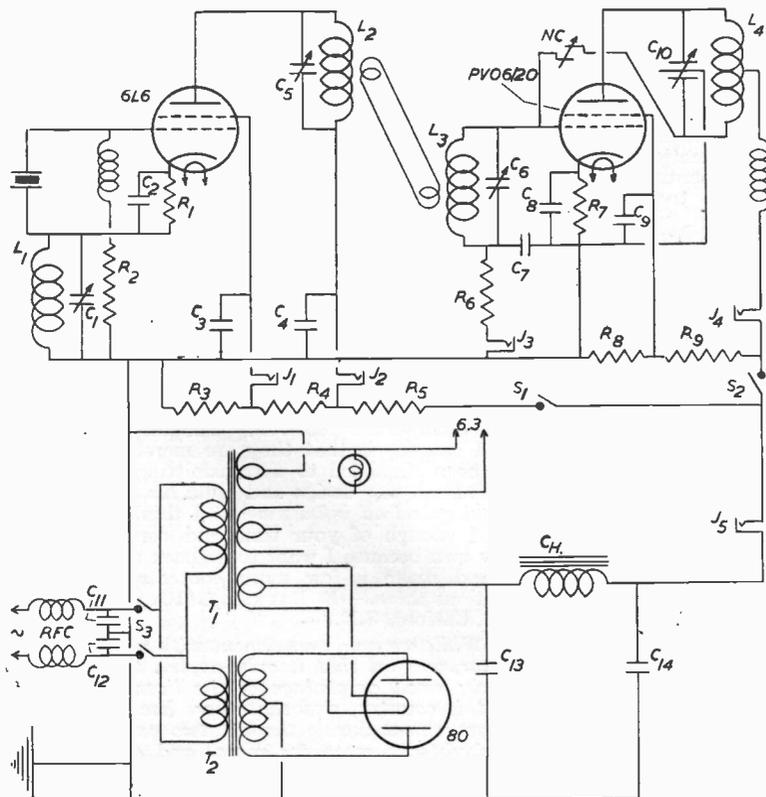
Behind the first condenser is L2, the tank coil for the 6L6 CO, the valve being next in line towards the back. L3 comes behind C6, the valve on the right being the PV06-20.

The Q.C.C. crystal holder (in its new-type mount) is in the background, with the knob of C1 alongside; the cathode side of the CO is kept in the sub-space since no actual coil changes are involved in this particular part of the circuit, and the tuning on C1 stays the same whatever is happening elsewhere.

It will be seen that the valve and coil holders are of the chassis mounting variety but fixed baseboard fashion on short pillars. There is a very good reason for this—it enables all RF wiring to be kept above the chassis level, besides saving the labour of gouging 1-in. holes out of the 18-gauge steel. Suitable mounting pillars can be obtained from the extensive Hamrad range of these items, the valve and coil holders also being from the same suppliers.

The leads which have to travel sub-chassis are taken down through suitably placed holes protected with rubber grommets, and the two pillar insulators behind the tank coil are for taking off the output link.

And so . . . till next month.



**Complete circuit of the chassis-built transmitter. Note automatic bias and separate feed leads to each stage. Those details not mentioned in the text will be dealt with next month when construction and operation are described.**

## LETTERS TO THE EDITOR

### Amateur Radio in Emergency

I was very interested to read in the May issue your Editorial comments on the subject of Emergency Communication.

There is ample evidence to show that the organisation of Emergency Communication by radio has not received the attention it deserves from the competent authorities, but there is no doubt in war time it will become of vital importance, and then it will be unfortunate if hurried measures have to be taken. Since early 1937 I have taken considerable interest in this work in the field of experimentation, also trying to show that it can be organised efficiently.

We all well understand how modern war would affect this country, our homes and the unfortunate civilian population who happened to live in the combatant areas. If this is so then surely our Civilian Defence should not lack in any degree the facilities and equipment necessary to offset the damage and dislocation caused by direct enemy action.

In your Editorial you remark that the organisation of Emergency Radio Communication is not a matter to be taken lightly, and with these remarks I am in entire agreement. The undertaking of Emergency Communications must necessarily mean the employment of a technically competent body of men, who, under discipline, agree to definite commitments. The pleasure and interest of using Amateur Radio from point to point, on field days, etc., is entirely different from public service communication work. The public service demands reliable communication with efficient apparatus, and the ability to maintain heavy traffic schedules.

It has long been my opinion that the reason Amateur Radio men have not been asked to co-operate in an Emergency Radio Communication Scheme is because the authorities are afraid to give any licence for communication experiments to a body of men, no matter how enthusiastic, unless they can show their competence to carry out the work without abuse.

To try and convince the authorities that amateurs can be organised to produce a responsible corps I have formed, in Sheffield, a Radio Section of the Special Constabulary. This is only open to men who can show themselves likely to become reasonably competent operators, and/or technicians. When entered they undertake to carry out a number of drills and exercises each week. The work is very interesting, radio traffic and technical lectures are given, and mobile operation takes place so far as the present Post Office restrictions allow. The Sheffield Radio Specials will, I feel sure, become an example to the whole country of how Emergency Radio Communications can be organised in a manner which will enlist the help of the authorities, and, perhaps, help to break down the fear that such work cannot be carried out by amateurs.—G. W. BAGSHAW, G8KD/G8KF, "Newfield," Newfield Lane, Dore Moor, Sheffield.

### Point of View

Last November I returned to the air after an absence of over three-and-a-half years, and unfortunately choosing 7 Mc, I regret to say that I find things very much worse on that band than they ever were in the past.

I contained myself for a long time and endeavoured to work CW through the 'phone interference, until the March issue of your journal appeared and I read your Editorial therein. I have read and re-read it several times and at last can contain myself no longer!

No amateur could listen on 7 Mc and then complacently congratulate himself on having "assisted hundreds of readers to a transmitting licence." The utter tripe that is put out by the average 'phone station is enough to make one wish to seize the very celebrated Wouff Hong of American Amateur Radio and dash round and slay a few of those concerned.

"Calling forty-metre 'phone" is to me a meaningless phrase, while such things as "Come in somebody please" cause me to wonder if the perpetrators of these effusions expect some sort of miracle to take place in the way of seeing someone sliding down their lead-in. Also why the use of "K" by 'phone stations? This is a telegraphic invitation to transmit and surely it is just as easy to say "over."

Is it necessary to use ten or even twenty-five watts of 'phone, which I know several stations in South London do, when they only wish to make local contacts? Recently I heard a 'phone operator proudly announcing that his licence had only arrived that morning and that it was his *first* transmission, while a station that I know has been licensed for some months recently called me on CW, and during the course of the contact apologised for his rotten fist "as it was his first CW transmission!"

Before I close this irate epistle—which will no doubt cause you no little amusement and me many bad friends—I want to have a go at the CW stations, just to show that I am quite impartial in the matter.

Operating procedure to-day is absolutely foul. Why call "Test" for eight or ten minutes when it is possible on the average receiver entirely to cover the band in about three minutes? Why send double when your signals have already been reported as R5, i.e., 100 per cent. readable. Why-o-why send your report of the other fellows' signals four to eight times and the rest of the message in singles?

Why use "VE" as a break-sign when the one officially used and printed in all copies of the International Morse Code is "BT"? One more question to both types of operators: why brag of the commercially-built receiver? The only explanation that I can see is that they are merely people who have been "assisted to a transmitting licence." A real amateur can design and build his own. And so I could go on *ad infinitum* but I think that I have wasted enough of your time and certainly enough of my own because I want to go back on the air and try and make a few more contacts, despite the conditions there!—E. RAYNER, G6IO, 90, Engleheart Road, Catford, S.E.6.

[While we are in agreement with most of G6IO's letter, we feel that it only applies to a comparatively small percentage of the licensed amateurs of this country, and that there has been marked improvement during the last two years. There is undoubtedly room for more, and all our efforts are directed towards encouraging the proper use of the bands.—ED.]

## On the Amateur Bands

THERE MUST BE few amateurs who do not realize that a fully modulated telephony carrier takes up more room in our crowded bands than a good clean CW signal. Actually, ten crystal-controlled telegraphy stations can work without mutual interference in the same "space" as one correctly adjusted 'phone; that is defined as one on which the modulation *peaks* do not exceed 100 per cent.

### ● Over-Control Prevalent

Consider then for a moment the type of amateur who is of the opinion that 100 per cent. modulation can only be achieved by taking the *average* output of the modulator as the maximum, neglecting the all-important *peaks*. The result of this very common idea is over-modulation, and what is even more important to us, a greater carrier spread and the familiar "frying noises" associated with it.

Every amateur in Great Britain is permitted by the terms of his licence to work 'phone on every band available to him. This generous facility is forbidden to the fraternity in many countries, notably the United States of America, New Zealand and, we believe, Australia. In these three countries, a stiff examination has to be passed before telephony operation is permitted on certain specified bands; other countries, such as Germany, do not allow it at all on any band, except in special cases.

In view of our advantageous position in the matter there is every reason why each amateur in Great Britain should become telephony conscious, by which we mean that he ought to realise how lucky he is and not abuse the privilege; his transmissions should be clean, well modulated and something of which he can be justly proud. However, there is even more in the problem than this.

### ● Choosing Bands

We have written at length on the inadvisability of local 14 Mc QSOs, chiefly because this channel is essentially our most reliable DX medium. We do not condemn the amateur who gets a quick check report or makes a short test with a local before beginning seriously to see how he is getting out, but we do urge all whose custom in the past has been to look upon 14 Mc as "just a band," on which any old noise can be made at any time, to consider well before carrying on a lengthy but trivial conversation with their next-door neighbour. There are six bands at our disposal; 1.7 Mc and 3.5 Mc are *ideally* suited for local and semi-local work and should be the ones used for this purpose. It will be noted that no mention has yet been made of 7 Mc; special treatment is advised here.

It is now fairly certain that we are well past the maximum of solar activity, and 7 Mc has been showing returning signs of DX life. We believe that by 1941/42 this band will be our mainstay for DX, just as 14 Mc has been during the past five years. If this is so, it is evident that our present methods of using 7 Mc will have to undergo a considerable change in order to leave a chance for the DX signals to penetrate, especially as after September the

## Are You Using Telephony on the DX Bands? - - OLD TIMER

40-metre channel will only be 200 kc wide against the 400 kc of 14 Mc! It is true that local signals will behave in a similar way as they do on 14 Mc to-day, i.e., fade out completely after dark, but we shall still have a very serious problem with which to contend in the afternoon hours when Far Eastern and Oceanic DX may be expected; further, in congested areas of amateur activity, 7 Mc local telephony operation will have the same effect as it does to-day on 14 Mc.

We therefore suggest to all right-minded amateurs (there will always be a few black sheep) that they think seriously every time they intend to transmit telephony whether the use to which they put it is likely to be in the best interests of DX working. Always remember that an over-modulated transmission may rob several locals (or others further afield) of a complete contact, and that even a correctly modulated signal will take up ten times more room than a CW one.

### ● Senseless Chatter

With an ever-growing body of newly-licensed amateurs permitted to use 'phone, the increase in QRM to come is obvious. Therefore it cannot be too strongly emphasized that the necessity for cutting out all senseless remarks is *long overdue*. We would go even further and suggest that once your test is completed and you have obtained your signal reports, the contact should be terminated if you cannot think of anything more of experimental value to say. About two years ago this nonsense of stupid conversations had reached a peak; we are glad to give it that, in our opinion, it is very much on the decline now, thanks to the publicity against it in the responsible radio publications.

### ● Always Listen First

To sum up, we suggest that a period of listening be put in on the band before telephony transmissions are commenced, to ascertain the exact conditions existing. If "piles of DX" is coming through on 7 or 14 Mc, then local chats should be discontinued, and a serious attempt made to contact some of the better things offered; and if you are not interested in DX, co-operate by leaving the band for those who have an all-too-rare chance of working some. If no contacts appear possible, a QSY should be made to another band, preferably a lower-frequency one where it is unlikely that DX will be disturbed. Remember too, that 28 Mc will probably be completely dead during the period when 7 Mc is "hot" and this will offer a good opportunity for local testing—14 Mc will also be dead for considerable periods as well. Every efficient experimental amateur should equip himself for work on more than one band, and be able to QSY quickly.

## Current Trade Items

**Varley.** Two very useful components recently introduced are their BFO coil units, to match up with IF frequencies of either 465 or 1600 kc. The unit consists essentially of a tapped coil in a shielding can, intended for use in the now-usual ECO circuit. Two adjustments are provided, one for lining up, and the other to give a pitch variation effect 10 kc either side of resonance. The 1600 kc unit (B.P. 133) is 5s. 6d., and B.P. 135 for 465 kc is 6s. 6d. Can dimensions are 2½-ins. by 1½-ins. diameter, a suitable circuit diagram with values is included in the packing, and the type B.P. 134 adaptor kit at 6d. enables the pitch control to be brought out to the front panel. Write Varley, Cambridge Row, Woolwich, London, S.E.18.

**Hytron.** The International Majestic Radio Corporation, Ltd., 173-5, Farringdon Road, London, E.C.1, are handling Hytron transmitting and receiving valves for this country and Europe, either direct or through the Trade. Some very useful types are available at competitive prices, which have been further reduced by discounting them 10 per cent. to licensed transmitters and experimenters.

**United Insulator.** For manufacturers and Trade supply generally, a very fine range of ceramic insulated components—fixed and variable transmitting and receiving condensers, inductance coils, and similar parts—are available from the United Insulator Co., Ltd., 12-16, Laystall Street, London, E.C.1, who also list piezo-electric apparatus such as crystals, microphones and resonators.

**Holiday & Hemmerdinger.** The "Rider Chanalyst" is a multi-valve instrument for quick, comprehensive servicing, enabling the five channels of any receiver under test—RF, IF, Oscillator, AF, and Power Supply—to be directly connected and their performance watched. The "Chanalyst" incorporates a wattage indicator to check consumption and a valve voltmeter for accurate determination of voltages. The instrument as a unit is independent of valve types, needs no adaptors or plugs, and has its own power supply. An American product, it is available in this country from Holiday and Hemmerdinger, Ltd., 74-78, Hardman Street, Manchester, 3, at a price of 30 guineas, or on deferred terms.

**Webbs.** An interesting valve is the RK-62, a gas-triode detector. One of its applications is for triggering remote-controlled apparatus *via* radio, when—connected in a simple Ultra-audion circuit on, say, 56 Mc—starting and stopping pulses can be transmitted for keying or other purposes. Very small voltages and currents are involved, and the valve is directly heated, the filament rating being 50 mA at 1.4 volts. The maximum plate current is only 1.5 mA, and the range of voltage variation under operating conditions 45-15 volts. Available from Webbs Radio, 14 Soho Street, Oxford Street, London, W.1, and from the Birmingham establishment at 41 Carrs Lane.

## Book Reviews

One of the latest American publications is "Principles and Practice of Radio Servicing," a text-book written in the style called easy, which will appeal not only where it is intended, but also to the general reader. Starting with simple definitions and explanations of such fundamental concepts as Ohm's Law, the propagation of radio waves and the operation of valves, fourteen chapters cover every conceivable aspect of modern receiver design, sub-headed into sections dealing with, for instance, RF and AF amplifiers, Detection, Power Supply and Aerial problems. This is mentioning only a few—complex problems in Volume, Tone and Frequency Control are elucidated in one chapter, and in another Public Address work is well treated. To the service man, Chap. XV. will also be useful in suggesting ideas he has probably not thought of before in connection with customer approach, advertising, costing and filing.

The author of this book is H. J. Hicks, a teacher of the subject, and his publishers in this country McGraw-Hill, of Aldwych House, London, W.C.2. 305 pages, 212 diagrams, appendix and index. Price 18s.

"Building Television Receivers at Home" is a rather cumbersome title for a small but very good practical handbook giving precise instructions that will enable the average amateur to build television receivers guaranteed to produce pictures right up to present-day standards. Three designs are discussed in detail, giving a range of picture-size indirectly graduated to suit one's pocket, and the constructional information is very complete. An interesting chapter discusses the use of the 1-in. C.R. tube for television reception, but though there is also one headed "Long Distance Reception," no mention whatever is made of aerial theory, design or installation anywhere in the book; nor, intentionally, is sound reception covered.

Consisting largely of revised contributions to TELEVISION by S. West and D. E. Osman, the Editor is H. Corbishley of that journal, and the publishers Bernard Jones Publications, Ltd., 37-38, Chancery Lane, London, W.C. "Building Television Receivers at Home" has 112 pages, 200 illustrations, and costs 2s. 6d. from booksellers, or 2s. 9d. post free.

From Australia we have received No. 1 of Vol. 1 of a new monthly paper out there, RADIO AND HOBBIES, costing 6d. The Editor is A. Galbraith Hull, brother of the famous Ross, the late Editor of QST, who met such a tragic end. The new journal covers a very wide field—not only radio but, as its title suggests, films, photography, music, magic and model aeroplanes. In this first issue, there are even articles entitled "Repairing Faulty Gas Taps," "Sharpening Shears" and "Notes on Shooting"!

