

The

6^D

SHORT-WAVE MAGAZINE

100WS on CW

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

APRIL
1939

VOLUME III
NUMBER 2



The TZ08-20 is designed for full power operation down to 5 metres and will perform the same functions as the American T.20. Under normal conditions an output up to 40 W. is obtainable when the valve is used as a Class C amplifier.

TECHNICAL DATA

Filament, oxide coated	-	-	-	-	7.5 volts, 1.1 Amps.
Anode Voltage at 5 metres	-	-	-	-	750 volts. max.
Base	-	-	-	-	Standard British 4 pin

CHARACTERISTICS

Amplification Factor	-	-	-	-	-	25
Mutual Conductance	-	-	-	-	-	3.0 mA/V
Anode Impedance	-	-	-	-	-	8330 Ohms
Anode Dissipation	-	-	-	-	-	20 Watts max.
Anode-Grid Capacity	-	-	-	-	-	5 μ F (approx.)

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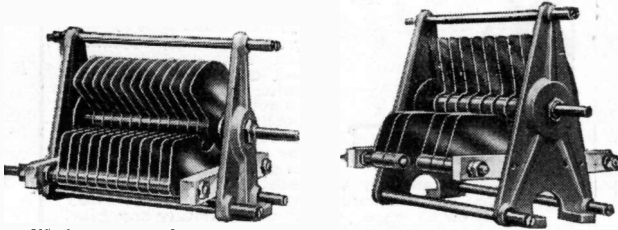
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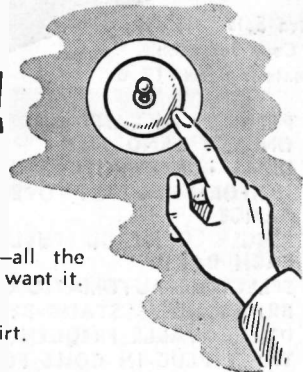
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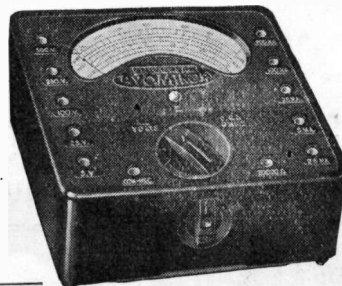
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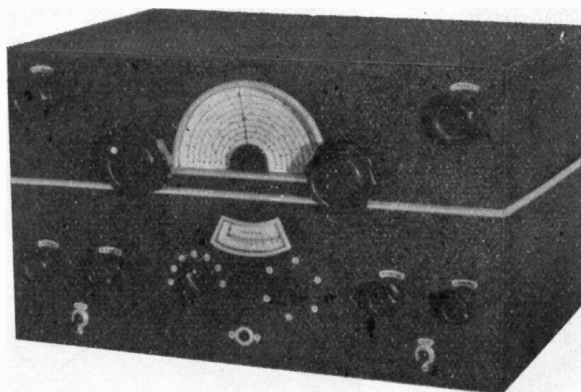
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The
Short-Wave Magazine

No. 2, Vol. III.

APRIL, 1939

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Duty

By the Government's recent announcement regarding the expansion of the Territorial Army on a voluntary basis, which implies rejection of conscription—at least for the time being—it becomes the urgent duty of every citizen to consider in what capacity he can serve. To those of our readers not already attached to the R.N. or R.A.F. organisations, we suggest that they get in touch immediately with their local Territorial units of the Royal Corps of Signals, which is in need of both officers and other ranks.

Tests

Some recent comments on this page dealt with the subject of Contests, and this month we are taking a good deal of space to cover the results of two recent Tests organised by the Magazine.

While we fully appreciate that many readers are probably not particularly interested in either Tests or Contests, we feel that a few words on the essential difference between them may perhaps show that organised activity of any kind serves a very useful purpose, thereby justifying the attention we give in the following pages to the Magazine 1.7 and 56 Mc Tests.

The main function, the underlying reason for the existence, of the transmitting amateur is experiment. In recent years, we have seen the focus gradually change from Experiment to Communication, with what Amateur Radio investigation there is directed towards improving communication in the sense of working more and better DX. This is not quite the useless and inane objective the critics of Amateur Radio—many of them from within the fold—would have us believe. For if the amateur is allowed to exist because of his worth in the field of experimental radio, the reason for Radio itself is to provide a means of communication.

Tests give the transmitting amateur his opportunity to contribute something, however slight, to the advancement of the art. But the experimental aspect is only incidental in a Contest, which in effect merely selects the individual who is better at communication than his fellows. This is not to decry Contests as such, and we have quite recently used this space to try and show that there is as much to be said for Contests as against them.

But an organised Test in which as many people as possible participate and report results—whether the object of the Test is to explore a frequency band the potentialities of which are little understood or to prove the DX possibilities of a neglected one—is likely to be a great deal more helpful to the art of Radio, to say nothing of the cause of Amateur Radio, than a series of point-scoring Contests on bands of which the technique is already well known.

And if the Test has some new communication angle, so much the better.

*Austin Foster
G3FO.*

The 160-Metre Story

By
The Editor
(from Reports.)

Detailed Account of the February 1.7 Mc Trans- Atlantic Tests

THE likelihood of real DX being obtainable on our lowest frequency band has been ever-present in the minds of a small group of experienced British and American operators for at least the last eight years—taking 1924 as the beginning of the short-wave era proper, around which period Trans-Atlantic contacts were being made on wavelengths between 100 and 200 metres. But after 1929, the idea of England-America working on 1.7 Mc became a new one, and it was generally thought to be so difficult as to amount for all practical purposes to an impossibility.

However, that did not prevent the organisation privately of the first G/W 1.7 Mc Tests late in 1932, followed by similar efforts each year till 1937, with varying success. Our issue of December 1937 outlined experiences and the results obtained to that date.

Then this MAGAZINE, as part of its general editorial policy, inaugurated the first of what we hope will be an annual or bi-annual series of Tests to prove the value of 1.7 Mc for both DX and ordinary communication purposes. Last April we recorded the results (practically nil, incidentally) of the Test Period arranged for February 19-27, 1938; though well supported on both sides of the Atlantic, no contacts were made as conditions were quite hopeless. W1BB was, however, heard consistently.

Coming now to the immediate past, readers will recollect that our issue of February this year contained a detailed account of some wonderful Trans-Atlantic work the previous month, shortly before the time of the MAGAZINE Tests, fixed for February 4-16, 0430 to 0730 GMT on alternate days. We were

rather doubtful whether the excellent conditions of January would hold and in view of the number of contacts made that month, we also thought that Test activity might not be as high as anticipated; after all, by February this year, 1.7 Mc DX working had become almost common-place!

But not quite—the last issue gave in brief the advance results on the Test Period at which we have now arrived, and with which this particular account is concerned. As to support, the MAGAZINE Tests brought on dozens of G stations and more DX than has ever before been heard on the 1.7 Mc band.

● American Results

Visitors first—and a few photographs of their stations appear herewith. The most outstanding signal, heard by practically everyone on this side, was W1BB, Stewart Perry of Winthrop, Mass. We owe him a special word of thanks, because not only did he make 1.7 Mc DX a reality to so many G operators and listeners, but he also undertook much of the organisation on his side of the water—no trifling task. To set it all off, he has turned in a report running to some six pages and over 3,000 words, practically a work of reference on 1.7 Mc DX operation.

In the seven days of the Test Period, assisted by W1HFJ on those occasions when a big day's work lay ahead, W1BB made ten QSOs with four different G stations—G2DQ, G2PL, G3JU and G6GM. The only other British station heard was G6WY, and W1BB says that his main difficulty all the time was static, and not just QRN. Old-fashioned apparatus in his neighbourhood, together with power line leaks, combine to produce a din capable of drowning most DX signals at the best of times. His transmitter is formidable, mostly buffers to pile up the drive for the final, which runs at 500 watts input: RK25-247-756-P/P756-P/P211, feeding into an 80-metre Zepp with a 45-ft. ladder. W1BB does not explain why it works so well on 1.7 Mc (it is actually Zepp tuned), but remarks "If I could get hooked



General view of W2CAY, Albert Dabb, at Linden, New Jersey. He was well heard and worked G2PL and G2DQ. The 1.7/3.5 Mc rig is on the shelf to the right, with a 203A in the final and 200 watts input.

up with a good G sometime I would try a Marconi; I have a famous 'round ground' earth put down in 1919, eight pieces of zinc each 40-ft. square buried on edge in cartwheel form. . . ." Another interesting point he mentions is that just about sunrise over here there was a marked increase in signal strength for 15 minutes or so, signals not audible before or after coming in, as it were, on the crest of a wave and making "snap" QSOs possible with every station on the band during this short time. With him, February 16 was the best day of the Tests. Though W1BB agrees that the peak time comes somewhere between 0500 and 0700 GMT he thinks conditions during February were not as good as they might have been but that 1.7 Mc DX will get progressively better during the next four or five years, as the sunspot activity passes away from the maximum.

W2CAY of Linden, New Jersey, kept the schedule for five days of the seven, contacting for 100 per cent. QSOs G2DQ and G2PL. His transmitter is 42-807-203A, with 200 watts, and he uses a 113-ft. aerial working against a 90-ft. counterpoise; the receiver is a National HRO. W2CAY sends several photographs showing close-ups of the transmitter other than the one reproduced here, of which he says "It shows how the rig looks dressed up for having its picture taken."

In terms of QSOs obtained, the most successful W station was W1ME, John Medeiros of New Bedford, Mass., who had no fewer than twelve European contacts on five Test days, working G2DQ, G2PL, G3GH, G5RI, G6GM and FA8BG. If we also bring in February 5 (actually not a scheduled date) he had four more, with new stations in G6WY and F8PZ. W1ME is using a most effective radiating system for 1.7 Mc—a V-beam directed on Central Europe, 135-ft. in each leg, with an 80° angle. The 211 PA is run at 200 watts input, and he concludes by remarking "Had a very nice time and thanks a lot." Thank you, OM.

W2JZR, Victor Cummings of West Albany, New York, is rightly puzzled at being reported on 'phone over here, since his elaborate beam system looks in the other direction, making him wonder if the "stuff" was going the long way round. Not impossible, when one remembers that he has a kilowatt of input and has also been reported in Poland. W2JZR is extremely interested in 1.7 Mc and how we find it on this side—he is also anxious to arrange cross-band QSOs with G stations, with himself on 160-metre 'phone. QRAR.

W8LCN, Kenneth Leiner of Wheeling, West Virginia, is another who was received in England, though he had no QSOs. He kept the schedule on what have since turned out to be about the two best days, with 600 watts input; but heard nothing, mainly due, he says, to "Bad man-made QRN which is impossible for weak signals."

Among the many W stations on for the Tests, the following should also be mentioned: W1AW, W1WJ, W8QCP, W3AIF, W3HC, W2FQ, W8SGX, W9SCH, W1NP, W6OAN, W1CPL, W2DFX, W2FJY, W4RUA, W8BQ, W8SNA, W8MEO, W9ARX, W9DBA, W2EYS, W8DQY, W8FKO, W2IRC, W3ALB, W2FGK, W4FAZ, W4FLP, W9YFL, and Canadians VE1EA and VE3AAG.

