

The

6^p

SHORT-WAVE MAGAZINE

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

AUGUST

1938

—
VOLUME II

NUMBER 6

PRELIMINARY ANNOUNCEMENT

THE BRITISH MANUAL
of
AMATEUR RADIO
by

AUSTIN FORSYTH
G6FO

(Editor of The Short-Wave Magazine)

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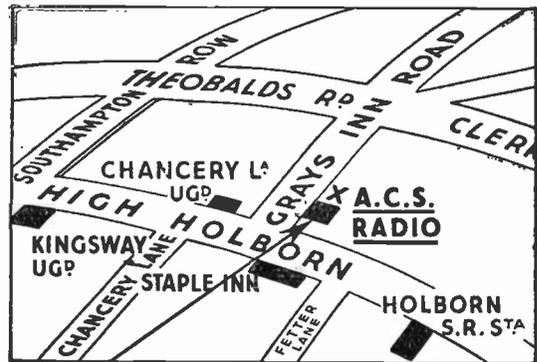
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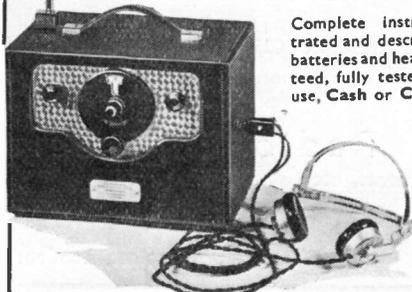
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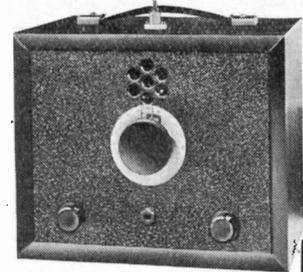


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THE SHORT-WAVE MAGAZINE

Vol. II.

AUGUST, 1938

No. 6

Editor: AUSTIN FORSYTH (G6FO)

Business Manager: C. T. MILDENHALL

Editorial Asst.: S. W. CLARK (2AMW)

Advertisement Manager: A. W. MARRIOTT

RADIOLYMPIA—OUR VIEW

Though as announced elsewhere in the Magazine, the next issue—dated September and on sale August 29th—is to be our Show Number and will contain a number of special features, we shall not ourselves be visible at the Show itself. In other words, we are not taking a stand.

The main reason for this is that we feel the annual radio exhibition at Olympia has long since lost any interest it may have possessed for that body of readers for which we exist. There was a time, years ago, when one went to the Show with a thrill of anticipation, expecting to see all the latest ideas in apparatus and technique—especially the former. With the waning of interest in home-constructed broadcast receivers and similar equipment—an interest which is now practically non-existent—manufacturers hastily closed down the component side of their business and went over to the mass-produced receiver market. Radiolympia became in the main an exhibition of rather cheap furniture, set off by mannequins, and “demonstrated” by young men as ignorant of radio as they were beautiful in appearance. Apart from the mannequins, the big attraction became the B.B.C. Variety Theatre, where the crowds were always dense.

Though we are open to be convinced, the changes introduced for this year will, in our opinion, deaden still further any excitement the real radio enthusiast may have felt about the Show.

The other side of this depressing picture is shown by the present tremendous, and rapidly increasing, enthusiasm for amateur short-wave construction as a useful and serious hobby, and the general interest in all that pertains to the short waves. At the moment, this is largely measured by the great volume of American business which is done in this country, but we are most happy to be able to say that—due in no small part to the efforts of this Magazine—more and more British Manufacturers are turning their attention to, and planning to cater for, the needs of the British amateur.

We anticipate that some interesting announcements will be made ere the Season starts.

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On The Amateur Bands

By OLD TIMER

WE THOUGHT that the discussion on low-powered working would finish following our remarks last month, but these have apparently drawn forth the wrath of the honest users of 10 watts!

As far as we can judge, British amateurs appear to be classified into four main categories. (1) The 10-watt licensee who uses less than 10 watts owing to lack of cash or lack of power facilities; (2) the 10-watt man who never uses more than 10 watts because he believes in trying to find what can be done with this power; (3) the 10-watt man who has a licence and therefore feels he is entitled to use as much power as he can afford; (4) the high-power licence-holder, i.e., 50 watts or over.

It will be noted that we have not mentioned the 25-watt man. He is generally more law-abiding than his 10-watt brother; for one thing, he has taken the trouble to apply for, and obtain, the 25-watt ticket, and will probably later ask for 50 watts. He can come under category No. 5.

● High-power permits

It is surprising that there are not many more applications for 25-watt licences, as it is not necessary to furnish technical details for permission to use this power. The main requirement is that the applicant should have held a 10-watt licence for six months or more, and it is quite usual for the GPO to grant this facility to those who have thus applied. The granting of 50-watt permits is, however, entirely different; it is necessary to furnish sound technical reasons which will hold water, so to speak. This is not the finish, either; a visit from the Post Office inspector may then be awaited, and if your written story is not borne out by his inspection of your apparatus and your own technical knowledge, then there is little hope of obtaining the 50-watt ticket. So it is obvious that the old trick of getting some other well-informed amateur to fill up your application form will not work; you have to impress the PO that you mean what you say and know your subject and have the necessary meters and measuring apparatus to conduct these proposed experiments. Rightly or wrongly, the Post Office consider that the QRM caused by a 50-watt station is more than that from a 25-watt or even a 10-watt transmitter. Actually, of course, an American amateur using 1 kw will have a larger field strength locally than many nearby 50-watters.

In consideration of the above, and in view of the fact that most of us are trying to see what we can learn without knowing very much about such a complicated science as radio transmission, we feel, or we know, that we could not furnish good technical reasons for 50 watts, and so, after the initial few months on 10 watts, we gradually creep up to higher and higher powers as our experience in handling the transmitter increases, and eventually we find that we are using 1,000 volts at 120 mA. One outcome of this practice is that a newly licensed station in the same town will build (if he can afford it) a transmitter on identical lines and come on the air with 50-100 watts straight away.

● The DX bites

The amateur then finds he has managed to work some good DX and is beginning to be known as a "DX man" among his friends; not to be outdone by these friends, he strives to maintain his lead of countries worked and his power may arrive at 200-300 watts. Unfortunately, the GPO will not grant higher power facilities for working still more DX, and so "Johnny Smith" finds he cannot obtain a high-power licence—even though he is a wizard at DX and a perfect operator—because he is a poor man technically. It is understandable, therefore, that a genuine 10-watter in category 1 or 2 comes under the most dreadful suspicion if he works more DX than a high-powered neighbour. Next time you work VK with 50 watts—try reducing to 10, and then see the difference in strength. You will be surprised.

● Introducing the genuine man

In our June issue we published some remarks by a transmitter who has been licensed eleven years and achieved WAC and WBE *but has never used more than 10 watts*. Here is your category No. 2. He writes again, still wishing to remain anonymous, confirming that his transformer for WAC/WBE was a 250-0-250 volt. This transformer gave him full ten watts with CO-PA, but interpolating an FD stage lowered the maximum input power to the PA to eight watts; a 350-0-350 volt transformer was therefore installed to bring the power up to 10 watts with enough reserve for 15, but he deliberately backs off the controls so that the final amplifier runs at ten watts. He continues by saying,—"knowing what *can* be done with this power and a good aerial, and comparing my results with one or two genuine 10-watt users I can pretty well assess the input used by some of our champion '10-watt' DX stations. It is commonly said that the radio amateur is a fine fellow having many attributes and qualities that the ordinary man does not possess. This may be true—in about 5 per cent. of cases. The other 95 per cent. must be a lot of dishonest, sanctimonious, 'somethings' who (a) swindle the GPO by not paying for the power that they use; (b) 'do the dirty' on their more scrupulous brethren who do pay; (c) get results by false pretences, and if asked to repeat them on 10 watts could not possibly do so; (d) are operating their stations by brute force instead of intelligence.

● The newcomer's viewpoint

And now we have a letter from 2CLG of Bromley, Kent. He writes as follows: "I believe that a large proportion of amateurs stick to the regulations. I have held the AA call 2CLG for 18 months and have been obtaining ideas, having made the acquaintance of many local amateurs, and on visiting their stations, have found that they were all working at their rated wattage, as I saw it measured in most cases.

Actually, I only recently met the idea that stations exceeded their licence ratings, through other channels than the Magazine, and was very surprised to hear about such a thing." He goes on to say that he, in conjunction with G8NR and G3BR, carried out some "ultra QRP" tests reducing power gradually to 1.2 watts. 'Phone was S7 at a mile (very suitable for local 'phone tests). Finally the input was dropped to 60 v. at 2.5-3 mA, giving an input of .15-.18 watts, this being the total for the CO and modulator, which would mean that the input to the CO was approximately .075 watts, and the signal over the same distance was still S6.

● Record low-power DX feats

This reminds us of the true story we heard of the enthusiast who had an 0-V-1 receiver. He substituted a microphone and RFC for the grid leak, and, using the call of a local G3, called "Test" on 28 Mc. Imagine his surprise on tuning round the band with a 6 v. S-H to hear a W2 calling him; he was unable to reply as he had already ripped out the microphone before listening!

This brings us to the record of G2YY of Berwick-on-Tweed. His input has never exceeded 9 watts, because he runs off accumulators, and in the three years he has held his licence he has worked 80 countries with WAC and WBE. His aerials are 40 feet from the ground, and the station is on a hill 250 feet above and overlooking the North Sea. Other known cases where considerable DX has been worked with not more than 10 watts are G6YL, G8LY, G3GH and GW5XN. And there are many others.

You will remember that we mentioned the low-powered work of G8UT of South Darenth, Kent in the June issue. He writes again to uphold his claim that his input of 6 watts, obtained from nickel-cadmium batteries which he charges from a 6-volt car battery, was sufficient for WAC. The CO was a 2v. LF pentode with 80 volts on the screen and 120 on the plate; this drove a P625b with 150 volts at 40 mA input with the aerial coupled. Using the P625b as a "power" doubler on 14 Mc his results have been amazing. With two aerials, one a 66-foot top with 66-foot centre-tapped feeder and the other a 66-foot top with 33 feet centre-tapped feeder, he obtained these reports from the following stations:—W7AYO 559, W6AHZ 559, VK3QK 339, HK4EA 359, CE4AD 459, ZL1MR 559, ZL4FB 559, ZE1JI 349 and 449, U9BC 559, U9BK 449, PY2DN 469, PY2HM 569.

We have had so many letters expressing views on this subject that we must hold them until next month, so if your opinions do not appear this time, be patient.

Our Show Number will be out on Monday, August 29, dated September. Besides a full review of all short-wave exhibits, it will contain special features of interest to both transmitters and listeners, marking the opening of the new season. You can help us by reserving your copy now, either direct (7d. post free) or through your usual newsagent.

CLUB HISTORY

We present this month the fourth in the series of brief accounts of selected organisations. Club secretaries concerned will be asked in turn to supply information for use under this heading.

MAIDSTONE

THE MAIDSTONE AMATEUR RADIO SOCIETY has only been in existence since July 31, 1937, but since that time its membership has increased from five to thirty-eight, including one full call and six artificial aerial licences.

The first few meetings were held in a small top room, but early in September the use of an old stable, measuring roughly twenty-six feet by twenty feet, was procured. Members then proceeded to fit entirely new floorboarding over the tiled floor, paint the walls, and put in temporary wiring. After Christmas, however, the Clubroom was re-wired throughout in conduit, several power points, a main switch, fuse board and a sub-meter being fitted. In November, two members carried a pole more than three miles to the Clubroom, and erected it, complete with aerial. An interesting point is that all this work was done by members themselves; at no time was the help of non-members enlisted.

At Christmas a very successful draw was held, which greatly helped the Club's finances. After that came the first Annual General Meeting, followed by a Session consisting of a series of lectures and special meetings. The lectures included "The Cathode Ray Tube and its Applications," "Modern Valve Developments," "The Hi-Q Components," and a demonstration of the Voigt Loudspeaker. A Film Social, which included the RSGB films, and a programme of Sound entertainment films, was held late in February, and a Whist Drive in March.

Meetings of the Society take place in the Clubroom, 244, Upper Fant Road, Maidstone, every Tuesday evening at 7.45 p.m. Through the summer, however, a definite programme is arranged only for alternate weeks, an informal meeting being held on the Tuesdays in between. During next Season, the Society hopes to be able to arrange for lectures and demonstrations by well-known personalities on alternate weeks, with competitions and talks by members on subjects relating to amateur radio only to fill in the gaps. Morse practice, under the direction of Mr. D. W. Carr (G8UC), is provided every Monday evening for those who are interested. Among the other assets of the Society are a large library comprising over four hundred radio magazines and the latest Call-Book, a Club Receiver, and a four-watt mains amplifier, while a universal moving coil test meter and a calibrated all-wave oscillator are under construction.

The subscription is a nominal entrance fee of 6d., followed by a weekly subscription of 3d. (whether attending meetings or not).

New members are always needed, and will be made very welcome. They are requested either to come to the meetings, or get in touch with the Honorary Secretary, M.A.R.S., P. M. S. Hedgeland (2DBA), "Hill View," 8, Hayle Road, Maidstone, Kent.

By N. P. SPOONER (G2NS)

EVENTS MOVED RAPIDLY from the day the Suicide Club captured the Cross Roads and in quick succession came the devastated salient of Ypres, the shifting sand-dunes of Nieuport, the sunshine of the Riviera en route to the snows of the Italian front, a second agony on the Somme, Ypres re-tortured, the stricken wastes of Paeschendale Ridge and . . . the Beginning of the End.

At Gheluwe, a few miles from Menin, the resistance of the enemy rearguard stiffened and on the outskirts of the battered village, exactly four weeks before the Armistice, the writer stopped a machine-gun bullet with his right knee-cap, lost immediate and further interest in the Upheaval and left the Club and the battalion to blaze a trail in dead and wounded from there to the very bridge-heads of Cologne. In course of time a Red Cross train, a Base hospital at Wimereux, a channel boat, Folkestone and Victoria were seen.

● Cease Fire !

At a time when the occupants of a London hospital ward were all too engaged with their own immediate troubles to realise the full meaning of the magic words, the "Cease Fire" was suddenly flashed along the miles of signal wires in the war-zones and re-echoed the wide world over.

An old 10-line switchboard spread the tremendous news in the hospital. It had seen hectic days and nights in the field and was enjoying a well-earned rest, carrying out lighter duties. A hand-propelled chair first took me to it and introduced me to its Op., an old signaller. It was a self-contained instrument fitted with a calling generator, night bell and speaking set. The case measured about 16 ins. x 14 in. x 7 in. It had a waterproof cover and leather carrying-handle, the front had hinged doors and the back had a sliding panel to give access to the wiring and the dry battery used on the speaking and night bell circuits. Its weight was about 40 lbs.

Underneath ten pairs of line terminals were ten drop-shutter indicators to give the calling and ring-off signal. The calling and connecting "keys," which were used instead of the jacks and plugs with long cords usually seen in pictures of telephone exchanges, were in three rows with ten in each. They were wired in groups of three for each subscriber, the three keys being below each drop-shutter indicator. The calling, speaking and supervising keys had black handles and the white handled keys were for connecting two or more subscribers together. The Operator's hand-set consisted of a flat metal tube fitted with a watch-type receiver or headphone, microphone case with microphone capsule and pressel switch to close the circuit, very much the same as that already described in the Mark 3 telephone set. The night bell was of the non-polarised type with the hammer striking on the inside of the gong; its coils were wound for 50 ohms each and connected in parallel to give a resistance of 25 ohms for the bell, the action being the same as any ordinary trembler bell.

The calling or magneto generator consisted of four permanent magnets with soft iron pole pieces and

an armature, with soft iron core, wound with fine wire to a resistance of 500 ohms. It was capable of ringing a subscriber's bell through an external resistance of 25,000 ohms. A handle and toothed gear-wheels revolved the winding in a powerful magnetic field and produced at normal speed an alternating EMF with a frequency of about 20 cycles per second and 70 to 80 volts. It could be likened to a practical alternator in its simplest possible form. The drop-shutter indicators, restored by hand, were operated by an electro-magnet with a small pivoted armature. A lever attached to the armature had a projection which engaged the shutter and held it in

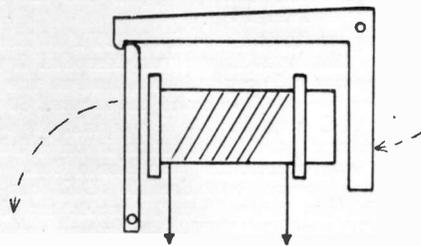


FIG. 1.

position. A calling current of 7 mA, passing through the 1,000 ohm windings of the magnet, was sufficient to energise the magnet, attract the armature, release the shutter and allow it to fall by its own weight as in Fig. 1. Upon answering the call, the operator restored the shutter by hand and thereby reset the indicator.

At night the falling shutter could be arranged to close the bell circuit and give a warning ring. The action of the induction coil, used here in the speaking circuits, has already been described in a previous article. In the present coil the primary winding resistance was 1 ohm and that of the secondary 750 ohms.

● Using the thing

The actual operating of the switchboard was as follows. . . . To answer a call the indicator shutter was first replaced by hand, the corresponding black key was put in the "speak" position, the name or number of the required subscriber ascertained and the black key then restored to normal. To call a subscriber the black key was held in the "ring" position, the handle of the magneto generator turned and the key then moved to the "speak" position. To connect subscribers together the two white keys of the stations concerned were moved so as to connect them both to the same disengaged connecting-circuit, which was used instead of the usual flexible cords of the jack-and-plug type. Connecting could be done on either row of white keys as there were four separate connecting circuits.

In order to supervise a connection either of the subscribers' keys were moved to the "speak" position. Fig. 2 shows a common type of subscribers'

instrument. The bell and the generator armature were normally in series, but if the generator was not in use the armature was shorted, leaving only the bell in circuit. The receiver was suspended from a switch hook which was connected permanently to one of the lines and had one lower and two upper contacts. When not in use this switch disconnected the speaking circuit and joined the bell to line so that the exchange could always call the subscriber. If the subscriber wanted to call the exchange he turned the generator handle, the armature shunt was disconnected, the bell shorted in its place and the ringing currents went to line. Lifting the receiver then disconnected the bell and generator and completed the speaking circuit.

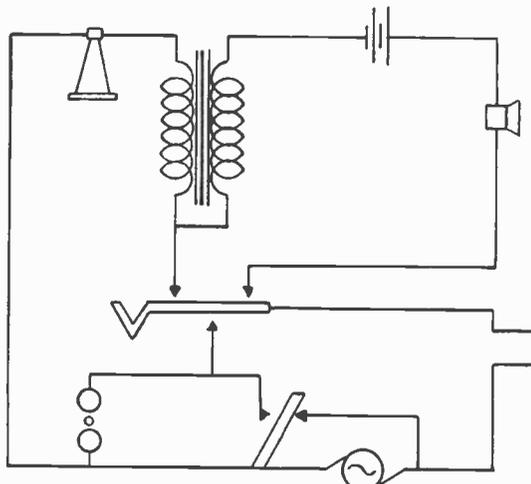


Fig. 2.

Switching was simplified by joining primary and secondary circuits but that did not affect the working. Fig. 3 shows another common arrangement in which the mike was combined with a watch type receiver and formed the hand-set already described in the Mark 3 telephone. The obvious advantage is that it dispensed with the hook and the three contacts. The bell was across the line and had a high impedance in order to prevent speaking current losses. The 2 mF condenser prevented ringing current losses through the receiver and induction coil secondary.

The Op. mentioned could hardly contain himself after receiving that cease fire message, and others outside were seen quickly to realise its meaning.

● Relief at last

After years of misery, anguish and the stark madness of modern warfare, in which both sides lose, the nation went suddenly mad with joy on that never-to-be-forgotten day. Lying near an open window, we heard the bells, hooters and sirens as they pealed and screamed their raucous thanksgivings for that eleventh hour, of the eleventh day, of the eleventh month. The price had been paid in blood, overwhelming debts had been incurred to help Allies, "Finis" had at last been written to the greatest story of anguish the world has ever known. The book was closed temporarily at least and no one knew whether mankind would profit by the

lessons of war's abominations or whether the passions of those futile years of brutality, destruction and misery would be carried through into the days of peace.

As Armistice night mingled with the new dawn a hard-living, hard-fighting member of the Poor Bloody Infantry, propped up in a corner, quoted dramatically . . . "And when at last, Oh Khaki, thou shalt pass—The Stripes, the Crowns, Stars are scattered on the grass—And in my joyous civvies reach the bar—How oft will I return my empty glass?"

Heartily endorsing the sentiments we fell asleep, each with a bewildered thanksgiving struggling to express itself, as the night breeze wafted into the peaceful ward the pandemonium of a roaring multi-

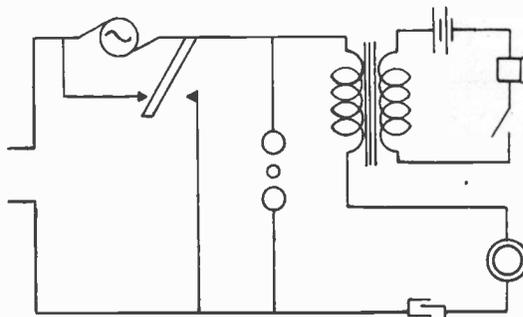


Fig. 3.

tude madly swaying and trampling in its new found freedom from the chains of Mars.

Convalescence reached a C2 stage, sick leave followed and, late one afternoon, I stood rather forlornly at the gates of a dispersal hospital with a discharge certificate in my pocket. I was once again a civilian with authority to wear khaki for one month longer, and somehow I had to fit myself back into what appeared to me to be rather a topsyturvy peace endured by war-dazed men and women.

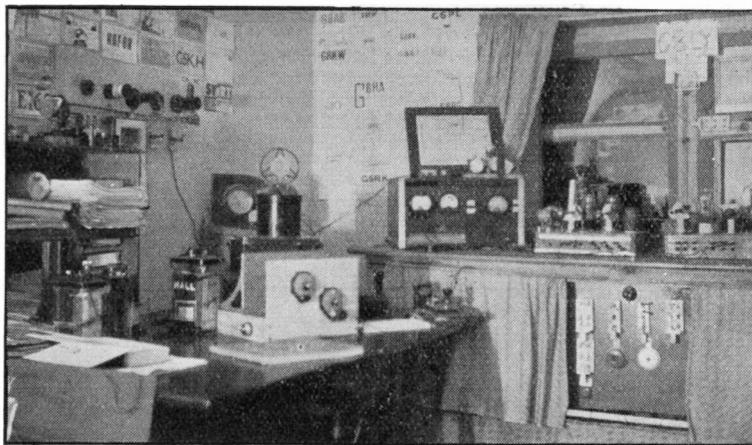
Six errant Ops., whose uniforms were hardly yet free of the mud of Flanders, thus burst upon the quiet respectability of the training school, but very quickly discovered their error in imagining that, with nerves still keyed up to the pitch demanded by modern warfare, they could quietly slip back into the peaceful groove of civilian life and telegraph-office routine!

Next month - - - - No. 9: "PURGATIVE."