We wish RADIO AND HOBBIES all possible success in a venture which should appeal widely in Australia.

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*"The Short-Wave Magazine" circulates throughout the World*

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# An Improved Straight Four

By

S. W. Clark, 2AMW

(Assistant Editor)

Combining features of the "Amateur Three" and "Class-B" receivers, that have proved so popular

THOSE READERS who have constructed either the "Amateur Three" or "Class-B" receiver will be familiar with the first or second stage of the layout shown on the next page, which is an endeavour to give a lead to experimentally-minded constructors and is a simple adaptation of two MAGAZINE designs.

Briefly, the chief features are maximum selectivity, ample bandspread, complete coverage from 9 to 170 metres, 'phone or loudspeaker operation with low running cost, provision for any type of aerial, while stage-by-stage construction is possible and advocated.

For the foundation we have built round the twin-diode detector/low-frequency amplifier known as the "Class-B Receiver" almost as it first appeared (March 1937, October 1937) so that owners of this flexible little set may add to its usefulness by the addition of an "Amateur Three" high-frequency stage and/or a simple pentode output circuit.

## ● One, Two or Three Valves

In any case it is advisable to build the centre stages first, and if this plan is followed the aerial should be connected to the plate end of L3 and a temporary link made from the other end of this coil to earth; the 'phones should be placed in the HT + lead in place of the second transformer primary until the final stage is complete.

Referring to the rear view photograph, the section just mentioned is to be seen on the little aluminium shelf with the bandset condenser above it, near the upright screen; to the left, and barely visible, is the first transformer; at chassis level and close up to the coil and CB220 the reaction condenser may just be seen; the bandspread condenser is to the left of and slightly lower than the bandset.

Most of the coil/valve wiring is done before the strip is mounted in position and final connections to reaction condenser, SG anode, HT feed and first LF grid made after the bracket is fixed in position. All RF wiring is above the chassis and the components are carefully adjusted until the shortest wiring plan becomes evident.

To those who have not handled the Class-B set we would point out that before passing this stage as satisfactory reaction must be smooth, and all bands from 28 Mc to 1.7 Mc should handle with the same silkiness; otherwise, it may be assumed that the RF choke is unsatisfactory, HT resistor of incorrect value or the Bulgin "Senator" LF transformer is necessary instead of "The one I had on hand." These are very important points.

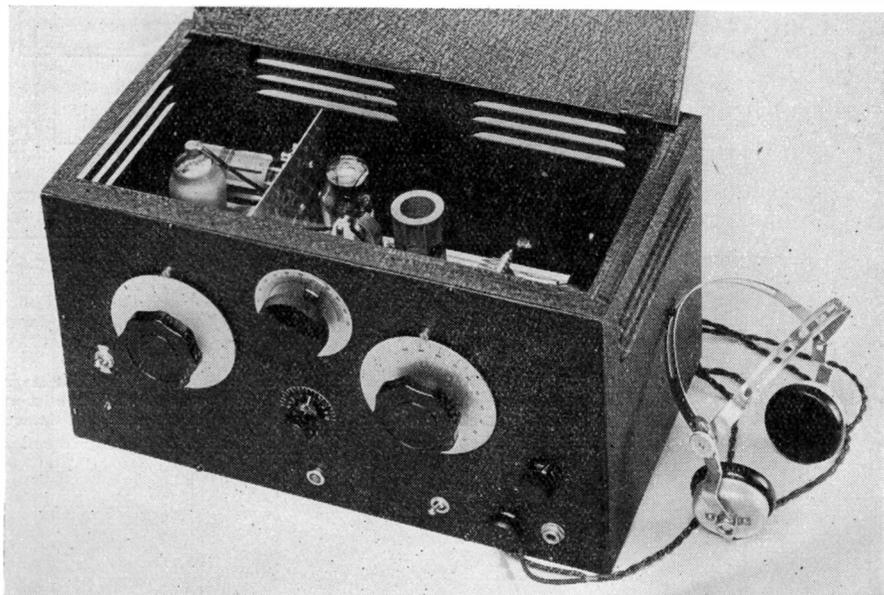
Though generally this type of valve is somewhat microphonic which, however, tends to be less apparent as the receiver becomes "run in," the CB220 is a good example of improvement made during the past two years.

The coils are Eddystone standard 4- and 6-pin throughout; variable condensers a mixture of Bulgin, Eddystone and Webbs' "Apex," and we are not going to assert that those shown in the photographs are vital except in the matter of value. But while on the subject, there is a noticeable improvement when the best quality components are used, and if a really *de luxe* 4-stage TRF receiver is required, then do not expect to get perfect results by adapting old BCL parts, though of course we are mindful of certain exigencies which might exist, and to those so situated we suggest a gradual change over afterwards.

To save space we refer intending constructors to those issues that dealt very fully with the Class-B receiver and turn now to the third stage, which we will select as being the tuned HF pentode, though, if preferred, the second LF section could follow the Class-B, the HF stage being built on later.

## ● Adding the Tuned H F Stage

This first stage will prove a revelation to those not acquainted with a tuned pre-detector amplifier. The boosting up of a signal ahead of the detector has to be heard to be believed, and as once again it would take a full page to explain the general application, we must leave that part by quoting our issue of June 1938, page 18, where two columns dealing with the "Amateur Three" HF stage will apply exactly in this case, though here we are using the Tunggram SP2D straight pentode instead of a screen-grid valve.





volume control will be found necessary even on speaker reception.

This outlet switching is very simple but thoroughly worthwhile, the procedure being: Use 'phones for searching and then, if desirable, push over the switch which in one action connects LT to the pentode filament, cuts out the 'phones and brings the LS into circuit.

### ● General Points

There should be dead background silence when using 'phones, which is a great asset seldom met in modern commercial superhets and often overlooked by the users of them. Another point in favour of the straight receiver is that when reaction is brought up a "breathing" is to be heard which gives the impression that nothing will be missed in searching, and in this state tuning of the HF stage to resonance and a touch on both bandspread and reaction brings the signal up in a manner that leaves no doubt that the receiver is really tuned "right on the nose."

A full supply of 150 volts HT is necessary for best results; prove this when first connecting up by lowering to say 120v. and note the drop in over-all efficiency!

Consumption in our case was 11 milliamperes with all valves working. GB tappings are: HF, 1½v.; 1st LF, 3v.; 2nd LF, 6v.

If the loudspeaker on hand has no transformer it is recommended that HT be fed to the final valve via a choke and the LS inserted as shown for the 'phones, which by the way are Ericsson 2000 ohms.

For 80 and 160 metres it is best to use the bandset condenser for tuning, otherwise two steps on the bandspread are necessary.

The panel arrangement, referring to the photograph of the receiver housed in its Eddystone crackle cabinet, is (left to right): Top, HF, bandset and bandspread dials; the on/off switch is on the left in line with the reaction and volume controls; the indicator lamp, LS/'phone switch and jacks are along the lower edge.

### APOLOGY

We have to apologise to many readers for the fact that owing to exceptional pressure of work these last two months, combined with illness in the Office, the handling of Query Department matters has been slowed down. In the circumstances, we have to announce that for the time being we cannot do better than give about 14 days' clearance to general technical correspondence. We hope that we can rely on our readers' forbearance in this matter, and ask their indulgence if letters do not seem to be answered as promptly as usual.

### INTERNATIONAL PREFIX LIST

The usual short-wave BC station data appearing monthly on the inside back cover gives place for this issue to a List of International Prefixes, published in response to many requests from readers interested in DX. Our Prefix List has been very carefully prepared and to the best of our knowledge and belief it is the most-up-to-date, authentic and generally accepted one available in print, and has all the "rare variations" shown.

## Universal Test Meter

A commercially-produced instrument at a reasonable price, calibrated to a high standard of accuracy, the Taylor 80B 70-range Universal Meter will interest many of our readers.

In addition to maximum AC and DC ranges of 250, 500, 1000, and 2000 volts, with current readings from 10 mA full scale to 20 amps. in ten steps, direct readings of capacity (to 10 mF), inductance (to 100 henrys) and output (to 60 dB) are also provided. Scale limitations naturally affect the degree of accuracy obtainable in these latter units—for instance, though it is possible to read direct to .002 mF up to 0.1 mF, from there on the rate of change becomes faster, till at the other end of the scale the markings go from 5 to 10 mF; similarly with inductance. But this accords with practical requirements, and does not depreciate the value of the instrument in the slightest degree.

The internal resistance of the Meter is 5000 ohms per volt, the lowest DC voltage reading given direct is 2 millivolts, and the lowest DC current 4 microamps, since there is a special range reading 0.2 mA full scale. In the resistance range, a maximum scale reading of 50000 ohms can either be divided by 100, or multiplied by 200 or 400; all this without external shunts, which can be used to extend the range still further if desired.

While all readings of AC, DC, resistance and output (for which the reference level is one volt, with a minimum reading of -22 dB) are directly obtainable from the instrument by the use of the selector and multiplier switches, it should be explained that for the capacity and inductance measurements only an external adaptor is required, operating off the 200-250 volt, 50-cycle AC supply.

The zero-adjustable knife-edge pointer travels over a six-section scale contained within a square dial measuring 4½-ins. overall, the scale length being approximately 3¼-ins. The instrument is contained in an oak case 10-ins. by 7-ins. by 5½-ins. over the hinged lid, a fitted carrying strap is provided, and a pair of polarity-marked test prods 4½-ins. long are included, with a customer's registration card giving a six months' guarantee. Our only suggestion is that a "cleaner" scale could have been provided; the markings are a little too coarse.

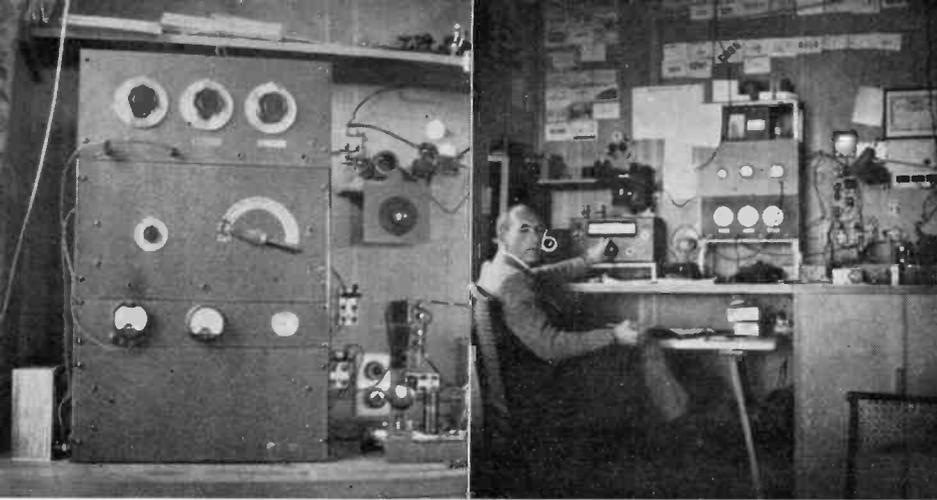
We have no hesitation in recommending the Model 80B Taylormeter where quick, accurate and comprehensive testing is desired; it is not possible here to enumerate all the 70 ranges which are available. Suffice it to say that we have not been able to think of a single direct-scale measurement within the capacity of the instrument which has not been included.

The makers are Taylor Electrical Instruments, Ltd., 77-77a, Queen Victoria Street, London, E.C.4, and the price of the 80B is twelve guineas. Models 80A and 80C are respectively ten and fourteen guineas, while the Taylor Signal Generator is another extremely useful piece of equipment at ten guineas. All these products are British made, and deferred terms are available.

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*When writing the Trade, identify yourself with this Magazine*

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# The Other Man's Station

G2CF

THE STATION OF G2CF—W. A. D. Howes, Curlew Point, Charleton, Nr. Kingsbridge, S. Devon—is of particular interest because he is one of those who, not being connected to a public supply, has to get his "soup" by some other means. In this case, it is from a 230-volt DC dynamo driven by a paraffin engine, with 190 volts of HT accumulators in series with the generator to boost the voltage to 400 or so. A six-volt car-starter battery looks after the LT side and, being connected in the house-lighting return lead (also run from the machine), is on more or less permanent trickle charge and gives a good 6.3 volts for the various heaters. Also available is a DC/AC vibrator-type converter rated for 50 watts output at 200 volts AC.

Our composite photograph shows a very business-like station. The rack in close-up on the left carries the transmitter, behind the top panel of which is

the 1.7, 7 and 14 Mc rig, using 47-46-T25D. On the next shelf is an experimental 14 and 28 Mc PA with a pair of 809's in push-pull, and the meter panel below again. Then comes the modulator, using 6C5-6C5 into two 6L6's in class-AB, the microphone being of transverse-current type. The key and meters can be plugged to the various control points as desired.

The receiver is a National 81X working from the DC supply and, in G2CF's own words, "Aerials vary from time to time." A well-known 1.7 Mc operator, this last season he worked FA8BG and VE1EA and was heard by W1AW, all when using exactly ten-watts input.

Obtaining his AA permit in 1925, followed by a period at sea "to learn Morse," G2CF came on the air with a full call in 1933 and is now licensed for 1.7, 7-56 Mc, with 25 watts on the latter range of frequencies.

## Conditions—The Month's Survey—Several Disturbances

SUNSPOT ACTIVITY has been very high during the past month, but instead of this producing better conditions, it has caused several ionosphere disturbances which have resulted in poor short-wave propagation.

On April 16 a large group crossed the sun's central meridian, its area on April 14 being 1000-millionths of the visible hemisphere. A severe magnetic disturbance started early on April 17 and continued throughout the day. This was accompanied by an ionosphere disturbance which caused very poor reception of practically all stations on the short waves.

Conditions continued thus for several days, the higher frequencies rapidly fading out just after sunset. Incidentally, on April 19 the 17 Mc and 15 Mc stations appeared to fade out soon after the start of the partial eclipse of the sun.

On April 21, at about 0900 GMT, there occurred a chromosphere eruption on the sun which continued for about half-an-hour. This produced a short period (Dellinger) fade-out of radio signals in this country.

Conditions were beginning to show signs of improvement, when, on April 24, another magnetic storm occurred, accompanied by an ionosphere disturbance. Two large sunspot groups were approaching the central meridian at this time, and both crossed it on April 26. On April 21 one group had an area of 1050-millionths and the other 1350-millionths of the sun's disc.

After the deterioration of April 24 conditions became very good for a few days, but on April 30 another period of poor conditions started, no doubt due to the sunspots just mentioned. On this day, signals disappeared about sunset on all frequencies above 9 Mc.

### ● Some Improvement

Conditions then improved very slowly towards May 4. On that day another chromosphere eruption occurred at about 0930 GMT, and a short period fade-out took place on signals from the east and south. This finished about noon and conditions then became very good.

On May 5 another sunspot crossed the central meridian-area on April 29 650-millionths. On May 6 conditions were good during the day but shortly after sunset a complete fade-out occurred. They were similar on May 7 and 8, the poor reception only setting in during the dark hours.

From May 9 to 15 conditions were good to very good, although on May 8 yet another large sunspot group crossed the central meridian.

Summarised details of long period fade-outs for the period are:—

April 17 severe—lasted several days.

„ 24 severe—lasted about 24 hours.

„ 30 rather severe—conditions poor till May 3.

May 6 conditions poor after dark till May 8.

Probable poor periods for June are:—

June 12-15, June 22-25.

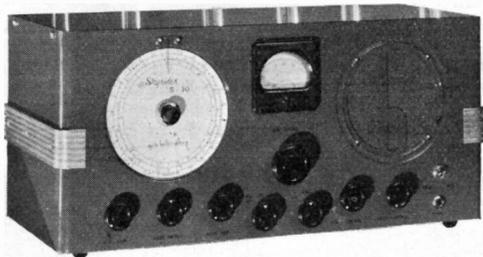
# Two Interesting Receivers

## Hallicrafters' Skyrider "5-10" and the new Sky Buddy

WE HAVE RECENTLY had stock models of these two receivers under test, and the following notes are observations based on practical results and experiences.

### ● The "5-10"

First, the Skyrider S-21, a superhet designed for the frequency range 25-67 Mc and employing in all nine valves, preceded by an 1852 RF stage tuned on both ranges, and having an effective noise-limiter circuit. The actual line-up is 1852-6L7-6K7-6P7G-6Q7G-6H6-6F6G, with a 6J5 as a separate oscillator (fundamental on both bands) on the 6L7 mixer. A



The Hallicrafters Skyrider S-21 "5-10" Superhet.

type 80 rectifier supplies HT and the BFO is connected on the triode side of the 6P7G; the speaker is incorporated in the cabinet, and a headphone jack is also provided.

Now as regards performance—there is no doubt whatever that the Skyrider "5-10" is a good 56 Mc receiver; tested at G6FO under a variety of conditions, it brought in at different times all the DX periodically reported in our 56 Mc Notes, but it is only fair to add that even this receiver did not find anything which could not be heard on an 0-v-1. The advantage it does confer, however, are ease of operation, accuracy of calibration, speaker reception, and excellent gain on both RF and LF sides, particularly marked when taking 'phone on well modulated carriers, i.e., the set would be an outstanding performer in any location where there are several good 56 Mc stations receivable at high field-strength and normally using 'phone. This is not to say that the "5-10" does not work well on CW or ICW—it does—but the results it gives on telephony are exceptional.