Though not all operating on every day of the Test, they kept the calling and listening schedule most carefully.

● The SM Stations

SM7UC, A. Nordgren of Akarp, was on for six days of the seven and heard W1BB on February 4, consistently for 1½ hours and most of the time at RST-559. Conditions were bad for SM7UC on the other mornings; he explains "My location is about half-a-mile from an electric railway using 16,000 volts 16 cycle AC and when the weather is foggy this low cycle AC causes very high noise level on 1.7 Mc." We should think it does! His transmitter is 59-RK23-P/P 10, with 150 watts and a ¼-wave aerial, the receiver being a home-built 12-valve superhet with crystal filter. SM7UC adds his list of G stations heard—GW2BG, G2DQ, G2PL, GW2OP, G2PO, G3GD, G3GH, G3ZL, G5MP, G5QY, G5RX, G5VT, G6GM, G6SQ, G6VC, G8ML, G8PI, G8SG and G18LF. This will please many of them, and show that contacts should be fairly easy in that direction.



W1BB is not always working 1.7 Mc DX. Out in the sailboat with junior.

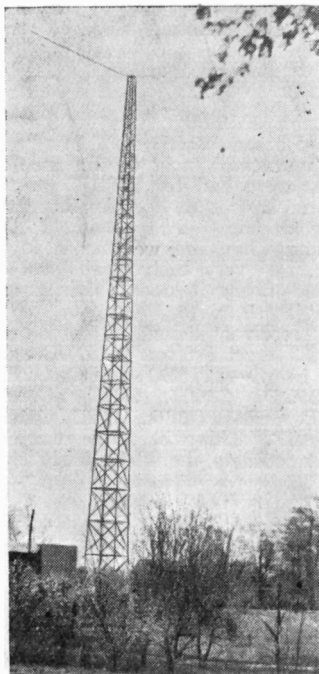
SM7QY, Gunnar Ekström of Skurup, deserves honourable mention—he kept the whole schedule from start to finish exactly as laid down and his log is meticulous in its accuracy. Though there are depressingly long columns of "nils" he was partially rewarded by hearing FA8IH, RST-569 on Feb. 12, and W2CAY RST-449 at 0615 GMT on the 14th. SM7QY uses a simple 15-watt 6L6 ECO, an east-west ¼-wave aerial, and an 0-v-2 receiver.

● British Entrants

It is pleasing to record that not only did the successful operators write useful reports, but that we also had many from those who, while hearing DX, were not reaching it. So they shall be first.

G8ML of Cheltenham, a stalwart who kept the schedule solidly last year as well, heard on his MAGAZINE battery "Ideal Receiver" W1AW, W1BB,

When writing the Trade, identify yourself with this Magazine



Aerial mast at W2JZR. Victor Cummings, West Albany, New York. It supports a dipole cut for 1930 kc, with a director-reflector system aimed 10°S. of W., or in just about the opposite direction for us!

W1CA, W1ME, W2CAY and several unidentified American 'phones, but he did not get across. G8ML is very active on 1.7 Mc and using an APP4g-O.15/400 ECO/PA, feeding a converted Zepp, has worked SM, OZ and all G.

G2PC of Elland says "Not a sausage of any DX heard here. A local dye-works uses an HT separator (whatever that is) involving a 12-in. spark gap, and QRM which peaks on 2 Mc is most effectively radiated from the cables leading to the apparatus; DX reception is out of the question, because the darn thing is on all day and all night, every day and every night." And we thought we knew something about man-made noise! Yet G2PC put out calls in the hope that they might be heard on the other side.

Another who suffered QRM, but of a different kind, was GW2OP of Pembroke Dock. What was apparently an AC surge put his No. 1 receiving equipment out of action, but on another set he logged at various times W1BB, W1ME, W2CAY, W2FGX and W4FAZ. Curiously enough, the 10th appeared to be the best day with him. GW2OP's 1.7 Mc gear consists of an AGSX receiver and a CO-PA using an LS5b and DET.1. Capt. Price comments "The tests seem to have been too late this year, as best conditions were just before the chosen dates. If arranged earlier, they can always be extended to take advantage of conditions. My second observation is that G stations should have it forcibly pushed at them that they must synchronise their clocks—some were five minutes out of time and were actually jamming W stations. Surely if the Americans can keep right on time we can do it just as easily." Yes, surely.

G5HS of Thame, using an 0-v-2 receiver, heard W1AW, W1BB and W1ME, also F, FA, HA, HB, OZ and SM, but failed to get any DX contacts with his CO-PA—a PM.24M driving a 42 and feeding

into a 132-ft. end-on aerial coupled as recently described in the MAGAZINE (February, p. 12) which he finds gives him appreciably better results at distance.

G5GT of Taunton also tried and though he heard DX on his 1-v-1 (W1BB and W1ME) no QSO resulted. His transmitter is 6L6 CO and the radiating system an aerial-counterpoise arrangement with 84-ft. roof and 60-ft. c'pse, shaped to fit a confined space. On this, SM and OZ have been worked consistently, as well as plenty of G's.

Another successful station so far as Europeans are concerned is G6VC of Northfleet; he heard no W's but was getting a strong signal from HB9CB on a battery 1-v-1. Using a 6L6-6L6 rig, G6VC has at different times worked F, FA, HA, HB, OK, OZ and SM, with an aerial-counterpoise radiator. He remarks "Though I heard nothing, I put out plenty of calls hoping someone across the pond would receive me."

G18LF of Clogher, Co. Tyrone, missed only two days and heard W1BB quite consistently. He uses a TRF 1-v-1 and a CO-PA (59 to P.650) run from DC mains and batteries, the aerial being a 99-ft. roof/80-ft. counterpoise lying north-and-south. No DX QSOs were obtained, so in desperation he worked G3ZL! He had the mortifying experience of hearing other G's calling and working DX not audible at G18LF, but concludes "It was an interesting experience, for I had never before heard a W on 1.7 Mc; also, it proved to me that I can get up in the morning when the incentive is there!"

● Successful G Stations

We come now to the tale of those who did get across, their results already having been given briefly in our March issue.

In view of his very low power, we consider the achievements of G3JU, Sandy, Beds., to be outstanding. With an input of only 4 watts to a triode CO, battery fed, a doublet 33-ft. high and an 0-v-1 receiver he worked W1BB, W1ERQ, W2FGK, W4FAZ, W4FLF and heard—in addition to W1AW, W3BTQ and W8BLP on CW—W1CPI and W9YFL on 'phone. G3JU is, as one might expect, well situated for DX. In a country location with no mains near, background noise is at a minimum, and he reports that the "regulars," W1AW, W1BB and W1ME, were quite consistent around RST-559. His own reports were about RST-339 average.

G2DQ of Wickford also did well, working W1BB on four occasions, W1ME three times, and on February 14 at 0607, W2CAY, with RST-569 both ways. The radiating system at G2DQ is a 150-ft. aerial/130-ft. counterpoise, running east-and-west, and certainly putting out a tremendous signal in the required direction. The transmitter is ECO-buffer-210 and the receiver an 8-valve superhet of his own design, all results being on the speaker.

G6SQ of Preston, using a north-and-south T aerial with a 99-ft. top and 50-ft. down lead, fed from a 6L6-O.15/400 CO-PA, had a sketchy QSO with W2CAY at 0735 GMT on February 12, 339 both ways. G6SQ is disappointed with his QRA and the results of these particular Tests, because on the same rig he was successful in QSO'ing W/VE from Southport last year. One way and another he had to his credit 14 countries worked on 1.7 Mc prior to February 4, 1939. At the Preston QRA G6SQ is afflicted with a 66,000-volt EHT grid feeder line only 150 feet away from his aerial, causing tremendous static noise on all hands and also

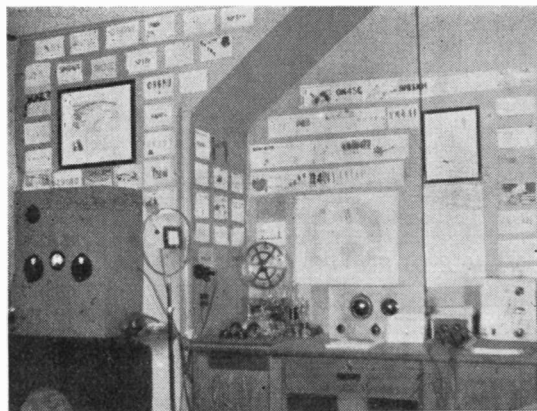
tending to blank off signals from the west. The end of it all was that the grid line suddenly developed a partial failure, and as G6SQ succinctly puts it, "I closed down"! He has since decided to move his QRA as well. It was a gallant effort to keep the schedule day after day in the hope of being heard.

G5MP of Hythe, the most easterly of the G participants, had a brief contact with W2CAY on the 14th, and heard quite consistently a CW station reported by no one else—W1MK. He also logged W1AW and W1BB, the latter being the steadiest signal and always a bit stronger than the others. G5MP's transmitter is a 47 driving a 6L6, feeding into a 100-ft. aerial/100-ft. counterpoise arrangement, which actually amounts to a bent $\frac{1}{2}$ -wave Hertz, centre fed. His receiver is a Hallicrafters Sky Challenger—and G5MP can operate from his bed, the transmitter being remote-controlled. Useful for early morning work, as G5MP remarks!

G5RI of Hexham, another battery man who had already worked quite a lot of W/VE DX on 1.7 Mc, came on for two days of the Tests, contacting W1AW and W1ME on February 16. He uses a CO-BA-PA transmitter with a T25D in the final, the radiating system here also being aerial/counterpoise, with 150-ft. in the roof operated against a 3-wire 90-ft. fan under the aerial. His 500 volts of accumulators are charged from the house 50-volt DC private supply and the receiver is a conventional battery 1-v-1.

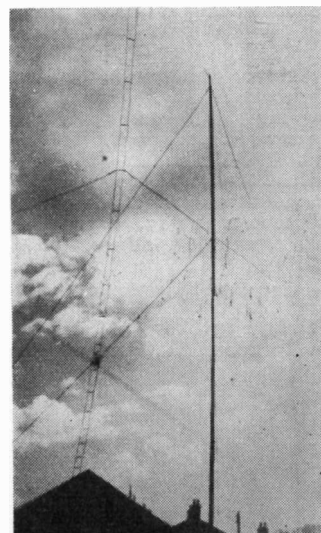
Peter Pennell, G2PL of Cambridge, got up early on February 14 and between 0530 and 0640 GMT knocked off W1BB, W2CAY, W1CPL and W1ME, none of whom were less than RST-579 with him, while W2CAY is given as "RST-599, loudest ever heard on 1.7 Mc." G2PL himself got reports varying from 459 to 569; he logged W8LCN calling G2DQ. On February 16, G2PL worked W1AW and W1ME, hearing W1BB and W2CAY. On the 18th, actually not a Test day, he received the W6 'phone mentioned in our last issue. His receiver is a modified Tobe with pre-selector and the aerial 132-ft. of wire either tapped direct to the tank coil or loose-coupled and working against a 66-ft. counterpoise.