Late Delivery

We occasionally get complaints that the Magazine is not obtainable on local bookstalls till the month is well advanced. There is no reason why this should be so, and it would help us considerably, if readers would report to us any such difficulties. Our publication date is the first Wednesday of each month, and supplies are sent out to the Trade in good time. If you place a regular order it would help your newsagent, while we are also glad to accept subscription orders direct to this Office, 8/- per annum post free, which ensures early delivery by post.

The Other Man's Station G8LY



ONCE AGAIN we must be excused for a misleading heading, because G8LY is actually Miss Constance Hall, North Waltham Rectory, near Winchester, Hants, who is one of the most enthusiastic of our growing band of YL operators.

Licensed two years ago, she is entirely free of local QRM, but not so much of a joy is the absence of mains. The prime mover was at first an old motor-cycle engine and generator which charged LT batteries for running a rotary converter, loading to about 25 watts at 450 volts, with 330 volts of HT accumulators also available. As the engine was being called upon to give more horses than it actually possessed, it was retired in favour of an ex-Austin 7 one, which now, in G8LY's own words, "drives various dynamos."

Initial transmitting work was with a single valve, an RFP-15 suppressor-grid modulated for 7 Mc telephony. A move to 14 Mc brought some good QRP DX 'phone with SU, FA, VE, etc., though Asia is still wanted for WAC and WBE; the aerial system consisted of two 66-foot Zepps arranged at an angle of 45 degrees. The transmitter finally developed into a more ambitious rig, using an RK25, but at no time has G8LY exceeded her licensed power of 25 watts.

The receiving end is taken care of by an SG-det. Pen., a Magazine "Class-B One Valve" with an extra LF stage, and, for 56 Mc, an 0-V-2 based on

the design of the 5-metre receiver recently published in these pages. It is visible in the photograph, below the microphone on the operating table.

Also to be seen, at the right, is the 56 Mc transmitter, 6L6 tritet-6L6 doubler-RK25, having an output frequency of 56,272 kc. One of the functions of the switchboard is to look after, by remote control, the Austin 7 engine, 60 feet away, and other apparatus includes 'phone and CW monitors and a three-stage speech amplifier-modulator. It is noteworthy that the whole of the gear is home-constructed, breadboard layout being used on the transmitting side.

Though a move is being made to 1.7 Mc for local working in connection with "five," Miss Hall is now concentrating chiefly on the latter band where, as she says, a contact gives one a real thrill, there is useful work to be done, and bottle-parties at the microphone do not pollute the ether. G8LY will be very glad to co-operate on 56 Mc with anyone at any time; she has so far heard G2GG, 2OD, 5RD, 6FO and 8MG, while her own signals have been reported by 5MA, 5NF and 8DM, among others.

We are very pleased to have been able to introduce through these pages another amateur who, by overcoming considerable local difficulties with conspicuous success and turning her attention off the beaten track, is contributing her share of achievement to the game of Amateur Radio.

WE HEAR THAT . . .

Messrs. Radiographic, Ltd., Dean House, Dean Street, London, W.1. are offering a really good crystal microphone, made under Brush patents, for 39s. 6d. They are also handling Hytron valves in this country, and carry a full range of all other American types.

* * * *

G6WY now has a score of 135 countries QSOed for the DX Century Club. We suppose that there must be some limit to the total number it is possible to work. Well done, Ham! British runners-up appear to be G2ZQ(121) and EI5F(100), and the total world membership of those with 100 or more countries to their credit numbers 25 only.

The New Call Book

Once more, the Summer Edition of this famous publication forms a complete guide to the amateur bands. The name, address and call of every known amateur transmitter in the world is given, together with the addresses of the various QSL Bureaux. To this vital information for every transmitter and listener interested in QSO'ing and QSL'ing is added much else of more general interest. Lists of international prefixes alphabetically and by countries, the various accepted codes, and a double-page map of the world showing the geographical location of the prefixes. The Amateur Call Book Magazine costs 6/-, and is obtainable from The Ham's Bookshop, Dept. SM., 41 Kinfauns Road, Goodmayes, Ilford, Essex.

USEFUL U-S-W APPARATUS

In this issue there appear in our advertisement pages two items which, since we have had an opportunity of testing and examining them, we think will have a great appeal to readers.

The first is a 7-metre portable superhet., which immediately conjures up visions of interesting field work on the signals from Alexandra Palace. Primarily designed for official use, the set is of course battery operated, employing four valves for head-phone work in a conventional circuit—FC, IF, 2nd, Det., and Output. What is not so conventional, however, is the fact that the whole receiver is only 12 in. by 9 in. by $7\frac{1}{2}$ in., while the layout is so arranged as to keep all RF leads as short as possible, the amount of wire extra to that on the components used being almost nil.

The aerial used consists of a light aluminium rod, plugging into the top of the case, which is provided with a carrying handle. This is a point sometimes overlooked in some apparatus which we have seen, though intended for portability!

In operation, the receiver shows good stability and complete freedom from hand-capacity, which is something of an achievement with such a compact design, where everything "hot" is necessarily very near the front panel. The pick-up of the 7-metre transmissions is extremely good, and the efficiency of the set gives considerable scope for test work well outside the accepted range of Alexandra Palace.

The price of this set, complete with aerial, fitted batteries and headphones, which pack into the cabinet when not in use, is 12 guineas.

● The 5-Metre Portable Transceiver

This is a two-valve unit which, by means of switching, can be used either as a transmitter or a receiver. On "receive," the first valve works as a self-quenching (super-regenerative) detector and the second as its LF amplifier. When changed over to "send," the detector becomes an RF oscillator and the LF stage its modulator for telephony transmission, for which a microphone is provided. Due both to circuit requirements and the necessity for current economy, the transmitting input is very low; the consumption is 20 mA only, using a standard HT battery, this falling to 10 mA on reception. The receiver wave-range is five to eight metres, but it should be noted that at any amateur station, the transmitter must always be tuned into the 5-metre band.

The main value of such an instrument is, of course, its utility for short-range communication, in which connection it has a very obvious application in providing an ultra-short-wave speaking circuit between amateur transmitting stations in the same neighbourhood. The unit was, indeed, designed to strict specifications for Service use over ranges of a mile or so.

It is already well known that direct-ray contact is possible on the 5-metre band over distances up to four or five miles, using simple apparatus and very low power, even when the siting of the stations is such as to suggest that "visual-range" working could not be obtained, i.e., a low-power transmitter such as this has tremendous penetrative ability on the 5-metre amateur band over short distances. The actual range obtainable is entirely dependent upon local circumstances, and may be much more or less than the figures mentioned.

It will be understood by readers of this paper that this transceiver is actually a transmitter, and it cannot therefore be operated without a licence for the 56 Mc amateur band. It is not intended for CW transmission, and can only work to a similar instrument or a five-metre super-regenerative receiver of any type. Reception of the transceiver signal would be possible on a superhet if the latter had very flatly tuned circuits, as is the case with some sets designed for the purpose.

The transceiver, which costs 11 guineas complete, and the portable 7-metre superhet already mentioned, are both marketed by Messrs. Peto-Scott Co., Ltd., 77, City Road, London, E.C.1.

We are always glad to have good clear photographs of general radio interest, either of apparatus or stations. If sent us exclusively, and used, they are paid for and block presented to the reader concerned.

WE HEAR THAT . . .

W2IXY is in the news again. She provided a 100 per cent. 'phone QSO with VR6AY on July 22, during which newspapermen were able to discuss personally with Edgar Christian, leader of the Pitcairn community, the rumour that the Island is suffering from a typhoid epidemic. This, which he strongly denied, has gained such currency that ships no longer call, and the 215 souls are rapidly approaching a crisis in their economy, as supplies of all kinds are running low. While in no way detracting from the great value of Miss Dorothy Hall's work, it is a sad commentary on what would appear to be a case of neglect on the part of our own people that this news has to come from America.*

* * * * *

All the latest American manufacturers' publications for the amateur, such as the Taylor Manual, the Raytheon Handbook and the R.C.A. Transmitting and Receiving Manual, are obtainable at Messrs. Webbs Radio, 14, Soho Street, Oxford Street, W.1., where "QST" is also stocked at 1s. 6d. post free. G2NO tells us that the new Hallicrafter Sky Champion, at £15, is proving a great seller, and we hope to run a Test Report in the September issue.

* * * * *

VR6AB, supposed to be portable on Pitcairn Island, was undoubtedly a "phoney." Again, W2IXY appears to hold the key. She was heard to tell a G station that not only has she irrefutable evidence that this "VR6AB" was a pirate, but also that she has a good idea of his identity.

* * * * *

And we hope it is true, that the authorities will probably adopt a more lenient and reasonable attitude with regard to the granting of high-power licences, as there is no doubt that much of the power abuse which is going on is due to the difficulty of legalising one's position. We could also wish that this would coincide with a stricter enforcement of the licence conditions—though there are plenty of people laying up trouble for themselves.

*Bearing on this, we have a Colonial Office Statement before us to the effect that the reports would appear to be devoid of truth and that ships are calling as usual.—ED.

Listeners' DX Corner

By
THE DX SCRIBE

This month we show you the neat receiving station of Graham Brunger, BSWL 345, 9 Belmont Road, Broadstairs, Kent. Note his neat way of mounting QSL cards. The receiver on the right is an O-V-2 for 28Mc only.

HAVING JUST RETURNED from our holiday we don't feel a bit like thinking in terms of radio, but within the first two days at home your DX Scribe added two new countries. ZD4AB was the first, and is ex-G2TH, late of London, operating in Accra, Gold Coast. He has no cards at present, but is awaiting delivery of them from England; his power is 20 watts to a 6L6 on 14,360 kc. The other was Rudolph I., Franz Joseph Land, with UX1CN and UX1CP, operating on 14,405 kc. We cannot tell you at present how cards should be sent, but it would appear reasonable to QSL via Moscow in the case of the UX's and via the RSGB for the Gold Coast, if you are a member of that organisation. We put this news in to start the page because it has been asked why your DX Scribe does not give you of his best more frequently,—the answer is that you send so much information that there is no room left for us!

● Calls Heard lists

The vote has been almost unanimous that general logs are of little value; therefore, we propose to publish only two or three of the best each month, the purpose of this being to assist those of you who are not sure if you have received a call correctly. We can only consider those general logs which are set out according to the rules and which have the name and address of the sender on each sheet; also, please treat 'phone and CW reports separately, and again, where a Set Listening Period log is enclosed, write this on another sheet. There is a reason for all this!

The vote has also been nearly unanimous that our Set Listening Periods are wanted, not only because they are of value for comparative purposes, but they give everyone an even chance of showing their prowess at the same time.

● Badly written logs

H. Sugden of Bradford again comes forward with some interesting views; he says, "Accuracy on the part of the SWL is useless if an equally high standard of correctness is not attained right through the process, from log compiler to printer. I wish to draw your attention to several errors which have crept in from time to time, both among the logs and text." Quite correct, Mr. Sugden, but listen to us for a minute! If you could see some of the logs, in fact most of the ink-written ones, you would begin to understand. How does a printer who has never listened on the short waves know the difference between a "1" and an "I" if these characters are drawn the same, i.e., as a vertical line without serifs? In your own logs you always reverse a "Z"



and write it "S"! Again, the letters D, O, Q frequently look the same, and in many lists C's are written like E's, but your DX Scribe and Editorial staff are expected to produce a 100 per cent perfect copy just the same! We ask all of you please to take greater care in writing your logs; dot your I's and put a serif on your I's.

Mr. Sugden is to be thanked for bringing this matter up, but the real remedy is with you all—we are only human! His best DX was the reception of a station of which we have had no other report—TG5 giving his QRA as John Guillen, P.O. Box 10, Guatemala City. This station was heard on 'phone working WIAKY between 06.00—08.00 BST on 14 Mc. The next best was W9EOZ in N. Dakota.

● Misread CW

We have discussed at great length the difficulty of receiving telephony calls when fading and interference are bad, but we have not dealt with another trouble—that of incorrect copying of CW calls. This is largely due to the extremely poor "fists" of many operators, mostly on the Continent, but also at home. A listener will learn the code and apply his new-found knowledge to reception of CW signals, and before the evening is over he has got down some amazing prefixes, due to poor spacing of the Morse characters. 2CUR, Cpl. V. Thomas at North Camp, Aldershot, sends us several "mysterious" calls for elucidation;—let us consider these and see what we can make of them. First, UT7AN; this sounds as if it should originate from Mongolia, but we believe it should be YT7AN in Jugo-Slavia. Secondly, he presents a teaser—JQNAV. We suggest this should read W8NAV; thirdly, HF3K, and we think this is a case of putting the last letter of the call before the first, which therefore should read F3KH; fourthly, YA5ML, undoubtedly YR5ML, who is always on the air and sends very quickly on a bug, missing a few dots here and there in the process!

An experienced CW operator on 14 Mc will know at once the correct call, even though it is hopelessly badly spaced and with dots left out—listen to some of the ships sending to each other on 600 metres and you will hear clipped dashes sounding like dots. Then there is the RAF style, where “U” is made as “IT” and “2” as “IO”, etc. We were listening to UIBQ in Leningrad sending CQ the other evening; at first we thought it was a new French Colony, as he always sent F-CH-BQ (CH is four dashes)—work it out for yourselves! So let us see your “mysterious” calls, and we will endeavour to unravel them for you. Here’s another, CA1AO (‘phone), heard by D. H. Tomlin of Sheffield. Read CE1AO, Donald.

● QSLs

We will now move from CW to QSLs, because there is no doubt that there must always be a paragraph on *this* controversial subject! If you find you do not get many replies to your SWL cards, try sending full reports to CW stations, especially DX heard on 7 or 3.5 Mc. American amateurs will invariably QSL them on these two bands, even if an IRC is not enclosed. You see, CW stations are not copied to anything like the same extent as ‘phone by the large army of SWLs, and so a report is relatively a rarity in their lives!

Many have written and enquired about the words “Western Association” or, in Spanish, “Rueda del Oeste,” which are used by certain stations when calling “CQ” on ‘phone. This is an organisation which was started, we believe, in Argentina. Its aims and objects are to band the amateur stations in the Americas together, and only those who intend to play the game from every aspect can become members; therefore, if a station announces that he is a member of the Western Association, he is in reality telling you he will QSL all reports! Their QSL depicts a mast with flags of all the member countries suspended from it, and a very fine card it is too, printed in many colours.

H. Owen (aged 16) of 2 Campion Ave., Basford Park, Newcastle, Staffs., sends us a long letter and he wisely tells us that he only sends reports to stations who say they would appreciate them,—result 100 per cent replies, without IRCs in most cases. L. Pairman, Ailsa View, Mary Street, Dunoon, Scotland does not even send IRCs; being Scotch, he takes a chance and has been well rewarded, having received cards from VQ4KTB, FI8AC, ZE1JA (!), J2JJ, J2KG, VU2JK, VU2FD, and some VK’s, but it is interesting to record that the J’s, VK’s and VU’s were received on CW.

● Proficiency Certificates

Here’s a new idea from W. H. Gundill, Sawley House, Dewsbury, Yorks. He thinks that recognised societies should refuse to accept for such awards as the HBE and HAC cards from stations like ZE1JA, who only QSL a chosen few, and that a certificate of proficiency should be substituted. To obtain this, a claimant should furnish, say, 20 cards on which the transmitter has stated that the report was very much appreciated, or that it was the first one he had received from the country or locality, or, alternatively 20 cards showing that 20 W6s or W7s had been logged; or even cards from British stations showing that long periods of co-operation had been given to the transmitter on his tests.

● Patience

Leslie J. J. Morgan, 45 Parkwood Road, Bournemouth, has just received a card from XZ2EZ after waiting three months. This brings us to a point frequently overlooked by SWLs and transmitters alike. Most stations do not reply to a report immediately they receive it; they wait and write them out in a batch. Sometimes the interval between these writing spells may be 6 months or a year, and cases are known of 2 years or more. This is especially so where the transmitter sends his batches of cards via the RSGB or BSWL; the Russian and Polish organisations are notorious for holding QSLs for 6 or twelve months. We heard of one British amateur who worked a number of Polish stations in their DX Contest in May, 1937, and has only just received the cards after the same contest of 1938—14 months late. So do not accuse a station of not sending cards until you have waited at least two years. Leslie Morgan was also successful in obtaining a card from VS2AK, who has now returned to England.

P. F. Clifton, 99 Nowell Road, Barnes, London, S.W.13, would like to communicate with anyone outside England on radio subjects. He asks which we think are the best times for DX listening, late at night or early in the morning. We think it is a matter of choice. If you want S. America and U.S.A., then late at night; if you are after far U.S.A. and VK, then early in the morning, at this time of the year. 14 Mc frequently fades out in the winter after 22.00 GMT. Mr. Clifton reports VP9L, VP9G, VP4TK, VS1AI and VP6YB as among his best catches on ‘phone.

● Pirates

E. Strowbridge, 11 Leigh Gardens, Kensal Rise, London, N.W.10, is anxious to know if CN1AF is genuine. This call has been reported by at least three listeners this month, and as CN1AA is the right stuff in Tangier, we see no reason to think that IAF is otherwise than *bona fide*. J. Sydney Brock, Abbotsholme School, Nr. Rochester, Uttroter, Staffs, queries our remarks on pirates in the June Corner, as he has heard IIMX and IIKCC on 14 Mc ‘phone. The fact that there are dozens of Italian stations operating does not mean that they have licences—you cannot stop amateur radio even in a Dictator country, licences or no licences. These two, and all “I” calls heard, are genuine, but operated under cover. TA1AA, reported by many this month on CW, is not genuine; at least, cards sent to the address given over the air by him have been returned “inconnu.” We are still anxious to see a card from a Turkish amateur.

● Shack photos

R. Boyce, 395 Uppingham Road, Leicester, sent us a ‘photo at the beginning of the year, and now writes to point out that it has not yet appeared in print, though others, sent after his, have been published. The reason for this, and for other cases where a photo is not used, is simply that the print is not sharp enough for reproduction. Mr. Boyce’s was blurred due to the camera having been moved slightly when the picture was taken. Flashlight pictures always reproduce best owing to the sharp definition between black and white; those taken by photoflood lamp are also satisfactory. Send us a better one and we will gladly reproduce it, Mr. Boyce! We are also grateful to G. B. L. Wood-

burn, 223 Quinton Lane, Quinton, Birmingham, for his shack 'photo, but here again we cannot publish it for the reasons stated above. And we want a good one for next month from somebody, please.

● Home-made receivers

Mr. Woodburn intends to build a 12-valve super with crystal filter—we should like a 'photo of *that* when it is finished and would be very happy to publish it—and this impels us to say we always think it a pity that so many listeners are content to receive on the creations of other people's brains, instead of building and thereby learning something about radio. C. Stevens, 98a Kimberley Road, Southbourne, Bournemouth, is amused at the results of some readers using commercial "all wave" sets. He cannot understand why they talk of their

end of these tests for some months. After some time, replies arrived at G2XC containing such excuses as "no coil," "haven't time," and "receiver won't tune to 160." Mr. Stevens assures us he does not want to give the impression that this is intended as a "pat on the back" for himself, but rather to show that there are a large number of people who join societies just to feel that they are more important, though with a purely selfish outlook. If any amateur wants co-operation on any band from 1.7 to 112 Mc, write to Mr. Stevens or deliver the message via G2NS.

● The Ladies of Amateur Radio

W. Peters, 82 Salisbury Road, Barnet, Herts., mentions hearing G3GH at Braunton, Devon, on 1.7 Mc 'phone. You will remember that her station description appeared in the April issue. In passing, it might be of interest to mention those ladies who hold a full radiating licence in this country. The first was Miss Barbara Dunn, G6YL at Felton, Northumbs; she has been active ever since she obtained her licence in 1927. Both Miss Burns, GM2IA of Carluke, and Miss B. Saltmarsh, G6SF of St. Albans, have been licensed for a considerable time, and later additions to the ranks have been G2YL of Tadworth, Surrey, whose record has been brilliant (it will be recalled that Miss Corry achieved the first WAC/WBE on 28 Mc), Miss Hall, G8LY of Winchester, Mrs. Myler, G3GH, and lastly, Mrs. Salter, G3LJ of Abingdon, Berks, who was only licensed a few weeks ago. We welcome their influence among the amateur fraternity.

● In defence of QSLing

Last month we published a tirade by "Bug Key," and we have received many letters disagreeing with him, but we are leaving it to our old friend Bob Everard to take the chair. He writes as follows: "I wish to defend myself against the nonsense written by one who is not man enough to use his own name. I have never stated that I did not believe in CW, but I am a rather badly disabled war veteran and find 'phone reception more congenial in my particular case, especially as I have not the facilities to learn CW. Also, relative to 'Bug Key's' remarks on 'collecting lots of pretty wallpaper,' said 'wallpaper' is at all events *proof* of DX reception and skill. I wonder if he can show 'proofs' of his skill? Most real hams are keen on obtaining genuine DX QSLs, and I can show 'Bug Key' scores of letters and cards thanking me for my detailed reports which were, in many cases, the first from England or Europe; furthermore, these were of great value to the recipient." He goes on to say how these reports have created a very friendly atmosphere among the transmitters who appreciated them, and he feels he is doing his part, in his own small way, to further the art of amateur radio. Thank you, Bob, nice work! By the way, we have received a criticism that we should not publish views expressed under a pseudonym—this page is yours, and we must print anything that we think will be of general interest. After all, even your DX Scribe has another name!

DX FORECAST FOR 14 Mc AUGUST 1938

(All Times G.M.T.)

North America.

Eastern States of U.S.A., VE 1, 2, 3, VO, K4 and West Indies	22.00-08.00
Western States of U.S.A., VE 4, 5, XE and Central America, K6, 7	05.00-08.00

South America.

All	22.00-08.00
(Note.—S. America is frequently heard when U.S.A. signals are absent.)	

Africa.

ZS, CR7	18.00-20.00
VQ2, 3, 4, OQ, ZE, ZD2, 4, FQ8, FB, etc.	17.00-21.00
FA, FT, CN, SU, ST	09.00-11.00 15.00-22.00 (or later)

Asia.

J, XU, VS1, 2, 3, 6, 7, UO, FI, HS, etc.	17.00-21.00
J, XU	08.00-09.00 (rare)
YI, ZC6, VU (North), U9, AC4, etc.	15.00-22.00

Oceania.

VK, VK9, VR2, 4, 6	05.00-09.00
ZL	06.00-10.00
PK, KA, Guam	17.00-21.00 (or later)

results when the receiver *should* receive everything. He has been in the game since 1928 and has never yet bought a receiver, everything heard being solely due to his own endeavours.

● Co-operation

Mr. Stevens does not admire the average SWL. He cites the case of G2XC who, some years ago, wrote to him when he was BRS1610, and to all the other local BRS's as well, requesting co-operation on a series of tests on 1.7 Mc. The only person to reply was Mr. Stevens, and he worked on his

● 56 Mc reception

E. Crowe, 28 Carlingford Road, Hampstead, N.W.3, is supplying us with useful 56 Mc logs and raises the point of harmonic reception. Harmonics occur on all frequencies, and are more noticed on 56 Mc owing to the scarcity of signals, but they are

extremely useful for indicating when the band is open for contacts over more than a few miles. Every amateur using this band sends "Test five," or signs off with "56 Mc" at the end of his transmission, so if you hear stations not indicating the fact they are on the five-metre band it is reasonable to assume that they are harmonics. In the London area, the air is quite thick with 56 Mc signals in the evenings and at weekends, and amateurs will always appreciate reports and co-operation on this band.