As regards other points, there is no trace whatever of second channel on either band and the drift on 56 Mc is only a matter of two or three divisions of the 260 which cover that band; for all practical purposes it is negligible, but slight re-tuning is required when changing over. The dial arrangement is very similar to that of the Sky Champion, the markings on the "5-10" being of course appropriate to its purpose. The same positive split-gear train is used and it is possible to determine frequency on 56 Mc to an accuracy of approximately 15 kc. This degree of slow motion enables close tuning of the weakest signal and yet it is possible to get from one end of the band to the other in two spins of the flywheel tuning control.

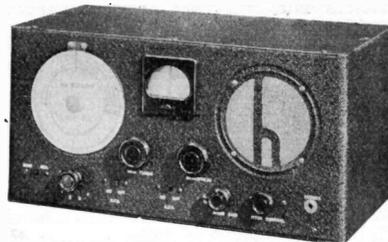
The signal-to-noise ratio is quite good, the inherent noise-level being reasonably low, and there is no trace of hum on speaker reception. With 'phones, it is necessary to keep the gains well down to get a quiet background. Various aerials were tried—the input is arranged for either doublet or single-ended type—but the long-wire end-on was found to give very much better results (at G6FO at least) than and other aerial.

If 28 Mc has not been much mentioned in these remarks, it is simply because most of what has been said about 56 Mc goes also for 10 metres. From time to time, unexpected DX was heard at excellent strength on what appeared to be a dead band, and the "5-10" should be as good a proposition for 28 Mc when it is lively as it undoubtedly is for serious work on 56 Mc. Moreover, the coverage from 25 to 67 Mc being continuous, the television and several other interesting frequencies are brought in

### ● The Sky Buddy

This is an improved version of the "old reliable" on which so many people made their *debut* in Amateur Radio. It is probably safe to say that more "Buddies" have been sold than any other single receiver; the reason is obvious. One gets a good general-purpose job which has the necessary adjuncts for amateur-band working—BFO, send-receive switch, and pitch control. This new Buddy is also dignified by the addition of band-spread, in the form of small-capacity parallel condensers with an independent drive, and it includes the 28 Mc band in the tuning range; the earlier model did not.

The coverage is approximately 6 to 600 metres in four bands and the calibration is surprisingly good considering this. As to performance, second-channel is naturally evident since no RF stage is used in its six-valve line-up; however, a pre-selector would



The New Sky Buddy

overcome a great deal of this without much difficulty. AVC is provided, with a built-in speaker and headphone jack, and a variable inductor arrangement is used for pitch control.

It should be remembered that the Sky Buddy is a cheap set, and at its price is a good investment for the beginner in Amateur Radio, the man who wants a stand-by in his station, or for the listener interested chiefly in general reception.

\* \* \* \* \*

Both these sets are now available from the sole Hallicrafters concessionaires, Webbs Radio, 14 Soho Street, Oxford Street, London, W.1 (and at 41 Carrs Lane, Birmingham), the price of the Skyrider "5-10" being £20 and of the Sky Buddy £10.

# DX

## Commentary on Calls Heard, Worked and QSL'd

By The DX Scribe

LAST MONTH we started off by handing readers a bouquet for their excellent logs and information, but this month we are going to change the tune and throw a brickbat. Martin Bourke (2AOU) of Jersey, C.I. has twice requested co-operation for his 28 Mc propagation tests, which are of extreme experimental value, and the only person who helped is a lady—G6YL. Many of you have sent excellent 28 Mc logs when the going has been easy, but as soon as conditions go off, all interest is lost.

From April 10 to 16 special attention was paid to 28 Mc by 2AOU and G6YL, with the result that the following stations were received. 1300 to 1800 GMT: VU2AN, 7BR, PK2WL. 1530 to 1830 GMT: ZS4AA, 6W, 6EG. 0800 and 1630 GMT: FB8AA. 1800 to 1900 GMT: VP3LF, TG9BA, TI3WD. 1900 to 2100 GMT: LU1AJ, 1CA, 1DA. 1700 to 1800 GMT: VQ3HJP, ZE1JG. From these tests, the best times to listen for the various continents appeared to be:—Asia, 1300 to 1800 GMT; Africa, 1500 to 1900 GMT (also 0800); Oceania (PK only), 1300 to 1800 GMT; S. America, 1900 to 2100 GMT; C. America, 1800 to 1900 GMT; N. America—nil.

### ● Logs

From time to time we get complaints from regular readers that their logs are not published. If you could only see the pile we receive each month you would feel sorry for us when we try to pick out a representative one. This is not difficult in one sense (especially where 14 Mc General Logs are concerned) as there is a large number of really first-class lists from which to choose, and we therefore try to swing the changes month by month; but if you send a log for each band, please do not expect us to publish all of them. The whole purpose of our "Calls Heard" page is to give everybody (transmitters and receivers alike) a survey of conditions on the amateur bands during the past month; it must not be looked upon as a "shop window," and we pick the best lists to achieve the main object—usefulness.

### ● Club Contest

The only reply to our suggestion of a six-cornered Club Contest comes from Geoffrey Talbot (2FTD), 46 Snaresbrook Drive, Stanmore, Middx., who is the secretary of the Willesden and District Short-Wave Club. We therefore take it that this is an open challenge to any other Club including Sheffield (the winners of the last test) and Peckham. We hope that clubs have taken our suggestion seriously that all members should be equipped for five-band reception. Listening to 14 Mc 'phone exclusively does not represent a true picture of Amateur Radio, as can be seen by Bob Everard's 3.5 Mc log and the 7 Mc CW effort from S. Read, 2ATM. We hope, too, that all serious short-wave clubs will inaugurate Morse classes where such do not now exist. No keen listener is complete without a working knowledge of the code.

We suggest running this contest in July, if club secretaries interested will notify us as soon as possible.

### ● Well Done

Two of our readers, Martin Bourke (7,590 points) and R. J. Lee were first and second respectively in the receiving section of the last VK/ZL Contest. 2AOU was the winner of the two premier Receiving Contests in 1938—the B.E.R.U. and the VK/ZL.

### ● Two New Features

This month sees two new features for SWLs. In response to a large number of requests we print on the inside back cover the MAGAZINE List of Countries of the World and their prefixes. Every country listed may be counted separately, and although there are many others where no prefixes exist, we have not included them as no amateur stations have so far made themselves known from them. It will be noted that Labrador is shown as separate from Newfoundland—a deviation from our American



One of The Scribe's own DX cards, see note below.

friends' ruling, who also count Baluchistan. We have so far failed to find any justification for this in view of the fact that Baluchistan is a state of India. Incidentally, if you heard Austria (OE) or Saar (EZ or TS) before they became absorbed in the Reich, it is permissible to count them in your country list, but not if heard signing with a "D" call. Although we have listed Czecho-Slovakia, we anticipate that Slovakia will probably take its place in country totals in the near future.

The other item, which we hope will interest you, is a rare card from your Scribe's collection; one such will appear monthly.

### ● 50 in a Day Again

This is a good "yardstick" of conditions on any one day, and it may be taken that you have missed some good listening if you failed to turn on the receiver when "50 in a day" are reported. F. Jones, 6 Sutherland Street, Fenton, Stoke-on-Trent received the following on May 7 in 4 hours 29 minutes actual listening time on 7 and 14 Mc, logging 92 individual stations:—CT1, CT2, CT3, CR6, CR7, CE, CN8, CX, D, F, FA, FB, FM, G, GM, HA, HB, HI, HK,



## DX — Calls Heard, Worked and QSL'd

American amateurs in attempting to send cards to him direct. An appeal was issued by QST for amateurs all over the world to write to the N.V.I.R. (Dutch Amateur Society) requesting them to use their influence with the Dutch Government. The reappearance of PJ3CO seems to indicate that they were successful, not only in getting him exonerated but also permission to operate, as he is asking for cards to be sent *via* N.V.I.R. The other known station on this Island is PJ1BV, whose card we have; he is an American operating under cover and is not likely to QSL reports. Both stations use CW exclusively.

### ● Points Cleared Up

We have to make a correction. Last month we stated that Martin Bourke had heard 163 countries including five doubtfuls. This should read excluding doubtfuls, a truly wonderful total. He queries (rather sharply) our remarks about FF8MQ not counting for French West Africa. He admits there is no QRA on the card, but explains that the operator is a doctor in the Foreign Legion; we can only state to the very best of our knowledge that FF8MQ has never transmitted in Fr. W. Africa but always in Algeria. FF8BG (another doctor) did the same thing for a while when he was stationed at an oasis in the Sahara. These amateurs had an idea (in those days) that as soon as the Atlas Mountains were crossed it was correct to use FF, though still actually in FM territory. Also note that the ARRL do not accept either of these cards for Fr. W. Africa. The QRA of VP2SC is Aubrey Watson, Richmond Hill, Kingstown, St. Vincent. Martin is still waiting a card from VP8AD in Falkland Is. We learn that this station is shortly to try 'phone and that he is the *only* amateur in this place.

R. H. Greenland, 39 Kensington Road, Burnley, Yorks, informs us that the frequency of ZB2B is 14135 kc, that EA7BA's QRA is the same as in the earlier call books, and that he heard a J4—believed J4NK—calling "CQ Europe." Paul Gifford asks if VU7BR sends cards to listeners—he does to transmitters. YM4AZ informed him that TA2BS has been heard there (and very frequently over two or

three-years in G) and wonders if he is genuine. Derek Steeden and others query EJ7TE. What on earth does this represent? The answer is simple, he is quite genuine and is now signing YU7TE. The old international prefix was EJ for Jugo-Slavia and it is obvious that he did not realize that things had changed! Derek also heard J5CC, CR6AI, VQ3HJP, VP5PZ, OQ5AQ on CW.

We were partly right when we suggested that L. A. White of Timperley, Ches., heard the QRA of ES5B being repeated back by TA1AA last month during a QSO. It now transpires that the real call should have been ES5D, whose QRA checks with that given. A case of misread CW. Numerous letters have also been received on the subject of SW5KP heard operating "near the North Pole." G6YL informs us that SM5K calls were issued as from last December and F. S. Holman (2DAH), 15 St. David's Square, Rhyl, learnt from GW8WJ that the full address of SM5KP should read—Wiktor, Persson, Box 5, Vika Station, Sweden. A late letter from Gordon C. Geddes, G3RI, clears the mystery, for he was asked by SM5KP to inform us that the call is genuine and the reference to the North Pole simply an imaginative allusion to the Swedish climate; also that cards will reach him through the Swedish Bureau. We do not know where Vika is exactly, but don't think it is in North Sweden as SM2 calls originate from there. Conrad Tilley says it is "north of Stockholm." Conrad asks if HR5C is a pirate—no, he is genuine, operating a 500-watt commercial rig at a mining camp in Honduras, under cover. He works frequently after midnight his time, and is noted for his conversations on such non-radio matters as beer.

### ● Panama and Canal Zone

Much discussion has taken place among SWLs as to the reason for the difference between NY and K5 for the same country. It will surprise them even more to know that HP1A in Panama City is the person who issues all these licences, including HP calls, while his station is actually situated in the Canal Zone itself. The reason for it all is simply the fact that licences issued to American citizens in the Canal Zone are NY for Naval stations and K5 for Army stations. Civilians are nominally granted HP, but the strange part of the whole thing is that an NY or K5 call may actually be used outside the Canal Zone and still maintain the call, whereas no other civilians except HP1A (who licensed himself) are permitted to have one at all. HP1X is an American citizen but is operating under cover. However, if you have sorted out this tangle, HP1A can still be counted for Republic of Panama, while NY or K5 go for Canal Zone, a ten-mile-wide strip of land leased to the States but still belonging to Panama Republic. We had better stop as it gets more involved as one goes on!

### ● Another Certificate

Norman Stevens of London, N.W.10, has noticed frequent references to WBCN on South African cards, and asks what it's all about. This was the SARRL's reply to the British WBE (Worked the British Empire) and means "Worked the British Commonwealth of Nations," and is open to all members of the South African League. K. Bunston (see 14 Mc General log) managed 50 in a day with—CR7, SM, YM, CS2V (Portugal), SP, HA, G, I, HB, LY, ZS, ON, YL, VU, ZE, ZB1, VE, FA, YU, W, PA, F, LA, VS7, VQ2, OH, U5, VK, OQ, SU, GW, U1,

## DX FORECAST FOR JUNE, 1938

<b>North America.</b> (All times GMT)		14 Mc.
Eastern States of U.S.A., VE1, 2, 3, VO, K4	...	2100-0800
and West Indies	...	1700-1800
Western States of U.S.A., K7, VE4, 5, XE...	...	0400-0700
<b>South America.</b>		
All	...	2100-0800
<b>Africa.</b>		
ZS, CR7, VO8, FR	...	1700-1900
VQ2, 3, 4, 5, OQ, ZE, ZD, FB, CR4	...	1700-2100
FA, FT, CN, SU, ST, tc.	...	All Day
<b>Asia.</b>		
J, XU, MX, VS1, 2, 3, 6, 7, FI, etc.	...	1500-2200
YI, ZC6, VU (North), U8, 9	...	1200-2300 (or later)
<b>Oceania.</b>		
VK2, 3, 4, 5, 7	...	0300-0900
VK6, 9, VK4 (Papua)	...	1900-2000
	...	0600-0700
	...	1400-2000
ZL, VR, and Pacific Is.	...	0400-0700
	...	1700-1900
PK, KA, KB6, etc.	...	1500-2200
Note.—Signals may only be heard from South and Central America on some evenings with U.S.A. entirely absent.		

GM, CN, VP5, PY, K4, CT2, VP6, ES, FB, EA, VP3, CO, CX, LU, U2, KA, YV, HI. 50 between 1900 and 2330 BST on May 3, in order as heard. He cites another mystery station—KFR3. We suggest that this is in Panama Canal Zone, as the old calls used to be similar to this, i.e., we have a card from KFR5, the first heard from that part of the world—a case of another operator being out-of-date!

F. Jones of Stoke wishes to know if GM3TR in the Orkneys counts as a separate country. Although GM3TR himself is the best person to answer such a question we say emphatically—No. The Orkneys and Shetlands are part of Scotland and have not their own government, as have the Channel Is. and the I. of Man. We agree with this reader when he asks all contributors to segregate 'phone from CW in the logs submitted. We hope this will be clearly indicated in future.

### ● 7 Mc DX

We have already given a list of DX cards received by Lionel Le Breton (the BSWL QSL manager) for 7 Mc reception, and he tells us he has only listened on this band between last October and a few weeks ago, with a simple 0-v-1 or 0-v-0. All districts USA were heard, including such States as S.Dak., Neb., Okla., Cal., Kans., and Wash., and other countries included VP2 (St. Lucia), XE, HH, HP, CM, PY, YV, ZS, YI, ZL, VK, FA, CT2, K5, HK. He remarks on the fact that he receives a very high percentage of 7 Mc cards for reports sent, a thing often stressed in these columns; in fact, several amateurs have written to Lionel saying they wished a few more SWLs would listen and report 7 Mc CW DX. We try our best to interest confirmed 14 Mc 'phone DX'ers in CW on other bands.

### ● 1.7 Mc DX Still There in May

Bob Everard sends yet another list of 1.7 Mc 'phones from across the Atlantic, including W1KWQ, ICTX, I1YP, 1BES, 1AW, 2LXY, 2JZR, 2EDJ and 3IVT, all heard between April 8 and May 8.

Geof. Hutchinson, Clickemin, Ponteland, Newcastle-upon-Tyne, wishes to correspond with a fully-licensed amateur or AA holder.

Donald Higginbottom (see "QSLs received") wants overseas correspondents. I. W. K. Smith, 2BPW, "Kingsdown," Blakes Lane, New Malden, Surrey, reports again and says that he has been having a crack at breaking a few records! He received 37 'phone countries in 2½ hours, then he HAC on 'phone in 80 seconds with VS7RA, PY6AG, VQ2CM, VK2ADE, W4BFV and G8LQ; a quarter of an hour earlier he did it with six different stations in eight minutes, these being VK4KS, PY5AG, ZC6HS, VP6YB, G3AP and SU1AM. However, Hugh Huxley, 83 Temple Road, Prenton, Birkenhead, HAC in 45 seconds on May 3 with VU2FA, SU1WM, VK2ACX, PY2BH, CT1PK and W1AKY. Hugh asks for the QRA of KA3KK (quite genuine, Box 212, Baguio, P.I.) and tells us of the difficulty experienced during the SP contests with dozens of really poor notes from Poland all over the band. We agree, but it always was the same! A. Sleeman, BSWL1102, 20 Elm Road, Exmouth, Devon queries "FN6WE," but this should read SM6WE; the only station in French India is FNIC in Chandernagore and heard by everybody. S. W. Parr, 2FPT, Central Hall, Plumstead High St., London, S.E.18, mentions VK7CL, one of the few Tasmanian 'phones. D. M. Duckworth, Park Place, Radfield Road, Darwen, Lancs, raises again the old point

of inaccuracy in logging 'phones and mentions the case of an American station heard calling "EK4AS in South Africa." An obvious example of a complete muddle of prefix, call and location. We agree with him and wish that all telephony stations would take greater care in announcing their calls *at all times*. P. J. Deamer, 33 Ashbourne Grove, East Dulwich, S.E.22 sends an ingenious but rather cumbersome scheme involving code letters for amateur 'phones to give an indication of frequency. We feel sure that the simplest way is to ask all transmitting stations to announce their *known* frequencies on every test or CQ call.