Harold Merriman, G6GM of Holsworthy, another old stager on 1.7 Mc who also saw it through last



SM7QY, Gunnar Ekström, Sku up. He uses a 6L6G with 15 watts, feeding into a $\frac{1}{2}$ -wave aerial only 25-ft high. His 0-V-2 brought in FA8IH and W2CAY, but no DX QSOs were obtained.

The 64-ft. mast at G2PC, A. G. Davies, Elland, Yorks.



year, kept the schedule faithfully and did extremely well. With his CO-PA and its 5-year old T25D, his battery 1-v-2, his wind generator power supply, a large radiating system ($\frac{1}{2}$ -wave centre fed with the two arms at right angles and 50-ft. of height) at a QRA deep in the country and well away from anything in the nature of QRM, G6GM had no less than nine QSOs, divided up amongst W1AW, W1BB and W1ME.

From Mrs. Myler, G3GH of Knowle, N. Devon, came one of the best set-out logs we have ever seen—wind, weather, moon, barometer, temperature are all recorded, with calls and signals heard timed to the minute. G'ma duly achieved her great ambition, the working of a W on 1.7 Mc, when W1ME was rolled in at 0515 on February 16. The transmitter on 1.7 Mc is 47-46-P/P 46, carefully curbed to ten watts in the final, and the aerial a 14 Mc Windom strapped to a Marconi, working in parallel against a 120-ft. counterpoise. The receiver is an RME-69 with DB.20. G3GH concludes, "Thanks for a grand time though it was the deuce of a swof and at the moment I am not sure if the old lady will be in on next year's instalment." Oh, yes, you will!

● Listener Reports

Headed by the redoubtable R. D. Everard of St. Margarets and his Sky Champion, logging 'phones as already given in "Calls Heard" for March, there is a fine report from E. P. Wills of Dolton, N. Devon who, on his battery 1-v-2 and a 45-ft. east-west inverted-L, cross-checked on 36 G stations, five Europeans, and W1AW, W1BB, W1JZJ, W1ME, W2CAY, W8LCN, W8QCP and VE1EA on CW; on 'phone he identified W1BBS, W2GIL, W3EQ, W4ESD, W8LOR and W2JZR. A most creditable performance from yet a third North Devon entrant.

Cecil Martin of Buresdon, Southampton, turns in a very useful report with his results carefully summarised. This shows that he heard W1AW, W1BB, W1ME, W1CPL and W2CAY, and, among other things, that W1CPL called G2DQ and G5MP—both apparently missed this. W1BB was quite the most consistent station, being logged at Buresdon on no fewer than 32 separate occasions, the next most

frequent being WIME 18 times heard. The receiver here is 1-v-1, with the HF stage regenerative, coupled to a north-south 50-ft. end-on aerial.

Another valuable log comes from Harold Owen, Newcastle, Staffs. Carefully set out are 88 entries, showing 27 different stations received under a variety of conditions. He heard WIAW, WIBB and W2CAY on an "Eddystone All-World Two," with a 33-ft. end-on aerial ENE-WSW, 25-ft. high at the mast end. He was unable to listen for the full time each day, so probably missed some of the calls reported by others.

● General Observations

Something like 40 different G stations came on for the Tests and the Europeans heard or worked either



Operating position and equipment at W2JZR. The final is a pair of 204A's drawing 950 watts and giving a measured RF output of 837 watts. Quite a nice lot, even for 1.7 Mc.

during morning periods or in the evenings included FA8BG, FA3RY, FA8IH, HA8H, HA4C, OZ1I, LY1J, U4ZX (UNOL), OZ1W, F8QM, OZ2PX, HB9CB, SM7QY, SM7UC, and HB9CE.

All stations reporting were enthusiastic about the Tests and promise co-operation for any others of a similar nature that we may organise in the future. It also seems well proved that a calling and listening schedule is by far the best arrangement to minimise QRM and give everyone a reasonable chance, but it also means that all concerned, and G stations in particular, must pay much stricter attention to timing. We can see no reason whatever why clocks and watches could not have been put right with the

Time Signal each night, so avoiding the very difficulty the calling and listening schedule was intended to obviate—QRM'ing DX. Certain G stations have come in for very caustic criticism in the reports on this account.

Though the time chosen—0430 to 0730 GMT—undoubtedly covers the only period in the 24 hours when W stations can be regarded as workable on 1.7 Mc, critics are probably right when they say that this year the date was too far advanced. We agree, and though the opening of the band for DX during January was not entirely unexpected, it was thought that this might possibly herald an even better spell of conditions for February. In the event, it is now known that January, 1939, conditions were the best yet experienced on 1.7 Mc.

Here it is interesting to remark that the probability of the early part of February in any year, and a time around 0430-0730 GMT, being the most suitable for G/W working on 1.7 Mc was first deduced by the writer as far back as December, 1932, from observations made on the band in collaboration with several other G stations, notably G5UM. The ten-minute calling and listening system was also first used by them and has been regularly adopted ever since by the organisers of all such tests.

Taking WIBB's predictions into consideration, it now seems likely that during the next few years we shall see the peak period coming back towards December, with good conditions lasting well into February, and the time during which QSOs are possible lengthening from 0400 to as late as 0830 GMT. On this assumption, the first fortnight of January, 1940, would appear to be the best period to choose for the next Trans-Atlantic Tests.

We cannot close this somewhat lengthy account of the SHORT-WAVE MAGAZINE 1939 1.7 Mc Trans-Atlantic Tests without paying tribute to the tenacity, keenness and sportsmanship of all participants. It is no easier for our American friends to stay up into the small hours than it is for us to turn out at five in the morning, to say nothing of doing it day after day. Not only that—all stations making QSOs did, as we specifically asked, keep them as short as they could, thus doing their share towards giving others the chance of a contact.

We must also thank those American and European Amateur Radio publications which gave our Test Schedule valuable publicity, and would ask them to re-print any part of this account which may seem likely to be of interest to their readers.

C.W.R. News

For the benefit of those who periodically write us for information regarding the C.W.R., the address to which such inquiries should be directed is The Civilian Wireless Reserve, Air Ministry, Adastral House, Kingsway, London, W.C.2.

During the last month several well-known holders of amateur calls, who are also nearly all C.W.R. members, have been granted commissions as probationary pilot officers in the R.A.F. Volunteer Reserve, Special Duties Branch. They include among others Messrs. Page (G6PA), Hunter (G2ZQ), Jowers (G5ZJ), Whyte (G6WY), Farnie (GW5F1), Morgan (G6SM), Paddon (G2IS) and Parsons (GW8NP).

Heavy Scoring !

IN the CW section of the recent ARRL DX Contest, G6NF knocked up 70,115 points from 37 W/VE districts in about 78 hours operating, and G6WY made 60,130 from 35 districts in 68 hours. Good work and hard going, but those multipliers make it worth while!

For the benefit of the uninitiated, we might just briefly explain what this Contest is and how it is worked. Organised annually by the American Radio Relay League, the object is that American and Canadian stations should contact not only as many amateurs foreign to them as possible, but also as many different countries as they can, on each of the three bands 7, 14 and 28 Mc. Participants outside the United States and Canada aim at working stations in all W/VE licensing districts, of which there are nine in the U.S.A. and five in Canada. Thus, foreign entrants have fourteen different W/VE "countries" to raise. Since the Contest is staged on three bands and each band counts separately, there are in effect 42 W/VE districts to work. The final score is calculated by multiplying the number of points obtained in working stations—awarded on a simple 3, 2, 1 basis—by the total number of W/VE licensing districts contacted, the highest possible multiplier being, of course, 42. It used to be 70 when, prior to this year's event, 1.7 and 3.5 Mc were included.

As G6NF's multiplier was 37 and G6WY's 35, they probably worked W1-9 and VE1-5 solid on both 14 and 28 Mc, missing (we might assume) VE4-5 and W5-7 on 7 Mc.

● Check Numbers

The Contest is divided into two distinct sections, CW and Phone, and not more than 90 hours total operating time is allowed during the two separate weeks set aside for each—this year, March 4-12 and 18-26 respectively. The significance of the strings of numbers exchanged on a contact is that the first group indicates the outgoing RST and the second the operator's self-assigned three-figure serial number, which he uses throughout the Contest. Thus, logs can be accurately cross-checked. A solid QSO with numbers logged both ways counts 3 points, a report received only 2 points, and one transmitted but not acknowledged by the other man's report and serial 1 point.

The main attraction of the ARRL DX Contest, which enjoys world-wide support, lies in the fact that owing to the way in which it is organised—with awards for each prefix—entrants compete only with those using the same prefix, i.e., the sole object of all G's is to work America and Canada, while a W3, for instance, is in competition only with his fellow W3's in trying to work as much as he can of the whole world.

The element of efficiency is also introduced in that it is obviously necessary to have a sound knowledge of how to use the bands as well as a good station—and considerable staying power!

Owing to pressure on space this month, the next article on the Cathode-Ray Tube is held over for our May issue. It will deal with the design and construction of a complete oscilloscope.

From the SWL End

AFTER a year as an SWL, a few lines on the experiences gained and impressions gathered may be of interest to other listeners—and perhaps also to transmitters.

Before becoming serious about short-wave listening, I had sent out "reports" to various long-suffering amateurs, and it is only on looking back that I begin to wonder how I ever got any QSLs in return! To my mind, this only goes to prove that there are some transmitters who have a soft spot for the SWL, since my early efforts were of a kind I should be ashamed of now.

Since starting, I have received—using a 2-valve battery set and adaptor—90 cards from 25 countries in four continents, and though to many readers this may seem a very short list, it represents for me a good percentage on the total number of cards sent out.

● Not so good

But there have been disappointments. An amateur who was sent a detailed report covering three months of listening, plus an IRC, did not deign to reply. Is this fair to a listener? After all, such reports must be of some use, and IRCs most certainly are! Again, stamps have been sent with reports only to produce the same result—though admittedly in a few cases only. All this only goes to prove that SWLs looking for cards must be prepared to take the rough with the smooth.

I am not afraid to say that now my reports are of use, as I practically always receive the reply "mni tnx fer vy FB (or comprehensive) report." And this has come on more than one occasion from transmitters well known in Amateur Radio.

So much for QSL'ing. I have visited several amateur transmitters in my own country, also a G station while on holiday, and of all I would say the same: That I have met with nothing but courtesy, undreamed-of help, and always the invitation to come again. Every transmitter I have met has taken the greatest interest in my experiences, QSLs sent out and received, and so on, while each time the gear has been got going and QSOs made for my benefit.

Thus, by personal experience, I can vouch for the reality of the existence of a great feeling of brotherhood among amateurs, which one can only hope will grow and endure.

—“ERI\ GO BRAGH.”