● Frequencies of stations

Following our remarks last month, several readers have obliged with the accurate (within 10 kc) frequencies of the rarer stations, and it is this type of material that is so much more useful than lists of calls heard. T. C. Fletcher (BRS2908) of Bexleyheath, Kent, sends his list which he assures us is accurate to within 8 kc. 'Phones—VS1AI 14,095, VU2DR 14,140, VP4TK 14,170, PK4DG 14,360. CW—VQ2HC 14,320 and 14,390, CR7AD 14,380, TF5M 14,330, J2JJ 14,400, J5CC 14,400, J2KG 14,390, J2KJ 14,350, ST2CM 14,355, PK1RI 14,355, ST6KR 14,340, VU2CR 14,355, VU2FD 14,360, VK7CM 14,330, and XE3AR ('phone) 14,160. His total of countries heard is now 114 according to the RSGB list, and he has received cards recently from VP2AT, VP2TG, OQ5AE, XZ2EZ 14,360 and 14,200, J5CC, VQ4KTF 14,075, VO4Y, ZD2H, ZS3F, VQ3HJP and VU2FS.

● Local interference suppression

Gordon Birrel of Dundee raises an interesting point for users of straight receivers. He experiences considerable trouble from the local telephony transmissions of GM5NW, who uses 75 watts. Gordon suggests a wave-trap in the aerial tuned to the offending station's frequency. We feel sure that this method would not help, for although it would tune out the local, it would probably also make quite a "hole" in the band; you would not be any better off except possibly that it would remove the trouble of the speech being heard over the whole dial when the detector valve is not oscillating. However, try it and let us know how you find it works. Cards received by Gordon include one from VP1BA and VE4SS.

● A new club formed through the DX Corner

L. J. Orange of Peckham has formed a local SW Club of DX Corner readers! He communicated with them and you will see their notes among the other Club News in this issue. We suggest this might be an example which could be followed in other districts; keep your eyes open for addresses of readers near to you, and find out whether they have that "co-operative spirit" previously mentioned!

● Set Listening Periods for August

Can you beat it? We have Set Listening Periods in the early morning because DX is so good at that time, and N. J. Rutter, 23 Bouverie Ave., Swindon, complains that it is not fair, as he cannot get up at 6 a.m. and he feels quite sure that there must be many others "in the same boat"! Mr. Rutter, we all rise up and say to you, "If you cannot get up early for a bit of good DX, then you had better take up stamps or gardening." One of his complaints is that the receiver wakes the other members

of the house,—will somebody please present him with a pair of earphones???

August 6 22.30-00.30 BST (2 hours) 1.7 Mc.

August 7 18.00-20.00 BST (2 hours) 28 Mc.

August 9 06.00-07.30 BST (1½ hours) 7 Mc.

August 10 22.30-24.00 BST (1½ hours) 14 Mc.

We have made the 1.7 Mc period half an hour longer, it having been suggested that as amateurs stay up late, we should be there to log them, especially as they seem to peak at midnight.

● A racket

Here is an interesting letter from F. G. H. Macrae, 11 Brooklands Gardens, Potter's Bar, Middx. He writes: "About a fortnight ago I received a card from an SWL requesting *my* card. As I am neither a transmitter or QSL enthusiast I was mildly surprised, but gathered the owner obtained my address from the Magazine. Not having SWL cards myself, I sent a courteous letter in reply, asking for details of local reception, a subject in which I am deeply interested. Despite the enclosure of a SAE, no reply was forthcoming, and I am writing to ask the value of such cards sent out without sense or reason, containing nothing of any possible scientific interest." Here is a case of bad manners plus a collecting "racket"—what sense is there in obtaining SWL cards? R. W. Dove, 10 William Street, Reading, Berks, would like to correspond with other SWL's, and J. W. Massey (BSWL826), 9 Ash Grove, Wembley, Middx., would appreciate a line from someone in the British Empire or U.S.A., especially from S. Africa or New Zealand, to discuss athletics!—Hey, this is radio paper!

K. Holyland, Swincliffe Side, Hampsthwaite, Harrogate, sends us his usual magnificently written log—you should see it. There is no doubt about the calls, even a blind printer could read them. He has put up a new aerial and was rewarded with his first PK, so to those who cannot receive a certain part of the world, try an aerial in a different direction, or with a greater slope. A. C. Weatherstone (BRS2200), Thistle Cottage, Walkerburn, Peeblesshire, Scotland, is anxious for us to publish calls of stations who do not appear to QSL. He mentions K4ENY, FB8AD, VQ4KTB, W6GRL, W9ARL, W5CXH, W5DQ and W6CQI. We wonder how many of these will eventually show up? E. Strowbridge of London, N.W.10, asks if VP9L is genuine—yes, he is in Bermuda. QSL via VP9R. N. Stevens, also of London, N.W.10, received W6FUO in Reno, Nevada and VK6MW in Perth, W. Australia. He asks if any other SWL has received VK6 on 'phone before? John Hunt, "Durban," 2 Parkhill Road, London, E.4, wishes to correspond with anyone, DX or local.

John E. Laing, 34 Holystone Street, Hebburn-on-Tyne, Co. Durham, regards the amateur bands as so much space wasted that could be occupied by BC stations. His reason is the amount of "tripe" talked by some amateurs, but he goes on to say there are some good ones! Anyone agree? He thinks that reports given by amateurs to others over the air are very nearly useless, SWL reports being of far more value.

Finally we must thank all those who, having written this month, have yet not been mentioned by name. Your ideas have been taken and woven into the general arguments and some of the letters have been held over for possible use next month. Please let us have all your letters and logs by the 15th August, as we go to press early for the Show.

CALLS HEARD

**Set Listening Period (1),
July 9th, 22.00—24.00.**

1.7 Mc.

BRS 1974, Cheltenham. Comet Pro and pre-selector.

'Phone—**G2DQ**, 3LZ, 6GO, 8NI, **CW2BG**.

CW—C2HW, NZ, YY, 5QY, 8JM, MW, NF.

C. D. HAMMETT, 37 Torrington Road, Greenford, Middx.

CW2BG, **G8JM**, SK, 50A, 2XP.

W. PETERS, 82 Salisbury Road, Barnet, Herts.

G2DQ, XG, XP, 3GH, GW, 6SQ, TL, 8BI, JM, NL, TL, SK. **CW2BG**.

S. B. OSBORN, 51 Eversleigh Road, London, N.3. 1-v-1.

'Phone—**G5CU**, CJ, 3FQ, **E15J**, **ON4SZ**, **CW—G3FQ**, 6UJ, **PA0DA**, DK, FM, XT, **OZ2PX**, 3PA, 7SL, **FA8VL**.

H. OWEN, 2 Campion Avenue, Basford Park, Newcastle, N. Staffs.

'Phone—**G6GO**, 2DQ, **F8YC?** **G6GI**, **CW—G6GX**.

**SLP (2), July 10th,
14.00—18.00.**

28 Mc.

S. B. OSBORN.

'Phone—**G6GR**, DF.

CW—G2DN, 5NM, 6QM, 8JR, MH.

**SLP (3), July 11th,
06.00—07.30.**

7 Mc.

D. J. A. HALL, 38 Trevor Road, West Bridgford, Notts. 6v. all-waver.

'Phone—**F3DF**, DY, MT, QC, QS, RA, SH, SP, UB, 8HY, QD, RP, RT, UK, ZT. **LX1SM**, **OZ5BW**.

S. B. OSBORN.

'Phone—**OZ5BW**, F3QC, SP, UB, 8HY, QD, ZT.

CW—CM8YB, **EA7XX**, **G2PG**, 3MI, **HA4F**, 8R, **OK1ZM**, **SM7MV**, **SP2DA**, **VE3AMJ**, **WI1TS**, 2EPR, KOZ, 3GSR, HGW, HJN, MLD, ON, 4FID, 8HKY, MIS, 9NMQ, **YR5VX**.

W. PETERS.

F3EB, DY, MT, OD, OC, QS, RA, RP, SH, SK, SP, 8HY, QD, RT, **FA3RY**, **G2QH**, 5PY, **HB9FC**, **ON4DU**, **OZ5BW**. Radio Malaga.

C. D. HAMMETT.

'Phone—**OZ5BW**, **F8ZT**, HY, QD, 3SH, UB, CG, DY, DC.

BRS 1947, Cheltenham.

'Phone—**F3DF**, DY, EB, MT, QS, RA, SH, SK, SP, 8NE, QD, RM, RT, ZT. **OZ5BW**, **PY2LN**.

CW—F8NE, **G3LP**, MZ, **LA1C**, **OK1ZM**, **SM7MV**, **WI1ET**, ITS, 2GOQ, KSV, 3ESN, FOO, GFJ, GVE, HJN, 8HJY, FBU, RCQ, 9YQE.

H. OWEN.

'Phone—**F3CG**, **QC**, **OZ5BW**, **F8SP**, UB, 8ZT, RT, QD, 3SH, QS, DF, 8HY, 3MB, 8UK, 3RA, **G3GS**, **ON4WXW**.

CW—W2IKK.

I. A. BATES, 85 Jeanfield Road, Perth.

'Phone—**F3DF**, OD, RA, 8UK, **ON4GM**, **OZ5BW**, **SP1QS**.

**SLP (4), July 13th,
06.00—07.30.**

14 Mc.

D. J. A. HALL.

'Phone—**E55C**, **F8SI**, **FA3HC**, **G5BJ**, PM, 8JQ, **HA7P**, **VE1DQ**, 2BO, **W1ADM**, FH, GJX, IFD, 2AU, JRR, SZ, 3ANH, CBV, FDH, 4BJV, BPG, EEV, SW, 5DNV, FSS, 6CLS, CQS, MZD, OCH, OI, 7BVO, 8AAJ, BWC, CUO, IHU, LAW, MPX, NJP, RRB, 9ELX, ITS, MGT, NLP, TIZ, **FOO**, **XE3AR**.

S. B. OSBORN.

'Phone—**F8FI**, **FA3HC**, **G2AI**, UT, 3BX, 5BJ, 6RW, 8MA, SB, **HA7P**, 11MI, **VE1DQ**, **WI1FD**, 2AU, 4ASE, BJV, DLK, 6CLS, GRL, 8IHU, NJP, RRB, 9NLP, TIZ, **FOO**.

CW—E12F, **G2KM**, IM, 3BS, 6KS, **ON4FT**, **OK2KW**, **SM6WL**, **VK4OB**, **W1BAH**, BBA, KHA, 21JU, AOY, 5HGC, 6MXU, 8QYE, 9MUX, ZUX.

W. PETERS.

F8SI, **FA3HC**, **G3BX**, 5DM, 6RW, **HA7P**, **W1ADM**, FH, IFD, 2AU, FZ, JRR, JT, 3LE, 4BPG, 5FMS, 6CQS, OCH, OI, 7BVO, 8AAJ, CUO, FOD, IHU, MPX, 9PS, **FOO**, TIZ.

C. D. HAMMETT.

'Phone—**FA3HC**, 8OC, **G6DT**, 8MA, TX, SB, **HK3GL**, **OA4AI**, AW, **VE1DQ**, **WI1AKY**, IFD, 2JT, IWT, SZ, JRR, AD, 3CDX, 4HX, UC, 5BNQ, 6OI, 7BVO, AMO, 8MJP, IHV, HEQ, BDO, 9NNO, UOP, **XE1FG**.

J. C. FLETCHER, 4 Cyril Road, Bexleyheath, Kent. Super Sky rider.

'Phone—**VK3WA**, **W2AU**, SZ, 5BNV, 6OI, 7BVO, 8BWC, MPX, NJP, 9NNO, **XE3AR**.

CW—VE2IL, 3ALX, AU, HI, 5AAD, **VK4JB**, **W21SS**, 7AKP, AYO, 8AEH, AFZ, ERO, LQK, PAJ, QKX, QQP, QYE, SCA, 9IMB, I.W, RLP, VI.Q, **ZL3GR**.

BRS 1947, Cheltenham.

'Phone—**CN8MA**, **E55C**, **G2UK**, 5BJ, BM, 6GF, **ON4DI**, **VE3QZ**, 5ACN, BT, NY, **W1DJS**, GJX, 2AU, DCF, FZ, JJR, 3LE, 4IS, SW, 5DNV, FFS, YW, 6CPS, CQS, IGX, IKQ, OI, NZV, 8AAJ, BWC, JJM, LAW, NJP, RRB, RRV, 9ITS, NLP, TIZ, TNI.

CW—F3KS, NM, **FG8AB**, **G5HB**, LI, MY, **HA3C**, **IKN**, **W1HX**, **IKN**, 4BPD, CTD, 5FNA, 8QYE, 9HBD, JJQ, KSY, I.W.

H. OWEN.

'Phone—**W1HKK**, 2AU, 3GPV, 1FH, **F8SI**, **W8IHU**, 3ANH, 1IFD, 9TIZ, 8MPX, AAJ, **FA3HC**, **W9ALP**, 3JC, 2FZ, 8NJP.

CW—OK1ZM, RW, **W9MUX**, **VE3AU**, **HA3K**, **F3DM**.

I. H. BATES.

'Phone—**E55C**, **F3LW**, 8HC, KI, QD, VC, **VE1DQ**, **W1ADM**, IFD, 2AU, DLK, JRI, LCA, 3AH, ANH, 4AMH, EDC, 6CQF, LCG, 7BVO, 8LAW, MPX, 9AJM, MJK.

E. STROWBRIDGE, 11 Leigh Gardens, London, N.W.10. 6v. SH.

'Phone—**F8SI**, **FA3HC**, **G2AI**, TD, 6BY, RW, 8MA, NK, SB, **HA9P**, 11MI, **K4EVC**, **VE3QZ**, **VK3WA**, **W1FH**, IFD, 2AU, ECF, JRR, SZ, 3ANH, FDH, 4BPG, 5FSS, 6OI, 7BVO, 8AAJ, BWC, CUO, IHU, MPX, NJP, RRB, 9NLP, **FOO**, TIZ, **XE3AR**.

J. SWORNSBOURNE, Parkside, Tonbridge, Kent. Battery 0-v-1.

'Phone and **CW—D2HZ**, 4QNM, **E55C**, **F8TM**, **FA3HC**, **G2WO**, 5UX, **HA3K**, 11MH, **OK1SF**, 3NS, 2XF, 1ZM, 2HL, SVM, 1RV, SV, 2PY, HC, **ON4FO**, NW, **OZ5Z**, **SP1AT**, **TA1AA**, **U5HE**, **VE1DQ**, 3ALX, AU, 5AAD, **W1DK**, KTG, JLL, HY, HX, FH, DLX, 2CJJ, COY, BMX, KHK, HMJ, 3FBL, ADX, EML, 6KJR, PHS, LUJ, 8AC, PQ, QQP, QYE, AWX, OYV, 9YLZ, EEY, MUX, EZX, KSY, LW.

General

1.7 Mc.

A. H. DYER, BSWL672, 13 Fore Street, Torrington, Devon.

'Phone—**G2DQ**, PO, SC, XG, 3GH, 5BM, CU, LM, MM, TN, 6BO, GO, HN, MN, TL, 8CT, FU, JM, NL, TL, **CW2BG**, 5BT, 8HL.

CW—G16HVP, **CW2OP**, 2WO, **G5AKP**, 6GM, VD, 8MW, WQ.

56 Mc.

C. T. FAIRCHILD, 2DGR, 1a Dover Rd., Brighton, 6, Sussex. Heard during last two months with straight 0-v-1.

CW—G2DM, HG, HV, JKP, MV, MR, NMP, OD, OZ, XC, ZV, ZVQ, 5MAP, KF, OJ, RD, 8IX, KZ, OQP, OQP, OS.

'Phone—**G2MV**, NMP, ZV, ZVP, 5MAP, RD, 6LK, VA, 8CP.

Harmonics—**G2CU**, RU, 3JF, 6CY, RM, 8AC, II, OQ.

C. F. KEEN, BRS 3322 and 2DFG.

QRA—The Devil's Dyke, Brighton. 0-v-1. Vertical dipole (1/2 wave) and reflector—**G2NMP**, 8OQP, 6LK, 5MAP, 8KZP, 5OJ, 2JK, 8IX, 2MV, OD, HG, 6VA.

110 feet length of horizontal wire—**G6PK**, VA, 8IX, 2QY, 8MG, 5MAP, 2MV, MR, 5CM, RD, 8LY, 6XM.

QRA, 20, St. Leonards Road, W. Hove, Sussex. 48 feet horizontal wire—**G2ZV**, 8OS, 6YI, LK.

E. L. CROWE, 28 Carlingford Road, Hampstead, N.W.3. 30.5.38—12.7.38.

'Phone—**G2AW**, JK (and CW), MR, 5OX, 6OT.

CW—G2HG, LW, QY, 5RD, 6HU, 8MV, ON, OR.

C Calls Heard Overseas

"**SOONE WALLAH**," nr. Bhutan Border, India. 6v. SH. (using car battery).

Heard between 22.30 and 00.30 BST.

14 Mc 'phone—**G2WD**, AK, CG, DH, FB, HK, NO XY, PU, GL, GF, JZ, CU, TR, **GM2UU**, **G12CC**, **E12I**, 3J, **G3GH**, FA, BM, CP, DY, PD, BX, **GM3BD**, **G5BR**, OV, WO, BD, DR, DT, GS, GO, JO, JR, ML, NI, ON, RV, TB, ZG, QI, BG, ZT, CV, BM, QM, BJ, **GM5NW**, **G6ML**, VT, OS GZ, GO, HV, PY, RH, TZ, WX, XR, XI, BY, TR, TI, GF, US, BW, UF, WK, FS, DL, RO, WU, DT, VX, KL, YU, **GM6WD**, **G8IG**, MA, MV, VX, CX, GX, DU, OU, SB, SP, PW, MD, MC, OA, KD, OF, KZ, RG, BX, AW, NY, TO.

ROGER LEGGE, JR., 20 Beethoven St., Binghamton, New York, U.S.A. National SW-3.

14 Mc 'phone—**G2PU**, MI, HK, IS, CG, ZO, BY, MF, DV, DH, IW, UT, 3BM, CP, FA, DY, KH, BX, II, DI, KM, 5BJ, LK, NI, GN, DR, XJ, I', VT, LU, ZG, TP, LJ, BM, 6BW, CI, BY, RO, VK, UX, HV, YU, TW, VX, AG, IA, WU, US, 8TX, MC, AR, DU, GM, OG, OF, SB, MA, MU, JA, OC, HR, CS, FO, AW, KS, **GZ3KY**, 5TJ, ZL, 6JW, **G12CC**, 5QX, MZ, **GM2UU**, 5NW, 2DI, 6RG, WD, 8CH, MN, 3DD, **E12I**, 3J, 4I, 6G, 9J.

"RADIOQUEST and SIDE-SPLASH"

AT THIS TIME of the year normal listening becomes still more disturbed by atmospherics but fortunately reception of the lower waves is not so seriously affected as on the medium and long-wave bands. As we go lower in wavelength the effect of atmospherics grows less, till below 15 metres they are negligible.

Apart from the enormous ranges achieved by short-wave broadcasting, that is the most important factor assuring its now well-established success.

Though the amount of signal energy collected by the aerial is of considerable importance, it must be remembered that the proportion of noise inevitably picked up gets equally as much amplification as the signal in the receiver. While, of course, atmospheric disturbance is greater in some parts of the world, listeners in temperate zones have their reception marred by disturbances occurring often a thousand or more miles away.

● Design Points

Thus, with the reduced amount of static noise on the shorter wavelengths it is possible to amplify a signal of a few microvolts up to full speaker strength where a much more powerful signal from a medium-wave broadcaster would be completely lost under the mush. Regular listening to distant short-wave broadcasters is making even the casual listener more conscious of these points, which ensure consistent and noise-free reception from all parts of the globe when programmes from more local stations on higher wavelengths appear to be accompanied by a firework display.

This background to signal ratio can to a very large extent be controlled by careful design of the receiving aerial and the receiver itself. Much of the "mush" is due to internal noise in the set—a small one with only two or three valves is naturally quieter in this respect, but unfortunately we cannot also have the same degree of selectivity that is obtained with a larger receiver. Selectivity reduces background by admitting less of a waveband at any particular tuning setting and thus minimizes atmospheric noise as well as unwanted signals, but whether the receiver be large or small a great deal depends on the aerial. The greater the field strength at the aerial the less amplification will be required from the receiver—and as we approach the maximum amplification the internal noise, for which the valves are chiefly responsible, increases enormously.

● Do You Know?

A suggestion for club secretaries for what would promise to be an interesting innovation at their meetings. Each member would come prepared with one or two questions (and answers!). They could be either technical or on general radio knowledge. I will quote a few examples:

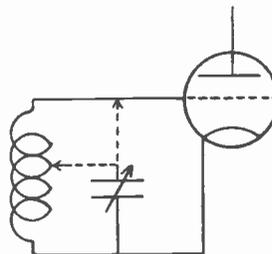
1. What is the maximum permitted length of a receiving aerial?
2. When was the Morse Code devised and what was its first use?
3. When was the Atlantic first spanned by a radio signal?

4. When was speech first transmitted across the Atlantic by radio?
5. As no high-powered valves were then available, how was this effected?
6. The patent for the thermionic valve, a diode, was taken out by Sir Ambrose Fleming. When?
7. Who patented the triode and when?
8. When was the grid and plate circuits first coupled to make use of reaction or regeneration?

The questions could be collected and read to those present and a suitable award made to the member who gets the most correct answers. Seems to me to leave spelling bees cold! The answers to the specimen questions appear on page 29. How many can you get right?

● Two Tips

Below is illustrated an idea, by no means new but rarely seen despite its very apparent utility. It is to obtain the advantages of band-spreading in simple receivers designed for limited wave-bands without using two separate tuning condensers. The condenser is tapped across part of the coil instead of the whole of it. You can choose the tapping to give as little or as much spread as you like, but



I would suggest a good position for general use would be about a quarter of the turns up the coil. If required to change over quickly to wide coverage a switch could be included to connect the condenser across the coil in the normal way, as illustrated by the dotted line. Any point could

be tapped or the condenser put in parallel with the coil with the help of our old friend, the crocodile clip, thus dispensing with this switch.

Speaking of crocodile clips calls to mind a recent visit to a well-known ham who despite his reputation for "getting there" always annoyed me by his method of temporary hook-ups. We all, at various times, have to add condensers or resistors after making up a circuit but my now converted friend persisted in using any odd piece of wire (bare or otherwise) for the connection.

I must admit however that years of practice stood him in good stead and nothing seemed to happen. Next time I called round I introduced some Bulgin copper clips neatly attached to varying lengths of flex—I'm wondering how long my set of leads are to repose in his receiver!

● Strange but True

Recently a certain absurdity hit me quite forcibly and I found myself wondering what Euclid would think if he, were alive to-day and heard us speak of *straight curves* when talking of valves. Even when we qualify it by saying the *straight part of the curve* it is geometrically just as irrational.