### ● Set. Listening Periods—June

June 10—2230—2300 BST—1.7 Mc.

June 18—1800—2000 BST—14 Mc.

June 25—0600—0800 BST—14 Mc.

While the summer is with us, it is proposed to set two 14 Mc periods, owing to their evident popularity and in order to get an indication of conditions in the morning and evening. 28, 7 and 3.5 Mc will not produce much DX during the summer, but serious-minded SWLs should keep an ear on 28 Mc even so, while it is of interest to note than Stanley Read, 2ATM (see "Calls Heard") received W6NNM on 3.5 Mc CW on March 12 at RST 557.

### ● Acknowledgment

Once again, it has not been possible to mention quite two-thirds of the letters received nor to print more than a very small proportion of the logs sent in.

★

★

## Transmitters' Section

In response to the suggestion made by G2SO in last month's notes, we have received letters from several enthusiastic supporters of a low-powered Contest. G2OB writes as follows: "A genuine QRP competition is very badly needed, if only to provide a concrete challenge to the large number of QRO workers who obstinately refuse to believe the amazing ability of many low-powered transmitters." G2OB adds that he recently maintained a four-day schedule with ON using only .45 watts at 75 volts.

G2SO has kindly forwarded his idea of the rules for this test. We have altered them slightly to accord with our ideas as well, and set them out for your co-operation.

1. The test shall take place between 0001 BST July 9 to 2400 July 15—a period of one week.
2. The 7 and 14 Mc bands only to be used.
3. The HT supply to *all* stages of the transmitter shall not exceed 120 volts delivered from a standard dry battery.
4. The terms and conditions of the operator's licence shall at all times be observed.
5. Contacts must be established with the 120 volt supply, and at no time during the test must a greater voltage be used.
6. Only one contact on each band with any one station shall count for points.
7. No contact under 50 miles shall count.
8. A complete exchange of RST report shall constitute a contact.
9. One point shall be scored for contacts from 50 to 500 miles, two points from 500 to 1,000 miles

## DX — Calls Heard, Worked and QSL'd

- and three points for a distance greater than 1,000 miles.
10. The number of contacts shall be multiplied by the number of countries worked according to the list appearing in the current issue of the MAGAZINE.
  11. The contest is open to any licensed amateur in the British Isles.
  12. Only one operator is allowed for the duration of the Test at each station entered.
  13. A declaration must be signed by the operator at the foot of the entry form that all these rules have been observed.
  14. Completed entry forms must reach the Editor by July 22, any overseas entrants being allowed extra time.
  15. The Editor's decision is final.

No prize will be given to the winner, as it is thought that entrants will look upon this Test as an experimental one. Preliminary results will be published in the August issue of the MAGAZINE and it is hoped that all real QRP men will take part. Of interest is the fact, just to hand, that G6WY worked W6MCG in Hollywood who was using 4 watts; G6WY requested that he should reduce his power to one watt, the only noticeable difference being a drop from S6 to S5! *Vive la QRP!*

### ● Danzig—Quick!

YM4AZ (via Leslie Morgan of Bournemouth) specially requests that British stations look for his QRP signals on 14 Mc. All QSOs will be acknowledged.

From GM3TR, up in the Orkneys, we learn that he recently carried out some tests with G3II in London on 'phone. The latter reduced input to *half-a-watt* (70 v. at 7 mA) and was RS5 7/8 with QSB. GM3TR then reduced his power to 3 watts and was still S8. This, for 600 miles, is very good going on 'phone.' GM3TR mentions that he has had many reports from USA on his 7 Mc 'phone signals when using a half-wave Zepp running E-W, with 8 watts input. We don't pretend to understand how his aerial radiates a signal there! With the same input on 14 Mc he has worked W1, 2, 3, 4, 8, 9, CN, ZC6 and XZ2PB—all this with 220 volts and a 6A6 driven by an 89 tritet. Being in the Orkneys, GM3TR receives a mass of SWL reports. "To put it mildly," he writes, "80 per cent. are of no use at all and do not conform with the ideas you have so wisely put forward." In future, he does not want reports from British listeners unless they cover a number of transmissions over a period of days.

### ● Straight v. Superhet Again

G5MV sums up this eternal wrangle by saying, "When conditions are good, there is nothing to choose between the two,\* but when they are poor, stations can be heard at good readability when they are only just audible on the 1-v-1, and certainly could not have been worked." Incidentally, G5MV and other Scarborough amateurs have all been presented with local view QSL cards by the enlightened Scarborough Corporation; we believe they do the same thing at Southport.

\* [What about single-signal control.—ED.]

More news of QRP comes from G3KS, also in Scarborough. The "W8JK" beam has just given him WBE 'phone by a contact with VK at S6-7, input a few watts only.

### ● 1.7 Mc

Previous remarks on this band seem to have borne considerable fruit, judging by letters from transmitters and listeners alike. Complaints have even been received of bad QRM! G6TC advises all newly-licensed amateurs to come up to "160" as soon as they commence transmission and he also appeals for more week-end afternoon activity. G6TC himself only uses a 45 valve with a 132-ft. aerial. G5MP says he is on this band in the early evenings from 1700 to 1830 BST, using 1780 or 1790 kc. G8HS also appeals for early evening activity and stresses the fact that BCL interference can easily be overcome if the normal filters are used. It is however useless to key the HT lead and imagine it will produce clickless keying without a simple filter. G8HS puts forward a worthy idea—all CWR members to slip in a 1.7 Mc crystal after their exercises and come on the band for a while.



## Notes and News from the East

During April the writer spent a very interesting week with VU2FX in Rawalpindi, operating from that station under call VU2EU, and although a considerable number of DX contacts was made, only G2FZ was contacted in England. VU2FX is testing a new transmitter consisting of a '49 CO driving an RK20 and also trying a single-wire matched impedance aerial with the main lobe in the direction of Great Britain. Reports will be appreciated. During 1938 VU2FX worked a station signing VR6AB who stated he was a portable in Pitcairn Island; later, he received a QSL from VR6AY and signed by Andrew Young confirming this contact!\* During the last eighteen months VU2FX has had over 200 QSOs with the States and has been maintaining a fairly regular schedule with W9HLF. VU2JG is staying at Gariaol and operating a portable rig from there; he is busy testing to find the most suitable type of aerial for portable operating.

From the number of SWL cards received by VU2EU for forwarding to VU2FA this station must be putting a very strong signal into G, although the only Indian station who knows anything about VU2FA is VU2FQ, who has been keeping schedule with him. VU2FQ does not give the QTH of VU2FA but all the SWL cards have been forwarded on to him for re-transmission to the former. If possible the QTH of this station will be published in the next issue (see Listeners' DX Notes).

### ● New Stations

A new call is VU2BX, who is using a 6L6 tritet driving a pair of 6L6's on 14350 kc from DC mains supply in the Central Telegraph Office Compound, McLeod Road, Karachi. The operator of this station is ex-VS8AA and is a great friend of VU7BR in Bahrein Island. During a QSO he mentioned that he would be returning to the Persian Gulf very

(Continued on page 27).

\* [This will raise excitement in certain quarters.—ED.]

# CALLS HEARD SECTION

## SET LISTENING PERIOD 1, 1.7 Mc April 8, 2230-2400 GMT.

**J. C. WARDHAUGH**, 2DTT, 20, Hall-gates, Hexham, Northumberland. 1-v-1; 66-ft. N-S.  
CW—G2YY, ZQ, 3AG, UB, ZY, 5KT, QY, 6UT, ZR, 8AX UJ, SG. CW2BG. SM5NM.  
\*Phone—G3UB, 5QY, ZT.

**H. OWEN**, 2, Campion Ave., Basford Park, Newcastle, Staffs. "All World Two," 33-ft. ENE-WSW.  
CW—G2YY, ZQ, 3AG, JU, ZJP, 5CU, KT, OB, QY, XD, 6NM, ZR, 8AX, UJ, SG, VN.  
\*Phone—G3HL, 5QG 6AB, TL.

**C. T. H. MARTIN**, "Lynton," Pound Road, Bursledon, Southampton. 1(regen)-v-1; 50-ft. end-on; NE-SW. (2340 to 2400 only).  
\*Phone—CW2BG. G2LD, 3ZJ, 4GJ, 5ZQ, GJ, 8SR.  
CW—CW2BG. 6KY, 8NP. G3OA, 5GT, FY, 6ZR, 8SG.

## SET LISTENING PERIOD 2, 14 Mc April 16, 0600-0800 GMT.

**D. SIMPSON**, 37, Royal Park, Clifton, Bristol, 8, Battery 0-v-2; 30-ft. NE-SW, inverted "L."  
\*Phone—W2ISY, 3CRX, EXF, BMA, 4IS, 5EDI, BIC, EVI, 6HVT, GOL, MCD, MJP, NAA, GYL, 7CBA, 8CUO, ANP, 1PBA, 9FAV, RYA, VE1BQ, OQ4AW, HR5C, XE1AG, VP1BA, 5GM, PY2CK, LU1ZA, 7BK, 8SQ, CE2AK, NY2AE, HK3CO, EG, 5DB EE, VK2AU, AY, AGU, BU, DA, DX, KO, NF, OJ, TO, 3CV, DE, GL, HG, KX, NC, WA, VB, 4OW, DO, GI, MC, RW, 5OL, RN, VR, 6CB, 5M5KI, PR, VY, VR, 5P2HH, HA6U, LA1F, IHH, MI, F3VT, 8FJ.

**W. R. GILMORE**, 19, Ormiston Drive, Knock, Belfast, 0-v-2, 'phones, 40-ft. long, 20-ft. high.  
CW—ZL2GW, VK2PT, PV, WT, ACX, CX, 3HT, IG, 7GJ (Tasmania), PY1IM, W6NGM, OOU, 7FEJ, TA1AA, UK3AH, FA8BG, ZA, OH3OI, HA1R, 2L, 3G, 4Q, 5PIIA, MJ, QT, 2FU, ON4GQ, HC, 5M5OF, LA7R.  
\*Phone—HR5C, VK4BA, CN8HS, SP2HH, ON4AR, F8SJ, LA1G, IILQ.

## SET LISTENING PERIOD 3, 28 Mc April 16, 1800-2000 GMT.

**R. H. GARLAND**, "Crownale," Hainault Road, Essex, Battery, 0-v-2, 'phones; 100-ft. end-fed.  
\*Phone—G6WU, SU1GP, W3AWX, FHF, GSV, 4AMD, AYE, BNN, BYA, DGV, EBM, EMV, ERK, FBH, FPM, FT, FWA, 8BYV, 9ARK, CDI, CXU, NGZ, QI, ROQ, TFO, TYJ, UUR, WBW.  
**F. JONES**, 6, Sutherland Street, Fenton, Stoke-on-Trent. Electron-coupled 0-v-2; 28-ft. high, 22-ft. long, W-S-W, 65° elevation.  
\*Phone—SU1RD, W4AUC, DXW, EDQ, ERN, FBH, FPM, 8JFC, 9EAG, NGZ, TYJ, WBW.  
CW—G3UP, W4BHH, FX.

### GENERAL LOGS

#### 1.7 Mc

**C. T. H. MARTIN** (details as above). 11.4.39 to 7.5.39.  
\*Phone and CW—SM7UC, F3HD, E16F, GM2LQ, 6SR, 8CN, IT, CW2BG, 3RV, YR, 4FW, 5FI, TC, 8CT, NP, WU, G2DQ, CF, KT, BI, GG, IT, HW, HR, MN, JL, IN, KC, NJ, OG, NY, RI, RC, SC, US, YV, YT, 3BO, GH, DL, HS, JO, KX, KF, LP, FL, JT, JU, OB, OA, PL, SB, SI, RQ, VX, UB, YA, YZ, ZL, ZY, 4AU, BT, BY, CF, CW, DD, DF, GJ, HH, IP, 5AK, BK, CU, DN, FY, GJ, GT, HB, IH, KT, JL, LM, LX, LO,

JO, NC, OB, QI, QG, QY, RI, RY, VT, UY, UQ, ZQ, ZT, ZJ, 6AB, BO, DJ, GN, HN, GM, IL, KU, GO, KR, LL, MY, MK, NM, OM, OI, QA, SN, SO, SS, VD, UT, XM, YI, ZR, ZU, 8AX, BA, DT, DM, GF, GN, GG, IJ, GI, JR, JC, JM, LO, LZ, MG, MI, MW, ML, NF, PX, PM, OS, SR, SG, US, VN, TI.  
**TED ROWLEY**, G6TC, 29, Leason Lane, The Scotlands, Wolverhampton. 0-v-2; 132-ft. end-on.  
G2AT, NV, OG\*, OU\*, QM, WA, 3LP\*, SD, SI, TP\*, UJ\*, ZL, 4CW, GJ, HZ, 5AA, BX, CU, QG, QY, UQ\*, ZJ, 6GL, HG, KR\*, VD\*, 8FU, GF, GI, GN, PR, SR\*, VN\*. CW5TC, GM6R1, 8CN, TT, ON4HIS. \* Denotes QSO.

#### 3.5 Mc

**BOB EVERARD**, "Belle Vue," Nelson Park, St. Margarets-at-Cliffe, near Dover Kent. "Sky Champion," 8.4.39 to 8.5.39.  
\*Phone—W1CTX, DBM, DOA, PZ, FOF, GAN, AW, KFD, AAH, IXO, GAG, EAO, ITQ, IFL, GC, BQS, A, AKR, AR, 2AS1, LYA, DBY, COD, HWZ, DME, AU, DNX, 2IRC, HB, CTI, HXQ, LOE, ADI, HNR, EOA, IJU, CGV, 3AHQ, CNY, BIN, CRO, HFD, EVK, UO, FTU, CEI, AHS, EFS, FDO, AVL, GKO, CBT, CXE, ESY, ACQ, GKF, BEI, JC, EMM, AWU, HGR, FTC, EBR, QV, DLT, ZD, 4JW, CZC, LU, BPG, DCQ, BRE, EQZ, CDG, CYB, CTR, DGT, EEJ, AVT, AWY, DIJ, DST, BZX, 5DNV, AJR, 8OOV, CAX, PGL, BOZ, 8RSR, EUN, LIQ, DK, PYO, LWE, BWH, 8LT, KDX, LUQ, CXU, NNJ, JQR, KBJ, CNA, PUN, OYT, GQR, HSC, BGM, MIS, JOE, GPS, EXI, KMD, FVV, JIM, 9SQQ, KOM, YVM, HYO, ZHY, OOD, ZHO, K4KFC, VE1LR, GR, DQ, JJ, ID, 2LP, 3A1O.

#### 7 Mc

**S. READ**, 2ATM, 37, China Street, Bulwell, Nottinghamham. During March and April.  
CW—FA8BG, FM8AD, K4RAL, 5AF, AM, AY, NY1AA, TA1AA, T12JC, TG1L, U2NE, 6MB, VE3ABR, AJR, VD, VO1B, VP1ZA, W5HGM, 9DUR, HRG, OOU, TAU, 2FT, XE1RS, YV1AD, ZL1MQ, 2LM, MM.