Rotary Beams

An interesting list reaches us from Messrs. Holiday and Hemmerdinger, Ltd., 74-78 Hardman Street, Deansgate, Manchester, 3, illustrating in detail the American "Premax" rotary beam and vertical radiator assemblies. There are kits of parts for 14 and 28 Mc two- or four-element bi-directional or uni-directional arrays, adjustable vertical aerials on well designed base-insulators for either end or centre feed, and telescoping steel masts. Diagrams also give much useful information connected with feeder arrangement and termination, spacing, phasing, etc. Readers wanting a copy of this publication can have one free of charge from the above address on quoting their name and call.

On The Amateur Bands

By Old Timer

AS the contest season may now be considered at an end, it appears to us that a little discussion on the pros and cons of these annual events will not come amiss.

We do not intend to mention any contest specifically, but rather to take the aims and objects of these "station testers" as a whole. As we have from time to time ourselves entered every possible contest, you will appreciate that we have formed some views to put before you.

First, we are in favour of competitive contests, but feel that they have largely become endurance tests, owing to the unduly long hours that it is necessary to put in if one is to stand a reasonable chance of being in the first few. It would be just as fair for the man who can put in the long hours stipulated at present, if these times were reduced to enable the largest possible number of entrants to participate. It is now taken for granted that an amateur is supposed to finish a contest feeling tired, looking bleary-eyed, hoarse with cigarette smoking, and fit for nothing serious for several days after. We maintain that this is fundamentally wrong and the one thing destined to kill the underlying usefulness of contests. They should test our equipment, not our bodies and nervous systems.

● Aerials

If the contest necessitates working amateurs of a given country, we will know at the end whether our pet aerial really will stand comparison with those used by others with similar power inputs. We could give instances where certain operators have been convinced that their aerial was absolutely unbeatable for the direction in which they desired it to radiate. The contest has shown that they have not received the quantity of calls or the number of points that other competitors have made with better radiating systems, and similar inputs. In fact, it has appeared a mystery to these disappointed operators, but one must bear in mind that as interference is at its height during tests, most people will tend to "damp" the sensitivity of their receivers, either by reducing the length of receiving aerial, or by backing off the RF and output gain controls. This will mean that a normal S7 signal may be reduced to S4 or 5, and a normal S5 signal to S3 or lower, with the result that the outstanding signal will be much more noticed. Some operators, too, appear unable to read a signal when a small amount of interference is present; we even go so far as to say that they do not notice a signal unless it is absolutely in the clear, a condition that very rarely obtains during contests. Therefore, to do well in competitive radio, the first essentials are a good radiator and skilful operating.

● Operating Ability

This second faculty is an absolute necessity, and if you are not too "hot" you cannot expect to get much enjoyment, first owing to lost contacts, and secondly you spoil the contact (and the resultant points) for the other man. However, it presents a

grand opportunity for you to improve your capacity for copying through interference, a qualification you *must* cultivate to-day if you wish to conduct intelligent QSOs with other stations. We may fondly call ourselves experimental stations (to hide our operating ignorance), but what is the use of being an "experimental" station if you cannot, because of some slight interference, convey your thoughts or receive those of the station with whom you are experimenting.

It is obvious that a single-signal super will go most of the way to making our score a reasonable one, although good work can be done with the "straight" type where local interference has not to be considered. This applies to a greater degree in telephony contests, partly owing to the greater sensitivity of the superhet, but also to the fact that *two kilocycle* separation can be obtained between stations, a highly desirable condition when we attempt to work hundreds of amateurs in a band width of only 100 kc.

● Times for Contests

To sum up, we are not in favour of expecting anyone with his living to earn (especially if he is married) to enter for more than 24 hours out of any 48-hour weekend, or for more than 12 hours out of any 24. If the contest is spread over 9 days continuously, we feel that 50 hours is ample for everyone. These are facts which have been proved by the success of contests conducted over a straight 12-hour period during a weekend; furthermore, it is fairer for everyone to stage a contest during the weekend only, as many cannot compete during the weekdays owing to business pressure.

One final word; if a CW contest is in progress it is in the interests of one's fellow amateurs and friends who may be participating to refrain from telephony operation when the band is "open"; conversely, refrain from CW operation when a telephony contest is being waged, both very good reasons for shortening the operating hours. It is also up to all concerned to send in a log (however small) to the organisers of the event to help make the job of checking easier. These last points come under the heading "ham spirit," a subject on which we have already spoken and feel we can now leave to you.

● ON4HS and 3.5 Mc DX Again

This well-known Belgian station, whom we mentioned last month, has established a record of which he is justly proud. He has at last worked all districts of U.S.A. *on 3.5 Mc. 'phone*; the beginning of February gave him the last remaining W5 and W6 contact, and he has just received the proof of his W7 QSO in the form of a card which he forwarded to us. He explains that on the rare occasions that these Pacific Coast contacts are possible, VE1GR (with whom he keeps a regular schedule) fades, and is therefore not able to put ON4HS through. Without this help he finds it almost impossible to work the W5, 6, and 7 dis-

tricts, as they do not listen for DX. One VK and several ZL 'phones have also been heard on 80 metres this winter, all of which proves that many relatively low-powered British stations are merely causing unnecessary QRM by continually trying to work W's on 14 Mc 'phone when 3.5 Mc will give them what they want with patience and less QRM!

The input power at ON4HS has never exceeded 50 watts and his aerial is only 10 feet high! He proposes to erect one 35 feet high as soon as the poles arrive. He admits his modulation exceeds 100 per cent. on occasion, and we can confirm this as we have heard some of his contacts! He mentions that British stations who have joined him on these nocturnal adventures have been G2OV, G2PO, G5VT and G6LK and he invites more British stations to join the happy, if not sleepy, throng! VE1KK and VE1MA were worked cross-band, ON4HS being on 3.5 and the Canadians on 1.7 Mc 'phone, and the best G's he receives on 160-metre telephony are G2PO, G3GH, G5VT and GW2BG, all at S8/9 in Brussels.

● Real QRP Work

G3UB of Morpeth, North'd uses 1.2 watts on 1760 kc with 'phone and CW. With this power he was the second British station to work LY1J, obtaining a 569 report. (G2YY got the first LY/G contact on 1.7 Mc). HA4C gave 459 and 'phone has been worked with G6GO, while 25 G's and 2 GM's have been raised using a 100-foot Marconi-type aerial. His only method of knowing when the aerial is in resonance is by employing a 2-watt lamp in the aerial itself—this just indicates a glow! G3UB is anxious to have reports from listening stations, all of which will be acknowledged.

His transmitter is a very simple affair, being of the tuned plate, resonant grid type with a fundamental crystal across the grid coil, thereby locking the output circuit to the crystal frequency.

We have already mentioned the excellent low-powered work being done by G3XT, and further information is now available on this.

Between January 23 and February 10 with exactly one watt input (10 mA at 100 volts) his best DX on 7118 kc has been OZ, SP, LA and LY, while over 50 contacts have been made with G, GM, EI and the nearer European countries. To quote G3XT, "nearly every station sent congratulations on the 'solidity' of my signals, and 90 per cent. of the contacts were concluded without being broken up by interference." Congratulations to both G3UB and G3XT.

● Some DX News

VU2EU reports that AC4YN will continue to be active for some time, his peak operating times being between 1200 and 1700 GMT on 14106, 14157 and 14292 kc. It is interesting to note that we heard AC4YN at good strength on 28050 kc on March 12, about 1300 GMT. M. F. Williams of Newark, N.J., reports TG9AB (not TG9BA) as the second licensed amateur in Guatemala, who will work telephony on the LF side of 14 Mc. VU2KK has returned from Waziristan and is now operating from Farnham, Surrey, under the call G4FR; readers should note that his call has no connection with the British yacht recently using G4FR.

Conditions—The Month's Survey

Two Ionosphere Storms

AS mentioned in last month's notes a large sunspot was approaching the central meridian on February 15. Its area on February 13 was 800-millionths of the visible hemisphere, and it crossed the meridian on February 17. Apart from rather subnormal conditions on February 16, 17 and 19 nothing untoward occurred for several days. On most days, in fact, conditions were quite good, 26 Mc signals being receivable till well after sunset, the optimum frequency falling to 11 Mc about 2230 GMT.

At about 1800 GMT on February 24 an ionosphere storm started, the large sunspot having by now reached the sun's west limb. Signals on all wavebands soon became "fluttery," and gradually weakened, so that by 2000 GMT no worth-while reception was obtainable on the short waves. Next day signals on 26 Mc and 21 Mc were conspicuous by their absence, while after dark a more or less complete fade-out of distant stations took place. Magnetic storms were recorded at Abinger and at Cheltenham, U.S.A., starting shortly after 1700 GMT on February 24 and continuing until late the next evening. The Northern Lights were seen in England on February 24.

● The Second Disturbance

Conditions became normal on February 26 and continued good until March 4. On March 1 a large sunspot—area on February 27 560-millionths of the sun's disc—made its CMP. Apparently this was our old friend which created havoc at the beginning of February back again. It was no doubt responsible for the disturbance which started on the evening of March 4. Though less severe than the previous storm it was sufficiently bad to upset reception considerably on March 4, 5 and 6. It appears to have been worst on March 5.

Normal conditions were restored on March 8 and have continued—more or less—ever since. Reception has been rather erratic from day to day but, on the whole, conditions have remained fair to good.

● Possible Future Disturbances

Whilst there seems to be no doubt that these ionosphere storms and associated phenomena are caused by corpuscular emission from sunspots, there is still some mystery as to trajectory and velocity of the corpuscles. Thus, some storms appear to occur about two days after the CMP of a sunspot, whilst others do not occur until the suspected sunspot has reached the west limb. It may be significant, however, that they never seem to occur in connection with a particular sunspot before it reaches the central meridian.

In view of the above—and many other—complications, it is not at present possible to forecast with any accuracy the dates of future disturbances. Nevertheless it may be useful to indicate the most probable dates for the coming months. These are:—

April 15—18.	May 12—15.
„ 27—30.	„ 24—27.

The "Short-Wave Magazine" covers every Amateur interest

CORRESPONDENCE

Square Deal for the BCLs

After long consultation my friends and I have come to the conclusion that the BC listener is not getting a square deal in the MAGAZINE. For instance, in the March issue there are 40 pages; of these, amateur band interests take 12½ pages, advertising 11 pages, but the BC listener only gets 4, the rest being miscellaneous matter. You have often said that your policy is to try to please everyone, so surely it would benefit the paper to give BCLs more of F. A. Beane.—V. SMYTHEMAN, 23a, Augusta Road, Moseley, Birmingham, 13.

[While not disputing our reader's survey of Magazine contents and agreeing that we wish to cater for all interested in short-wave radio, we would nevertheless point out that the contents are balanced by means of careful attention to the twin barometers of general correspondence and circulation. At present, both these indicate "set fair."—ED.]

Trawler Trouble

When is something going to be done about this "Fish Fone" business? They are the bane of my life on 1.7 Mc and also on the 2170 kc CWR frequency. Is the frequency of their rigs under their own control, because there appears to be no defined band at all—I have heard them between 1.6 and 2.5 Mc. There is one who wags his carrier about while he is calling—to make sure of getting the other fellow, I suppose! If the authorities were half as sensitive about frequency control on the commercial bands as they are with us, there would be more room for everyone and less talk of further amateur restrictions.—A. G. DAVIES, G2PC, Rose Field, Hullen Road, Elland, Yorks.