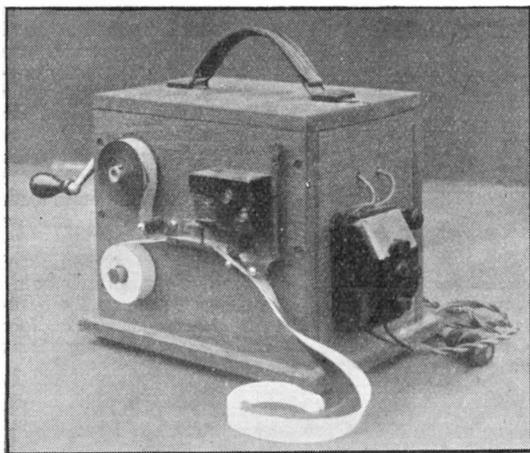
Gene Lap.

A Morse Recorder with Useful Applications

By ARTHUR C. GEE (G2UK)

A suitable Relay was described last month

THE JULY ISSUE of this magazine contained an article on a home-constructed relay for Morse recorders, and it is thought that readers may be interested in a recorder which was made by the writer for use during a series of code instruction classes, and which will work from the relay mentioned. During these classes, the need was felt for some means of producing in visible form the efforts of budding telegraphists. Initial experiments with an improvised ink recorder did not prove very successful. Something was needed which was easily portable, required no batteries and was not messy.



View of the complete instrument.

The solution to the problem was greatly facilitated when a friend who was consulted on the matter, and who is employed by a firm who make teleprinters, produced some reels of carbon-paper tape about half an inch in width, together with some plain white paper tape of the same width. Experiments had previously been conducted using ordinary ink recorder tape, with carbon-paper tape made by cutting the sheets up into narrow strips and sticking them together end to end, to form a tape, but the process of cutting up and sticking together bits of carbon-paper proved a sufficiently dirty one to discourage even the most enthusiastic of experimenters, and the scheme had been abandoned. The production of these professional reels of carbon paper was therefore hailed as a gift from the gods, and the instrument described herewith came into being.

● The Principle

The principles underlying its operation are as follows: An electromagnet supplied with alternating current actuates an armature so pivoted as to vibrate easily. To the end of the armature is attached a small blunt-pointed style, striking on a brass platform. The carbon paper tape and the plain paper tape are drawn beneath this style, together, by a gramophone motor; the marking surface of the carbon-paper tape is adjacent to the recording paper. When the AC is applied to the electromagnet, the armature vibrates and the style prints through the carbon paper on to the paper tape. By keying the supply to the electromagnet the code characteristics can thus be recorded.

● Construction

The chief constructional features can be seen from the accompanying photographs. A wooden case of suitable dimensions accommodates the gramophone motor, the spindle of which projects through one side. The electromagnet was taken from an old six-volt electric buzzer. The make-and-break mechanism was removed and the armature extended somewhat by soldering on a piece of strip brass. In the end of this piece of brass, a small hole was drilled to take a short length of screwed rod, which acts as the style. This piece of rod is held in position by retaining nuts and by suitably placing these, the length of the style can be adjusted so as just to hit the paper when the armature vibrates.

The carbon and paper tapes are fed into a guide formed by channel section brass of the same width as the tape. The end of this guide is the plate on which the style strikes. A small roller made from brass rod is fixed on to a pivoted bracket and so placed that it can be held against the gramophone motor spindle by a spring. In order to ensure that the tapes are gripped firmly, the motor spindle and roller have short pieces of rubber tubing slipped over them. The general arrangement of reels, guide, magnet, etc., can be seen from the photographs.

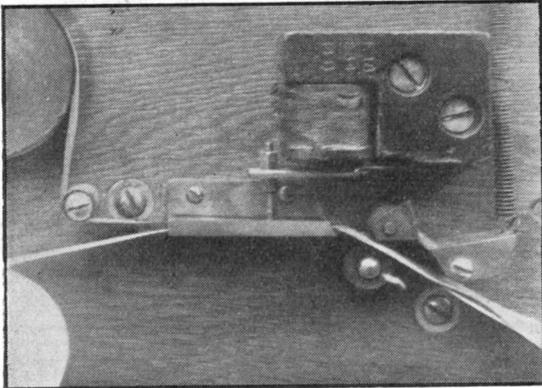
The electromagnet is supplied with AC from a bell transformer which is shown fixed to one end of the case. The secondary circuit of this is wired up to the magnet and two terminals for the leads from the key or keying relay, whilst the leads from the primary circuit consist of a length of lamp flex terminating in a suitable plug for insertion into the nearest point on the house mains. A carrying handle is fixed to the top and the handle for winding up the motor is seen at the other end.

No means of controlling the speed of the motor was provided as this was set to be suitable for

recording at about ten words a minute, before the motor was closed in.

● Results

This recorder has proved very useful in showing up irregularities in spacing and in the relative lengths of dots and dashes, not only in the fists of some of the newer transmitters but in some of the older ones too! From the constructor's point of view the only snag is that whilst ordinary plain white recorder tape can be easily obtained, the carbon tape does not appear to be readily available. It can sometimes be bought quite cheaply from firms who make carbon papers, but as far as the writer is aware it is not usually sold to the public.



Close-up of the mechanical arrangement, fully explained in the text.

If any reader knows where carbon paper tape half-an-inch or less in width can be purchased a few reels at a time, the writer would be very grateful indeed for the information.

The heading shows an actual "cut" from the recorder, when operated by the relay, amplifier and 0-V-1 receiver, which was tuned to a commercial station.

For those who try making a recorder along the lines of the one described in this article, the writer suggests that there is considerable scope for experimental work in the provision of refinements. An electric motor with a variable speed control would probably prove more convenient than the spring motor used in this model, and some form of re-winding mechanism for the carbon tape would be a definite advantage.

A New "Corner"

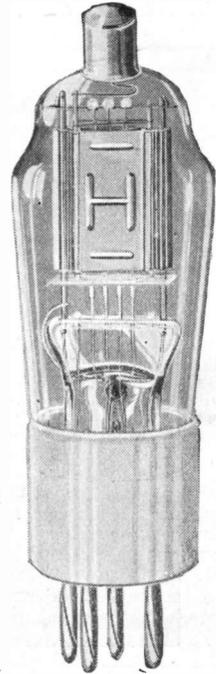
As we get a large amount of correspondence from the professional body of our readers—chiefly operators on commercial and Service stations ashore and afloat—we are considering devoting a column each month to their interests, if there is sufficient demand for it. Those who may be concerned are asked to write us, giving details of the calls they use, the equipment they operate, the service they are in, and of course any experiences of commercial DX working. Care should be taken not to disclose any information which can be regarded as secret or confidential, and we shall assume that any letters received are in this respect suitable for publication.

Good Valves for U.H.F.

Readers particularly interested in the higher frequencies may not be aware that the Hivac special short-wave types offer considerable advantages over those of the more usual construction. While this improvement in performance makes their inclusion well worth while in any battery operated short-wave receiver, the gain is most marked above 28 Mc—below 10 metres. Here, on the receiving side, the SG220 SW and D210 SW will give smoother oscillation and better sensitivity, and a "straight" 56 Mc receiver becomes a relatively simple matter owing to the manner in which lay-out is facilitated by the construction of these valves. The first-named is a screen-grid type, and the latter a triode detector; both have top grid connections, and are priced at 12s. 6d. and 5s. 6d. respectively.

For low-power transmission, the PX230 SW is worthy of consideration. It is a power triode, also with top grid and a ceramic base—this feature is common to all Hivac valves in the SW category—and is therefore an attractive proposition for the man who works from batteries and wants to get the highest possible efficiency in a simple circuit. This type costs 12s.

Further information and data sheets can be obtained from Messrs. The High Vacuum Valve Co., Ltd., 111-117, Farringdon Road, London, E.C.1.



Our Services

THE SHORT-WAVE MAGAZINE offers two services of outstanding value to readers. First, there is the free Query Department, where we are pleased to deal with any question concerning short-wave radio transmission and reception. To obtain advice, it is only necessary to attach the coupon printed in every issue, nor do we ask for a handful of coupons if more than one question is sent.

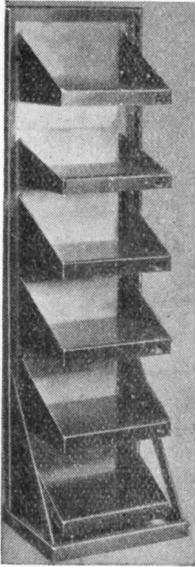
The only stipulation we must make is that we cannot supply complicated multi-valve circuit diagrams, together with full constructional and other details of transmitters—to quote one recent request. The sole reason for this is that the volume of correspondence is such as not to allow time for many hours' work to be put in for one reader's benefit, though we always help as far as we can.

All queries should be clearly set out on a sheet separate from the covering letter, circuit diagrams also being drawn separately, while enquiries relating to Amateur QRAs not in the latest Call Book should be addressed to the DX Corner. All correspondence containing short-wave *broadcast* queries or information—which we are always glad to have—should be addressed to F. A. Beane.

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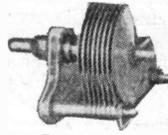
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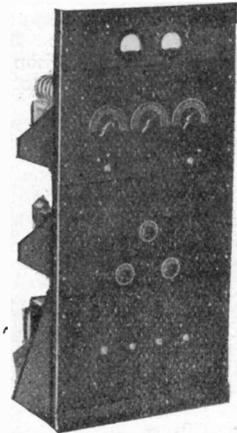


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The winning name "MATCHMAKER" was submitted by Mr. C. BRINDLEY, of 80, Gwendoline Street, Liverpool, 8, to whom a cheque for £5 has been sent.

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Completely mains driven. A.C., D.C. The ideal Transmitter for the beginner, any frequency required in the 7 mc. band. Complete with 2 valves, barretter, coil, crystal, meter, and key.

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Circuit supplied for licensing purposes.



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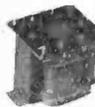
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1,000v. 250 m/A.	...	£5. 15. 0
1,500v. 200 m/A.	...	£7. 15. 0
2,000v. 150 m/A.	...	£8. 10. 0

LETTERS TO THE EDITOR

A Prophecy Fulfilled

After observations on the 14 and 28 Mc amateur bands during the past seven and four years respectively, I noted that short skip conditions *invariably began on May 11 or 12* and continued many days throughout the summer. Thinking it possible that the 56 Mc band might begin to open up for QSOs with stations at distances of 500 to 1,300 miles around May 12, I arranged regular tests this year from that date onwards.

Through lack of interest in 56 Mc on the Continent, only one QSO has taken place—that between G5MQ, Liverpool, and Italian I-1RA. But the American amateur magazines of July record the inter-state contacts which have been effected recently, and all agree that good conditions on 56 Mc *began on May 12*, and also that when 28 Mc signals are coming in at short skip (less than 400 miles) 56 Mc is good for QSOs at 500 to 1,200 miles.

It is interesting to find one's "prophecies" fulfilled so exactly, and in view of the corroborating evidence, I would urge European amateurs to use 56 Mc and give us in the British Isles the chance of a DX QSO before the autumn. Then we are hoping for the real DX to appear!—BARBARA DUNN, G6YL, Acton House, Felton, Northumberland.

Forward, Calls Heard!

I see in the July issue that you have acknowledged, but not printed, a log from Capetown, and in place of that have used lists which, I am sure, are of little interest to the people concerned. For example, I notice reports from the London area on a Mill Hill station which was probably S9 in the States at the time!

The 1.7 Mc logs may be of value to the amateurs mentioned in them, and I do know personally that 56 Mc reports are of the greatest importance to amateurs working on this band.

I should appreciate it if you would mention that reports on my CC 56.2 Mc transmissions, CW and ICW, are wanted and that they will all be acknowledged.—G. P. ANDERSON, G2QY, 24, Millway, Mill Hill, N.W.7.

[This gives us our chance to explain present Calls Heard policy. We only publish lists which we think are of use to someone, i.e., a selection of those received on the Set Listening Periods arranged in the DX Corner—which necessarily contain a number of "local" stations, and are of value for comparative purposes among SWL readers but do not actually interest the transmitters named—then all logs sent in of 1.7 Mc G calls, overseas readers' lists of G's on any band, and all 56 Mc calls heard, which are given priority over the rest as a matter of experimental interest. The reason why the Capetown report did not appear was because it gave only one G call, that of a well-known QRO station with established world-wide range. We might mention here that our Calls Heard section in this issue lists nearly 300 G stations, all under conditions which we hope will be of interest to them.—Ed.]

To "Old Timer"

Though I have been a reader for some time, I have not written before, and I am only prompted to do so now by a remark of "Old Timer's" in the July issue. He asks if anyone has ever installed a 200-300-volt power supply for AC mains. Yes, I have. It was put in when I obtained my AA licence, has an output of 250-300 volts, and has been used to run my PA stage ever since. The driver has a separate 250-volt pack. My input is therefore ten watts only, and I regret that I am unable to say I have worked super-DX. I have not. But I don't mind where I QSO if the contact serves some useful purpose. I am in perfect agreement with you regarding the use of high power on 10-watt permits, and there are numerous operators who are obvious culprits; they comprise both old and new licensees.—EDGAR WALKER, G2LT, 2 Harbord Road, Sheffield, 8.

Comment on the Morse Relay

We note that, in an article entitled "A Relay for Morse Records," the author advocated adapting a Westinghouse H.T.8 rectifier by reversing the polarity of half the elements.

This practice is likely to damage the elements and result in uncertain operation of the relay. We think that one of our standard LT rectifiers, as described in "The All-Metal Way," can be found to suit the circuit conditions, and if not, we shall be pleased to build a special rectifier for any of your readers.—WESTINGHOUSE BRAKE & SIGNAL CO., LTD., 82, York Way, King's Cross, N.1.

Any Support?

I have waited very patiently for a circuit and details for constructing a DF set for HF operation. Very often I read in your paper of amateurs using direction finding sets, therefore I am sure others besides myself must be very interested in the subject and would like to experiment.—A. E. PHELPS, Alwyn, Wootton Road, Lee-on-Solent, Hants.

The Power Question

"Old Timer" is perfectly correct in his statements regarding the startling misuse of power, especially on 7 Mc. High-power licences are available to anyone, and if the GPO refuse to issue them, it is because they do not think QRO necessary for the purposes applying to the requests. The rules and conditions laid down are for the benefit of all concerned, and it is very little that is asked of amateurs that they should observe the terms of their licences, the granting of which ought to be regarded as a privilege.

If people must have long ragchews across town, it is not necessary to use radio. The telephone is there for 2d., besides which the electricity bill would be kept down, as most people use full power for these contacts.—C. H. GOWDY, G6GY, Brooklands, Dunelm South, Sunderland.

Experiences in India

I thought you might be interested in how we get on in the tropics as regards radio. In the first place, practically all our listening is on the short waves,

except in the cold weather, when the more powerful European medium and long-wave stations can be heard through plenty of static. In two years' listening, I have logged something like 300 SW stations and about 500 amateurs, from nearly 100 countries. I am very proud of the latter, as they include signals from places like Alaska, Pitcairn, Howland, and British Guiana. For short-wave broadcasting, we rely largely on Daventry, Zeesen, Prague, Paris and the other high-power stations, with America in the early morning. I have also heard two-way telephony from Atlantic and Pacific liners, as well as broadcasts from the only floating BC station, the Australian liner "Kanimbla." All my listening has been on the speaker, using H.M.V. superhets.—R. E. COOKE, 12, Dennington Park Road, West Hampstead, N.W.6.

Watch 1.7 Mc.

I am sending you the following notes regarding unusual conditions on 1.7 Mc, and would be very glad to hear from others as to any experiences they may have had at the time.

On the night of July 19-20, I was on from 22.00 to 02.00 BST, working G8FU, 3DV and 6NB, when conditions were as most nights, and QRN at the normal level. Around 23.00 BST, signals suddenly started to come in at great strength, with a complete absence of QRN; G8JM and G8NL were worked under these conditions, with high QRK both ways. Then unusual QSB effects set in, with fading almost to zero, and signals were erratic. This was until about 00.20, when the band was full of strong signals. Towards 01.00, conditions became more normal, static started to come back, and at 02.00 BST the effect appeared to have passed.

The interesting feature of the whole occurrence was that the sudden absence of static coincided with abnormally high signal strength, these results being confirmed by the other stations worked at the time. The receiver in use was the Magazine battery "Ideal," with a small aerial.—L. W. LEWIS, G8ML, 117, Fairview Road, Cheltenham.

[This is interesting. If it had happened about 05.00 BST, it would probably have been possible to QSO the States. As reported elsewhere in this issue, conditions were good for medium-distance 56 Mc working about this time on July 19.—Ed.]

56 Mc Reports, Please

My station operates exclusively on 56,292 kc, on CW only, and I shall be most grateful to receive reports from any of your readers on the reception of my signals. All such reports will be acknowledged without fail and postage refunded.—J. H. CANT, G6FU, 7, Elthrua Road, Lewisham, London, S.E.13.

Chain-Letter QSLs Now!

I have lately received eight or nine SWL cards on the "chain system" giving QRAs of American SWLs whom I must QSL in memory of someone or other. These cards request verification of reports which have never been sent. I would suggest that rather than this sort of nonsense, BRS and AA men, and listeners in this country generally, should first try and give some co-operation to British amateurs.—E. J. NAPIER, G8FA, 44, Cranmer Road, Hayes End, Middlesex.

[And we agree! —Ed.]

Some More Suggestions

The only thing I can think of which would improve the Magazine is to extend "Have You Heard?" to a further page, cutting out Calls Lists. F. A. Beane gives a lot of really useful information, which is much more interesting to read than the efforts of proud SWLs. I would also like to see a little more space given to "Old Timer" for his articles on the Amateur Bands.—J. G. ARNOLD, 49, Steele Road, N.17.

I would like to suggest that you publish a list of the better known commercial stations, which would help beginners like myself, who are learning Morse, to pick out the calls.—JAMES LOWE, 37, Agnew Avenue, Coatbridge.

[The calls and frequencies of commercial stations near the amateur bands are given in the Spring Edition of the Amateur Call Book.—Ed.]

THE VILLAGE HAM

(No connection with the Dunmow Flitch or any other firm)

Under the spreading chestnut tree,

A wireless station stands;

The Op., a mighty man is he,

Who contacts many lands;

The sparks fly from McElroy's key

Beneath his expert hands.

His note is crisp and clear and strong,

He's a "veri" wireless fan,

He sends the signals short and long,

And sends 'em fast—he can!

He works the whole world every day,

This FB DX man!

Week in, week out, from morn till night,

The RF currents flow,

You see him swing his dials around

With measured motion slow,

For short-wave signals will abound,

When evening sun is low.

The children coming home from school

Look though the open door,

They love to see the watt and joule,

And hear the headphones roar,

And catch the burning sparks that fly

From each transformer core!

He goes on Sunday to the Church,

Each time they ring the bell,*

He hears the Parson pray and preach,

He hears the ex-YL

A-singing in the village choir,

A thing she does so well.

With mains and battery and cell,

Onward through life he goes,

Each morning sees some QSL,

Each evening, QSO's;

Working a lot of stations well,

He earns a night's repose.

*Provided, of course, that DX condx are NBG at the time.

N.B.—1 joule=10⁷ ergs. It's great fun to watch the watts and joules skipping around the station like little lambs, but unfortunately the ergs are too small to see.

(Copyright strictly reserved, preserved and deserved by W. OLIVER).

56 Mc Shows Life!

By
A. J. DEVON

AT LAST, "five" is beginning to get exciting, even on this side of the Atlantic. It is well known that the American amateurs have been having a better time on 56 Mc during the last twelve months than has been vouchsafed us, undoubtedly owing to the greater degree of activity over there, which has enabled advantage to be taken of every occasion on which the band has been open. This had made possible QSOs of anything up to 1,200 or 1,500 miles, while contacts over distances of 200 miles or so have not been uncommon.

A very different state of affairs prevails in Europe. There are probably less than three hundred amateur stations regularly awake on the band—this can only be a guess, or at best a rough estimate arrived at from activity reports—by far the greater proportion of which are in this country. In fact, it is notoriously difficult to get co-operation from the Continent on 56 Mc, or at the distance at which it is most wanted; say, 500 to 1,500 miles.

The result is that up till recently progress on this side has been retarded, and the flag has really been kept flying by a small band of stalwarts who have been tackling the problem of 56 Mc in the pioneer spirit—with the expectation of difficulties and the knowledge that results would be difficult to get. Here we speak of DX, or reflected wave working, not local or semi-local ground wave contacts, which have always been easy on five metres.

To give one example of what we mean, we quote from a "flash" in QST for July, reporting briefly on the startling occurrences in the States on June 5 last "... reports begin to pour in from many parts of the country telling of extraordinary 56 Mc performances. June 5 would appear to be the day of days, with 5-metre signals smearing the country in hair-raising style. . . ." This item refers to a series of contacts over long and short distances, with the band full of signals and results quite up to what is expected on 28 Mc when that band is really alive!

Now, we have been unable to obtain any reports of unusual happenings over here round about that date, nor do the available records make any mention of DX having looked like breaking through until later in the month. It may be that Old Man Conditions did not see fit to extend his beneficent attention thus far across the Atlantic, but we are inclined to think it is another case of missed opportunity. On the other hand, it is fair to point out that June 5 was a Sunday, when it is reasonable to suppose that a number of British stations were on.

If the foregoing paragraphs have a moral, it must be something to the effect that a little more attention to the 56 Mc band by a few more British and European stations with CC transmitters and CW receivers would put us on the same level of activity and produce the same results as are now being experienced in America.

● In Europe—July 2!

We have arrived in a roundabout way at the date on which the first European DX was recorded—a

Notes on recent activity and results

QSO on 56 Mc between G5MQ (Liverpool) and Italian I-1RA, 'phone both ways—which took place in the afternoon, between 15.00 and 15.45 BST. At about the same time, G5MP was QRX on the band at Chezieres-Villars, Switzerland, and logged a test call from G2HG (London) at RST-569.

But this is not all. G2XC (Portsmouth), a photograph of whose station appears herewith, was in QSO with XI-1ER on 28 Mc this same afternoon, and as G2XC was receiving commercial harmonics up to 50 Mc, he suggested that the Italian should call him on 56 Mc; XI-1ER's signals were heard on five metres at 14.45, RST-559. The unfortunate thing was that XI-1ER had no 56 Mc receiver, so that a QSO—which would have been the first—was thus denied G2XC.

However, the ice has at last been broken, and we are glad to congratulate all operators concerned on their good fortune in finding the band open and their success in taking advantage of it.

The following day, Sunday, July 3, scheduled for the R.S.G.B. 56 Mc Field Day, showed no particular DX results, though GW6AA, working portable from the summit of Snowdon, contacted EI2J (Dublin) who was using an input of 0.6 watt only. CW6AA's elevation must have been such as almost to bring him within visual range of the Irish station!

● Other recent results

The period to July 24 saw a considerable amount of 56 Mc activity, following on the news of the European working earlier in the month. G2XC reports that July 7 was again a good day, but he was unable to spend much time on the band. He has heard at different times no less than 16 G's at varying distances up to 100 miles or so, and his own signals have been reported up to 75 miles away. His transmitter is CC on 56,060 kc, with 25-30 watts input to a Mullard TZ 05/20 as a power doubler. He uses a Zepp, 8 $\frac{1}{2}$ -waves long, running east-and-west. G2XC would be very glad of reports and co-operation, his transmitting times being 22.15 BST on Tuesdays, Wednesdays and Fridays, and he is available practically all day on Sundays. During August, however, he will only be able to keep schedule between the 10th and the 22nd.