#### 14 Mc

**K. BUNSTON**, "Gable Cottage," Broad Hinton, Wilts. 0-v-1 (triodes); two aerials, N-S and E-W, long-wire. 7.4.39 to 7.5.39.  
\*Phone and CW—CE3AT, LF, CM2BK, 6AH, CO2RA, RC, RH, WM, 5RA, 8BC, CX1AA, BG, 2CO, CR7AD, AF, \*AK, AU, BC, RB, CT2BC, BG, BM, EK, AF, FB8AA, AH, FNIC, FT4AA, AR, HC1FG, HM, JW, PZ, 2CC, HM2B, FO, 5PA, H13N, 6Q, HK1AA, 3CO, 4DF, HP, IS, 5CE, 3JDG, 5CC, K4DBE, DTH, EJJ, EMG, FAB, FAY, FCV, RJ, 5AC, AJ, AQ, 6BNR, DLH, ILT, FAZ, KGA, NYB, OQE, OQV, PHD, PLZ, PMP (Guam), KA1CS, EL, FG, HS, LB, ME, MN, SP, YL, 3KK, ZEF, KFR3, LUCA, BC, EV, 2EG, 3BT, EV, 4BH, 5AN, IZ, 6DJK, 7AZ, BK, 9BV, NY2AB, OQ5AV, ZZ, PK1BX, EG, MF, PK, RI, TM, TT, RL, VX, VY, WA, 2AY, 3AA, W1, 4DG, FS, HW, KO, KS, JD, YV, PY1AG, BR, DC, DI, DS, FM, GJ, IM, OS, AH, 2AC, AJ, AN, AI, BH, BL, CD, DA, DC, FF, HO, HS, KO, LM, LN, 3BH, 4CT, BH, 5OB, 7AO, GI, 5T6KR, TF3C, THAF, U1AM, 6AK, 9AL, BC, BK, MF, UK9AN, VE3FF, 5EF, VK2ACN, ADE, AEC, AEO, AGN, AGU, AHM, AJH, AJW, AMA, AV, AWA, AX, TX, JY, IG, OB, FM, JO, TG, TE, OJ, ZJ, VA, PV, CV, WR, CZ, DA, FX, PA, KZ, EN, IG, KX, NZ, 3BC, BD, BG, BM, BT, BV, CN, CG, DA, DD, DG, DJ, DL, DP, ED, EK, EH, FN, GG, GP, HG, IG, IP, IW, JD,

JG, KE, KX, LP, NG, OW, PG, PO, QK, QR, QE, QV, RJ, RS, SD, TO, TR, UM, CX, UB, US, VH, VJ, VX, VR, VD, VB, WH, WL, XD, XG, XB, XS, XN, XP, ZA, ZR, ZU, ZX, BZ, GZ, HT, UN, 4AP, CX, EL, JB, LT, PF, RC, SA, SD, 5BF, BH, CS, GW, JU, KW, LD, LL, LO, RF, RN, TR, WR, 6HL, RJ, RU, 7CI, GJ, KR, LZ, RF, RV.

**VO1Y**, 3X, VP1BA, WB, 3CO, LF, 5PZ, 6FO, MR, MY, LN, YB, TR, VO2CM, BI, MI, GW, FJ, 3HJP, 4ECJ, RHL, 8AI, V52AL, 6BE, 7JB, RA, RT, VU2BG, AN, FO, FA, FX, AE, JG, DR, LK, HB, 7BR, W5BET, HQK, GWR, DGP, FFF, YF, EY, BEZ, BEJ, EHP, 6ART, MUK, BPM, DVR, NCM, NCW, ERM, MUC, PM, PDB, DL, BPG, NGA, BQ, POI, FAL, LUY, AJN, HEZ, KVV, KXD, MCG, IDP, GVM, NNR, JWT, DUO, IKQ, FKK, LYM, 7ALO, AYO, ESK, GOI, XE1CO, 4A, XG5SV, "XXX" XZ2AB, YV3AQ, 4AE, 5AK, ABY, FA, ZC6HS, RL, RP, ZE1JA, JG, JH, JS, JR, JX, ZL1MR, 2QY, GW, LA, GA, OQ, QK, 3GU, 4BR, DB, GA, GX, FB, GY, FK, DQ, ZS1AG, AW, AJ, B, MI, Q, T, BG, CN, AV, 2AF, AL, AW, AV, G, N, X, 3F, 4AA, 5CX, CY, DG, DW, B, Q, T, 6DM, DY, GI, CX, N, FW, FJ, BY, EU, GG, EF, OS, FU, ES, CS, DG, BZ, DW, FV, AA, AJ, AY, FS, JG.

#### 28 Mc

**BOB EVERARD** (details above, 8.4.39 to 8.5.39).  
\*Phone—LU1DA, DJ, SU1GP, VP3CO, LF, ZS1AX, PY2AK, MI, W1KTF, 3G8V, FZH, FHE, AWX, 4ASE, FWA, AZB, EBM, CPB, FOT, DJZ, AEF, 5ANV, DHU, HDH, GBC, 6EOW, GLY, 8JFC, BYV, BZY, IAU, DAC, RIS, GBI, NXF, RLT, MC, LTO, AHC, 9USU, QJU, UDB, ROQ, CBJ, ARK, ULJ, HWF.

#### 56 Mc

**R. J. LEE**, 9, Theobalds Green, Heathfield, Sussex. 0-v-1; aerial, 66-ft. top, 35-ft. high, 425-ft. a.s.l. During MAGAZINE 56 Mc Test Period, May 10-14. Bracket figures are distances. G2VZ(35), 3VY(20), 5BY(30), CM(90), UK(45), 6FO(146), OT(40), XM(48), 8OS(30), SK(50).  
**C. T. FAIRCCHILD**, G3YY, 1a, Dover Road, Brighton, 6. CW—G2MV, OD, ZV, ZVP, 5CM, RD, TX, 6GR, 8OS.  
\*Phone—G2OD, ZV, 5CM, TX, 8OS. Harmonics—G2RU, 3JF, WR, 4HS.  
**C. L. WARD**, G5NF, "Culver," Weydon Hill Road, Farnham, Surrey. During MAGAZINE Test Period, May 10-14. Receiver, 0-v-1; aerials, 12 1/2-wave E-W and 1/2-wave dipole. Distances in brackets. G2DN(29), CM(32), QV(36), 3OO(36), 5BY(32), CM(14), MA(21), NG(18), RD(39), TX(41), 6OH(21), XM(7), 8KZ(34), LY(18), OS(20).  
**S. E. MARTINGELL**, G2MV, Haycott, Homefield Road, Old Coulsdon, Surrey. Heard on May 17, 2130-2230 BST. Distances in brackets. G5TX(65), WU(131), 6DH(65), FO(124).

#### ACKNOWLEDGMENT

H. Alford, Burnham-on-Sea; S. Ashworth, Darwen; M. G. Bourke, 2AOU, Jersey; V. K. Coles, Cardiff; D. H. Crook, Old Colwyn; D. M. Duckworth, Darwen; 2FDN, London, N-2; 2FTD, Stanmore, Middx.; R. H. Greenland, B.Sc., Barnsley; J. Greenwell, Dorking; R. Hall, Grimsby; C. D. Hammett, Greenford; T. E. Harding, Newport (Mon.); K. Haswell, Wembley; D. R. Hill, London, S.E.15; H. Huxley, Birkenhead; F. Jones, Stoke-on-Trent; L. J. Miller, Billingshurst; G. L. Moses, Keighley; A. J. Rawlings, Bristol, 7; S. Read, 2ATM, Bulwell; B. H. C. Sykes, Windsor; C. G. Tilly, Bristol; 7. P. Watts, Norwich; R. W. Wilkinson, York; H. A. Yarrow, Leeds.

## ... HERE AND THERE ...

### HIGH POWER PERMITS

For some time now, applications for power increases above the 25-watt limit have been considered by other Government Departments concerned in addition to the Post Office before a decision has been given. In view of the number of occasions recently on which our advice has been asked on this question of obtaining power facilities above 25 watts, we think it should be explained that as matters stand it is unlikely that any amateur application for more than 50 watts—no matter through what channels it may be submitted or what endorsement it may carry—will succeed, at least for the time being. For the present no existing high-power facilities are being withdrawn and 25-watt permits are still available in the usual way by direct application with reasons.

We should add that this statement is officially authorised by the Post Office.

### MULLARD'S MOVE

Readers should note that the new address of the Mullard Wireless Service Co., Ltd., is Century House, Shaftesbury Avenue, London, W.C.2. The Transmitting Division now issues a very comprehensive folder covering all types of low-power transmitting valves, modulators and cathode-ray tubes and instruments, giving essential data and performance figures. This publication is obtainable on request.

### THE 1.7 Mc TRANSATLANTIC TESTS

Further note. Since writing the "160-Metre Story" which appeared in our April issue, some belated details have come in reporting DX which we were unable to include then. W1CPL, using only 35 watts and a  $\frac{1}{4}$ -wave aerial 15-ft. high, worked G2PL and was called by G2DQ as "KPL"; stations heard by W1CPL at Devon, Conn., were FA8BG, G5MP, G5QY, G6GM, G6NF and G6WY, while W2BFA on Long Island logged F8ZF. W1JZJ, New Haven, Conn., received G2DQ, G2PL and G6GM, using an ACR-155 (a 9-valve superhet), his transmitter being simply a 6L6 CO with 35 watts input into a  $\frac{1}{4}$ -wave end-fed Hertz. This rig brought a contact with G2DQ, and listener reports from our side. W1JZJ remarks that he is particularly interested in 1.7 Mc DX and welcomes British SWL reports.

### FOOTLESS VALVES

There will shortly be available something new in Tungram receiving valves. Briefly, by doing away with the long glass envelope, base construction and pinch, this firm has produced a range of valves which, for want of a better name, are described as "footless." The result is a valve no dearer than the ordinary type, designed as a radio valve and not as an electric lamp, having very small physical dimensions, and characteristics bringing the range somewhere between the specialised HF types and Acorns in terms of efficiency.

Also "out" is new data on the APP4g for RF work, a folder giving full details of their transmitting types for amateur application, and a very useful collection of keyed circuits for speech ampli-

fiers, modulators and other audio purposes, using Tungram valves from the AF range; all free on request.

Write British Tungram Radio Works, Ltd., Tungram House, 82/84, Theobalds Road, London, W.C.1.

### W6PCV DEMONSTRATES

It appears that George Kearney, W6PCV, happened to be about the Paramount Studios in Hollywood when they were making a picture called "Grand Jury Secrets." Amateur Radio communication is one of the main features of the plot, and luckily for all concerned, W6PCV noticed that the handling of the amateur angle was, to put it mildly, weak; so much so, that any "ham" seeing the picture would have laughed in the wrong places.



Amateur Radio on the screen. The lady is Gail Patrick, the call a genuine W6, the picture Paramount's "Grand Jury Secrets", the transmitter a prop, and the only G card shown is G6GS.

Anxious to be thorough, as they always are in Hollywood, Paramount immediately scrapped a lot of their ideas about Amateur Radio and took W6PCV on as technical adviser. The result is a picture which, allowing for the over-riding considerations of plot (demanding such unusual phenomena as 28 Mc DX in the middle of the night) is quite a credit to amateurs in general and the co-operation between Paramount and George Kearney in particular.

Acknowledgment is due to RADIO, from the May issue of which these details are taken.

## ABRIDGED TECHNICAL INDEX

Last month we printed a list of features to be found in Volume 1 of the MAGAZINE, which is now supplemented by the following list of articles from Volume 2. The three sections are priced respectively 1s. 0d., 9d. or 6d. per copy, postage 1d. extra per issue.

- "The 'All-World Two' adapted for mains operation," March, 1938.
- "An Original Carrier Control System," March, 1938.
- "Transmission for Beginners," March, 1938, and following 11 months.
- "Getting Going on 56 Mc," March, 1938.
- "The Mains Ideal Receiver," March, 1938.
- "A 56 Mc PA," April, 1938.
- "More about the Exciter Unit," 1.7 to 56 Mc, April, 1938.
- "Reporting SW Transmissions," April, 1938.
- "Learning Morse," May, 1938.
- "Building Short-Wave Receivers," May, 1938.
- "A 56 Mc Receiver," May, 1938.
- "More about the 56 Mc RF Amplifier," May, 1938.
- "A Five-band RF Power Amplifier," May, 1938.
- \* \* \* \*
- "The Amateur Three Receiver," June, 1938.
- "More Power for 56 Mc," June, 1938.
- "The Amateur Three," further Notes, July, 1938.
- "The TY1-50 in Action," July, 1938.
- "A Relay for Morse Records," July, 1938.
- "The Receiving Aerial," July, 1938.
- "A Morse Recorder," August, 1938.
- "Regeneration in Superhet Receivers," September, 1938.
- "Two Receiver Circuits," September, 1938.
- "The Signal-Strength Meter," October, 1938.
- "Further Notes on the 56 Mc Receiver," October, 1938.
- "The Cathode-Ray Tube," November, 1938, and following two months.
- "The Amateur Codes," November, 1938.
- "A High-Voltage Power Unit," December, 1938.
- "The 'Two-Band Two' Transmitter," December, 1938.
- \* \* \* \*
- "Twin-Triode Transmitters," January, 1939.
- "HF Feeder Lines," January, 1939.
- "Aerials Worth Trying," February, 1939.
- "Two-Valve 7-Metre Superhet Adaptor," February, 1939.
- "A Push-Pull Power Oscillator," February, 1939.

## MORSE BY SOUND

There is now obtainable a graduated course in learning Morse from gramophone records. In three series, the records are 10-in. double-sided and cost 2s. 6d. singly, or 7s. for the set of three in each series. Starting with a Beginners' Record with the alphabet and code coming out at 2-4 w.p.m., the course works up to speeds of 12, 20 and 30 w.p.m., the later ones introducing QRM conditions. There are also different sets enabling candidates to train for the Services, Mercantile Marine and Aircraft radio operation, using the correct codes and procedure in the various cases. Readers should get in touch with C. E. Masters, Orchard House, Finch-

ampstead Road, Wokingham, Berks, for fuller details of a practical and effective method of tackling the ever-present problem. Correspondence courses are also given.

## 25 YEARS OF A.R.R.L.

The May issue of *QST* records in brief the history of the American Radio Relay League, an amateur organisation first formed in 1914 by Hiram P. Maxim and Clarence D. Tuska, whose apparatus in those early days consisted of brute-force spark transmitters with an audible range nearly as great as that achieved *via ether*. A.R.R.L.'s official organ, *QST*, made its first appearance in December, 1915, and this issue carries, by way of commemoration, details of a "one-tube tuner" of the type in use 25 years ago.

## DX — Calls Heard, Worked and QSL'd

(Continued from page 24).

shortly, so look out for a new call. Another new Asian station is XU5YT, working on the HF end of 14 Mc; he can be QSL'd to Box 20, Sinfeng, Kweichow, China. VU2EU's old call sign of VU2CR is now in use again by a station operating under cover, but cards may be forwarded *via* VU2EU. VU2AA is another "under cover" station and cards intended for him may also be sent *via* the writer.

VU2EU portable will be on the air by the time these notes are in print and the operator would welcome reports on the transmissions on 14344 and 14005 kc. The receiver consists of an SP2 RF amplifier and a '19 as detector and audio, the dimensions of the receiver being 4-in. x 5-in. x 7-in., just about a record for a receiver using standard size parts. The transmitter is simply a '59 in tritet on 14344 kc and a straight CO on 14005 kc, exciting a delta-fed half-wave aerial 50-ft. above ground on the top of a mountain 5,000 feet a.s.l.!

FNIC is putting out a very fine 'phone signal to a rotating beam and can be heard every evening working strings of VEs and Ws. AC4YN is also maintaining a fairly regular schedule with W9HLF, but his work prevents him from spending a great deal of time on the amateur bands. In the March issue of *RADIO* there is a very good article on Tibet, with photographs sent in by Reg Fox, AC4YN.

## ● 56 Mc in VU

By July it is hoped that at least ten VU stations will be working on 56 Mc, and a letter budget has been started by VU2AN. From the descriptions of the proposed transmitters some very good 5-metre signals should be heard from India, and although the great distances between the stations will be rather a retarding factor to start with, it is hoped that some contacts will be made. As VU2AN said, "They can do it in America so why not in VU?"

## ● Late News

At 2005 GMT on April 5, VU2EU heard OQ5HR calling CQ on 14080 kc. G8KP and G5NC replied, but OQ5HR was not heard again despite some time spent listening on his frequency. Any information on this station would be appreciated by VU2EU.

—Wm. H. G. Metcalfe, VU2EU.

# A Modulator for the Low - Power Station

By Arthur C. Gee (G2UK)

## 6A6's in a Simple Circuit

NOW THAT class-B type transformers are so readily available, it is possible to build up quite inexpensively a ten-watt amplifier unit, which can be put to a number of uses in the amateur station.

The unit described herewith will serve very successfully for modulating a transmitter up to 25 watts, as well as for ordinary speech amplification purposes, and it is of interest to note that this amplifier was the one which was used with the relay described in a previous issue (August, 1938) for working a Morse recorder from a receiver.

As can be seen from the diagram, the unit consists of an amplifier and its associated power pack built together on the same chassis, thus forming a compact portable unit. Where two or three transmitters are in use in a station—as say one for 1.7 Mc, another for 7 and 14 Mc and a third for 56 Mc, such a unit is very handy as it can be easily moved from one transmitter to another.

### ● The Circuit

The circuit is as follows: A 6A6 double-triode valve is used, with its two grids and its two anodes strapped to form two single electrodes, thus converting it virtually into a triode. This stage acts as a speech amplifier and also drives the second 6A6, used in its normal way as a twin triode, as a class-B amplifier.

The transformers are Thordarson and can be obtained from the amateur supply houses advertising in the MAGAZINE. The T6750 is used on the driver side and the T6759 as the output transformer. These two particular types are designed to operate with 6A6 valves; they have been in fairly constant use in the writer's station and have proved perfectly satisfactory.