[Transmitters fitted to coastal craft for short-range working—in which category come trawlers—are of MO-PA type, nominally tuned to a spot frequency in a narrow band around 183 metres for CW/ICW and 149 metres for telephony. Owing to the intense occupancy of the 'phone channel, it is necessary to allow for some frequency variation, as the gear is usually operated by unskilled personnel. While this may seem a good reason why the frequency should be locked, the interests of safety are paramount and in practice it appears essential for them to be able to find a clear spot. This leads to abuse of the radio facilities which, though the authorities are fully aware of it, is difficult to rectify.—ED.]

Low Power Mains Apparatus

I have long been a reader and while approving of the balance of your contents would like to see a little more low-powered mains apparatus. May we have some notes on plate modulation of such transmitters, as most modulating systems seem to be designed for 100-watt stations and the 10-watt man is regarded as small fry. After all, the majority of amateurs have mains and cannot afford high-power rigs even if the law allowed it!—L. ELLIOTT, 2FNO, 40 Peter Avenue, Willesden Green, London, N.W.10.

A Very Far Cry

The last relief ship brought me a July copy of the MAGAZINE, which I first saw in Singapore some nine months ago, where there must be five or six months' issues waiting for me. I should be grateful if you would publish the fact that I, at present the only amateur on the Islands, now use the same prefix as those in Singapore, VS1, my call having been granted in August, 1938.—JOHN MILNE, VS1AO, Cocos Keeling Is., c/o Messrs. Cable & Wireless, Ltd., Singapore, Straits Settlements.

[To VS1AO, probably our most remotely situated subscriber, we are sending a supply of general literature on Amateur Radio, also advising him that his prefix should be ZC2. We shall be very glad to hear as soon as possible from any G operator who may have contacted VS1AO direct, or who does so after this note appears. Of historical interest is the fact that the German commerce raider "Emden" was beached on Cocos before she surrendered to H.M.A.S. "Sydney," early in the War.—ED.]

How Did It?

On p. 13 of this issue, you furnish an explanation of how "73" came to have its special significance. Therefore, dear sir, I should esteem it a favour if through the medium of your valuable paper you could tell me why "88" obtained its particular meaning.—I. L. GILLES, 11 Cranworth Street, Hillhead, Glasgow, W.2.

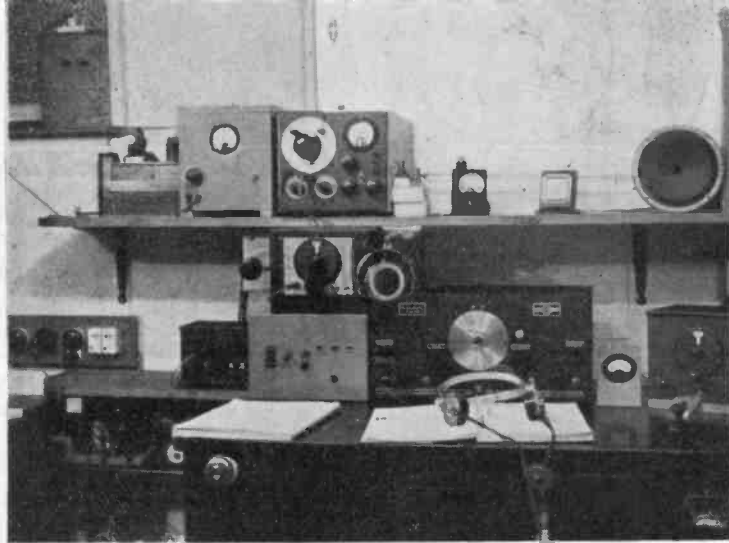
[Frankly, we don't know. There are a number of unofficial code groups used by the more irresponsible section of the Amateur fraternity, of which this is one. However, if any reader has a plausible explanation we should be glad to have it.—ED.]

New VP3 Call

During my usual Saturday evening QSO with VP3AA he told me that a second British Guiana station would be starting up about the end of March—VP3CO, L. Talbot, Bel Air, East Coast, Demerara, using 'phone on 7, 14 and 28 Mc. Variable frequencies around 7031, 14062 and 28380 kc will be employed.—R. T. DEALLEY, G6DT, 34 East Sheen Avenue, London, S.W.14.

1.7 Mc Co-operation, Please

I would be obliged if you could bring to notice the fact that I am on 1738.5 kc every evening at 2200 GMT and would like a regular nightly schedule with any station over 150 miles distant—say, north of London. This is to facilitate investigation into conditions. I am glad you give 1.7 Mc publicity for inter-G working. In two months I have contacted some 50 different stations, many of whom say they are only using about three watts or less to simple transmitters. What about suggesting that more use be made of 1.7 Mc in the early morning, 0700-0830 GMT? It is a healthier hour than the usual 2300, and there would be less QRM, QRN and BCL trouble.—EDWIN KESTIN, G3ZL, 55 St. Mary Street, Weymouth.



The Other Man's Station

G3BO

OUR station story this time covers one of the indefatigable little North Devon group—G3BO, D. H. Jones, Westover, Windmill Lane, Northam, near Bideford—whose very fine and professional looking rig is entirely home-built except for the main receiver, a Hallicrafters SX-15.

Though the radiating permit only dates from December, 1937, prior to this much patient work was done under the AA call 2ADJ. G3BO is essentially an experimenter who is also a craftsman—he takes time and trouble over everything, as our composite photograph clearly shows. The rack-and-panel assembly is all in wood, 79-ins. high by 19-ins. wide, finished battleship grey and mounted on castors, a sensible arrangement giving high efficiency and good accessibility. The two bottom panels carry the input switches, indicators, 350- and 500-volt power packs and bias batteries for the various stages. On the third panel up is an all-band Exciter to MAGAZINE design, with the meters on the one next above. Then comes the 7-14 Mc PA with a Tungram 0-15/400, and on the sixth panel the 1.7 Mc output stage, using either an RFP-15 or RFP-30. The top one is for the aerial tuning network, actually not yet fitted; it can be seen in its experimental form to the right of the transmitter.

Link-coupling is used between Exciter and PA's and to the aerial tuner, meter leads are terminated in standard plugs enabling all current and voltage points to be checked, and screening—where necessary—is by aluminium sheet fixed under the baseboards. The 1.7 Mc PA is modulated by suppressor-grid control, the modulator being on the bottom shelf of the table beside the transmitter.

Above it is the field-strength meter, in the usual circuit but with "Westector" and microammeter.

An interesting point about operation is that, due to the distance between transmitter and receiver—not conveyed by the photograph—the whole outfit is relay controlled from the receiving position, including aerial change-over. The necessary switches, which also break HT to the receiving side, can be seen on the panel to the left of the Hallicrafters, and provision is made for duplex working on separate circuits. All this is very cunningly arranged with mercury tip-switches actuated by the relays.

On the operating table are visible the battery 0-v-1 stand-by, the frequency-meter-monitor above the switch panel, a slide-back type valve voltmeter (the instrument with the large dial), the 'phone monitor, and a small local amplifier to boost the output from the CW listening circuit into the speaker. The crystal microphone is on a sliding carriage which enables it to be pushed back out of the way when not required; the battery operated head-amplifier for it can be seen to the left of the switch panel.

Activity at G3BO to date has been chiefly on 1.7 Mc, with occasional excursions to 14 Mc, the aerial installation consisting temporarily of a simple 100-ft. end-fed arrangement.

Though there are no DX feats to record from his station, in his own way G3BO sets a very high standard in a direction quite as important in Amateur Radio—that of being able to do careful and accurate experimental work while turning out a finished job which is not only efficient but also good-looking.

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3-watt AC/DC "	40/-	£2 : 15 : 0	15-watt AC "	£5 : 15 : 0	£7 : 0 : 0
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Black Crackle Steel Cabinet 15/- extra.

30-60-watt AC Amplifiers or Modulators, completely wired and tested, in Black Crackle steel case. Power Pack in separate case to match. 30-watt £12 : 12 : 0 complete ; 60-watt £15 : 15 : 0 complete.

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Each Kit uses plug-in Coils and the Coils supplied tune from 13 to 170 metres. All Kits are supplied with a steel chassis and Panel.

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All Primaries tapped 200-250 volts. Between winding insulation 1,000 volts.

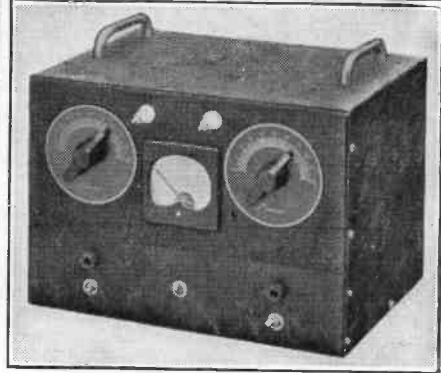
2.5 v., 8 amps	CT.	8/6
4 v., 5 "	CT.	9/6
5 v., 3 "	CT.	8/6
6 v., 2 "	CT.	8/6
6.3 v., 3 "	CT.	8/6
7.5 v., 3 "	CT.	8/6
10 v., 3-4 "	CT.	11/6
12 v., 4-5 "	CT.	11/6
14 v., 4 "	CT.	11/6
22 v., 1 "	CT.	7/6

2.5 v., 3a+6.3 v., 3a	10/-
2.5 v., 3a2.+5 v., 8a	14/6

3,000 volt Test Type

2.5 v., 5a CT.	11/6
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Auto Transformers. Step up or down A.C. mains between 100-250 volts. 60 watts, 9/- ; 100 watts, 11/6.



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Premier U.S.A. Quartz Transmitting Crystals, 7 mc. and 3.5 mc., 10/- each. Enclosed holder and L.a.e. 3/-

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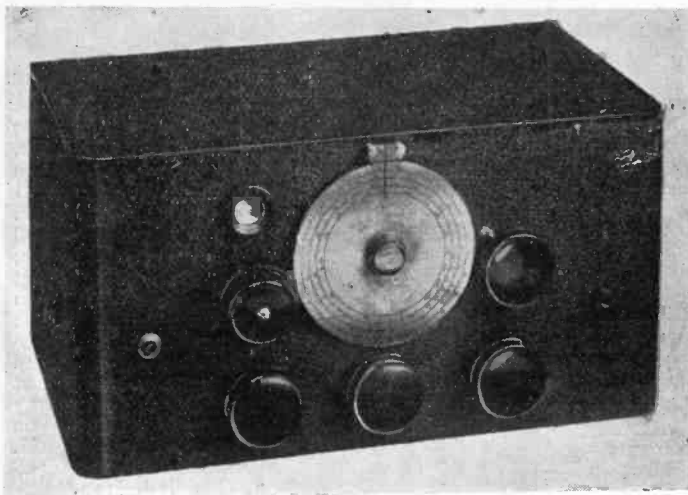
Premier Transverse Current Microphone, 20/- Microphone Transformer, 6/- Table Mike Stand, 7/6

Braided Metal Screened Wire for mikes, pick-ups, etc. Single 4d. yd.; Twin 6d. yd.