Up in the North, G6YL (Felton, Northumberland) and G5QY (Newcastle) maintain a schedule which has produced well over 60 QSOs across the 25 miles between their stations. An interesting point about these contacts is that while "visual range" is quite ruled out owing to the configuration of the country, it would yet appear to be ground-wave working, as aerial changes show no difference in results and QSO is easily possible with what G6YL calls "gnat-power" of a quarter of a watt or less. They find signal strength noticeably better after dark. Miss Dunn also remarks that there have been times during the last two months when conditions on 56 Mc were such as to indicate that the band was open for DX, but due to the lack of activity during these "hot" periods, nothing happened. At present, it is generally accepted that the presence of commercial

harmonics in or near the band suggests that DX is possible, so that the logging of such signals is of the greatest importance.

As reported elsewhere, G8LY (Winchester) is also very active, testing various types of aerials, while G8DF (Alton, Hants) has recently erected a rotating beam which raises his signal strength considerably in the desired direction. Efforts with aerials always appear to bring something in the way of results, and G8LY says that many more stations have been found on the band since a change was made; in this case, to a $\frac{1}{2}$ -wave east-and-west horizontal wire.

G6FU (Lewisham, S.E.13) has a 6E6-RK34 combination, the output frequency from the RK-34 connected as a push-push doubler being 56,292 kc, using a 14 Mc crystal; this is an unusual arrangement, but the RF efficiency is good with an input of ten watts. An interesting feature of this station is that no mains power is employed—the transmitter is run from a Mallory Vibrapack giving 300 volts at 100 mA for 36 watts input on the LT side, and operation is on 56 Mc exclusively.

2DDD (Angmering, Sussex) using 0-V-1 with Hivac SW valves and an aerial 66 feet long, reports reception of G6FO at 23.00 on July 22, RST-338, signals being audible for a minute only. This is worth mentioning because the distance is 112 miles. He is at sea-level.

G5JU (Bristol) is a prominent 56 Mc operator, CC on either 56,320 or 57,400 kc. He has been using a W8JK flat-top beam for some time, which gives a good gain at G6FO, 25 miles away, and appears to have a well-defined directional effect, as signals are not audible a few miles off the line. Both G5JU and G6FO—who can QSO at any time—have been very strongly received in North Devon by G2JL, with a portable receiver at Dunkery Beacon and Hunter's Inn. The distance is about 45-50 miles.

● Long-wire Aerials

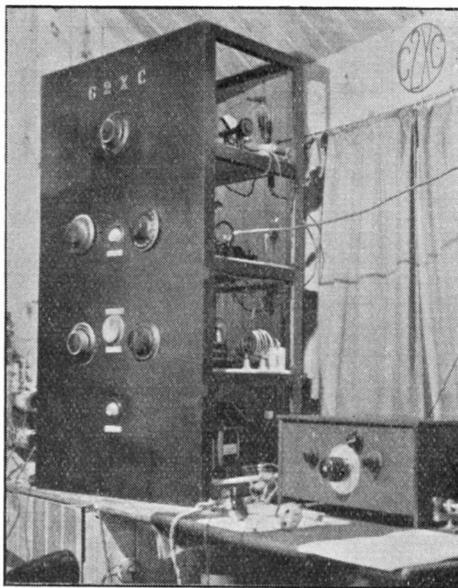
Some recent results at G6FO (Newport, Mon.) are of interest in view of the fact that the aerial now being used appears to give practically omni-directional coverage with both vertical and horizontal radiation! It is a 10 $\frac{1}{2}$ -wave, end-fed by means of a single-turn loop, and the arrangement is such that the aerial is one-third vertical, one-third horizontal NW-SE, and the remaining section also horizontal, but NE-SW.

On July 17, 19 and 22 signals from G6FO were heard by G3HW (Teignmouth) 75 miles, G8LY (Winchester) 82 miles, G8DF (Alton, Hants) 92 miles, G2XC (Portsmouth) 96 miles, and as already mentioned, by 2DDD (Angmering, Sussex). All this was, of course, QRA-to-QRA and the fact that it was reflected-wave action is shown by the presence of QSB nearly every time. Reports varied from RST-558 to 578 in the case of G2XC's reception, while the first time G8LY heard the signal, it was only 329, but a subsequent report gave 558.

Since reception at great strength was also occurring simultaneously in North Devon at G2JL's location, and the signals have been heard more than once and on different days by several of the stations named, using both horizontal and vertical receiving aerials, it appears that this particular long-wire arrangement does in fact cater for all requirements! The angle of coverage shown by these results is about 160 degrees, excluding the more local—and probably ground-wave—reports up to 20-25 miles in other directions. In any case, till more data has been collected from distant stations in a more northerly

direction, it is not possible to say of what exactly the aerial is capable. It is also evident that conditions must have been good for medium-distance DX on the dates given, though nothing except the locals was heard at G6FO. The receiver is 1-V-1, using Hivac SW valves and the same aerial as just described. On July 26, at 21.40 BST, G6IH (Malvern) was received on CW at RST-559, distance 45 miles. He was working G3NR, and an opportunity for QSO did not arise.

The transmitter for these particular tests was the line-up which recently appeared in the Magazine: The 2-stage all-band Exciter, in this case working 7-56 Mc—as described in the May issue—driving the RK-34 PA, connected as a straight neutralised push-pull RF amplifier. The whole rig is working exactly as given in the various articles which appeared up to May last, and the input is always 25 watts or a little under.



The 28-56 Mc apparatus at G2XC, Portsmouth, who was successful in receiving 56 Mc signals at RST-559 from Italian XI-IER on July 2. G2XC was first QSO him on 28 Mc, and suggested a test on 56 Mc as conditions seemed good. Unfortunately, there was no 5-metre receiver at the other end! That at G2XC is 0-V-1, using a Hivac D210 SW as detector, with a long-wire aerial.

While these results are encouraging, and confirm in part at least a long-cherished belief by G6FO that a multi-wave aerial is good for the higher frequencies—in the sense that it gives coverage for exploratory work as opposed to purely directional effect—the details are not given here as being either startling or exceptional. They are mentioned purely as a matter of experimental interest, in the hope that readers of this article will write us, *en masse* and *in toto*, describing their own results, experiences and the gear they are using.

Particularly, we want news of conditions and contacts, also good clear photographs of stations and equipment. The closing date this month must be August 15, as we are out again on the 29th with the Show Number—but we may be able to print news of that U.S.A. contact if we know about it by the 22nd!

How Solar Activity Influences Short-Wave Propagation

Explaining the Effect of the Sun's action on short-wave working

IT IS COMMON knowledge that short-wave propagation is greatly influenced by solar activity, i.e., by the presence of sunspots, and no doubt every reader of this Journal knows that propagation varies according to the eleven-year solar cycle.

But there seems to be a divergence of opinion as to the exact nature of the solar influence, and this divergence exists even on such a fundamental point as to whether the influence is good or bad. One hears that when sunspots are active the higher frequencies are better propagated. And then again one reads of short-wave "fade outs" being caused by a burst of solar activity. Let us examine these things a little closer with a view to clarifying the situation.

It is obviously impossible in a short article such as this to go very deeply into the matter, so we must take certain points for granted. This is an unsatisfactory state of affairs for the enquiring mind of the true amateur, but in the interests of brevity it is inevitable.

● Refraction and Attenuation

We know that there exist in the Ionosphere at least two well-defined layers, the F layer at a height of 180 miles and the E layer at a height of 60 miles. We know, also, that these layers are produced by ionisation of the air due to a wave radiation from the sun, i.e., by ultra-violet light.

Short waves above about 3 Mc in frequency are propagated over long distances by refraction, which usually occurs at the F or upper layer, where the ionisation is much higher than at the lower layer. The higher the frequency the greater the ionisation level required to refract the wave back to earth. Conversely, the less the ionisation of the layer the lower will be the highest frequency it is capable of refracting. Thus, the E layer does not usually refract frequencies above about 3 Mc because its ionisation level is insufficient, and so they penetrate it and are refracted by the F.

In passing through the E layer the wave causes vibration of the ions, and collisions occur, so that energy is absorbed from the wave. The likelihood of collisions occurring depends on the number of molecules of gas present—not on the ionisation level. The air is much denser in the E layer than in the F, and so it is in the E that the greatest amount of attenuation occurs. The higher the frequency the less the attenuation.

Thus the best frequency for any transmission path—assuming long distance transmission—is the highest frequency that is adequately refracted at the F layer, for this will also suffer the least attenuation in the E.

Bearing these principles in mind let us now return to our original point.

● The two effects of Sunspots

The layers are produced by solar radiation, and, in general, the amount of radiation is increased when there are sunspots visible. The number of sunspots, though it varies erratically from day to day, follows a regular cycle, which reaches a maximum value about every eleven years. So we should expect the ionisation of the layers to increase towards the sunspot maximum period, and, in fact, this is exactly what happens. What is its effect on propagation?

If there were no E layer we should expect the higher ionisation of the F to produce better propagation conditions at the maximum period, for then the upper limiting frequency for refraction would be much higher, and all frequencies below this would be adequately bent. During the night the E layer disappears owing to recombination, and then this condition does exist. But during the day the presence of the E causes attenuation of the lower frequencies, the upper limit of which is also enhanced by the increased solar radiation.

There are some seasonal complexities which we need not consider here, but in general we may thus say that the presence of sunspots in an ordinary state is beneficial to short-wave propagation, for during the day the upper limiting frequency will be higher than when there is no solar activity, though the lower limit for good propagation will also be extended. At night the upper limit will be high and the band for good propagation particularly broad, since the lower limit will more or less disappear.

But, in connection with sunspots, there often occurs violent eruptions on the sun, and when a sunspot is in this eruptive state its effect on short-wave communication is likely to be the reverse of beneficial.

For, from a sunspot in this eruptive state, are emitted radiations of at least two types, each producing a different effect. Radiations of the two types may be emitted from the same eruption, either simultaneously, or at different times.

● Dellinger effect

One type is an abnormal burst of ultra violet radiation which is incapable of being absorbed at the F layer and so reaches the E and lower layers. Here it raises the ionisation to such a high value that the attenuation for short waves is so increased that they are *completely* absorbed. This produces the well-known "Dellinger" or short period fade out, for owing to the high gas pressure in these lower layers the ions and electrons re-combine rapidly and the fade out is thus of short duration. It will be noticed that the lower frequencies will suffer most.

The other type of radiation emitted is that which produces the "ionosphere storm," and is thought to

be of a corpuscular nature. It is thought that corpuscles are ejected from the eruption, and, travelling with great velocity, bombard the outer Ionosphere, particularly near the earth's Poles, whence they are swept by the terrestrial magnetic field. The effect of this is to reduce the ionisation level of the F layer, so that the higher frequencies can penetrate, and so are lost in outer space. Thus the higher frequencies suffer the more severely. The stream of corpuscles also produces fluctuations in the earth's magnetic field, and in its associated current, giving rise to "magnetic storms" and earth current variations, which interrupt telephone and cable circuits.

The particles, on reaching the lower atmosphere, collide with and split up the atoms of oxygen and other atmospheric gases, and these, in re-combining, produce the red and green lights which appear in the well-known visible form known as the "Aurora Borealis."

● Conclusions

So, if we have succeeded in our attempt to clarify the situation, the following points should now appear.

In general the movement of the sunspot cycle towards its maximum is beneficial to short-wave propagation, for at the maximum the ionisation level at the F layer is high. Thus it refracts higher frequencies than it is capable of bending at the minimum of the cycle. The band of frequencies for good propagation is widened, particularly over dark transmission paths.

When the sunspots are in an eruptive state, however, they bring about serious interruptions in short-wave communication by radiations which tend either to increase the lower layer ionisation to the point where all waves are absorbed, or else to lower the F layer ionisation so that the short waves penetrate it and escape into outer space.

The Radio Signal Survey League

Change of QRA

We are asked by Mr. Lyman F. Barry, director of this American listener organisation, to inform British members that the previous arrangement whereby the League received publicity through the American radio paper "All Wave Radio" has now ceased, owing to a change of ownership and policy.

British members should therefore note that, while the management of the R.S.S.L. will, as heretofore, remain in Mr. Barry's hands, the new QRA is Lyman F. Barry, R.S.S.L., Apt. 117, 225, West 86 Street, New York, N.Y. A further very important point is that due to the new state of affairs, free issue of membership cards, etc., is no longer possible, and those concerned in this country should send two I.R.C.'s for membership, and five I.R.C.'s for two issues of the "R.S.S.L. Bulletin," which will be published periodically. All membership applications recently received are on file for confirmation as above.

A temporary arrangement, whereby "Radio News" is being sent to all R.S.S.L. members in Great Britain, will cease on the expiration of their subscriptions to "All Wave Radio."

All future correspondence addressed to the R.S.S.L., and requiring a reply, should include I.R.C. for return postage.

The British Short-Wave League

Organised Surveys of the Amateur Bands

The paid-up membership now stands around the 500 mark, and since the fusion announced in our last issue, the Secretary has been kept busy attending to the new applications which are coming in.

In order both to interest B.S.W.L. members and to prove their usefulness to amateur transmitters, a series of special tests—which will at first take the form of surveys on different bands—are being organised. These will take place during the coming season, when activity is at its height, and full details will appear in our October issue.

In the meantime, transmitters who would be interested in getting reliable coverage reports on 1.7, 3.5 and 56 Mc are asked to drop a card to the Secretary, B.S.W.L., c/o THE SHORT-WAVE MAGAZINE, 84-86, Tabernacle Street, London, E.C.2. The present intention is that all correlation should be done at the League Headquarters, Ridgewell, Haldstead, Essex, so that no heavy SWL QSLing will be involved. B.S.W.L. members who take part and do useful work will, however, receive a special QSL card, to be produced for the purpose.

Depending on the response to, and the results of, these preliminary tests, DX Surveys will be tried, the main idea being to improve the standard of SWL reporting, to give transmitters useful assistance, and to divert the attention of SWL enthusiasts in a direction in which their efforts will be really appreciated, so far as the amateur bands are concerned.

B.S.W.L. members will be informed of the arrangements through the Supplement bound in with their own copies of the Magazine, while transmitters will be notified by post. As mentioned above, there will also be an announcement in our October issue.

On August 27 an informal meeting of members will be held at Radiolympia and those intending to be present should arrange to be in the vicinity of the "Eddystone" stand either at 13.00, 14.00 or 15.00. The Secretary, who will be accompanied by other League officials, will be pleased to meet any prospectives.

The League's latest certificates, the "Verified-British-Empire" are proving attractive, the highest rating granted to date being Class 3.

R.S.N.I. Contest

This is a DX Contest, open to the whole world, and sponsored by the Radio Society of Northern Ireland. The chief award, for the leading Irish station, is the Leonard Trophy, and there are also gold and silver medals for the highest-scoring stations outside Ireland. Full details of the Contest, which takes place during the four week-ends of October, will appear in our next issue. Overseas readers can get prior information by writing H. F. Rubery, Hon. Sec. R.S.N.I., 19 Little Victoria St., Belfast, N. Ireland.

DX Corner

We thank the following for their interest in compiling logs of general calls: M. G. Bourke, 2ADU, Jersey; J. B. Burt, 2DKQ, Reading; G. Birrell, Dundee; J. C. Fletcher, Bexleyheath; W. R. Gilmore, Belfast; S. B. Osborn, London, N.3; H. Owen, Newcastle; N. J. Rutter, Swindon; N. Stevens, London, N.W.10; S. Shalders, London, S.W.2; C. G. Tilly, Bristol, 6; "Soone Wallah," India.

HAVE YOU HEARD...?

WHEREVER and whenever there is big news the microphone is on the spot, first link in the chain that conveys to the world the tidings, description of what is happening, or first-hand stories of the personalities involved.

During the past four weeks or so the listener has been well catered for in this respect, thanks to the foresight and initiative of the officials of the world's leading broadcasting systems, the most outstanding events recorded being the sensational Louis-Schmeling fight, the brilliant commentary on the landing of Howard Hughes' monoplane at the conclusion of his amazing 14,600 mile round-the-world flight, and the relays in connection with the Swedish-American Delaware Jubilee celebrations, including a message from H.R.H. Crown Prince Adolf's sick-bed.

Apart from such memorable broadcasts, the period under review has been of considerable interest to the DXer due to the inception of a number of new transmitters, conditions proving comparatively good and quite up to the standard that one may expect during the season.

● Around the dials

We are officially advised by the South African Broadcasting Corporation that the amended station schedules are as follows:—

ZRH, Roberts Heights, 31.5 m., 9,523 kc, weekdays 05.45-06.50 and 11.00-13.30; Sundays, 11.30-13.00.

ZRH, Roberts Heights, 49.94 m., 6,007 kc., 05.45-06.50 and 16.00-21.30; Sundays, 11.30-13.00, 15.00-18.00 and 18.15-21.15.

ZRK, Klipheuvcl, 31.23 m., 9,606 kc., weekdays 05.45-06.50, 09.20-13.20 and 15.00-17.45; Sundays 09.30-10.30 (or 10.00-11.00), 11.30-13.00 and 15.00-17.45.

ZRK, Klipheuvcl, 49.2 m., 6,097.5 kc., weekdays 18.00-22.00; Sundays, 18.00-21.20.

ZRJ, Maraisburg, 49.2 m., 6,097.6 kc., weekdays 05.45-06.50, 09.05-13.30 and 15.00-17.30. Saturdays as above but less 14.30-17.30; Sundays, 09.30-10.30 or 10.00-11.00, 11.30-13.00 and 15.00-17.30.

ZRJ, Maraisburg, 49.94 m., 6,007 kc., 21.30-22.00, presumably daily. Power, at present 200 watts, is shortly to be increased to 500.

ZRD, Durban, 48.8 m., 6,147.5 kc., 05.45-06.50, 09.30-13.30 and 15.00-21.45. Saturdays as above but less 15.00-21.45; Sundays, 11.30-12.00, 15.00-17.30 and 18.00-21.20. *In addition* 10.00-11.00 on the third Sunday of each month.

Power has been increased from 10 to 300 watts.

These schedules are subject to alteration and it should be noted that identification is by bugle call during the common 05.45-06.50 session and at other times by call-sign or location announcement. Church services are relayed by ZRK and ZRJ during their 09.30-10.30 or 10.00-11.00 sessions on Sundays. All reception reports should be addressed to P.O.Box 4559, Johannesburg.

VK2ME, Sydney, 31.28 m., 9,590 kc., now well heard early on Sunday mornings and occasionally in the evenings, will broadcast 06.00-08.00, 10.30-14.30 and 16.30-18.30 during August, according to the station operators. Incidentally, all reports for this station, VK3ME, VK6ME and VPD2 are now verified from 47, York Street, Sydney.

KZRM, "Radio Manila," Manila, P.I., sends an interesting card confirming reception of September, 1937. Schedule is given as:—Monday-Friday, inclusive, 11.00-15.00 and 22.30-24.00; Saturdays, 11.00-16.00 and 22.30-24.00; Sundays, 10.00-16.00; owners and operators Erlanger and Galinger, Inc.; power 1,000 watts, wavelength 31.35 m., 9,570 kc., or 25.33 m., 11,840 kc. Programmes are broadcast in English, Spanish and the Filipino dialects from four studios situated at the top of the Insular Life Building.

VUD2, Delhi, India, 31.28 m., 9,595 kc., continues to operate as shown in the station list, and during the Test Match Season relays the Howard Marshall summary from London, between 18.25 and 18.40. A studio clock can often be heard chiming the hour at 18.30; reception is invariably fairly good and reports should be addressed to The Station Director VUD2, All India Radio, New Delhi. I understand that a VUD3 will shortly come into operation on 19.8 m., and a VUM2, Madras, on 60.60 m.

● New broadcasters to log

Considerable excitement has been aroused by the almost simultaneous appearance of three additions to the 25 m. band, and of these the most outstanding is undoubtedly HP5G, Panama City, operating on 25.46 m, or an announced frequency of 11,780 kc. A lady announcer gives the call and other details in English, including the address—Apartado 1121—at fifteen-minute intervals, and time is stated "by courtesy of the Panama Power and Light Company," the programmes emanating from studios in the Exhibition Grounds of Panama City. This transmitter also relayed the Louis-Schmeling fight commentary on June 23. Listen for HP5G after midnight.

Second addition is TI2XG, 25.15 m., relay of medium-wave TIXG, Apartado 1729, San Jose, Costa Rica. Listen between midnight and 04.00 and note the reference to slogans such as "La Voz de la Republica," "La Voz de la Radio Pilot," "Radio Philco," mention of General Electric and the infrequent use of a siren wail and noise of a motor-car engine. Reception is generally good, though marred by CW interference. English does not figure in the station announcements.

On a slightly lower wavelength, possibly 25.08 m., will be observed, when conditions are favourable, the third newcomer—a Chilean situated in Santiago. Chimes, two or three in number, are struck at each quarter-hour, while an occasional bugle call and the familiar motor-car characteristic add to the repertoire of identification signals. Mention is sometimes made of "La Voz del Comercio" or the "Internacional Broadcasting Club de Chile," while the termination of programmes is heralded by a recording of Big Ben striking 11 p.m. at 05.00 BST.

● Return of W4XB

The Miami station has always proved a remarkably elusive "catch" and I well remember the difficulty I experienced in logging it three years ago. At present it is being well heard and one must listen on 49.67 m., 6,040 kc., around 05.00-06.00 to log it. Originally a QSL card was forthcoming in reply to an accurate report but now I am told that

Items of interest from the broadcast bands, reader's reception of sensational world flight transmission, etc., etc., compiled and presented by F. A. BEANE (2CUB)

a letter "veri" is sent instead. The transmitter is situated on Collins Island in Biscayne Bay, and the operators are The Isle of Dreams Broadcasting Corp., programmes being derived from the 1,000 watt WIOD, while announcements are made in Spanish in addition to English.

● **KHRH, the Lockheed Monoplane**

H. Fowkes (Mansfield) was certainly extremely fortunate in deciding to sit up during the small hours of Tuesday, July 12, for at 01.15 he logged DJC (presumably) calling KHRH during the course of its astounding flight. KHRH was on 6,425 kc. and made contact with DJC at 03.01; twenty-nine minutes later a special broadcast was relayed to the NBC, while the plane flew on and on at 150 mph, 16,000 feet above ground. Later, communication with DJA and DJC was re-established, there was an exchange of messages and relaying of telegrams; then at 05.15 Howard Hughes announced that he was 15,000 feet above ground, using oxygen and flying at 185 mph, and considering landing. At this point Mr. Fowkes switched off after a four-hour vigil packed with thrills, and one which I am sure will remain outstanding in his memory for many years to come. Such events make short-wave radio worthwhile, especially when inaccessible to the normal medium- and long-waveband listener!

Another reader, one who is rapidly becoming associated with these pages, J. Humin (Walthamstow) has submitted a XEUZ QSL for my inspection. It is in postcard view form, giving XEUZ's frequency as 6,120 kc. and indicating that it is a relay of the National Broadcasting Network station XEFO (940 kc.), or in Spanish "Cadena Radio Nacional, Partido Nacional Revolucionario" (station of the National Revolutionary Party). No schedule or other details given.