Running rapidly over the circuit, we see that the input is applied across the resistor to the grids

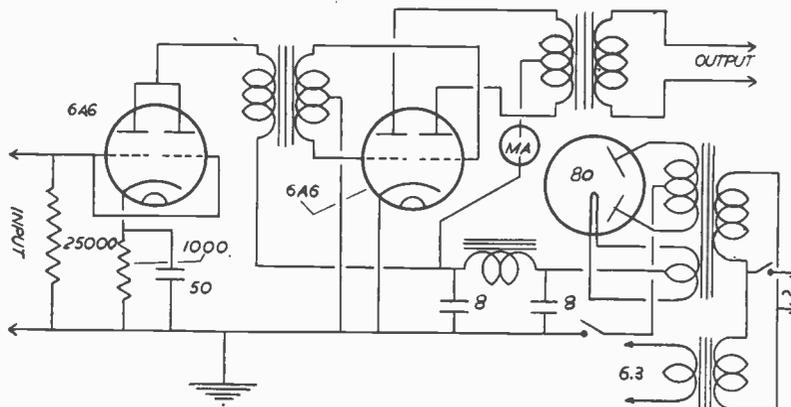
of the first valves. The value of it is 250,000 ohms and a fixed resistor is used as it was thought unnecessary to have any form of input control to such a small amplifier as this. One is certainly not needed if the unit is used with a carbon microphone and if operated in conjunction with a receiver, the volume control on the latter will vary the input as required.

The bias for the valve is looked after by a 1000-ohm 1-watt resistor and 50 mF electrolytic condenser as shown. The first 6A6 gets its HT from the power pack via the primary winding of the driver transformer, and it will be noted that the full voltage—300 volts—is applied and that no dropping resistor is required. The terminals of the transformers recommended are clearly marked and no error need occur in wiring up the circuit.

The second valve functions normally as a class B amplifier. The two ends of the driver transformer secondary winding go to the grids whilst the centre point is earthed. The cathode of this valve is also earthed. The two plates go to the ends of the primary of the output transformer and the HT is applied to the centre tap. The circuit diagram makes this clear.

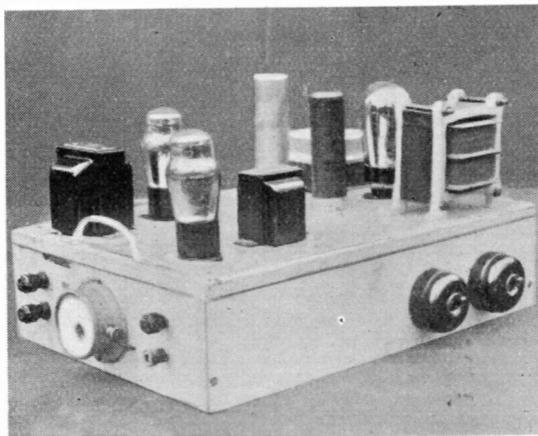
If the unit is to be used as a modulator, the HT to the PA valve is taken via the secondary winding of the output transformer so that plate modulation of the PA results.

It may be wondered why an ordinary triode was not used as the first valve. The reason for this is merely a matter of convenience. The filament rating of the two valves becomes identical, the same HT voltage can be applied to both—thus eliminating the necessity of a voltage dropping resistor and also one additional 6A6 can be kept handy as a spare for either position—and finally a 6A6 connected in this way does make a very excellent amplifier.



Circuit of the modulator. Two 6A6's are used, one as a triode and the other in push-pull. The HT supply can be built on the same chassis.

(The input resistor value should be 250,000 ohms in this drawing.)



### ● Power Pack

As regards the power pack, this should supply about 100 mA at 300 volts. It does not matter what rectifier or transmitter is used provided it has an output of approximately this rating. In the writer's case a MUI2 is used as rectifier with a home-made transformer, but any other valve such as, say, an American type 80 could equally well be employed with a transformer having a filament winding suitable for the particular type chosen. The HT transformer should have a 300-0-300 volt winding and a centre-tapped heater supply suitable for the rectifier. The heater current for the 6A6's can also come from a winding on the power transformer if a suitable one is available or preferably a separate transformer can be fitted. One giving 2 amps at 6 volts is quite suitable.

Ample smoothing is provided by two 8 mF electrolytic condensers and a smoothing choke to carry about 150 mA. A switch is provided in the mains lead to the transformers for switching on and off the whole amplifier and another in the HT negative lead for breaking the HT only. All negative leads are taken to the nearest earth point both in the amplifier itself and in the power pack. A millimeter reading to 100 mA is wired in series with the positive lead to the second valve as shown. The circuit diagram should make all these points clear.

### ● Construction and Layout

A chassis can be constructed of plywood, with dimensions 18-in. by 12-in. by 4-in. deep. The top is covered with a sheet of 16-gauge aluminum, and holes must be cut in this for the valve-holders and connections from the transformers. All negative leads are taken directly to this aluminum sheet, which also acts as a screen between the wiring beneath the chassis and the transformers and smoothing choke above.

The positions of the driver and output transformers and their associated valves can be seen from the illustration. The output transformer is the larger of the two and immediately below it are the output terminals on the far side of the meter. The smaller transformer is the driver and the valve associated with it is the triode-connected 6A6 in the first stage. Beneath it, this side of the meter, are the input terminals.

In the power pack section the positions of the choke, rectifier valve, HT transformer, and the

two electrolytic condensers are clearly shown. The two switches mentioned are placed on one side of the chassis—it does not matter which. The mains input position in the unit illustrated is on the far end of the chassis and consists of a two-pin plug and socket, but here again its position can be varied to suit individual requirements. No pilot light has been fitted, but if one is thought desirable and there is a spare winding on one of the transformers, there is no reason why one should not be provided beside the switches, but refinements of this sort can be left to individual taste. Finally, a carrying handle is fixed at either end of the chassis as shown to facilitate transport.

The filament transformer is located beneath the chassis as it is quite small and is more conveniently situated there. The filament wiring should be of good thick lighting flex. It can be screened from the rest of the wiring by running it through a short length of flexible metallic gas piping and earthing the piping to the aluminium sheet at two or three points. The rest of the wiring can be done with ordinary No. 18 tinned copper insulated with sleeving.

### ● Operation

There is nothing particular to note about operation except to say that when used with a single-button carbon microphone, the no-signal current drawn by the second valve should be in the region of 30-40 mA, kicking up to 50-60 mA with speech. The amplifier has worked very well with an ordinary cheap "home broadcaster" type of microphone and when used to modulate a 25-watt carrier, reports of very good speech quality and full modulation have invariably been obtained and no trouble has ever been experienced with hum. It should be noted that when used with a microphone, the microphone should have its own transformer. It is far better to have the microphone transformer mounted along with the microphone than to incorporate it in the speech amplifier. The latter procedure is a frequent cause of bad speech amplifier hum.

Finally, note that whilst this amplifier will be perfectly all right with an ordinary carbon microphone, it will not work with the more insensitive types, unless a one- or two-stage "head amplifier" is used.

### ANOTHER BRITISH 807

The Osram KT8 at the very attractive figure of 22s. 6d. is a further contribution to the excellent range of reasonably-priced amateur transmitting valves now coming from British factories. The KT8 is very similar in performance to the popular and useful American 807 and has the additional advantage of being of improved structural design. We shall be applying this valve to certain of our forthcoming designs, but might remark here that it has a British 5-pin base (top anode), can be operated at an input of nearly 60 watts under efficient Class-C conditions, has an anode-grid capacity of 0.12 mmF only, and a 6.3 volt heater. The rated dissipation is 25 watts and the mutual conductance 6.0 mA/V, the permissible plate voltage being 600v.

The Osram Valve Technical Department of The General Electric Co., Ltd., Magnet House, Kingsway, London, W.C.2, are particularly to be commended on issuing very complete data with the KT8, covering its applications for frequency multiplying, class-B and C 'phone and CW operation, including curves and two useful circuits.

# More Ideas

Collected by  
"Tester"

## Pre-Selector — Band Switching — Wall - Mounting Wooden Chassis

WE HAVE TWO pages this month in which to discuss three ideas of general interest—or rather, one standard circuit and two ideas.

The former is shown at Fig. 1 and is a simple but effective design for a regenerative pre-selector which can be used in front of practically any type of receiver; even a battery set if there is mains power for the pre-selector itself. All values are given and the construction is quite straightforward, though it is advisable to build this tuned RF amplifier (which is what a pre-selector would have been called ten years ago) in a separate screened box. This ensures maximum gain from the stage and the minimum of interaction with the receiver itself, while in order to limit direct pick-up on the latter, the connection from the plate of the 6D6—which could also be a Mullard EF8—should be as short as possible and the aerial lead kept away from the parent set.

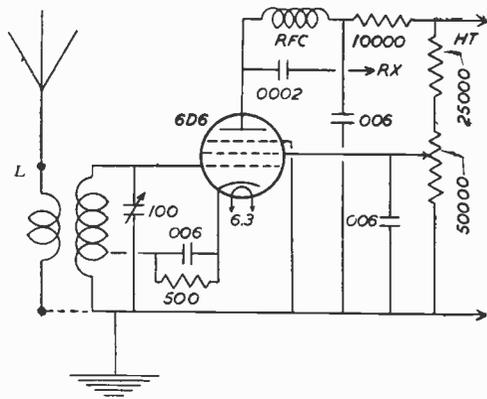


FIG. 1.

**Regenerative pre-selector circuit, which could in many cases be operated from the existing receiver power supply. The point marked "RX" goes to the aerial terminal of the receiver and the earth line to its chassis. Coil L can be standard four-pin plug-in, to cover the desired ranges.**

In many cases, the existing receiver power supply will suffice to run the 6D6, or it can be fed from a 6-volt accumulator, with 150-200 volt DC mains or battery for HT. If using DC mains under these conditions, a 2 mF condenser should be inserted in series with the lead connecting the two chassis together, the negative side of the DC feeder going of course direct to the chassis of the pre-selector. The idea of this is to prevent any shorting due to the DC positive side being earthed, as is the case with some systems.

For the tuning circuit L in Fig. 1, the two-section coils can either be home-made or plug-in formers, or standard four-pin assemblies. Whichever is adopted, the coils for L should be selected

to cover the same tuning ranges as on the receiver itself, and a three-terminal strip should be used for the aerial/earth connection so that either the doublet type or long-wire aerials can be brought in. The 100 mmF tuning capacity is just about right for the range 1.7-28 Mc—neglecting the possibilities of band-spread, which can be added if desired—and will give reasonable coverage without making the tuning too sharp. If only the HF bands 7-28 Mc are required, the capacity can be reduced to 65 mmF or even less, though there is not actually much point in doing so.

Regeneration or feed-back is controlled by the 50,000 ohm potentiometer, which should be a good noiseless type, rated high, such as the Varley. Operation is quite simple: A signal is tuned in on the main receiver and the pre-selector dial then adjusted till a peaking effect is obtained. The regeneration control is advanced till the pre-selector valve is very near oscillation and the dials then re-touched. The result will be a great increase in signal strength, together with improved selectivity and a high degree of image suppression.

Once the operating point for the pre-selector has been found, it is only a matter of rotating its dial in step with the main receiver for the peaking effect to hold all round the band. It will, however, probably be necessary to re-adjust the regeneration control slightly at either end of the range if it is set for the middle.

The only other point to mention is the cathode tap—this should be ten per cent. of the number of turns up from the earthy end of the grid coil, and will have to be made specially in the case of commercial plug-in types. All resistors should be 1-watt rating, and if the full range 1.7-28 Mc is required, it is wise to use two RF chokes in series at RFC.

### ● Band-Switching

One of the most fascinating ideas in transmitter design is that of being able to put the rig on any pre-tuned frequency band by the click of a single switch. In practice, it is difficult completely to achieve this object due to losses with dead-ended windings, finding switches to carry the heavy RF currents circulating in even a 25-watt output stage, and the mechanical and electrical complications involved in tracking inductances selected on a turret coil assembly.

A useful compromise arrangement is suggested by the sketch Fig. 2, which indicates a simple band-switching circuit suitable for small transmitters or exciter units, applicable to both single and double-ended RF stages. A portion of the coil is shorted out—yes, it does involve some loss, but that is not too important in a low-power exciter already giving more than enough drive—and an additional tuning capacity is brought in on the other switch position.

The adjustment and operation is in this sequence: The coil is selected for a range coming somewhere between the two to be covered. The tap is made so that a normal L/C ratio is obtained on the higher frequency band and the circuit tuned in the usual way, with this portion of the winding shorted out. On throwing over the switch, the

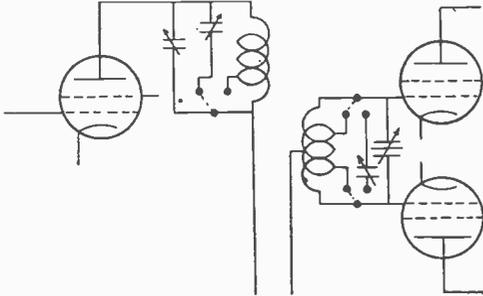


FIG. 2.

Simple band-switching circuit suitable for small transmitters or exciters. For the lower frequency, the ballast condenser is brought in, the circuits having previously been tuned to the higher frequency with one condenser only. By ganging the switches and extending the number of taps, three or four bands can be controlled through several stages and selected by a single switch movement.

extra or ballast capacity is brought in which, with the added inductance, makes it possible to tune to the lower frequency, the actual adjustment for this being made on the ballast condenser alone, so as to leave the higher frequency tuning untouched.

In effect, therefore, on the higher frequency band there is one condenser and a portion of coil, and on the lower the whole of the coil *plus* extra capacity. Thus, correct L/C ratios can be preserved, and the only loss is in a small section of dead-ended coil.

After the initial tuning, it is only a matter of throwing the switch to select either range. Further, the selector switches in a series of low-power circuits can be ganged together, and in practice it would be quite easy to arrange an exciter unit giving at least three-band output on as many clicks of a single switch control, while the RF delivered could be levelled by bringing in an extra stage on the highest frequency range and adjusting the inter-stage coupling so that, say, 10 watts of RF would be available on 7, 14 and 28 Mc equally.

Fig. 2 is of course merely a simplified sketch to show the basic idea, applied to two frequencies only for the sake of simplicity in description. Note that a single condenser can be used to parallel a split-stator type and that a single-ended RF stage should have the coil tap at the earthy end of the circuit.

There is one other point to watch—in a double-ended tank using only one valve, with perhaps a split-stator condenser and the HT fed to the centre tap through an RF choke, the tapping would probably have to be arranged as shown at the right of Fig. 2, i.e., it might not be possible to work from one end of such a circuit, owing to the fact that both neutralising (if any) and the position of the centre-tap would be too much affected. The arrangement shown in Fig. 2 would upset neither neutralisation nor balance and is the safest to use.

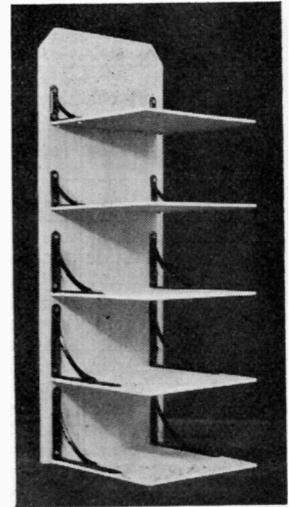
The main problems in setting up such a band-switching system are, first, the switches and then the preservation of as nearly as possible correct L/C ratios. Switches can be of the Yaxley pattern,

as supplied by Webbs or Short-Wave Radio (Leeds), or a selection can be made from those many types available in the Hamrad range. Highest efficiency and best L/C ratio on the various bands depends on choosing an inductance of such total size that the smallest possible dead-end is introduced with a good value of accompanying parallel capacity. Series tuning offers possibilities in this respect.

As can be gathered from these brief remarks, there is a great deal of scope for ingenuity and originality in devising multi-way band-switch systems bringing in not only multiples of the original drive frequency but also other crystals in the same range of frequencies, thus aiming at band-switch, frequency-change, and signal-shifting with ECO drive.

### ● No Room for Gear?

Well, hang it on the wall! The photograph here-with suggests what may be an idea to many people. The caption tells practically the whole story, and it only remains to give some leading details as to dimensions. In our case, the backboard is 40-ins. long by 13½-ins. wide (happening to be the finished width of the American whitewood used) and the shelves Venesta plyboards 12-ins. square. The Venesta plyboard blocks are just under 12-ins. square, so that a runnel is left on each side for carrying leads between the units of the transmitter. From the bottom up, the shelves are for bias



Another simple wooden assembly for transmitter construction. The backboard is ½-in. whitewood and the shelves Venesta plyboards 12-ins. square. Brackets are largest where load is heaviest and the whole can be screwed to battens secured to the wall.

batteries, power pack, modulator, CO-PA transmitter and aerial tuning network, all quite neat, compact and easy to get at. The various units can be individually built or taken off for alteration or adjustment—merely by removing the appropriate pair of brackets, the interconnection being by plug-and-socket.

And if you want to be specially smart, give the whole thing a coat of grey paint and make a hinged cover for it, using "Windowlite" (see p. 19, April, 1938), but don't forget the ventilating holes.

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We much regret that owing to pressure on space, F. A. Beane's short-wave BC feature is held over for this month.