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50 Watt, 17/6. 150 Watt, 29/6. 300 Watt, 49/6.

A new range of "Matchmaker" Universal Output Transformers which are designed to match any output valves to any speaker impedance, are now ready.

5-7 Watt, 13/6. 10-15 Watt, 17/6. 20-30 Watt, 29/6.

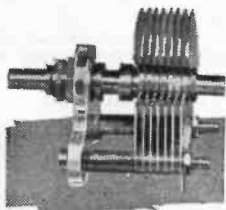
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		160 m.mfd.	4/6



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250 m/A. 80 ohms,	2,000 v. Insul.,	15/-
500 m/A. 100 ohms,	4,000 v. Insul.,	18/-

HAVE YOU HEARD . . . ?

A Monthly Commentary for the Broadcast Listener, presented by F. A. Beane, 2CUB

YET another very interesting month of short-wave reception to be reviewed; quite good conditions, apart from the tricks played by our bogy the Aurora Borealis, and several instances of extraordinary signals, such as that furnished by XGOY, Chungking, China. But without further preamble, apart from the little personal note I am bursting to narrate, I'll give the news.

● A Record

So seldom do I boast of personal achievements (or do I?) that I trust you will pardon the inclusion of the following summary of a recent feat. It all started through reading the notes of my colleague The DX Scribe and the record "heard-all-continent" claims of some of his followers and my becoming almost jealous that similar achievements were, perhaps, impossible on the BC bands. At first a survey of a station list and the thought of surpassing the best amateur HAC record made me somewhat pessimistic but switching on the receiver at 2100 and concentrating hard, I succeeded in logging all six continents, as we know them, in less than three minutes! But that was not all, for the next night, armed with a stop-watch, I heard them all in *one minute, five and seven-tenth seconds!* Not only did it include the logging of the stations but also the recording of their calls, signal strength and brief programme notes! The stations heard were PRA8 (49.92 m), signing on; ZRK (49.2 m), playing "God Save the King"; YUA (49.18 m), actually heterodyned by the South African; TAP (31.69 m); W8XK (25.27 m) and VLR3 (25.25 m) with physical jerks. Strangely enough, and to my consternation, South America proved the most difficult of all, due to the Cubans and Dominicans being included in N. America! And now, rashly perhaps, I challenge any amateur band fan to beat this, whether 'phone or CW!

● Around the Dials

ABYSSINIA. The new Addis Ababa station IABA operates on 30.09 m, 9650 kc, 1600-1700 and 1800-2000. Strength is often R4-5 and news given at about 1955, close-down being heralded by an Italian announcement made by a lady announcer, and followed by the customary anthems. On occasions the second schedule is over-run by ten minutes or so.

AUSTRALASIA. VLR3, Melbourne, 25.25 m, 11880 kc, is frequently well heard from 2030 with market reports, weather forecast, news, "pip" time signal at 2100 (7 a.m. in Melbourne), laugh of the kookaburra, good-morning greeting and physical jerks. VK3ME, 31.55 m, is frequently just audible at 0900.

CHINA. XGOY, Chungking, Central Broadcasting Administration, 31.58 m, 9500 kc, heard between 1400 and 1600 (or later) and 2000-2330. The last

half-hour of the latter session is devoted to news in English (*English with a British accent*, to quote an American contemporary!) and interesting talks, volume being colossal at times, often attaining a field strength equal to that of "Radio Normandie"! In the afternoon, however, it is generally only R2-5.

IRAQ. HNF (or HMF), Baghdad, formerly well heard near 30.5 m, has moved to 30.93 m, 9700 kc, where it is now interference free. It may be heard as early as 1400 and was mistaken for ZHP on March 12 when the latter appeared to be off the air. At 2000 a clear announcement is made in English preparatory to the playing of the Iraqi national anthem and sign-off. On one occasion it closed at 1920. No reply has been received to my report of February. YI5KG is still available on 41.67 m though generally buffeted by severe QRM. Reports on either may be addressed to "Qasr-el-Zahoor Broadcasting Station, Baghdad, Iraq."

JAPAN. Broadcasts for Europe are now made via JLG, 41.18 m, 7280 kc, and JLT2, 31.10 m, 9645 kc. The former is heard occasionally when not jammed by the 41.21 m Paris-Mondial group.

KENYA COLONY. VQ7LO, Nairobi, 49.31 m, 6083 kc, is again heard regularly until about 1915, strength being R2-4. It is sometimes obliterated by ZAA, 49.3 m.

PHILIPPINE ISLANDS. KZRM, Manila, 31.35 m, 9566 kc, just perceptible Sunday afternoons around 1430 and evenings from 2130, although generally ruined by WIXK during its second session.

SOUTH AFRICA. The South African Broadcasting Corporation, P.O. Box 4559, Johannesburg, advise that the following changes have been made in their call-signs:—ZRG (ex-ZRH), Pretoria, 31.5 m, 9523 kc; ZRL (ex-ZRK), Capetown, 31.23 m, 9606 kc; ZRO (ex-ZRD), Durban, 30.75 m, 9752 kc; ZTD (ex-ZRD), Durban, 61.5 m, 4876 kc. Schedules remain practically unaltered except that ZRJ 2030-2100 has been cancelled and ZRH commences at 1430 instead of 1500 on weekdays and Saturdays.

● Latin America

CHILE. CB960, Santiago, 31.25 m, 9600 kc, well heard from 2320 with dance recordings. Mentioned "Radio Sur," and "La Voz de Valdivia," and appeared to be "in chain" with that station (CD1190). "Radio Americana" is referred to frequently during announcements, and a long bugle call (as heard from CD1190) used prior to 2330. CB1180, Santiago, actually near 11965 kc and not its official 11800, heard R5 at midnight with bugle call, two chimes and call "Radio Sociedad Nacional de Agricultura."

COLOMBIA. Like many others I experience considerable difficulty in keeping abreast of the changes made in this country. Up to the time of

writing the following observations have been made: HJ7GAB (ex-7ABB), Apartado 37, Bucaramanga, well heard on 4820 kc, with slogan "Radio Santander," one and two chimes between announcements and five or six preceding the station call. The first three of this sequence are somewhat unusual, almost reminding one of cuckoo calls. HJ3CAF (ex-3ABF, or HKF, the notorious non-verifier), Cudinimarca, Bogota, occasionally R8-9 on 4855 kc with news bulletin at 0045. Each item is interspersed by two chimes (sometimes one) and five or six before the station announcement, which does not appear to include mention of the call-sign. Mention is made of Cudinimarca and Bogota frequently, the bulletin concluding at 0100. HJ3CAD (ex-3ABD), Bogota, with two chimes, slogan "Colombia Broadcasting," call-signs, march, announcement and news at 2400; frequency 4845 kc. HJ3CAH (ex-3ABH), Bogota, 4895 kc, heard at excellent strength with news at 2350, each item being spaced with one chime and four preceding the call at each quarter-hour. This is the first HJ station at the HF end of the 62 m band and one of the strongest.

CUBA. No sign of the new COCE, announced in our last issue, has yet been observed; however we learn that the frequency will be 12.23 Mc and programmes derived from CMC between 1300 and 0500. Reports are to be addressed to Prado 18, Havana. COCQ, whose frequency is announced as 8830 kc, may be heard with an English news bulletin at 0055, commencing with the words "The Habana Post on the air." It is possible that this station may take NBC programmes at a later date. The General Electric Co., Schenectady, state that COJK (8.67 Mc) and CMJK, Camaguey, have requested permission to re-broadcast W2XAD's Latin-American programme from 1500 on 21500 kc.

DOMINICAN REPUBLIC. All SW broadcasters are now employing calls that include a numeral; e.g., HI1N (ex-HIN), HI1Z (HIZ), etc. HI1N, 48.05 m, once heard signing-on at 2150 with national anthem. An unidentified transmitter near 6600 kc playing "The Indian Love Call" logged once at 2240 with superimposed station call.

GUADELOUPE, FRENCH WEST INDIES. FG8AA (or AH), "Radio Guadeloupe," 7445 kc, is now heard at good strength 2300-0015 with programmes similar to those of "Radio Martinique," i.e., consisting of popular French music, dance numbers, news, etc. A gong is sometimes used as a time signal and programmes concluded with the English announcement "You have been listening to Radio Guadeloupe. Please address all communications to P.O. Box 125, Pointe a Pitre, Guadeloupe, French West Indies, Goodnight everybody, goodnight." The presence of announcers of both sexes at the microphone is a further aid to identification.

URUGUAY. CXA6, Montevideo, heard from 2150 on about 9620 kc, with recordings of organ and orchestral music. The calls CX6 and CXA6, preceded by the title "Servicio Oficial de Difusion Radio Electrica," are given at short intervals. Incidentally this is the 31 m outlet of CXA4, 48.94 m. CXA2, Montevideo. "Transmite (?) Radio Continental," formerly in the 49 m band, has moved to 9570 kc, where it is well received as early as 2130.

VENEZUELA. YV3RX, Barquisimeto, 4950 kc approx, heard at 0030 with the slogan "La Voz de Lara" and appears to have superseded YV3RA, 5880 kc. YV4RQ (?), situation unknown, heard in the vicinity of 5021 kc from midnight onwards at good volume. Mentions "Radio Telefunken" and may be located in Maracay. A short extract from a march is played after the station announcement at each fifteen minutes. YV4RB, "La Voz de Carabobo," Valencia, 6520 kc, is again well heard after a brief absence from the ether. Another transmitter, apparently YV1RL, Maracaibo, is heard near 4860 kc around midnight. A single chime is used and mention made of "Internacional General Electric."

● North America

U.S.A. W6XBE, International Broadcast Transmitter, Treasure Island, Golden Gate International Exposition, San Francisco, has been on the air since March 2 with a carrier power output of 20 kW, or 200 kW effective carrier power when directive aerials are used. Schedules:—15330 kc, 1200-1500, beamed on Asia; 2330-0300, beamed on South America.

● Europe

FRANCE. Stations TPA4, TPB7 and TPB11, "Radio Mondial," are now listed on 41.21 m, and one (or more simultaneously with synchronised transmissions) is heard at colossal strength in the evenings, generally obliterating JLG, 41.18 m.

EIRE. The short-wave station of this country is said to be sharing frequencies with the Vatican but the writer failed to hear anything of it on St. Patrick's Day when it was advertised to be working. 2RO4, however, was logged relating Eamon de Valera's speech to the U.S.A. at 2122.

PORTUGAL. CSW, "Emisora Nacional," heard on 8830 kc around midnight with programme for Central America. Heterodyned by COCQ.

ROUMANIA. "Radio Romania, Bucharisti," heard near 9190 kc until 2200 when programmes are concluded with the national anthem. News in English is given from 2150 on certain days. Announcers of both sexes are employed.

U.S.S.R. Moscow heard with English propaganda and resumé of proceedings of 18th Bolshevik Congress over RNE, 12000 kc, and another transmitter on 11920 kc. A carrier strength indicator proves the Moscow broadcasts to be some of the most powerful received in Great Britain. It appears that input has been increased considerably of late.