● **Brevities from the log-book**

Other items of interest include HVJ testing on 25.55 m. until 18.30; "Radio Martinique," 9,700 kc. closing at 02.00 with a request for reports and *International Reply Coupons*, and employing the title "The French Voice from the West Indies"; YV5RC on a new wavelength of approximately 50.2 m.; CXA2, "Radio Continental en Montevideo," 50 m. at excellent strength around midnight; a fine Tourist Guide from YSD in addition to the QSL card already described in THE SHORT-WAVE MAGAZINE; the erstwhile Cuban "star" COCO again prominent in the 49 m. band with the recently acquired title "La Voz de la Radio Philips," siren wail, five or six chimes, bugle call and Spanish-English announcements; CR7BH, Lourenco Marques, 25.6 m., again around 18.40; TGWA (19.79 m.) with programme for Europe one Sunday from 21.30 onwards; HJ3ABX, "La Voz de Colombia," Bogota, near 50.2 m. once at 01.40 and an unknown station, at first imagined to be VP2LO, St. Kitts, 47 m., signing off with the Ted Lewis "Good Night Song" at 06.00.

● **Readers' News appreciated**

There are of course many news items that evade me; I am not always at the receiver, and even if

I were I should not log everything, so I should be grateful to readers for their assistance in compiling this section, particularly if they contribute items such as that concerning KHRH, related above. Anything submitted will be used, if of sufficient interest, and credit given to the reporter. We must not permit the amateur fans to hold complete sway!

● **Long distance programmes**

American programmes continue to hold their fascination, more so now that athletic events of international importance, or commentaries on outstanding events such as the conclusion of the Howard Hughes flight, the Tercentenary celebrations already referred to, and so on, are a frequent feature of all short-wave radiations. This does not mean that the variety and music suffer in any way, however, as one will quickly appreciate if a few hours are spent in company with Schenectady, Wayne or Boundbrook.

W2XE, we understand, is to broadcast a new feature every Sunday 8.30-10.00 p.m. EDST, or Monday 01.30-03.00 BST, namely the Lewisohn Stadium concerts. These broadcasts, apparently designed for South America, will originate at the Stadium where special separate equipment has been installed for the international station, which will utilise the 11,830 kc. frequency. Another item of considerable interest broadcast by this station is Major Bowes' Capitol Family (variety); listen on Sundays at 16.30 on the 21,520 kc. channel.

From the popular Boundbrook programmes I recommend the Canadian Grenadier Guards Band to be heard on August 7 at 23.30 until midnight (16.8 m.) and to the lover of Hawaiian music Ray Kinney's orchestra to be broadcast on the 13th from 18.30-19.00, or W2XAD's Hawaiian Serenade at 21.45 on the 1st. Other items likely to prove entertaining or instructional are the same stations "Calling all Stamp Collectors" (20.00 on the 6th) and W2XAF's "Junior Birdmen of America" at 21.45 on the same Saturday.

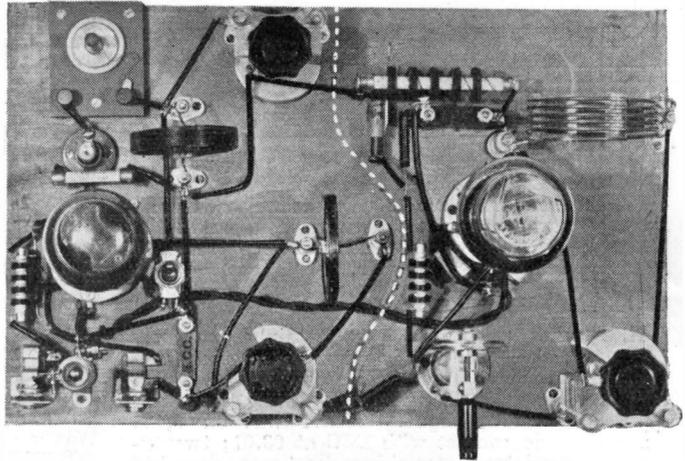
ANSWERS TO THE QUESTIONS ON
PAGE 17

1. Condition 3 of current receiving licences states that the length of the effective portion of the aerial and down-lead shall not exceed 150 feet—this was previously 100 feet. The Post Office have permitted transmitting aërials to be up to 150 feet since 1936.
2. By S. F. B. Morse in collaboration with Alfred Vail in 1837. Introduced by Morse for use with his self recording telegraph.
3. 12th December, 1901, the famous "S" signals were transmitted by Marconi and his assistants from Poulhu, Cornwall to Newfoundland.
4. In 1915—from New York to Paris.
5. With 500 15-watters connected in parallel.
6. In 1904.
7. Lee de Forest in 1906.
8. In 1913 by Franklin (in England) and Meissner (in Germany). Others appear to have hit upon the idea more or less simultaneously, notably de Forest and Armstrong in America.

Transmission for Beginners

By A. A. MAWSE

Describing a power supply unit and the operation of a doubler circuit (pictured opposite)



DURING THE LAST few weeks many letters have been received from readers obviously new to this series, who, on reading "Transmission for Beginners," naturally feel the title is somewhat erroneous. The fact is that five months ago my readers were beginners in every respect; we are still unacquainted with many phases yet to be dealt with, but as each month passes new work takes us a step further towards a full licence.

In March last the application procedure for an Artificial Aerial permit was explained at some length; the second part of that article described a simple transmitter using an LF pentode—most of the components used were such as would be found in any experimenters' station. Part 2 (April) contained photographs of this transmitter and accessories necessary for its correct working, with all essential operating data. Having discovered that tapping out Morse on 160 metres can cause local interference we used the May article to suggest methods for overcoming this snag. Then it was shown how telephony could be applied to the original transmitter with the aid of an amplifier; and last month a simple transmitter for 40-metre operation was described, ultimately intended to form the basis of the drive circuit for a more ambitious outfit.

Our immediate concern is therefore the adaptation of this simple crystal-controlled oscillator to 14 Mc working and then later the addition of a power amplifier stage, thus permitting 'phone experiments by the use of the amplifier described in June.

● The Power Supply

Pages and pages could be written on this subject, but as our need is approximately 500 volts at about 120 mA and 4 volts LT (4 amps) it is fairly easy to understand and make an orthodox pack. This rating looks, and is, excessive for a 10-watt licence, but the point is that it is advisable to build for the future, while the price difference between a smaller power supply and this 60-watt unit is actually slight. Further, about 60 watts is necessary to operate a 10-watt station where 'phone is used, because the load taken by the drive circuits, modulator, speech amplifier, and so on have also to be considered. Thus, it is really an economy to install an adequate power pack in the initial stages, as the output can easily be cut down for 10-watt CW working. We have the power controversy now being

thrashed out elsewhere in the Magazine very much in mind while writing this, and our contention is that while it is sound policy to have a good pack from the very beginning, this does not mean that it must be squeezed to the limit of its output from the word "Go!" In other words, observe your licence conditions.

The first consideration should be voltage regulation, and this is usually given as a percentage figure varying from, say, 5 to perhaps 50 per cent, and is found by a simple formula. If no-load indication is, shall we say, 600 volts and a drop of 100 volts noticed under load conditions, then by dividing 600 into 600-less-100 we have a voltage regulation of 17 per cent., which by the way would be good enough.

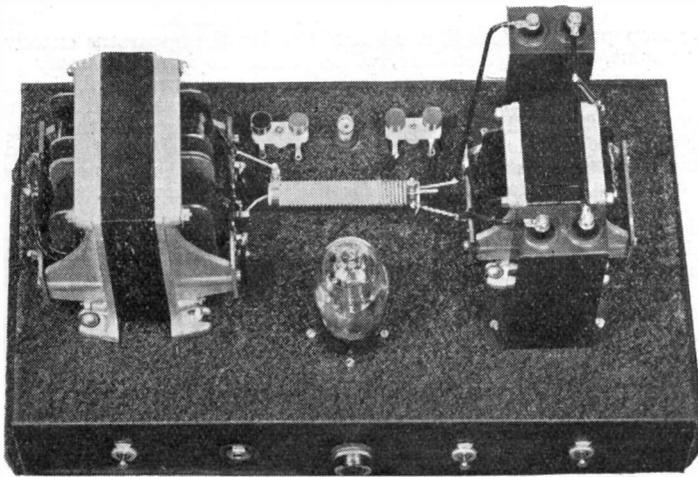
Further to assist regulation the choke-filter circuit must be capable of supplying the peak loads while smoothing out the AC component in the rectifier output. It depends upon the total load whether or not a good filter current is given a chance to perform correctly. Once again we come to percentages and formulae, but as the mathematics of the subject are surprisingly involved, we must accept the fact that a 20-henry choke rated for 150 mA will suffice! However good a choke may be within its rating, as soon as that rating is exceeded, its efficiency falls off considerably.

The bleeder resistance across the output is the final effort to maintain voltage steadiness, and at the same time it provides a method of tapping the output for various voltages and a means of discharging the condensers when the unit is switched off. It is an essential component.

● Construction

It will be remembered that up to this point in our peregrinations the question of power packs has been given little consideration because most of us prefer to rig up a temporary unit until exact requirements are known, this depending of course upon the final transmitter design, not that most amateurs ever reach finality!

Now that we are getting down to something really tangible, which may well be the climax in AA work for many, it is necessary to turn our attention to the more detailed consideration of an HT supply that will not only serve for the transmitter now contemplated but also for any other outfit likely to come within the scope of a 10-watt licence.

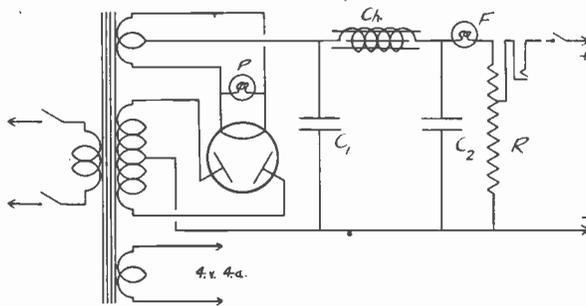


grommet, and on either side of this are terminal saddles for output connection. The unit gives all its watts and, once built and tested, can be put in some convenient place and forgotten!

● The Tritet

Of the several methods used to multiply crystal frequency that known as the tritet has been chosen and it will be seen that in adapting last month's CO for this all parts are retained though not in identical positions. The plate circuit is tuned to 14 instead of 7 Mc and the cathode coil is tuned to a frequency somewhat higher than that of the crystal. Now, by shorting out the cathode tuning circuit last month's CO is re-discovered; so in other words, a

CIRCUIT AND PARTS FOR THE POWER SUPPLY ILLUSTRATED ABOVE.



Transformer: 500-0-500, 150 mA; 2-0-2, 4a; 2-0-2, 2.5a (All Power).

Choke: 20 henry, 150 mA (All Power).

Rectifier: UU120/500 (Hivac).

Valveholder: Chassis mounting (Premier).

R: 30,000-ohm, 40-watt (Bulgin, PR39).

Two terminal saddles: (Eddystone, 1046).

Fuse and holder: (Bulgin MES 18).

C1, C2: 4 mF (T.C.C. 111).

Switches: 1 DPST, 2 SPST (Bulgin, S123, S80T).

Chassis: Black crackle, 16 x 9 x 3 (Scott-Sessions).

Meter jack: (Bulgin, J6).

Mains plug and socket: (Bulgin, P20).

Referring to the photograph and circuit, the transformer on the left carries both HT and LT windings, the former being 500-0-500 at 150 milliamperes, while filament supply is by a 2-0-2 4a. winding. An indicator has been fitted across the rectifier filament, and a fuse, switch and meter jack (for measuring total consumption) are the only refinements; they are small in cost and well worth while.

For those contemplating construction along these lines a few notes will suffice. In each case low potential (HT—) connections are taken to the nearest suitable point on the chassis or component frames, and care is necessary in this to make all holding-down screws good conductors. The most serious problem was that of insulating the dial light, which was packed front and rear with thin pieces of hard rubber hosepipe. Another method would have been the cutting of a square hole and then mounting the lamp in an over-size piece of paxolin, fixed with four bolts.

The choke is on the right and has been placed so that the bleeder resistance may, after removing the centre piece, be supported on that piece of heavy-gauge wire which forms the connection from mains side of choke to centre-tap rectifier filament.

The first switch is a DPDT for the primary, the next two being for transmitter filament (omitted in circuit) and HT control. Behind the resistor is the fuse, the holder of which is mounted in a rubber

combination oscillator for either 7 or 14 Mc is quickly obtained. Often the switching is carried out by bending one of the cathode condenser plates so that maximum capacity automatically shorts the coil. This idea is to be deprecated because each time re-tuning of the cathode is necessary. No doubt some readers will be able to think up an ingenious low-loss gadget here as against a switch mounted in the wiring; though this is quite permissible on the lower frequencies.

Although we have mentioned two frequency ranges these are not of course the only ones obtainable with the tritet frequency multiplier; a 3.5 Mc crystal would double to 7 Mc equally well if circuit constants were suitable. Also, fourth harmonic output of the fundamental can be obtained; that is, 14 Mc from a 3.5 Mc crystal, or 28 Mc from 7 Mc. While making tests take care to see that the glow in the crystal series lamp B is not too brilliant, as this indicates approach to "dangerous" as far as the quartz is concerned.

It will be noticed that C1 has been changed to an ordinary receiving-type condenser (coil values remain throughout, as given last month); its big brother is saved for the power amplifier stage to follow next, when we shall have a CO-PA rig.

● Adjustments

First tune the cathode circuit in similar fashion to notes given last month, from maximum to mini-

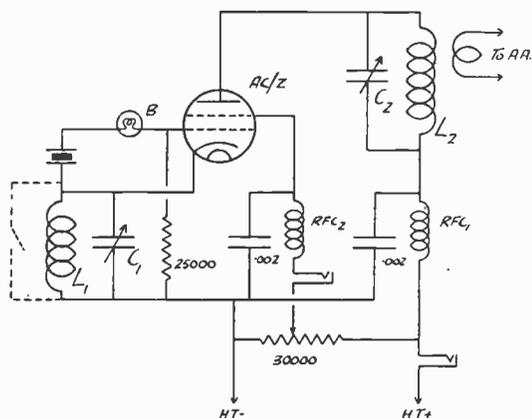
imum condenser setting until the tuning loop presented to L1 indicates the crystal striking point, or a kick is observed on the plate meter. Bear in mind the necessity for backing off slightly to guard against crystal fracture.

Now we must use the absorption meter (described in April) for checking up which harmonic is being obtained in L2/C2. The writer's first endeavours produced the fundamental and this meant the changing of coil value until the desired band was located. It is fairly hopeless to do all this without an absorption meter, because the tank circuit L2/C2 will produce a whole family of harmonics, some right outside our bounds. But with the coil data given last month this should not happen unless condenser values are changed; up to the present these values have not produced any unwanted harmonics.

Having obtained RF at L2 and being equally certain that the correct harmonic is in use final tuning is quite simple, all that is required being a touch on

from a licensed station using the apparatus exactly as given here, which statement is made simply to emphasise the fact that everything described will and does work under conditions permitted with a full licence. The writer is most anxious to report shortly his own experiences when he has passed from AA to full ticket—time to swot up Morse being the only cause for the delay! However, there is much to be done before then.

The next article in this series will deal with the addition of a PA stage using a Tungram 0-15/400 as the amplifier which, as will be seen from the photograph, has been wired ready for test. This need not be confusing if everything to the right of the dotted line is temporarily ignored; the only change necessary to the tritet is that of the AA coupling coil at L2. This should have some form of swivelling to vary the pick-up. And so, till next month.

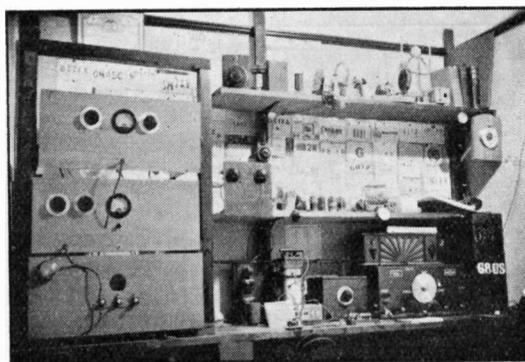


ADDITIONAL COMPONENTS FOR THE TRITET.

Two .00016 mF Condensers (Premier).
 RFL1, 2: (QCC, Type A).
 Switch: (Bulgin, S80T).
 Four Midget Stand-off Insulators: (Eddystone, 1019).
 Coil, 4 turns. See July issue.
 Two Instrument Knobs: (Eddystone, 1086).

C2 and adjustment of C1 to give maximum output at L2, without allowing the glow in B to become too dazzling—about half brilliancy in a 60-watt fuse lamp is safe for a 7 Mc crystal. By following the foregoing the cathode circuit can remain set and the plate coil brought to tune either by a loop or watching the meter in HT+ to its lowest reading. Next couple up the AA (using a 20-metre inductance, etc.) in the same way as was described in April and follow the load indications that were given previously for 1.7 Mc working. They should by now be more or less common practice, and well understood.

Lest it be thought that our experiments are for AA work only we could mention calls where the low-power units here described have found their way into distant log books. Tests have been conducted



G8US, J. H. Caldwell, 9 Chanters Road, Bideford, Devon, operates chiefly on 14 Mc CW. In one month recently he ticked off 47 W's in all U.S.A. districts and also worked VE1-5, YV, PY, K4, VQ2, XE1, ZC6, ZU and SU. The final is a Tungram 0-15/400 and the aerial 103 feet of wire, Collins coupled.

Readers' Small Advertisements

This section appears monthly in the back pages of the Magazine. For the nominal charge of 6d., anything wanted, or for sale or exchange, can be advertised. The service is strictly reserved for readers' private use, and Trade insertions are not accepted for this section. Three lines are allowed, and a sufficient postal address must be given. We naturally cannot accept any responsibility as to the *bona fides* of advertisers, nor can we act as agents.

IMPORTANT!

Will all readers please note that business for the following month's issue must be in our hands by the 15th of the preceding month. This is specially important for the September issue, as we close for press earlier than usual.

More about Morse

By N.P.S.

SINCE THE ADVENT of Broadcasting, "B— that Morse"—in every known tongue and with every known variation—has become a Universal Curse that is being expressed day and night unceasingly. It must be admitted, of course, that many of the complainants are very uncertain whether this "Morse" is a loose terminal, a bird on the aerial or a meteorological annoyance supplied by Messrs. Kennelly and Heaviside. The present article, therefore, is only written for those enlightened Cursors who have progressed from the listening stage and are now, to use an estate agent's expression, "ripe for development."

It has probably been realised that it is only the lack of receiving speed that is keeping one off the air or, if one happens to be already licensed, from enjoying really snappy CW contacts and, incidentally, escaping the horrible fate predicted by "Old Timer" in his June article.

● A new angle

Let us look at this very vexed question from an entirely new angle. Do you remember starting to read at school? At first, you slowly recognised and pronounced each letter, one by one, with little idea of what the complete word was until you came to the very end of it. But once you had had sufficient practice in recognising the individual letters and grouping them together you began literally to gulp in whole words semi-automatically and as quickly as your eyes could run along the lines.

Although this chiefly concerned the eyes one can, in exactly the same way, train oneself to read whole words of code in one's head, without copying down, just as rapidly as the eyes can read print.

This only requires perseverance and, for the purpose of our argument, there is but one rule to remember—*copying code has nothing to do with reading it*. If you doubt this statement, simply ask yourself how on earth you are going to copy down code if you cannot first read it? We will presume that you have already memorised the alphabet and can recognise the individual letters when they are sent to you at a speed that you can manage. We will also presume that you are copying down each letter as you hear it, right on the very heels of the sender and that you may even be attempting actually to overtake him!

Now, this is exactly where we go off the rails and begin to acquire a disastrous habit about which no handbooks have ever taken the trouble to warn anybody. Having completely derailed ourselves, we begin to forge a shackle that holds us back from acquiring that very desirable speed already spoken about. The reason is quite simple—by this "copying close" on the heels of the sender we are making our ability to read code dependent upon our copying. We have ignored the golden rule that the one has nothing to do with the other and, in consequence, as we can only copy down one letter at a time our speed in reading is only one letter at a time.

● The Remedy

Fortunately for us, the remedy is equally as simple—put away that pad and pencil and use your ears. Learn to read code *in your head* first and you'll find that the process of copying it down will follow semi-automatically.

"All very delightful" I can hear some scoffers saying, so let us see how we can train ourselves to do two things at once—read code in our heads as it comes straight from the receiver and yet, at one and the same time, copy down what has gone before.

The mind will carry what has been heard and one can, in time, fall several letters behind the sender with comfort. To do this we must get that daily habit of listening on the receiver for ten minutes or so as often as possible during leisure hours, and simply do nothing but relax and read in our heads. Follow this with another ten minutes during which one copies down with a determined effort to fall as many letters as possible behind the sender.

● —And an Exercise

Finish up by taking your pad and pencil and writing out the following two columns of short words, or any others you care to make up for yourself.

Column A.	Column B.
SA	OM
UR	FB
CO	FD
PA	VY
GD	ES
FB	CW

Start by trying (1) To spell out aloud to yourself each word in col. A as you write down its opposite in col. B. For instance, as you spell out S-A you are also writing down O-M, and so on. (2) Code verbally aloud to yourself, in "dits and dahs," col. B, as you are writing down col. A. When you say aloud "dahdahdah dahdah" for letters OM, you are also writing down S-A. (3) Get out your buzzer and buzz to yourself col. A as you spell aloud col. B. (4) Call in your Second Op. and get him to buzz col. A to you. Wait until he has sent the complete word right through (although it is only two letters!) before you copy it down and, at one and the same time, spell out aloud col. B. He sends S-A and when he has finished, you copy down what he has sent as you spell out O-M, and so on. Finally, (5) reverse this process by getting your helper to buzz you col. B which you copy as you spell out col. A.

You can later proceed to make up and tackle three- and four-letter words of your own. You'll enjoy it, so persevere and take heart from the schoolmaster's remark that "the more it hurts, the more good it's doing you."

You'll soon wonder why you ever allowed yourself to suffer the strain imposed by that speed-crippling, disastrous habit known as "copying close" and, as far as speed alone is concerned, you'll be well on the way to qualifying for G5BW's First-class Operators' Club!

CLUB ACTIVITIES

BOOTLE and District Transmitting Society

Secretary : C. E. CUNLIFFE, 368, Stanley Road,
Bootle, Liverpool, 20.

This newly-formed society hold meetings Tuesday evenings in temporary rooms at the Secretary's QRA. Full particulars and application forms available from Mr. Cunliffe.

BRIGHTON Branch—World Friendship Society of Radio Amateurs

Secretary : FRED R. JUPP, 2FAD, 12, Brading Road, Brighton, Sussex.

Due to heavy QRM on the LF bands 14 Mc was used during a successful field day. Two 14 Mc half-wave aerials were tried, and for 56 Mc, a Reinartz rotary beam and a dipole with reflector, which could be rotated horizontally and vertically. All continents were received on 20-metre 'phone with an 0-v-Pen, in 4½ hours, besides many CW catches. 2AFO, 2DFG and 2FAD were present.

Brighton Police Headquarters has been visited when the transmitter was described and special attention given to a demonstration of one of the pocket receivers.