# The Month's Club News

By S. W. CLARK, 2AMW (Assistant Editor)

WE ARE ALWAYS pleased to see new names in our ever-growing roll of monthly reports, whether they are newly-formed clubs, old ones with a new name, or well established societies writing us for the first time. So to the following four Clubs we say

## ● Welcome!

As usual, we try to be impartial by arranging reports in alphabetical order, therefore the ALDERSHOT and District Radio Society's notes, nicely typed by their honorary secretary, tell of its inaugural meeting a few weeks ago when it was decided to divide the scattered districts covered into two areas: Farnham, and Aldershot with Farnborough. There is a monthly meeting when both sections gather, but weekly area meetings are also held. Morse tuition is a strong point and in the A. with F. area ex-VU2ED has charge. A few days ago the first Field Day was planned and we hope success was with them, for the optimism expressed deserved much for G6XMP's 6L6-807 14 Mc outfit. Already Adlershot pass a tip for others; a scheme by which members (including two ladies) make lists of gear needed or for disposal, these being made public at the combined meeting. Any sale effected benefits the Society by ten per cent. of the proceeds. Visits and all the other usual facilities are available.

Throughout the summer, we shall be very glad to have photographs of field stations for publication in these pages.

NORTH BRADFORD now has a Short-Wave and Television Society and already they are going strong with regular Friday meetings at 13, Rushton Villas, Thornbury from 7.45 to 10.45.

We have a note from the BRISTOL Experimental Radio Club extending a very warm welcome to visitors. The headquarters are at Kings Corridor, Old Market Street, Bristol, 1, and we are sure that this newly-formed club has come to stay, partly because Bristol needs one and secondly we imagine the business-like publicity efforts portend serious endeavour. Good luck, Bristol.

EAST GRINSTEAD sounds somewhat familiar in these columns and we had wondered what had become of those hardy lads who used to build club rooms and make their own power plant. Apparently the sequel is a new body bearing the title Aether Patrol Club, with our old friend E. G. Cooper acting as secretary. Friday night is patrol night, and with two AAs and more following it is hoped that the society will be useful even outside its own immediate sphere by supplying listening data on any 3.5 or 1.7 Mc. transmissions, application to be made to the secretary; if his enthusiasm goes for anything our encouragement is not needed!

## ● In the Open

Field days take prominence in the next reports, and we have chosen the following five as being most concerned, though many other clubs have such events in mind.

ASHTON and District are looking forward to July 9, when their 56 Mc event takes place. On the 25th of this month there is to be a try-out at Hartshead Pike, 900-ft. above sea level, using G3BY's new portable permit. The gear is 6J5 CO-6V6 FD, 59212 kc, and the aerial (two half-waves in phase) will be tried in various directions from 10 a.m. onwards. Co-operation is looked for and we are sure that both listening and transmitting readers will be on the watch. Book the date!

Well in advance are DEPTFORD Men's Institute SW Club plans for two field days—June 25 and July 9; Westerham; 'phone and CW on 7187 and 7156 kc; call G2UXP. It is hoped that contacts made on the first date will be renewed on the second occasion, so that useful aerial data may be sifted. Please send all reports to G2UX, and if you devotees of Sunday QRM will remember the call and give a hand Deptford will thank you. Two interesting meetings are noted; the first being a C-R demonstration by a member, and then H. T. Scott (2COT) of Bulgin lectured yesterday.

Although we have no late news from the HODDESDON Society the weather on May 21 was all set for their 1.7 Mc outing, when it was intended to test some special gear, including two 30-ft. portable masts. This must have been something of a feat, but as similar tests are to take place throughout the year we imagine they will soon be pretty good at pole-raising. The 56 Mc band is also being tried by a member, and then H. T. Stott (2COT) of 2DXO is soon to join him.

June 3-4 seems to have been the week-end for most outside activity, and during the fine Whitsun spell G5XB of the MAIDSTONE Society got in some early testing for the direction-finding contest to take place locally on June 18; he is busy now helping members with their 160-metre DF receiver problems. There is a prize for the first home and nearby readers are invited to help, first making application to the secretary. The club's 8-valve communication receiver is on test and it should ere now have found a permanent place in headquarters.

Titsey was chosen as the hunting ground of the THORNTON HEATH Society, also on June 4, when two portable stations (G2DP at Sanderstead and G2RD, Titsey) tried some field work. If any readers heard either station a report to the secretary would be appreciated and of course acknowledged. G4AA is augmenting the weekly Morse lessons by slow 7 Mc Sunday transmissions.

During the same June week-end WEST HERTS might have been heard on 7 Mc from Northchurch Common. The local Boy Scouts were to be drawn into this, for the society endeavoured to persuade them to loan a tent and in return for the service we suppose the Scouts were allowed to pitch it for them! It seems that G6VS has been hiding in this district for six months.

## ● North and West

In April we mentioned an effort to form a Durham Club and now record that 25 enthusiasts came forward and finally decided that due to localisation the club should be known as the COXHOE and District Amateur Radio Society. The constitution has been

approved and it is hoped that permanent Hq. will soon be available; in the meantime the Cornforth Lane Council School is being used. Still more members are required, and among those enrolled are 2DTA, 2FWX and ex-SU3FS.

A well-attended first annual general meeting of the DONCASTER Society was held recently, when Dr. Lawton, Principal of the Doncaster Technical College, was elected president. An exhibition of amateur-made gear was on view, which included an oscilloscope by 2BCQ, 2FTO's two-stage transmitter and the 56 Mc rig. of G3NJ. On May 4, a spare night, G4DP told of his experiences as a flying-boat operator in the Far East (Singapore-Australia-Calcutta routes). The next Thursday, assisted by 2CKR, the same speaker lectured on accumulators. The May 27 meeting heard 2CLK talk on transformer construction.

A lecture and demonstration of ECO and a signal shifter was KILMARNOCK'S May event, and G3NK of Glasgow made the evening both instructive and enjoyable. The Society's president, G3PB, has commenced a series of A to Z Amateur Radio lectures, which are presented every Thursday evening.

SHEFFIELD SW Club have some new members and calls—2BLT and G4JW; five others are awaited and we have heard it whispered that their secretary is a little perturbed to hear that G4KB radiates from No. 31 in his road (see QRAs at end)!

The last monthly meeting of SOUTHPORT A.T.A. was a review of field-day gear, the transmitter being 6F6 CO and 809 PA and the receiver a 3-valve superhet, built by G2IN and G5ZI respectively. G2LM concluded the meeting with a lecture on Harmonics. Aerials have taken much of G2XU, G5KX and G6YR's time recently, and others report similar activity. The loss of 100 kc at the HF end of 7 Mc is causing concern in the light of other recent restrictions on 1½, 2½ and 5 metres.

Our photograph this month shows some members of the TONYREFAIL Society, who have recently had their first annual dinner, when 35 attended, including well-known amateurs from Newport, Cardiff and Swansea. GW3GO has presented a cathode-ray tube to the Society, which is to be built into an oscilloscope. The club magazine makes its bow and judging from the contents Tonyrefail has its share of humorists.

A change of officers in the WIRRAL Club sees the commencement of another year. In looking back the chairman was in the happy position of being able to speak with optimism and also mentioned two innovations—a Morse class and magazine. An increase of 11 members brings the total to 45, which shows a good year's work, further enhanced by six successful applications for licences.

### ● London and the South

A junk sale; talk by G6OV on first aid in cases of shock such as might be met by the transmitter; and a "Frequency Control" lecture by G8PI, during which the speaker dealt fully with various causes of frequency shift. These have been engagements for the DOLLIS HILL Radio Communication Society during the past few weeks.

"The Short-Wave Superhet" was the subject chosen by J. A. Penfold for a talk to the EAST-BOURNE Society, which had members' appreciation. The theory of tuned circuits and the various factors which govern efficiency were first dealt with; then the effect of connecting a valve to a circuit



The group at the Tonyrefail Short-Wave Club's Hamfest on April 27, well supported from Monmouthshire and East Glamorgan. In the front row are 2FOF, GW8AM, GW3CR, 2FRK, GW3QB, GW3GO, GW6JW and GW8SO.

and how, as the signal frequency increases, the damping caused by the following stage increases. It was mentioned that valves have now been evolved which reduce this damping to a large extent. Different oscillator circuits were also covered and finally, personal experiences with the superhet, which included some unusual occurrences.

Three EDGWARE Short-Wave Society members have now obtained permits, making a total of 18 fully licensed members. P. A. Thorogood, chairman, has obtained G4KD; F. Bell, secretary, is now G4JU; M. Pugh, G4JD. Several others are applying for full calls. The debate between G2AI and G2IM on May 10, "Phone versus CW," ended in a draw after an exciting start. It was agreed, however, that CW should be separated from 'phone. Future meetings are for 5-metre field-day arrangements, and a lecture by Dr. Smith on Telcon cables.

Fortnightly meetings are held by the NEWBURY Short-Wave Club at their rented shack, where members may enter at any time for individual work. The subscription is only 6d. per week, with "special concessions" to school members. How do you do it, Newbury?

DX Competitions are a regular weekly feature at PECKHAM Short-Wave Club; E. Dilnot is in charge of them, and to assist judging he has invested in an RME70. The club transmitter is nearing completion and in the meantime members take along their own gear for collective ideas; 2FKZ's very complete apparatus has been inspected, and is used mainly for recording. G3ZF, after much experiment on an enclosed site, gave the results of his aerial experiences, but is not yet quite satisfied with his present two half-waves in phase for 14 Mc. He also gave a demonstration with a 25-watt modulator, using members' favourite records for the purpose of a quality test.

Recent activities of the ENFIELD Radio Society included a lecture by Dr. Reynolds on "Reliability in Radio Receivers," and a junk sale when about 12 members went away laden with "snips." Visits are being arranged to the Science Museum Radio Section and to a local cinema to inspect audio gear.

GRAVESEND and District Amateur Radio Society held a field day on June 3 to 4 at Shorne Mill, Kent. Several AAs are progressing with Morse practice, held on Monday evenings at the club Hq.

MEDWAY Amateur Transmitters' Society held a hamfest on May 10, when the following clubs were represented: Maidstone, Tonbridge with Tunbridge

## CLUB NEWS

Wells, Gravesend, and Sheppey, the event proving a very interesting evening. G2UJ, G6PA, G2MI, G6WY and G2IG were present and spoke on their various subjects.

At the test field day held on April 15 Brentwood ran in 6 minutes ahead of ROMFORD's first car. Southend entered unofficially and seem to know all the art of DF. A successful junk sale was held during the past month and Dr. Bosch of Vacuum-Science Products, Ltd., supplied interesting information on C.R. tubes which was greatly appreciated. The club amplifier has been put to good use at the National Service Rally at Maylands Aerodrome.

The chief items of interest at the SLOUGH and District Short-Wave Club meetings have been a talk given by R. J. Sly, on the Ultra-High Frequencies, and a demonstration by another member of "High-Voltage Electrical Phenomena." Slow Morse is available at each meeting, in addition to faster sending for the advanced section.

The principal feature of the past quarter's activities of the SOUTH LONDON and District Radio Transmitters' Society was a demonstration of X-ray apparatus by G2ZL. He gave a comprehensive account of the development of X-rays from their discovery by Röntgen, to present-day practice. An especially interesting feature was the home-made 50,000-volt transformer. The next three meetings are June, "General discussion on Aerials"; July, "Grid Controlled Rectifiers," Mr. Nixon (G.E.Co.); August, "Television Receivers," Mr. Wright.

The May meeting of the SURREY Radio Contact Club constituted a very interesting talk and demonstration by G2FH entitled "Modern High-Speed Telegraphy." Mr. George described in full how messages are handled by cable and wireless systems between different parts of the world. He then illustrated by films how the receiving and transmitting apparatus works and afterwards described and gave advice to members on the easiest way of learning Morse and the correct method of operating.

On May 5, Mr. King presented a talk on a well-known commercial superhet to the TUFNELL Park Radio Club, explaining the circuit used, and also demonstrating how CW could be obtained. On the 9th, an ultra short-wave converter was brought along and demonstrated by a member. The next four June meetings are:—9th, "The Amateur Bands"; 16th, "Valves for Short-Wave working"; 23rd, "The Interpretation of Meter readings"; 30th, "Learning the Morse Code, Hints and Tips."

Membership of the WILLESDEN and District Short-Wave Society is further increased by the join-

ing of G3HU. G3XL is getting out well on 40 m. CW, although he can only raise 33-ft. of aerial! SWL members are looking forward to participating in the DX listening contest to be organised by our DX Scribe. A demonstration of Hamrad products is arranged for June 7 and the other June meeting is on the 21st.

**Further information regarding any of these societies may be had from the officials concerned, whose addresses appear below.**

- ALDERSHOT—H. Atthill, G8CV, "Ardvarney," College Road, Heath End, Farnham. (Aldershot 905).  
 ASHTON-UNDER-LYNE—K. Gooding, G3PM, 7, Broadbent Avenue, Ashton-under-Lyne.  
 BRADFORD (NORTH)—R. H. Forward, G4AV, 8, Willow Road, Farsley, Leeds.  
 BRISTOL—D. James, 40, Robertson Road, Bristol, 5.  
 COXHOE—D. F. Chatt, 23, North View, Sherburn Hill, or R. Bowes, 2DIA, 10, Blackgate, Coxhoe.  
 DEPTFORD—G. Edwards, G2UX, 14a, Louisville Road, Upper Tooting, S.W.17.  
 DOLLIS HILL—E. Eldridge, 79 Oxgate Gardens, N.W.2. 'Phone: Gladstone 2915.  
 DONCASTER—A. Dickinson, G4DP, 111, Sprotboro Road, Doncaster.  
 EASTBOURNE—T. G. R. Dowsett, 48 Grove Road, Eastbourne, Sussex.  
 EAST GRINSTEAD—E. G. Cooper, "The Alders," Hackendon, East Grinstead, Sussex.  
 EDGWARE—F. Bell, G4JU, 118, Colin Crescent, Edgware, Middlesex.  
 ENFIELD—N. H. Hyde, 2DVL, 20, Shaw Road, Enfield.  
 GRAVESEND—R. S. Martin, G2IZ, 41 Mayfield Road, Gravesend.  
 HODDESDON—T. Knight, Junr., 2FUU, Caxton House, High Street, Hoddesdon.  
 KILMARNOCK—R. Mitchell, 2FSD, 151, Bonnyton Road, Kilmarnock.  
 MAIDSTONE—P. M. S. Hedgeland, 2DBA, "Hill View," 8 Hayle Road, Maidstone, Kent.  
 MEDWAY—S. Howell, G5FN, "Veronique," Broadway, Gillingham.  
 NEWBURY—L. Harden, 44, Chandos Road, Newbury.  
 PECKHAM—L. J. Orange, 11 Grenards Road, Peckham, S.E.15.  
 ROMFORD—R. Beardow, G3FT, 3, Geneva Gardens, Chad well Heath. 'Phone Seven Kings 5393.  
 SHEFFIELD—D. H. Tomlin, 32 Moorsyde Avenue, Walkley, Sheffield, 10.  
 SLOUGH—K. A. Sly, 16, Buckland Avenue, Slough.  
 SOUTH LONDON—S. H. Chapple, G6SC, 7, Rutherford Close, Ewell.  
 SOUTHPORT—R. W. Rogers, G6YR, 21, Chester Avenue, Southport.  
 SURREY—S. A. Morley, 22, Old Farleigh Road, Selsdon, Surrey.  
 THORNTON HEATH—R. E. Dabbs, G2RD, 4, Nutfield Road, Thornton Heath.  
 TONYREFAIL—E. Powell, GW3QB, 44, Pritchard Street, Tonyrefail, Glam.  
 TUFNELL PARK—J. G. Wright, 78, Gladsmuir Road, Highgate, N.19.  
 WEST HERTS—A. W. Birt, G3NR, 6, Hempstead Road, Kings Langley, Herts.  
 WILLESDEN—G. H. Talbot, 2FTD, 46, Snaresbrook Drive, Stanmore. Edgware 3746.  
 WIRRAL—J. R. Williamson, 13, Harrow Gro., Bromborough.

**A further list of new two-letter G calls which we are glad to publish month by month, with the QRAs of any overseas readers.**

- G4KB—A. Baker, 31, Moorsyde Avenue, Sheffield, 10  
 G4HZ—E. C. W. Beale, 79, Perham Road, West Kensington, W.14. Cards, etc., to G6MK, 11, Kingsway, Tyne-mouth, Northumberland.  
 G4JU—F. Bell, 118, Colin Crescent, Edgware, Middlesex.  
 G4JT—D. A. W. Clark, 21, Fitzgeorge Avenue, Kensington, London, W.14.  
 G4DP—A. Dickinson, 111, Spotboro Road, Doncaster.  
 G4KK—R. T. O'Neill, 27, Arnold Street, Rugby, Warwicks.  
 G4IT—E. H. Paulton, "Inglewood," The Plantation, Worthing, Sussex  
 G4JW—J. R. Petty, 79, Glebe Road, Sheffield, 10.  
 G4HC—H. V. Watling, 15, Lucas Road, Colchester.