● Readers' News

Roy McCondochie (Glasgow) reports YV4RB on schedule; YV4RH, "Radio Valencia" on 5920 kc, and inquiries about an American station operating near 8600 kc with complete weather reports for each day of recent months, given at 2025. This was evidently VOWQ, Labrador. R. H. Collier (Cheltenham) states that W2XE recently broadcast a test commentary from the "Yankee Clipper"; reports XGOY on schedule; VK2ME 0700-0800 and adds that during April DJL (19.85 m), DJX (31.01 m) and DJD (25.49 m) will broadcast "Technical Tips for the 'Radio Fan'" (2110 on April 15). This reader is desirous of correspondence with a young

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American listener. R. Simpson (Australia) reports an HFJ or XMF on 30.40 m, but which was, judging by his remarks, HNF. He is also puzzled by a station near 11740 kc which is undoubtedly LKQ on 11730 kc, and adds that XMHA, Shanghai, has moved to 11930 kc, opening at 1100; VUD4, Delhi, is heard at noon on 15290 kc; W5XGB, Houston, Texas, is logged testing on 31.6 Mc at 1300; ZAA is well heard in Australia. A. L. King (Clacton-on-Sea) writes that ZAA gives schedule as 1130-1230 on 38.22 m and 1700-1800 on 49.3 m, with the 38 m session extended to 1330 on Sundays.

LATE NEWS. ZRO (30.75 m) operates weekdays 0445-0550, 0830-1230 and 1400-1730; Sundays 1030-1200 and 1400-1730. ZTD 48.8 m, having evidently forsaken the 61 m channel weekdays 1740-2045 (until 2100 on Saturdays); Sundays 1740-2020. On the third Sunday of the month ZRO operates 0900-1000. This comes from the station owners. ZP14, Villarrica, Paraguay, heard at 2340 near 25.59 m. HNF closing once at 2050. XGOY heard at 2150 on new frequency of 11905 kc; programme in German with Chinese music.

● Programme Highlights

The W3XAU, 6060 kc, European transmissions promise to be of great interest, being composed of such interesting features as "Screen Guild" from Hollywood at 0030; "This is New York" (variety with guests) at 0100; "Sunday Evening Hour" (a recent star was Richard Tauber); "Kaltenborn Comments" (news commentator—thoroughly recommended by a friend) and "Capitol Opinions" from Washington at 0345.

As one taking a mild interest in philately and possessing a collection of a sort, I am delighted to observe that W3XAL, 9670 kc, radiates a fifteen-minute programme entitled "The Philatelist" on Wednesdays from 2330.

fairly regularly on 14.1 Mc by NZ16W. VK9GW, G. K. Whittaker, Lae, New Guinea, keeps schedule with J2CS on the low frequency end of the W 'phone band (14 Mc.). A very active telephony station is VK9XX, B. Dale, c/o Burns Phillip and Co., Ltd., Rabaul, N.G., while VK9BW (Wau, N.G.) is working on CW. E. Davies, VK9DK, Sicaucia Plantation, Kavieng, N.G., is using a two-stage transmitter with ten watts input on 14 Mc and would like some G reports.

From VK5JS we learn that his countries total has now reached 111 and that he recently worked KF6DHW on Canton Island and KC6CKM on Wake Island, both using 14 Mc. KF6ODC on Enderbury Island is also active on that band. NZ16W mentions that KF6DHW and KG6HC (Jarvis Island) transmit a broadcast programme of music on 8.1 Mc. ZL4FK now has 802-6L6-801-100TH, modulated by a pair of 800's, and ZL4FW has been very active on 14 Mc 'phone recently.

VU2ED has completely rebuilt his transmitter and uses Heising modulation with a Hivac P220 driving a 6L6, modulating ten watts to the plate of the PA. He is waiting for a suitable transformer to arrive and will then use a pair of 6L6's modulating his full twenty watts. Reports on his 'phone transmissions will be confirmed.

VU2EB and 2FX have had to come to some agreement as regards operating hours, because when one is on the other is washed completely off the air. Now VU2JG is in the same locality their problem becomes threefold.

Notes and News from the East

By Wm. H. G. Metcalfe, VU2EU

FOR those stations located in the northern mountainous districts of India, February has been a month of violent atmospheric storms, but from reports received southern stations appear to have escaped most of the QRN. VU2FO had 99 contacts in the Junior BERU Contest and scored 901 points, and 90 contacts with 892 points in the Senior. He complains about the number of W stations who answered calls despite the fact that all CQ's were suffixed "BERU only, no W"! Indian-owned "Amateur Broadcasting Stations" churned up a lot of unnecessary QRM, in spite of appeals to hold off while the DX was about.

There was a marked absence during BERU of ZE1 and some of the well-known G stations who during normal times always get over to VU, also there was a very large number of Empire stations who apparently were unaware of the Contest, nor what was expected of them as regards the method of reporting QSOs!

VU2FO used a single 6L6 with inputs between 9 and 14 watts, according to the state of the mains, with a "W8JK" aerial on a 70-ft. mast, and maintains that he had better results with this little rig than any of the QRO transmitters previously employed.

VU7BR had 56 G contacts during the Contest, and VU2AN made a useful score, though details are lacking.

● New Stations

VU2JG is a new station active on both CW and 'phone and is conducting experiments with beam aerials directed on England. Listener reports will be very acceptable and all that check will be confirmed. Cards and correspondence should be addressed to Lieut. J. R. Farr, VU2JG, 1st Bn. The Devonshire Regt., Rawalpindi, Punjab. 2JG is active on the following frequencies: 14090, 14260, 14360, 28180, 28520 and 28720 kc. VU2CZ is on again after being QRT for some time and can be QSL'd c/o The Hyderabad Regt., Peshawar, N.W.F.P. VU2FO reports that VS6BE is the call of Captain Whatman, Royal Signals, Hongkong and that CR7AG can be QSL'd to Box 272, M'Marques, Mozambique, East Africa. PK4FS Riouw Islands, Singkep, near Singapore; VQ2EF, Broken Hill, N. Rhodesia, and XZ2AB, A. B. Raye, 78, Fraser Street, Rangoon, have been very active of late and can be found on the HF end of the 14 Mc band.

● Pirates

A G4 was recently heard calling "VU1TM," and it should be pointed out that this station is quite definitely a pirate, as the only VU prefixes are VU2 and VU7. BERS455 heard AC4BE (14300 kc) on February 26; as AC4YN is the only active station in Tibet, the operator on AC4BE evidently has a distorted sense of humour.

In the January issue of the "BSWL Review" D. L. McLean reported logging VU2HU, and as the real VU2HU did not commence operation until February 4, 1939, the call he heard must have been from a pirate station.

● DX News

VK9VG, V. Gilchrist, Bulolo Power House, Bulolo, New Guinea, works HC1FG and has been heard

(Continued at foot of previous column.)

... HERE AND THERE ...

Austrian Amateur Calls

Prior to the annexation, Austrian stations used the identifying prefix OE, changed to D when Austria became part of Germany. Austrian amateurs can, however, still be recognised by reason of the fact that their calls are now suffixed W.

The process of annexation having recently been taken a step further by the virtual elimination of Czecho-Slovakia, it is probable that here too a new suffix will be used. In the meantime, the quietus has been imposed on all OK stations, and we in this country may well sympathise with our brother amateurs out there on the terrible time through which they are now passing.

Information on Aerials

Dr. C. G. Lemon, G2GL, has written for Messrs. Hamrad Wholesale a very useful booklet covering the essentials of aerial design and giving much practical data on tuning and adjustment. Also described is an original system, due to Dr. Lemon himself, which has considerable application for directional work on 56 Mc. Two forms of this design are shown—omnidirectional and unidirectional—and it can be used on any one band for which facilities exist to erect a quarter-wave vertical radiator. The booklet, produced in quarto size on a duplicator with the sheets bound, costs 4d. post free (callers 3d.) from any Hamrad Agent. We might also mention here that the Hamrad 72-ohm feeder cable has recently been improved by enlarging the conductor—in other words, it now carries more amps.

Tragedy at Tristan

Five months ago Tristan da Cunha, the world's most remote island, had its loneliness somewhat relieved by the installation of a short-wave receiver in the village hall, operated by the chaplain, Father Harold Wilde. The prime mover and source of power is a wind generator which charges accumulators, and the gales that used formerly to wreak such havoc came to blow some good in that they kept the batteries up.

We say "kept," because the last steamer home brought news that Tristan da Cunha has once more been cut off from its slender contact with the outside world—on a dark night full of wind one of the islanders walked into the airscrew of the generating equipment and smashed it beyond repair.

However, Messrs. E. K. Cole, of Southend, who donated the original apparatus and to whom we are indebted for these notes, are carrying on the good work by sending out a replacement by the earliest possible boat.

Hallicrafters Distribution

We are asked by Messrs. Webbs Radio once again to draw the attention of the Trade and all others concerned to the fact that they hold the sole importing and distributing rights for Hallicrafters equipment in the British Isles. Inquiries should be addressed to 14, Soho Street, Oxford Street, London, W.1, where big stocks are held for both retail sales and trade orders.

News Comment

The Nazi separatist movement in what used to be German South-West Africa—now of course under British government—has been reported in the press recently as beginning to be troublesome. Added point is given to the situation by the disclosure that an illegal German station in the territory is in touch direct with Berlin on frequencies of 7.14, 9.09 and 10.71 Mc, 0200-0400 GMT.

The H.A.C. Kit

A. L. Bacchus, 109 Hartington Road, London, S.W.8, informs us that his one-valve kit, known as the "H.A.C." and priced at 13s. post free complete, has recently been modified to incorporate various refinements. For the new constructor, it is a cheap and effective introduction to short-wave work.

Ionosphere Data

Readers interested in the behaviour of the reflecting layers of the ionosphere would be well advised to study the monthly bulletins available from the National Physical Laboratory. These give a day-to-day record of the height and critical penetration frequency for the F2 region and provide essential data in connection with any study of conditions. Address, The Director, National Physical Laboratory, Teddington, Middlesex; subscription, 2s. 6d. a year for twelve issues, post free.

Useful Amplifier Design

Radiomart's SA.56 gain amplifier is a 6-valve arrangement on cadmium-plated screened chassis, using a phase inverter circuit. It gives high quality with negligible hum level and can be used with any type of crystal microphone. In addition to the incorporated power pack for the amplifier itself, 300 volts DC at 40 mA can be taken off for running, say, the screens of 6L6's used in the following modulator. The SA.56 as it stands will drive valves such as P/P 2A3, 6A3, 46, etc. to full audio output with an ample reserve of power, and therefore has wide application in amateur working.

The SA.56 built up costs £3 17s. 6d., and a kit of six Raytheon valves for it £1 10s. It is available from Messrs. Radiomart, 44 Holloway Head, Birmingham, 1.