CARDIFF and District Short-Wave Club

Secretary : H. H. PHILLIPS (2BQB),
132, Clare Road, Cardiff.

No. 3 of "The Newsreel" gives indication of continued activity. A chapter dealing with SW Propagation, with some practical results tabulated, is useful and interesting; another feature deals with tests of new trade apparatus.

DAVENTRY Short-Wave Radio Club

Secretary : L. W. BAZLEY, 66, Warwick Street,
Daventry, Northants.

The Empire Transmitter at Daventry was toured on July 14. A trip to Radiolympia on August 27 has been organised, fare 6s. 6d. Readers residing in or near Daventry are invited to book seats of Mr. H. Berwick, Sheaf Street, or at the Clubroom, Wagon Court, St. James Street.

Tuesday, August 30, is the next meeting date. The Club receiver is under construction and a transmitting licence is being obtained. New members are welcomed. Entry fee 1s., and senior members 8d. monthly; Juniors 4d. Clubroom open daily.

DEPTFORD Men's Institute Short-Wave Radio Club

Secretary : G. EDWARDS, G2UX, 14a, Louisville Road, London, S.W.17.

Marking the closure of another successful year in the Club history, the last meeting of the present session took place on June 28. Several members co-operated in a 7 Mc telephony portable field day station, conducting aerial experiments, using horizontal doublets erected at right angles. The data collected proved interesting in that one doublet seemed to radiate as expected, i.e., broadside, but the other apparently radiated off the ends. The height was the same in both cases. All contacts with reports were later set out on a map. As intimated last month, 2CAD has now become G3LY, being the club's first G3. This stimulus to the AA membership has resulted in promises re Morse instruction.

The Club re-opens on September 27, and interested persons are urged to get into touch before then in order to obtain the benefits of early membership.

DOLLIS HILL Radio Communication Society

Secretary : Mr. E. ELDRIDGE, 79, Oxgate Gardens,
Cricklewood, N.W.2.

G6OV demonstrated his new communication receiver on July 12. He also outlined experiments with a device employing a selenium cell for measuring RF output of transmitters, and the many uses to which this could be put were debated. A discussion followed, led by one of the members, on receivers and transmitters installed and used in mobile W/T stations.

Meetings are held fortnightly at 8.15 p.m. in Braintcroft Schools, Warren Road, Cricklewood, N.W.2.

DULWICH Radio Club

Secretary : W. J. BIRD (2BKK), 329a, Upland Road, East Dulwich, S.E.22.

An AA licence is expected very shortly. During the last month some members have gone ahead in Morse, but owing to alterations and decorations little work has been done. The coming months are looked forward to with optimism and increasing membership anticipated.

ENFIELD Radio Society

Secretary : L. FENN, 47, Cecil Avenue, Enfield
(Enfield 1572).

The Society has at last found a permanent home and the weekly meetings on Mondays are now held at 50, Chase Side Avenue, Enfield, by the kind permission of Mr. A. E. Dempsey.

The number of members possessing artificial aerial licences has now reached six and recent club nights have been devoted to informal demonstrations and discussions on transmitting apparatus.

There has been little falling off in attendance due to the summer, but new members are still welcome and particulars can be had from the Hon. Sec.

EXETER and District Wireless Society

Secretary : W. CHING, 9, Sivell Place, Heavitree,
Exeter.

Although not strictly connected with radio the second of the summer visits, to the Exeter Gas Works, shows the varied fare members receive during the season when no weekly meetings are held.

The visit lasted well over two hours and the whole process of making gas was explained and all the apparatus shown in action. One of the most interesting processes was that where the gas is washed and scrubbed to dispose of ammonia. The calorimeter room was also shown together with the Company's laboratory.

GLOUCESTER Radio Club

Secretary : G. G. E. LEWIS, 30, Kitchener Avenue, Gloucester.

Founded this year, the Club maintains good attendances during the summer which is regarded as a promising omen for the winter. On July 3 a 160 m. Field Day was held in the Stroud area. The transmitter, built and kindly loaned by G5JH,

was installed in a deep hollow in Cranham Woods, and was operated by G5HC. The first party to reach the location was that led by G8BK, and at the high tea held later at a nearby hostelry it was agreed that it was the most enjoyable event yet held. A further Field Day will be held early this month. On July 6 Mr. Lane delivered an impromptu address on "Transmitter Design and Operation" which was much appreciated.

HACKENDEN Radio Club (East Grinstead)

Secretary: EDGAR C. COOPER, The Alders, Hackenden, East Grinstead, Sussex.

"The clubhouse and equipment is almost complete. There is a scheme afoot to introduce associate members to supplement the six ardent active members we now have. The associates will be able to attend once a week when only two ordinary members will be on duty. In conjunction with this scheme we shall appeal for local 'Hams' to give us a look up. The opening and dinner, followed by some DX listening with our new equipment, will be fully reported next month. Final equipment will be:—Power from a Stuart engine driving a 15-volt 10 amp. dynamo to charge accumulators which in turn provide HT from a rotary converter. The set has not yet been chosen. We hope to prove then that the equipment has been worth all the time and trouble given to it by giving you a real 'bumper' log."

HALIFAX Experimental Radio Society

L. BLAGBOROUGH (2DUX), 15, Crowtrees Crescent, Brighouse, Yorks.

Most interest is centred on 28 and 56 Mc work, while one member has been exploring around 112 Mc; two reports of American 9-metre signals are claimed by users of 0-v-0s. Meetings every Wednesday at 7.30, Halifax Friendly and Trade Society's Club, where newcomers are made welcome.

Owing to Mr. J. S. Kilpatrick (G5QS) turning R.A.F. Radio Operator the Club records with regret the departure of their keen Secretary, the members wishing him success.

IRISH Amateur Radio Society

Secretary: J. BUTLER, 92, S.C. Old Road, Portobello, Dublin.

Permanent HQ are now available at the rear of 83, North Circular Road. A QSL contest is in operation. Subscriptions: City 10s. p.a., Country 5s.

MAIDSTONE Amateur Radio Society

Secretary: P. S. M. HEDGELAND (2DBA), "Hill View," 8, Hayle Road, Maidstone, Kent.

Meetings as usual in the Clubroom, 244, Upper Fant Road, Maidstone, every Tuesday evening with a definite programme only on alternate weeks. A visit has been arranged to the Mazda Valve Works at Brimsdown, Middlesex. It is hoped it will be possible to arrange a field day this month. Lectures for next season are being arranged, and details will be announced.

NORTH MANCHESTER Radio Society

Secretary: R. LAWTON, 10, Dalton Avenue, Thatch Leach Lane, Whitefield, near Manchester.

At a meeting held at 14, Fairfax Road, Prestwich on May 29 the society was successfully reformed. Mr. R. Lawton was re-appointed as secretary; other officers appointed were Mr. A. Park (chairman) and Mr. K. Bailey (technical advisor). Meetings to be held fortnightly on Sundays, com-

mencing at 3.30 p.m. It was also decided that the membership fee be 5s. per year, payable half-yearly, and that a charge of 3d. be made at each meeting. Membership certificates, etc., was discussed, and arrangements made for Morse instruction. The society will have its own receiving equipment and it is hoped to obtain a licence. Meetings so far fixed are Aug. 14 and 28, Sept. 11 and 25, Oct. 9 and 23, Nov. 6 and 20, Dec. 4 and 18.

PECKHAM District Short-Wave Club

Secretary: L. T. ORANGE, 11, Grenard Road, Peckham, London, S.E.15.

Formed through correspondence between readers interested in the "DX Corner" this club is looking forward to meeting new friends at the opening of their clubroom early this month. Being the S.E. London Branch of W.F.S.R.A. those members living near are specially invited. Lecturers and demonstrations are wanted.

ROMFORD and District Amateur Radio Society

Secretary: ROWLAND C. E. BEARDOW, G3FT, 3, Geneva Gardens, Chadwell Heath, Essex.

Lately known as "The Chadwell Heath and District Amateur Radio Society." HQ at Y.M.C.A. Red Triangle Club, North Street, Romford. New members will be welcomed at 8.30 p.m. on Tuesdays, or can apply to the Hon. Sec.

WEST HERTS Amateur Radio Society

Secretary: A. W. BIRT, G3NR, 6, Hempstead Road, Kings Langley.

Early in July a meeting was held at the residence of 2BZY in Berkhamsted. After members had congratulated ex-2ADG and 2BTU on becoming G3MI and G3NR, Mr. D. G. Martin gave a further talk in the series "Television" which dealt with "Scanning." G3NR then described an interesting experiment carried out by himself and 2BZY on June 11 last, when they took portable receivers to the top of the Ashridge Monument and made observations on reception in general, particularly of NFD stations.



On July 9 the Society organised two exhibits at the West Herts Hospital Carnival Fete held at Berkhamsted. Both exhibits were linked by land-lines and visitors' "Feteograms" (messages) were handled. G6AQ attended and gave assistance. Messrs. Norman Clarke, Ltd., Tungsram Electric Lamp Works, Stratton and Co., Ltd., and A. F. Bulgin co-operated to make the event successful.

(Please turn to page 38).

GUIDE TO THE WORLD'S S.W. BROADCASTERS

ALL G.M.T.

HP5H, PANAMA CITY

(Panama)

Metres: 49. Kilocycles: 6,122. Power: Unknown.

Operating schedule: Believed to be 00.00—03.00

Standard Time: G.M.T. less 5 hours.

Distance from London: Approximately 5,050 miles.

Postal address: "Radiodifusora HP5H, Apartado 1045, Panama City, Panama."

Identification characteristics: 3 or 4 chimes, slogan "La Voz de Pueblo"; single chime between announcements, occasional use of English and what appears to be regular English session Sundays 02.00—03.00.

Verification of reception reports: Said to confirm by QSL card.

HP5K, COLON

(Panama)

Metres: 49.96. Kilocycles: 6,005. Power: 1,000 w.

Operating schedule: Daily 12.00—14.00, 18.00—19.00 and 23.00—02.00 G.M.T. Occasionally later.

Standard Time: G.M.T. less 5 hours.

Distance from London: Approximately 5,000 miles.

Postal address: "Radiodifusora HP5K, Apartado 33, Colon, Panama."

Identification characteristics: Slogan "La Voz de la Victor," three chimes at 15 minute intervals, occasional use of English.

Verification of reception reports: By QSL card.

HP5F, COLON

(Panama)

Metres: 49.34. Kilocycles: 6,080.
Power: Unknown.

Operating schedule: Daily 16.45—18.15 and 00.45—03.00 G.M.T. Seldom heard now.

Standard Time: G.M.T. less 5 hours.

Distance from London: Approximately 5,000 miles.

Postal address: "Radiodifusora HP5F, Servicio Publico de Radio S.A., Apartado 867, Panama City, Panama" (same owners as HP5J; station situated at Carlton Hotel, Colon).

Identification characteristics: Announces as "La Voz de Colon", occasional use of English, generally when closing, when the National Anthem is also played.

Verification of reception reports: Has been known to request them but the compiler failed to secure a reply to his report.

HP5L, DAVID

(Panama)

Metres: 25.55. Kilocycles: 11,740. Power: 200 w.

Operating schedule: Daily 21.00—24.00 G.M.T. Seldom heard.

Standard Time: G.M.T. less 5 hours.

Distance from London: Approximately 5,050 miles.

Postal address: "Radiodifusora HP5L, Apartado 129, David, Panama."

Identification characteristics: Slogan "La Voz de Ismo"; broadcasts do not yet appear to be firmly established.

Verification of reception reports: The compiler does not know whether this station will verify reception.

HP5I, AGUADULCE

(Panama)

Metres: 25.23. Kilocycles: 11,895.
Power: Unknown.

Operating schedule: Daily 00.30—02.30 G.M.T. Seldom heard.

Standard Time: G.M.T. less 5 hours.

Distance from London: Approximately 5,050 miles.

Postal address: "Radiodifusora HP5I, Aguadulce, Panama."

Identification characteristics: Slogan "La Voz de Interior," occasional use of English, advertisements announced in English, 9 gong notes at 30 minute intervals. Programmes begun and concluded with typical native song.

Verification of reception reports: By QSL card.

PJCI, WILLEMSTAD

(Curacao, N.W.I.)

Metres: 33 or 50.6. Kilocycles: 9,091 or 5,930.
Power: Believed to be 150 watts.

Operating schedule: Weekdays 11.36—01.36; Sundays 15.36—17.36 G.M.T. Well heard at present on 33 m.

Standard time: G.M.T. less 4 hours 24 minutes.

Distance from London: Approximately 4,400 miles.

Postal address: "Radio Station PJCI, Curacaosche Radio Vereeniging, Willemstad, Curacao, N.W.I."

Identification characteristics: Announcements in Dutch and occasionally in German, Spanish and English, 4 chimes, signs off with Dutch National Anthem. Sometimes referred to as "Radio Curom."

Verification of reception reports: By QSL card

CD1190, VALDIVIA

(Chile)

Metres: 25.2. Kilocycles: 11,900.
Power: Unknown.

Operating schedule: Daily 16.00—19.00, 21.00—24.00 and 01.00—04.00 G.M.T.

Standard Time: G.M.T. less 5 hours.

Distance from London: Approximately 7,000 miles.

Postal address: "Radiodifusora CD1190, C. Kael-ler y Cia. Ltd., Apartado 642, Valdivia, Chile."

Identification characteristics: Relays medium-wave CD69, slogans "Radio Sur" and "La Voz de Valdivia," programmes reminiscent of those of Argentina, including recordings of popular bands, stars, etc., chimes (varying in number), occasional use of female announcer, but generally male.

Verification of reception reports: By QSL card.

ZP14, VILLARRICA

(Paraguay)

Metres: 48.78. Kilocycles: 6,150. Power: Unknown.

Operating schedule: Unknown, but at one time well heard between 21.00 and 23.00 G.M.T.

Standard time: G.M.T. less 4 hours.

Distance from London: Approximately 6,000 miles.

Postal address: "Radiodifusora ZP14, Friedman Hnos., Villarrica, Paraguay."

Identification characteristics: Slogan "Radio Cultura, La Voz del Corazon," relays ZP15 (700 kcs), poor quality, call and mention of Paraguay at frequent intervals, signs off with clock striking 7 at 23.00 G.M.T. and Sousa March "Stars and Stripes."

Verification of reception reports: By plain QSL card, that of ZP15 modified. N.B.—ZP14 was actually operating on 49.78 m. prior to compilation.

TG2, GUATEMALA CITY

(Guatemala)

Metres: 48.47. Kilocycles: 6,190. Power: 200 w.

Operating schedule: Daily 23.00—04.00; Sun-
days until 06.00 and 12.00—01.00 G.M.T.
Well heard at time of compilation.

Standard time: G.M.T. less 6 hours.

Distance from London: Approximately 5,000 miles.

Postal address: "Radiodifusora TG2, Director
General of Electrical Communications, Guate-
malaca City, Guatemala, C.A."

Identification characteristics: Best heard in Gt.
Britain from about 03.00 when it generally
broadcasts simultaneously with TGWA and
TGQA until approximately 03.50 or 04.00, after-
wards relaying TG1, slogan "Radio Morse,"
chimes (long sequence) at thirty minute inter-
vals, occasional use of English.

Verification of reception reports: By attractive
QSL card. N.B.—International Reply Coupons
are unofficially invalid in Guatemala.

OAX1A, CHICLAYO

(Peru)

Metres: 48.78. Kilocycles: 6,150. Power: 200 w.

Operating schedule: Daily 01.00—04.00; Sundays
until 05.00 G.M.T. Seldom heard.

Standard Time: G.M.T. less 5 hours.

Distance from London: Approximately 6,000 miles.

Postal address: "Estacion OAX1A, Casilla No. 9,
Chiclayo, Peru."

Identification characteristics: Reference to title
"Radio Delcar," signs off with Ted Lewis "Good
Night Song" and Peruvian National Anthem.
Also known as "La Voz de Chiclayo."

Verification of reception reports: Believed to con-
firm by QSL card.

TGQA, QUEZALTENANGO

(Guatemala)

Metres: 46.88. Kilocycles: 6,400. Power: 200 w.

Operating schedule: Sundays 00.00—06.00,
18.00—20.00; weekdays 02.00—04.00 G.M.T.

Standard time: G.M.T. less 6 hours.

Distance from London: Approximately 5,000 miles.

Postal address: Not definitely known but "Radio-
difusora, TGQA, Quezaltenango, Guatemala,"
would suffice.

Identification characteristics: Best heard in Gt.
Britain early mornings when broadcasting simul-
taneously with TGWA and TG2 in the Guate-
malan National Network until 03.50 or 04.00
after which it generally relays TGQ (1,450 kcs).
Slogan "La Voz de Quezaltenango," employs
English, and in common with most Guatemalans
radiates much marimba music.

Verification of reception reports: Not yet known.

OAX4D, LIMA

(Peru)

Metres: 51.90. Kilocycles: 5,780.

Power: 3,500 watts.

Operating schedule: Thursdays and Sundays
01.00—04.30 G.M.T.

Standard Time: G.M.T. less 5 hours.

Distance from London: Approximately 6,000 miles.

Postal address: "Estacion OAX4D, All America
Cables Inc., Casilla 2336, Lima, Peru."

Identification characteristics: Call-sign announced
frequently and in English when closing, news
bulletin heralded by long siren wail, signs off
with Ted Lewis "Good Night Song" and Peru-
vian National Anthem.

Verification of reception reports: By Letter.

SMALL ADVERTISEMENTS

are charged at 2d. per word, minimum 2s. All advertisements should be prepaid. Cheques and postal orders to be made payable to "The Short-Wave Magazine."

"ENGINEER'S GUIDE TO SUCCESS" shows how to qualify in Television, Sound Recording, Radio Engineering and Servicing, Wireless Communications, etc., by studying at home with The T.I.G.B. Write to-day for this Great Guide—FREE—which contains the world's widest choice of engineering courses—over 200—and alone gives the Regulations for Qualifications such as A.M.I.E.E., A.M.I.R.E., A.M.I.T.E., A.M.I.W.T., C. and G., etc. The T.I.G.B. Guarantees Training until Successful.—THE TECHNOLOGICAL INSTITUTE OF GREAT BRITAIN, 105, Temple Bar House, London, E.C.4. (Founded 1917. 20,000 Successes).

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"CLUB ACTIVITIES"—(cont. from p. 35).

WEST SUSSEX Short-Wave and Television Club

Secretary: C. J. ROCKALL (G2ZV), "Aubretia," Seafield Road, Rustington.

Activities are mainly 56 Mc experiments and a portable station was installed on Bury Hill, Sussex, for the R.S.G.B. 56 Mc Field Day. Reports on these tests would be appreciated. The new headquarters at East Ashling, near Chichester, are making progress. Full particulars are obtainable from the Hon. Sec.

WEYMOUTH and District Short-Wave Club

Secretary: E. KESTIN (2DPR).

At the first annual general meeting held at 15a, Hope Street, the secretary, Mr. W. Bartlett (2BBF), read the annual report, in which he emphasised the need for more members, there are now 26. He thanked Mr. C. Steadman (President) for assistance and stated that the financial position was satisfactory. Mr. Bartlett wished to be relieved of the secretaryship for the second year, and Mr. E. Kestin (2DPR), was elected in his place. Mr. D. Kill is the new vice-chairman.

A visit is to be made to the Dorchester Beam Station. G2XQ is to continue radiating the club news on 160 m. every Sunday at 10 a.m. The club tx will also operate Sundays on 20 m. at 10.30 a.m. with 'phone, call sign G8WQ. Reports and scheds. appreciated.

2BBF wishes to thank all manufacturers who have co-operated by giving demonstrations and talks, also members, who have given their whole-hearted support, specially thanking G5XR for valuable help.

WILLESDEN and District Short-Wave Society

Secretary: G. H. TALBOT, 5, Linden Avenue, London, N.W.10.

Satisfactory progress has been made since the society was inaugurated two months ago. Morse instruction classes are given each Wednesday evening and a series of lectures on elementary radio theory has been arranged for Friday evenings. Two members have already obtained their AA licences and are busy constructing transmitters. The club receiver has now been constructed and will soon be under test. Interested readers will be welcomed at headquarters, 31, Willesden Lane, N.W.6, any night from 6.30 to 10.30 p.m. with the exception of Thursdays and Sundays. The next general meeting will be held on Wednesday, August 10.



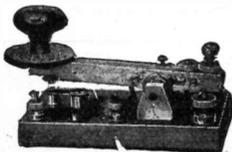
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The RADIO AMATEUR CALL BOOK is essential to "hams" and to owners of all-wave sets. It is the only radio callbook published that lists all radio amateur stations throughout the entire world. Also contains a World map showing international radio prefixes, High frequency press, time and weather schedules, etc., the "Q" and "RST" codes.

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G5KA (Dept. SM.8.) 41 Kinfauns Road, Goodmayes, Ilford, Essex.

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Write to



The Secretary (Dept. S.W.),
Radio Society of Great Britain,
53 Victoria Street, London, S.W.1.

For full particulars of the Society.

READERS' ADVERTISEMENTS

- 1 Advertisements must be accompanied by 6d. in stamps or P.O. made payable to "The Short-Wave Magazine" and crossed.
- 2 A maximum of three lines only will be allowed, including name and address.
- 3 Trade and Box Number advertisements cannot be accepted.
- 4 We reserve the right to refuse any advertisement.
- 5 We cannot act as an intermediary for an advertiser in this section.
- 6 Advertisements must reach this office not later than the 15th of the month preceding the month of issue.

"Jubilee" STAMP ALBUM, with 700 stamps, for sale, proceeds to children's hospital. Offers.—R. J. Lee, BRS1173, Heathfield, Sussex.

KODAK, FILM TANK, good cond., cost £1 1 0, sell or exchange SW components. Offers.—L. Crosby, 7, Fleetwood House, East Hill Estate, Wandsworth, S.W.18.

SELL OR EXCHANGE for anything useful in Tx. 150 "P. and A. Wireless," "Popular" etc., with blueprints. Offers.—Bradford, Market Street, Ashby-de-la-Zouch.

MARCONI Large super P.M. SPEAKER, type 91, complete with transformer, 17s. 6d. carr. paid. Offers.—2AAS, Horncastle, Lincs.

For Sale.—Brand new Webb's RADIO GLOBE, 12in. dia., cost 27s. 6d. Best offer over 15s. takes it.—Wright, 1, Hollar Road, Stoke Newington, London, N.16.

Bulgin Midget LF Trans., 3s. 3 Midget HIVAC Valves, XI, XD XP, new, 3s. 6d. ea. Gambrell Novotone Type J, 8s. Surplus gear, state wants.—G3AO, Derbyshire Rd., Sale, Manch.

Sale—EDDYSTONE COMPONENTS. Coils (6-p.), 6GY 3s.; 6G 3s.; 6Y 2s., reaction cond. 0002, 4s., b'spd. unit 4s. or 15s. the lot!—S. Long, 19 Hyde Road, Kenilworth, Warwickshire.

EDDYSTONE 5v battery SUPERHET, good performer, excellent condition (Mains installed). Coils 13-550 m. Approx. cost £10; what offers?—2CUB, Ridgewell, Halstead, Essex.