## Piracy

G4BC, G. H. Woolmer, 35 New Road, Wood Green, London, is receiving cards addressed "GM4BC," "GW4BC" and "GI4BC," evidently prompted by pirate stations using these calls.

G4AO, E. G. King, 111 Everton Drive, Stanmore, Middlesex, is also suffering in the same way, as is G4GD, Nigel G. Anslow, 35 Gilpin Avenue, East Sheen, London, S.W.14, who says that any 7 Mc station using this call is a pirate.

EITP, J. G. White, now at LMS School of Transport, Derby, is hearing a station on 7 Mc signing his call; he is QRT till the beginning of August, but asks to be put in touch with licensed transmitters in Derby.

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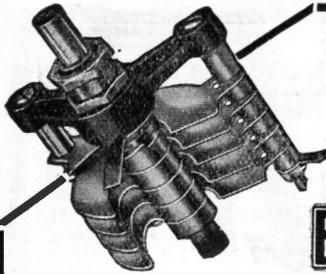
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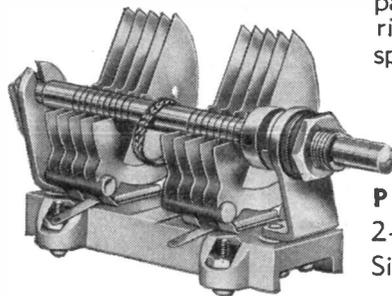
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300v POWER Pack, £1; 83, 80, 43, 41, 45, 47, 6C6, 2s. ea.; 8 4-v. mains valves, 7s. 6d. the lot.—Watts, 73 Leckhampton Road, Cheltenham.

WANTED—"All-Wave Radio" Nov. 1937; also Meissner 410 mmF 3-gang tuning cond.—Price to 2BVH, 82 Tyrone Road, Thorpe Bay, Essex.

WANTED quickly! Eddystone 56 Mc telescopic aerial.—Write W. J. Hambly, 90 Watford Road, Wembley, Middx. or 'phone ARNold 6083.

SELL or Exch. for PM Speaker: Valves, transformers, chokes, coils, etc.—Plater, 14 Littlegarth, Saffron Lane, Leicester.

WANTED—One Ferranti AF5C transformer, good condition, cheap.—J. S. T. Ruddock, 6 Brookside, Cambridge.

WANTED.—Communication Receiver, 6v or more; Rotary 6/12v, 250/500v, 70 mA out; 1000v. 100 mA, Xformer.—E18N, Longford, Eire.

WANTED: Cheap Morse key for QRP TX, cash or fix exchange.—P. Landaver, Oak Farm, Leigh, nr. Reigate, Surrey.

SWAP or sell Elex converter (AC or batt., 13-150m), SW RX parts, Telsen mike, "Constructors' Encl'y."—BSWL983, 32 North Denes Road, Gt. Yarmouth.

RME DB20 Presetor in new cond. for sale, £10 10s. or nearest (cost £12 10s.).—"Belle Vue," Nelson Park, St. Margarets-at-Cliffe, Kent.

BSPREAD 0-v-2, switched coil (12-70m), HAC, 12s. 6d.; Speech amp. (MH4, MH4, PX4) and rect. steel chassis, 30s.—2BTF, 110 Foresters Drive, Wallington, Surrey.

WANTED: Eddystone B'spread unit, also Eddystone coils 6LB, 6Y and 6R.—Particulars and price to 2FDP, 37 Trumpet Road, Cleator, Cumberland.

7 Mc 25-Watt 6L6 CO. complete, 17s. 6d. TX and RX gear dirt cheap, PC for list.—2AGH, 99 Woodhouse Road, Doncaster.

AMERICA's latest RF tube, RK1851, guaranteed, yours for 15s.—BSWL89, 42 Cranbourne Road, Salt Hill, Slough, Bucks.

SELL, 27s. 6d. or exch.: Batt. HFP-v-Pen, all-metal chassis, 9-90m. coils, with valves. Wanted power packs.—2DPT, Horney Common, Uckfield, Sussex.

OSCILLOSCOPE RCO 3in. tube with separate time base and amp. in black crackle cabinet to match, £8.—Elmer, 30 Parsons Green, Fulham, S.W.6.

FOR Sale: Eddystone "Ham Band Two," perfect, compl. with valves. What offers or consider exch.—2APC, 77 Blackwell Av., Walker, Newcastle-on-Tyne, 6.

ROLA 8-in. MC speaker (2000 ohms), 3s. 9d. Sound Sales var. selec. iron core IFT (465 kc), 3s. 6d.—2BTF, 110 Foresters Drive, Wallington, Surrey.

RK20 valve wanted, good order. For sale 3 unused new ESW20s, same as T20s, 25s. Ferranti "F" 0-50, 0-150, 16s. ea.—Gowdy, 91 Dunelm Stn., Sunderland.

EDDYSTONE "All-World Two" as new, with 5 coils (9-170m) and coil box, £3.—J. Huggett, Gas Works, Brightonsea, Essex.

EXCH. Aug. '38 to May '39 "SWM" for Thordarson choke type 2927.—2CWO, 172 Main Street, Bingley, Yorks.

SALE: New Lissen B'spread Three, complete ready assembled with specified valves. Offers to 2FDP, 37 Trumpet Road, Cleator, Cumberland.

5m. PORTABLE RX for sale, perf., all compts. new Eddystone, with carrying case, Weston 'phones and aerial, 50s.—2DXY, Chantry, Churchdown, Glos.

TRIPLET mod; 521, 0-1 mA, calib. ohms, volts, mils, 4in. scale, make FB tester, new, cost £3 10s., bargain, 50s.—GSTF, 119 Rastrick Common, Brighouse.

EDDYSTONE "All-World Two" in cabinet, complete with 3 extra coils, 3 months' use, £3.—A. L. Andrews, Ardingly, Brookmans Av., Brookmans Pk.

SALE or exch. 5m. transceiver, 2-valve; 5m RX; lv. monitor, W.B. spkr., offers, 350-0-350 trans, 6s. & other gear.—2APC, 77 Blackwell Av., Walker, Newcastle-on-T.

SPECIFIED parts wanted for "SWM" Class-B 1-valver, good condition.—Martin, 12 Buckingham Road, Heaton Chapel, Stockport.

BRS going AA, wants 1938 "Short-Wave Magazines" and TX gear.—H. H., 141 Eleanor Cross Road, Waltham Cross, Herts.

EDDYSTONE "All-World Two," complete with valves and coils, in metal case, as new. Wanted, TX gear.—112 Westborough, Scarborough, Yorks.

EDDYSTONE batt. superhet, 5v, 13-90 m, less valves, 30s. or exch. for 12in. PM speaker with adj. transf.—L. J. N., 67 Corrance Road, S.W.2.

SELL or exch. new Zeiss camera, cost £13, worth £10, for comm. RX (Champion, Buddy or similar)—Rolf, Tilehouse Green, Knowle, nr. B'ham.

SELL 7 Mc Xtal, 6L6, Morse key, tank coil, milliammeter.—Send for list to D. Gray, Culvers Close, Winchester, Hants.

ST800, less valves, 25s.; coil unit only, 10s.; new Eddystone microdenser, 2s. 6d.—Jackson, Hameringham, Horncastle, Lincs.

EXPERIMENTER'S components for sale, £7-worth, new valves, meters, etc.—L. J. Perrin, 101 Portland Crescent, Greenford, Middx.

NEW T40 for sale or exch. for universal modn. transformer.—G2KC, 97 Bellemeor Road, Shirley, Southampton.

1938 "Sky Challenger," Xtal gate, only few hours' use, £18. Reason for sale, going abroad.—G8NC, 67 Bustleholme Lane, West Bromwich, Staffs.

SALE: Hallicrafters "Sky Buddy," Vidor AW and SW 0-v-1, mains, SAE details.—K. C., 32 Addison Road, Walthamstow, E.17.

CABINET, Eddystone 1034, large, steel, few holes in panel, otherwise perfect cond., 11s. 6d.—M. R. G., 112 Deacon Road, Kingston-on-Thames.

SALE, 913 RCA cathode-ray oscilloscope; Bayliss HD 500-0-500 150 mA, 4 LTs; 7027 kc Xtal. Swap for comm. RX.—2DXY, Chantry, Churchdown, Glos.

ATLAS eliminator and trickle charger, £1 or offers.—A. L. Andrews, Ardingly, Brookmans Avenue, Brookmans Park, Herts.

SALE: Batt. 0-v-1 RX, switched 11 to 86m, FB cond., 25s.—Offers to J. C. Gilchrist, 30 Chinchard Hill Road, Rutherglen.

"SKY CHIEF," Hallicrafters receiver, first-class cond., willingly demonstrate.—Offers 2DCK, 40 Robertson Road, Eastville, Bristol, 5; 'phone 56404.

7-TUBE American Bosch 4-band 15-2000 m, 76s.; SW parts, midget tubes, mains gear, no junk.—Stamp to 2CVO, 13 Mount Echo Drive, E.4.

EXCH. large, powerful telescope, 3in. ob. gl. comp., night lenses, case and 6ft. stand for good AC American SW set.—Smith, 8 New Street, West Bromwich.

SALE, £4: Exp. res. & conds. chokes, trans, valves, 1937-8 "W. W.," 180v. DC 4v AC pack, or exch. 1-v-1 AC 10m up.—W. Sparks, 38 Lovely La., Warrington.

PREMIER AC-DC 200-250v. 3v. SW RX, b'spd, fitted 4 coils (13-170m), all valves and barretter, £3.—2FWB, The Parsonage, Compton, Berks.

SALE: Rotary convtr., 6v. input 500v. 25 mA output, brand new; have mains in, 50s. or nearest; also TX and RX parts.—2BKD, 39 Bedford Rd., Reading.

TROPHY 8, 3 months' old, sacrifice 6 gns., also bags of gear. Quote requirements, QRT through ill-health.—G3WC, 11 Unity Road, Enfield.

COVENTRY.—Any Ham take fellow Ham as paying guest for Aug.-Sept.? Write G2JK, 38 Montana Road, London, S.W.17.

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QUERY COUPON

S.-W.M. 6/39

# Authenticated List of International Prefixes — by Countries

(A List with the prefixes arranged alphabetically will appear in a subsequent issue)

AFGHANISTAN	YA	FR. INDIA	FN	OCEAN IS.	VR1
ALASKA	K7	FR. OCEANIA	FO8	PALESTINE	ZC6
ALBANIA	ZA	FR. W. AFRICA	FF8	PANAMA	HP
ALGERIA	FA	GAMBIA	ZD3	PAPUA	VK4
ANDORRA	PX	GERMANY	D	PARAGUAY	ZP
ANGOLA	CR6	GIBRALTAR	ZB2	PERU	OA
ARGENTINA	LU	GILBERT & ELLICE IS.	VR1	PHILIPPINE IS.	KA
ASCENSION I.	ZD8	GOA (PORT INDIA)	CR8	PHOENIX IS. (HOWLAND)	KF6
AUSTRALIA	VK	GOLD COAST & BR. TOGOLAND	ZD4	PITCAIRN I.	VR6
AZORES	CT2	GREECE	SV	POLAND	SP
BAHAMAS	VP7	GREENLAND	OX	PORTUGAL	CT
BAHREIN	(VU7) VS8	GUADELOUPE	FG8	PORTO RICO	K4
BAKER I.	KF6	GUAM	KB6	REUNION I.	FR8
BALEARIC IS.	EA6	GUATEMALA	TC	RHODESIA, N.	VQ2
BARBADOS	VP6	GUIANA, BR.	VP3	RHODESIA, S.	ZE
BECHUANALAND	VP6	GUIANA, DUTCH	PZ	ROUMANIA	YR
BELGIAN CONGO	ZN	GUIANA, FR.	FY8	ST. HELENA	ZD7
BELGIUM	ON	GUINEA, PORT.	CR5	SALVADOR	YS
BERMUDA IS.	VP9	GUINEA, SPAN.	EA9	SAMOA, AM.	KH
BOLIVIA	CP	HAITI	IH	SAMOA, BR.	ZM
BORNEO, DUTCH	PK5	HAWAII	K6	SARAWAK	VS5
BRAZIL	PY	HEJAZ	HZ	SCOTLAND	GM
BR. HONDURAS	VP1	HONDURAS	HR	SCYCHELLES	VQ9
BR. N. BORNEO	VS4	HONG KONG	VS6	SIAM	HS
BULGARIA	LZ	HOWLAND IS. (PHOENIX GROUP)	KF6	SIERRA LEONE	ZD1
BURMA	XZ	HUNGARY	HA	SOLOMON IS.	VR4
CAMEROONS (BR. MAN.)	ZD2	ICELAND	TF	SOMALILAND, BR.	VQ6
CAMEROONS, FR.	FE8	IFNI	EA9	SOMALILAND, FR.	FL8
CANADA	VE	INDIA	VU	SOUTH GEORGIA	VP8
CANAL ZONE	K5/NY	IRAN	EP	SOUTH ORKNEYS	VP8
CANARY IS.	EA8	IRAQ	YI	SOUTH SHETLANDS	VP8
CAPE VERDE IS.	CR4	IRELAND, N.	GI	SOUTH-WEST AFRICA	ZS3
CAYMAN IS.	VP5	ITALY	I	SOVIET UNION:	
CEYLON	VS7	JAMAICA	VP5	RUSSIAN S.F.S. REP.	U1, 3, 4, 7
CELEBES & MOLUCCA I.	PK6	JAN MAYEN I.	OY	WHITE RUSSIA	U2
CHAGOS IS.	VQ8	JAPAN	J	UKRAINE	U5
CHANNEL IS.	G	JARVIS I.	KG6	TRANS-CAUCASIA	U6
CHILE	CE	JAVA	PK	TURKOMAN	U8
CHINA	XU	JOHNSTON I.	KE6	UZBEK	U8
CHOSEN (KOREA)	J8	KENYA	VQ4	ASIAN R.S.F.S. REP.	U9-U0
CHRISTMAS I.	ZC3	LABRADOR	VO6	SPAIN	EA
CLIPPERTON I.	FC	LATVIA	VP2	STRAITS SETTLEMENTS	VS1
COCOS IS.	TI	LEEWARD IS.	VP2	SUDAN	ST
COCOS KEELING GROUP	(VS1) ZC2	LIBERIA	EL	SUMATRA	PK4
COLOMBIA	HJ/HK	LITHUANIA	IY	SWEDEN	SM
COOK IS.	ZK1	LUXEMBOURG	LX	SWITZERLAND	HB
CORSICA	F	MACAO	CR9	SYRIA	AR
COSTA RICA	TI	MADAGASCAR	FB8	TAIWAN (FORMOSA)	J9
CRETE	SV6	MADEIRA	CT3	TANGANYIKA	VQ3
CUBA	CM-CO	MALDIVE IS.	VS9	TANGIER	EK
CYPRUS	ZC4	MALTA	ZB1	TASMANIA	VK7
CZECHO-SLOVAKIA	OK	MANCHUKUO	MX	TIBET	AC4
DANZIG	YM	MARSHALL IS.	J9	TIMOR	CR10
DENMARK	OZ	MARTINIQUE	FM8	TOGOLAND, FR.	FD8
DOMINICAN REP.	HI	MAURITIUS	VQ8	TONGA IS.	VR5
DUTCH WEST INDIES	PJ	MEXICO	XE	TRANSJORDAN	ZC1
ECUADOR	HC	MIDWAY IS.	KD6	TRINIDAD	YP4
EGYPT	SU	MIQUELON & ST. PIERRE	FP8	TRISTAN DA CUNHA	ZU9
EIRE	EI	MOROCCO, FR.	CN	TUNISIA	FT4
ENGLAND	G	MOROCCO, SP.	EA9	TURKEY	TA
ESTONIA	ES	MOZAMBIQUE	CR7	TURKS IS.	VP5
ETHIOPIA	I7	NETHERLANDS	PA	UGANDA	VQ5
FAEROES	OY	NEW CALEDONIA	FK8	UNION OF SOUTH AFRICA	ZS
FALKLAND IS.	VP8	NEWFOUNDLAND	VO	UNITED STATES	W
FANNING IS.	VR3	NEW GUINEA, BR.	VK9	URUGUAY	CX
FEDERATED MALAY STATES	VS2	NEW GUINEA, DUTCH	PK6	VENEZUELA	VY
FIJI IS.	VR2	NEW HEBRIDES	FU8	VIRGIN IS. (U.S.)	KB4
FINLAND	OH	NEW ZEALAND	ZL	WAKE IS.	KC6
FRANCE	F	NICARAGUA	YN	WALES	GW
FRANZ JOSEPH LAND	UX1	NIGERIA, BR.	ZD2	WINDWARD IS.	VP2
FR. EQUATORIAL AFRICA	PQ8	NIUE	ZK2	YUGOSLAVIA	YT-YU
FR. INDO-CHINA	FT8	NON-FEDERATED MALAY STATES	VS3	ZANZIBAR	VQ1
		NORWAY	LA		
		NYASALAND	ZD6		

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