FOR SALE, 3/425 4s., DO20 4s., 42IIE £1, PM256 2s., AF6 8s., AF4 3s., 125 kc. bar 3s. 6d., 250-0-250 with 2 I.T.S. 5s. Want meters & 50-watt bases.—G81O, 473, Commercial Rd. Portsmouth.

2 Mullard MX 4-400 TRANSMITTING VALVES, 400 watts each, complete with HT and LT Transformer, 230 input, 4,000v. output, I.T.—H. Hillgrove, 305 St. Anne's Rd. Blackpl.

12 .0005 variable CONDENSERS 1s. post free; 8 GF all-wave HF chokes, ditto.—G3LK, 28, Brunswick Sq., Hove, Sussex.

Kelsey Superhet CONVERTER, 13-60 m., Ferranti battery Heptode VHT2, all specified parts, perfect, cost £4 15s.—30s or best offer.—Pethybridge, 25, Drakefell Road, S.E.14.

BARGAINS—3 Cyldon .0005 Tx Condensers, 4s. 6d. each; Ferranti Transformers, OPI 4s., AF5 4s., AF4 1s. 6d., AF3 2s.—D. Steden, 71, St. David's Road North, St. Anne's, Lincs.

VALVES.—164v 1s. 6d., 354v 2s. 6d., AC/HL 1s. 9d., AC/P 2s. 6d., all in good working order. Post paid.—2AAS, Horncastle, Lincs.

EKCO DC ELIMINATOR, 150v and SG, as new, 10s. Dozen varieties foreign unused stamps as used for QSLs, value 7s.6d., 4s.6d. or exchange.—Barron, 21, Rosemount Pl. Aberdn.

WANTED—CAR RADIO, 6 volt. Must be in good working order. Particulars and price to W. P. H. Hatty, "Glenview," Bushmills, Co. Antrim.

3 Colvern FERROCART COILS on base, internal switching, cost 37s. 6d., new, 7s. 6d.—G3LK 28, Brunswick Square, Hove.

ROTARY CONVERTER, input 220 DC, output 220 AC, 100 watts, £1 5s.; Transformer 900-0-900, 250 mils, 230 volts input, 19s.—N. Moorcroft, 218, Deane Road, Bolton.

Complete commercial HT POWER PACK, 1250v, 300 mils, 10v 8a. and 4v 4a LT, also 180v bias supply, 110v input. What offers?—H. Hillgrove, 305, St. Anne's Road, Blackpool.

For Sale—Ridco AC/DC short-wave CONVERTER, 2 valves, 50 to 200 metres, unused, 35s.—C.D., 80 Burton Road, West Didsbury, Manchester.

FOR SALE—0-v-2, complete valves, coils (13-170 m.), Milnes Unit, 150v, in good order, 6v and 4 2v accumulators, 100, 70 and 45 a.h.—Fish, Northwold, Thetford, Norfolk.

AC 0-v-1 and 6L6 TRITET with power packs and hosts of SW components, exchange miniature camera.—2DGM, 11, Pennard Road, London, W.12.

TRANSMITTING CONDENSERS. What offers two "Cyldon" .0002, double spaced vanes; splendid condition; cost 16s. 6d. each.—2CUB, Ridgewell, Halstead, Essex.

For Sale.—TROPHY BATTERY RX, cost £5 15s. will accept best offer over 50s., or what have you?—Wright, 1, Hollar Road, Stoke Newington, London, N.16.

Wanted—QSL CARDS, not G's, good prices paid. Please send offers to Wright, 1, Hollar Road, Stoke Newington, London, N.16.

Bulgin VIBRATOR (HTV1), MT5 Transformer, as new, 15s., Electradix 7s. 6d., Morse key 3s., or exchanges.—Challis, 104, East Hill, South Darenth, Kent.

Wanted—2 ROTARY CONVERTERS, 120 DC to 230 AC and 12-30 DC to 230 AC.—Hill, "Robin Hood," Catsfield, Battle, Sussex.

For Sale—5-Metre TRANSCRIVER Kits (2), complete, hand-phone, mike, valves, £4 each; also surplus USW components, American valves.—Morris, 307 Gateford Road, Worksop, Notts.

Don't scrap your BC rx—New "Farrex" battery or AC converters, valve included, 13 to 70 m, £1 each to clear or exchange.—Barron, 21, Rosemount Place, Aberdeen.

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 S.-W.M. 8/38.

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All times R.S.T., twenty-four hour system.

M.	KC.	CALL-SIGN, LOCATION, SCHEDULE.	M.	KC.	CALL-SIGN, LOCATION, SCHEDULE.
13.93	21,540	W8XK, PITTSBURGH, 12.00-14.00.	31.28	9,595	VUD2, DELHI, 11.30-18.30.
13.94	21,520	W2XE, WAYNE, 12.30-15.00; S. and Sa. 13.00-18.00.	31.28	9,595	VK6ME, SYDNEY, S. 06.00-08.00, 10.30-14.30, 16.30-18.30.
13.95	21,500	W2XAD, SCHENECTADY, 13.00-17.00.	31.28	9,595	VK6ME, PERTH, w'days 12.00-14.00.
13.97	21,470	GSH, DAVENTRY, 11.45-15.00.	31.28	9,595	W3XAU, PHILADELPHIA, 17.00-01.00.
15.77	19,023	HS8PJ, BANGKOK, M. 14.00-16.00.	31.82	9,580	VLR, LYNDHURST, w'days 03.35-14.30; S. 09.00-13.30.
16.86	17,790	GSG, DAVENTRY, 07.00-24.00.	31.32	9,580	GSC, DAVENTRY, 00.20-05.20 18.20-19.15.
16.87	17,780	W3XAL, BOUNDBROOK, 14.00-02.00.	31.35	9,570	KZRM, MANILA, M.-F. 22.30-24.00, 11.00-15.00; Sa. until 16.00; S. 10.00-16.00.
16.88	17,770	PHI, HUIZEN, S. 13.25-16.00; M. 00.00-01.00, 13.25-15.30; T. 13.25-15.30; Th. 13.25-15.30, 00.00-03.30; F. 13.25-15.30; Sa. 13.25-15.30.	31.36	9,565	W1XX, MILLIS, 11.00-05.00.
16.89	17,760	W2XE, WAYNE.	31.38	9,560	DJA, ZEESEN, 06.05-17.00, 00.00-04.45.
16.89	17,760	DJE, ZEESEN, 06.05-16.00; S. 17.10-18.25.	31.41	9,550	W2XAD, SCHENECTADY, 00.15-04.00.
19.52	15,370	HAS3, BUDAPEST, S. 15.00-16.00.	31.45	9,539	DJN, ZEESEN, 22.50-04.45.
19.56	15,340	W2XAD, SCHENECTADY, 17.15-24.00.	31.47	9,534	VPD2, SUVA, 11.30-13.00.
19.60	15,310	GSP, DAVENTRY, 19.45-02.50.	31.48	9,535	LKC, JELOY, 11.00-23.00.
19.63	15,280	DJQ, ZEESEN, 06.05-11.50 and 22.50-04.45.	31.48	9,535	W2XAF, SCHENECTADY, 21.00-05.00.
19.62	15,280	LKQ, BUENOS AIRES, 13.00-21.00.	31.49	9,530	ZBWS, HONG-KONG, 05.30-07.15, 09.00-15.30.
19.64	15,270	W2XE, WAYNE, w'days 13.00-23.00, S. Sa. 19.30-23.00.	31.50	9,523	ZRH, ROBERTS HEIGHTS, 11.00-13.30.
19.66	15,260	GSI, DAVENTRY, 03.20-05.20.	31.51	9,520	OZF, SKAMLEBAEK, 20.00-00.40.
19.68	15,243	TPA2, PARIS, 11.00-16.00.	31.51	9,520	HJABH, ARMENIA, 13.00-17.00, 00.00-04.00.
19.68	15,243	W1XAL, BOSTON, 18.30-21.00, ex. Sa.; S. 15.00-16.00.	31.55	9,510	HS8PJ, BANGKOK, Th. 14.00-16.00.
19.70	15,230	OLR5A, PRAGUE, tests around 13.00.	31.55	9,510	GSB, DAVENTRY, 00.20-09.30, 22.15-09.00.
19.71	15,220	PCI, HUIZEN, T. 09.30-11.30; W. 15.00-18.00.	31.58	9,500	LAHTI, 18.05-23.00.
19.72	15,210	W8XK, PITTSBURGH, 14.00-24.00.	31.58	9,500	VK3ME, MELBOURNE, w'days 10.00-13.00.
19.74	15,200	DJB, ZEESEN, 06.05-17.00 and 22.50-04.45.	31.58	9,500	XEWV, MEXICO CITY, 00.00-07.00 approx.
19.76	15,180	GSO, DAVENTRY, 07.00-03.30 and 22.15-00.00.	31.63	9,484	EAR, MADRID, 22.00-01.00.
19.79	15,165	JZK, TOKIO, 20.30-22.00.	31.80	9,428	COCH, HAVANA, 13.00-06.00.
19.80	15,160	YDC, BANDOENG, 04.30-08.00, 10.30-16.30; 00.00-01.30; S. 01.30-08.00; 11.30-16.00.	32.15	9,330	OAXAJ, LIMA, 18.00-21.00, 23.00-07.00.
19.80	15,160	SBG, STOCKHOLM, M. to S. 17.00-23.00; S. 15.00-23.00.	32.88	9,125	HATA, BUDAPEST, M. 01.00.
19.82	15,140	GSE, DAVENTRY, 07.00-18.00 and 22.15-24.00.	33.32	9,030	COBZ, HAVANA, 13.42-06.03.
19.84	15,123	HVJ, VATICAN, 16.30-16.45.	33.50	8,950	HCBJ, QUITO, between 13.00-04.15, ex. M.
19.85	15,110	DJL, ZEESEN, 06.00-08.00 and 14.00-22.25.	34.62	8,665	COJK, CAMAGUEY, 02.00-03.00.
20.04	14,970	LZA, SOFIA, 12.00-13.30; 19.00-21.15; S. 07.00-23.30.	40.65	7,380	XECR, MEXICO CITY, M. 01.00-02.00.
20.64	14,535	HBJ, GENEVA, S. 19.45-20.30; M. 08.30-08.45.	44.94	6,675	HBO, GENEVA, S. 19.45-20.30.
22.00	13,635	SPW, WARSAW, 00.00-02.00.	45.00	6,666	HCRRI, GUAYAQUIL, S. 23.45-01.45; W. 03-15-05-15.
24.52	12,230	TFJ, REYKJAVIK, S. 19.40-20.30.	45.25	6,630	HIT, TRUJILLO, between 17.15-02.40.
25.00	12,000	VZSPS, MOSCOW, from 12.00.	45.31	6,618	PRADO, RIOBAMBA, F. 03.00-05.30.
25.27	11,870	W8XK, PITTSBURGH, 00.00-04.00.	46.01	6,520	VV4RB, VALENCIA, 17.30-18.30, 23.30-02.30.
25.23	11,880	TPA3, PARIS, 07.00-10.00; 16.15-23.00.	46.80	6,410	TIPG, SAN JOSE, between 13.00-05.30.
25.29	11,860	GSE, DAVENTRY, discontinued.	46.88	6,400	VV5RH, CARACAS, 00.00-04.00.
25.34	11,840	OLR4A, PRAGUE.	47.10	6,396	VV5RF, CARACAS, 23.30-03.30.
25.36	11,830	W2XE, WAYNE, 23.30-04.00.	47.15	6,362	VV1RH, MARACAIBO, between 12.30-05.30.
25.40	11,810	I2RO, ROME, 11.00-21.00 and 00.05-01.30.	47.28	6,345	VV1RF, VALERA, 23.30-02.30.
25.42	11,800	COGF, MATANZAS, 22.00-04.00.	47.85	6,270	VV5RP, CARACAS, 23.00-04.00, approx.
25.42	11,800	JZJ, TOKIO, 20.30-00.30.	48.05	6,245	HIN, TRUJILLO, 00.30-03.30.
25.42	11,800	OER3, VIENNA, 15.00-23.00.	48.31	6,210	VV1R, CORO, between 16.30-03.30.
25.45	11,790	W1XAL, BOSTON, 21.45-23.30; S. 20.00-23.30.	48.78	6,150	VV5RD, CARACAS, between 16.30-04.00.
25.47	11,780	LAHTI, intervals 07.00-18.05.	48.80	6,150	CJRO, WINNIPEG, as CJRX (25.6 m.).
25.49	11,770	DJD, ZEESEN, 16.40-22.25 and 22.50-04.45.	48.83	6,140	W8XK, PITTSBURGH, 04.00-06.00.
25.52	11,750	GSD, DAVENTRY, 03.20-05.20; 07.00-09.15; 16.45-18.00; 22.15-24.00.	48.88	6,136	CR7AA, LOURENCO MARQUES, see CR7BH (25.6 m.).
25.54	11,730	COCX, HAVANA, 14.00-07.00; S. 14.00-18.00, 00.00-04.00 (Mon.).	48.92	6,135	VE9HX, HALIFAX, 16.00-06.00.
25.60	11,720	CJRX, WINNIPEG, 00.00-06.00; S. 19.00-04.00.	48.94	6,132	COCD, HAVANA, between 15.00-07.00.
25.60	11,720	CR7BH, LOURENCO MARQUES, 18.10-22.00; S. 16.00-20.00.	49.02	6,125	LKJ, JELOY, temporarily discontinued.
25.61	11,710	TPA4, PARIS, 00.00-05.00.	49.02	6,120	W2XE, WAYNE, 04.30-05.30.
25.63	11,700	SBP, MOTALA, evenings.	49.10	6,110	VUC, CALCUTTA, between 08.06-18.06.
25.64	11,700	HP5A, PANAMA CITY, between 17.40 and 04.00.	49.10	6,110	HJ6AB, MANIZALES, 00.00-06.00.
25.64	11,700	CB1170, SANTIAGO, 17.00-21.00; 23.00-06.00.	49.15	6,105	ZRK, KLIPHEUVEL, 18.00-22.00.
26.01	11,530	SPD, WARSAW, as SPW (22 m.).	49.18	6,100	VUA, BELGRADE, between 07.00-23.00.
27.17	11,040	CSW2, LISBON, testing evenings.	49.18	6,100	W3XAL, BOUNDBROOK, 02.00-06.00.
27.26	11,000	PLP, BANDOENG, es YDC (19.8 m.).	49.20	6,097	ZRJ, MARAISBURG, 18.00-22.00.
28.93	10,370	EA8AB, TENERIFFE, between 20.35-02.00.	49.31	6,083	VQ7LO, afternoons until 20.15.
29.04	10,330	ORK, RUVSSELDE, 19.30-21.00.	49.42	6,070	VP3MR, GEORGETOWN, 21.15-01.15.
29.24	10,260	PMN, BANDOENG, as YDC (19.8 m.).	49.46	6,060	SBO, MOTALA, 19.30-23.00.
29.35	10,220	PSH, RIO DE JANEIRO, 23.00-00.00; 01.00-03.00.	49.50	6,060	W3XAU, PHILADELPHIA, 01.00-04.00.
30.51	9,830	COCM, HAVANA, 14.00-05.00.	49.50	6,060	W3XAL, CINCINNATI, between 10.45-07.00.
30.82	9,828	EA01, MADRID, evenings.	49.67	6,040	W1XAL, BOSTON, 00.00-02.00.
30.80	9,740	COCO, HAVANA, 13.00-07.00.	49.75	6,030	HP5B, PANAMA CITY, 23.00-04.00.
30.93	9,700	"RADIO MARTINIQUE," Port-de-France, 17.15-18.45; 00.00-02.00.	49.75	6,030	OLR2B, PRAGUE, evenings.
31.06	9,660	LRX, BUENOS AIRES, 15.30-05.00.	49.83	6,020	DJC, ZEESEN, 16.40-22.25.
31.09	9,650	CS2WA, LISBON, T. Th. Sa. 22.00-01.00.	49.92	6,010	OLR2A, PRAGUE, evenings.
31.10	9,645	HH3W, PORT-AU-PRINCE, 19.00-20.00; 01.00-02.30.	49.92	6,010	CJCX, SYDNEY, between 13.00-02.30.
31.13	9,630	I2RO, ROME, 21.00-24.00; 01.30-03.00.	49.92	6,010	PRAS, PERNAMBUCO, from 22.00.
31.15	9,630	HJ7AD, BUCARAMANGA, 00.00-04.30.	49.92	6,010	COCO, HAVANA, 23.10-06.00.
31.21	9,612	HJ1ABP, CARTAGENA, between 13.00 and 04.30.	49.94	6,007	ZRH, ROBERTS HEIGHTS, 05.45-06.50, 16.00-21.30.
31.23	9,607	HP5J, PANAMA CITY, 18.00-19.30; 00.30-04.30.	49.96	6,005	CXA2, MONTEVIDEO, 22.00-01.00.
31.23	9,606	ZRK, KLIPHEUVEL, 05.45-17.45.	49.96	6,005	CFCX, MONTREAL, 13.45-07.00.
31.25	9,600	RW36, MOSCOW, evenings.	50.00	6,000	XEBT, MEXICO CITY, 16.00-06.00.
31.28	9,595	PCI, HUIZEN, S. 20.00-21.00; M. 01.00-03.00; T. 19.45-22.00; Th. 01.00-04.00.	50.17	5,980	CS2WD, LISBON, from 22.00.
			50.26	5,970	HVJ, VATICAN, 20.00-20.15.
			50.60	5,930	VV1R, MARACAIBO, 00.00-04.00.
			50.90	5,893	VV3RA, BARQUISIMETO, between 18.00-04.00.
			51.28	5,850	VV1RF, MARACAIBO, between 16.30-04.30.
			51.72	5,800	VV5RC, CARACAS, between 16.45-03.45.
			58.31	5,145	OK1MPT, PRAGUE, evenings.
			60.06	4,985	VUD, DELHI, 12.30-18.30.

PIEZO QUARTZ CRYSTALS

WEBB'S "VALPEY" RANGE.

Type VM2 Amateur Unit



Type VM2 is our standard mounted X-cut crystal for the 3.5 and 7 megacycle (80 and 40 meter) bands. The frequency drift is not more than twenty cycles per megacycle per degree centigrade. Frequency calibration in the purchaser's equipment is guaranteed accurate within three one-hundredths of one per cent. Crystals between 7.3 and 7.5 megacycles for quadrupling into the high frequency end of the 28 megacycle (10 meter) band are furnished without extra charge. The mounting is our well-known V-series, described above. We have sold many thousands of these type VM2 crystals to users all over the world.

Type VM2. Mounted Crystal to your specified frequency in 7 mc. band ... 15/6
 (Over 1,000 7 mc. crystals are stocked by Webb's. You can depend on supply of specified frequency per return.)

3.5 mc. band within 5 KC of your specified frequency ... 15/6
 1.7 mc. special cut ... 15/6

UNMOUNTED CRYSTALS, 7 mc. only "X" cut ... 10/6
 IN WEBB'S VERY CONSIDERED OPINION THIS VALPEY RANGE OF "X" CUT CRYSTALS ARE THE MOST ACTIVE AND ACCURATE UNIT IRRESPECTIVE OF PRICE ON THE MARKET.

MONITOR CRYSTAL HOLDERS.

Enclosed type, similar to Valpey pictured above ... 5/- each

Q.C.C. BRITISH GROUND CRYSTALS.

A selected range is available from stock or to specified frequency in any band within three days. These crystals are all supplied with certificate of frequency which is acceptable to the British Post Office.

Standard type (300 volts on anode of oscillator) 7, 3.5 and 7 mc. Bands ... 15/-
 Power type in above bands for use with 500 volts on anode of C.O.) ... 20/- each

NOTE.—Above prices for unmounted crystals.
 Q.C.C. Enclosed Holder, in hard fibre, with base as pictured ... 8/6



CRYSTAL CONTROL ON FIVE METERS.

The application of crystal control to 5-meter transmitters has been limited by the fact that the necessary frequency multiplying schemes seriously complicated the design and construction. The development of the now well-known HF2 20-meter crystal unit was an important step in the right direction but transmitter simplicity was still wanting.

The characteristics of existing types of crystals were unsatisfactory for these high frequencies and the development of a new cut was necessary. After extended research, a new angle was found in which the crystal was thicker, for a given frequency, than other cuts and at the same time possessed the necessary high activity. It will safely carry an RF current of up to 200 mils without danger of fracture and has a drift of 43 cycles/Mc.

This new crystal, complete with holder, is the Bliley HF2 10-meter crystal unit. It is indeed a revolutionary development for it is now possible to have 5-meter crystal control which is really simple.

The problem resolved itself not only into the development of the crystal but also into the selection of tubes which had the proper characteristics for efficient crystal performance. With some tubes, especially the higher μ and pentode types, the crystal was effectively choked by the high input capacity. Others, having a low feedback capacity and a large electrode spacing, were equally unsatisfactory.

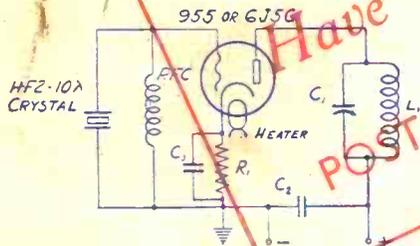
Pentodes, in general, are not to be recommended and best results were obtained with the new high frequency triodes such as the 955, 6J5G, 6E6 and RK34.

The 955 and 6J5G are excellent oscillators, giving 1.75 and 2.5 watts output, respectively, on 10-meters. The 6J5G has slightly higher inter-electrode capacities but is preferable to the 955 because of the higher output and lower cost. Either of these tubes will give sufficient output at 10-meters in a simple triode oscillator circuit, to drive an 802, RK23, 807, RK39, or 6L6 tube as a doubler.

The 6E6 and RK34 tubes are particularly interesting since their dual-triode construction makes possible good 5-meter output with a single tube. The 6E6 gives an output of 3 watts on 5-meters from the doubler section, while the RK34 will give an output of 3.5 watts.

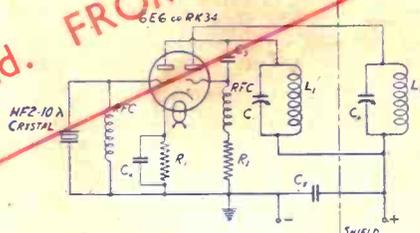
TUBES.

In applying crystal control to high frequency transmitters



10-Meter Triode Crystal Oscillator.

- L₁—8 Turns No. 12 wire single spaced 1/4" dia.
- C₁—75 mmf. variable condenser.
- C₂—0.05 mf. mica condenser.
- C₃—0.001 mf. mica condenser.
- C₄—0.005 mf. mica condenser.
- R₁—200 ohm carbon resistor.
- RFC—2.5 mh. R.F. choke, Eddystone 1010.
- Plate Voltage—180V. for the 955, 220V. for the 6J5G.



Dual-Triode Oscillator-Doubler For 5-Meters.

- L₁—6 Turns No 12 wire single spaced 1/4" dia.
- C₁—75 mmf. variable condenser.
- L₂—4 Turns No. 12 wire double spaced 1/4" dia.
- C₂—35 mmf. variable condenser.
- C₃—0.001 mf. mica condenser.
- C₄—0.005 mf. mica condenser.
- RFC—2.5 mh. R.F. choke.
- R₁—400 ohms.
- R₂—30,000 ohms.
- Plate Voltage—6E6—300, RK34—325.

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