Transmitting Valve Data

In the Mullard range of transmitting, modulating and rectifying valves there are no less than 23 different types priced between 17s. 6d. and 126s. In other words, practically all amateur requirements are covered. The essential data on these valves, together with details of Mullard cathode-ray tube equipment and measuring instruments, are now available in a single priced list, which can be obtained on request to the Transmitting Division, Messrs. Mullard Wireless Service Co., Ltd., 225 Tottenham Court Road, London, W.1.

Listeners' DX Corner

By The DX Scribe

A FEW words of congratulation to our contributors. The logs sent in this month are excellent, showing you are really hearing what is coming through. We are very sorry that we are quite unable to publish them all even though there is little to choose between these lists. One thing emerges, however, and we say this with considerable experience behind us—we are covering in this feature the cream of the short-wave listeners in Great Britain.

We have had an increasing number of letters, logs, and suggestions and this month's mail has broken all records. Much as we enjoy reading your chatty letters, it would help if you kept them as brief as possible and just mentioned your interesting points and news so that we can pick them out quickly.

● Countries

Following Martin Bourke's record of hearing 50 countries in less than 24 hours, R. J. Lee, 9 Theobalds Green, Heathfield, Sussex, reports he received 75 different countries over the period Feb. 4 to 11—this week included the BERU Contests. These are CN8, CR4, CR7, CS1V (Port.), D, EI, ES, F, FA, G, GI, GM, GW, HA, HB, HC, HI, HH, I, J, K4, K5, KA, LA, LU, LX, LZ, OH, ON, OZ, PA, PK1, PK4, PY, SP, SM, ST, SU, TA, TF, U, U5, VE, VK, VO, VP2, VP3, VP4, VP6, VQ2, VQ3, VQ4, VQ8, VS1, VS6, VS7, VS8 (VU7BR), VU2, W, XU, XZ, YM, YL, YT/YU, ZB1, ZC1, ZC6, ZD4 and ZL. But we have had to carve him down from the claimed 75 to 69 as he included UK, OK, TS, YU, VS8, FA7, which will have to be proved before we can accept them! First, it is known that no Czecho-Slovakian activity has taken place since October, secondly the only station active in Bahrain is VU7BR and therefore a VS8 call would be bogus, thirdly FA7 and TS do not represent any known country, and fourthly YU and YT are both used in Yugoslavia, whereas UK is the club prefix in USSR. This "Hearing Countries" idea is something worth taking up.

● Co-operation Needed

Martin Bourke (2AOU), "Creditor," Samares, Jersey, C.I., requests co-operation from our more serious readers. He wants detailed reports of reception of all signals heard on 28 Mc between April 10 and 16 inclusive, excluding Europe, U.S.A. (except W7), VE (except VE5), North Africa, SU, FT, FA and CN. The dates and times of reception should be given, and reports should be sent direct to Martin. If your Scribe may be allowed to say something, it is this—Such a test will be tough and it will only be useful to the real SWL, as signals are known to be scarce on 28 Mc during April. Only the patient man with keen ears and good equipment may expect to do any useful work. For your guidance, signals may be expected from South America, South Africa and possibly Asia, but we shall be surprised if much comes over from North America. A sound knowledge of Morse will be a necessity. We shall be glad to publish a combined list of these calls heard in an early issue. Inci-

dentally, Martin has now heard 79 countries on 28 Mc!

● Apology

Recent information suggests that it could not have been W1KKP who—as quoted in our January issue—used a ZA call to raise DX. It appears that there must have been some confusion in the logging of the W call and we particularly ask that readers make quite sure of their facts before reporting such incidents. At the same time, if this erroneous suggestion has brought into the light of day the despicable practice of certain amateurs in using rare prefixes, especially during crowded contest periods, we shall feel that our comments have not been wasted. We could name certain British stations who are definitely known to have done the same thing.

● The Peckham Club Challenge

This club contest, staged on February 19, proved a great success for the two entrants. The other club who accepted Peckham's challenge, the Bolton Society, did not show up, possibly owing to the fact that reception was required on the five amateur bands. The winners, Sheffield Short-Wave Club, produced 322 points against Peckham's 142. For Sheffield, Donald H. Tomlin, the secretary, made the largest individual score of 220 which included reception on 5 bands, his most outstanding station heard being W7BSG calling VE3VT on 3.9 Mc; he uses a tuned HF-Det-LF receiver in conjunction with 4 separate aerials, (1) 75-ft. end-on, (2) $\frac{1}{2}$ -wave 14 Mc dipole, (3) $\frac{1}{2}$ -wave Johnson Q running due N-S, (4) $\frac{1}{2}$ -wave 28 Mc dipole. K. Moody used an 8 v. super and scored 69 points on 3 bands, 16 stations being received on 1.7 Mc. J. R. Petty made 42 with 2-band reception. For Peckham, E. F. Dilnot (BSWL396) produced 60 points from four bands and his outstanding reception was WICDI on 1.7 Mc at 06.15. Raymond St. John made 40 points for 2-band reception, and J. Meddenimen obtained 28 for his side, also on two bands. The logs were very neatly compiled, especially in the case of the winners. Conditions were relatively good, and the French "Coupe REF" contest gave a predominance of French Colonial calls in all lists. One thing this contest has shown is that few SWLs are equipped for immediate reception on five bands, a thing which surely needs some thought and attention from clubs. We hope that this will not be the last of these challenges, and await a good six-cornered fight—names should be sent in to the DX Scribe by Club Secretaries for a contest in June.

● A Silent Listener

We very much regret that an old friend and enthusiast, Gordon Barron (2DSN) of North London passed away on February 20 after a short illness. Many will remember the results he obtained with his junk-box 0-v-1 on 28 Mc. During the last three months he heard all continents on 'phone on this frequency and only a week before his illness he completed his 100 countries on 'phone with FNIC.

Gordon Barron's cousin, Sidney Osborn asks for information on ZCITA and "KC5PB." The last would undoubtedly be YR5PB, as the YR's are very much inclined to send their calls sloppily. The former is a mystery and we can only suggest another badly sent call, as we have exclusive information on all the ZC operation. He also reports reception of ZC6AP on telephony on February 1, but here again, we think this should be ZC6EC, who is the only station ever to have used 'phone in Palestine.

G2SO of Leigh-on-Sea brings our old friend TA1AA into the picture once more, although he believes he is in Albania. Again, we say that as far as our knowledge goes, we think he is in Turkey, but whether we shall ever have authentic news is another matter. VU7BR is of course genuine and can be QSL'd to T. Brown, Bahrein Petroleum Co., Bahrein I., Persian Gulf, Arabia. LZ1ID, though not frequently mentioned by us, is quite genuine in Sofia—we have his card—and he says he does not wish to receive reports from SWLs;



Frank G. Hitchcock, 6 Lynton Road, Dunton Road, London, S.E.1, uses a home constructed 0-V-2 and an indoor 15 ft. V beam. 42 countries have been received.

if you want to try, send your card via HB9CE. OY4C has been reported as operating on some territory not indicated by his prefix, and will send all cards for contacts via the ARRL. Dermot J. Mathers, 36 Lr. Beechwood Avenue, Ranelagh, Dublin, has just received a card from TG9BA giving his address as follows: Walter C. Bay, Chalet Krolik, Guatemala City, which will answer a few inquirers. YV4AE has changed his QRA to Rev. J. Ignacio Rincon Turmero, Est. Aragua, Venezuela. By the way, we have had dozens of letters telling us that the "mystery" Nairobi station's call is VQ4ECJ and cards should be sent via VQ4KTB, the other Kenya's 'phone, although VQ4CRE can occasionally be heard.

● Advantages of Morse

Leslie Morgan of Bournemouth writes as follows: "In one month I have added eight new countries on CW—D, YL, YM, TA, LZ, UK5 and U2—sure

proof that until you learn the code you don't realize what you are missing. I wish I had taken your advice earlier and swotted up the code months ago." Leslie corresponds with YM4AZ who supplies the information that YM4R is not genuine, and he remarks on the new Burmese stations, XZ2EX and XZ2DX, but apart from knowing they are in Rangoon, and have been active some months (especially on 28 Mc), we can give you little detail except to suggest you QSL via XZ2EZ.

● A New Club

The SWLs of Ewell, Surrey have formed themselves into a club and each member receives a distinctive number commencing with GR1X. The secretary, Mont Marks (GR7A), 15, Kingston Road, Ewell, Surrey would be pleased to hear from local enthusiasts who would like to join themselves up with this organisation. He gives details of a QSL from VE5AAD, well-known to DX operators the world over, but not so among telephony enthusiasts. VE5AAD will answer all reports on his signals.

K. Bunston, "Gable Cottage," Broad Hinton, near Swindon, heard a KF6 station and asks if we can complete the call for him. This would very probably be KF6DHW, the most active of the Howland Group stations, who has a crystal frequency about 14330 kc. Other new ones for him included FM8AD, TA2BS (more Turkish mystery), VR4AD, VS2AL, VS7RA and VU7BR and his record is excellent—130 countries in two years. Asia is still needed for HAC on 7 Mc, although such stations as K7RT, W6's, VK's and ZL's have been logged on this frequency. Like several other readers, he has heard 3 continents on 1.7 Mc and goes just one better than Martin Bourke by hearing 52 countries on February 12 between 0630 and 2030 GMT—7 hours actual listening time—NY, W, CN8, LZ, ZC6, U9, ES, G, YR, U, U2 (White Russia), U5 (Ukraine), HA, SP, OH, ZB1, YL, YU, SM, I, FA, SU, ZL, F, ON, EI, VK, D, HB, OZ, LA, GW, GM, YM, VP6, ZS, HI, SV, VU, VE, PK1, PK4, VK7, VU7 (VS8), GI, XE, VO, CM, FB8, CT1, EA9 and YV. 52 recorded correct. We shall always be glad to publish lists of 50 or more countries heard in one day.

● Suggestion

Martin Bourke wants the MAGAZINE to issue a certificate for proof of reception of 50 or more countries with a minimum of 5 per continent. He wishes it to be known that he is not thinking of himself, but feels that some incentive such as this is needed among the real SWLs to-day. Incidentally, he has now heard 16 countries on 1.7 Mc with a grand total of 160 (excluding doubtfuls).

Norman Stevens (BSWL1039), 59, College Road, Kensal Rise, London, N.W.10, asks us if we know anything of CR4HT—we can tell you that he gives the following address, Henrique Torres, Praia, Cape Verde Is., but whether he is "the goods" we cannot say. Another unusual one logged by Norman was HR9Z and he had his report returned from OQ5AV marked "inconnu," but as this station is quite genuine (we have the card) we cannot understand it. The full address for OQ5AV is Maurice Derungs, 6 Av. Comite Urbain, Leopoldville (Kalina), Belgian Congo. Norman mentions that ZS6AK and ZS5BN will QSL good reports, and that VE3AHB and 3AOR want them on their 7 Mc transmissions; he further asks if SWLs have been fortunate in obtaining cards from USSR, as he has

DX FORECAST FOR APRIL, 1939

North America. (All times GMT)		14 Mc.
Eastern States of U.S.A., VE1, 2, 3, VO, K4		
and West Indies	...	2000-2400 0600-0800
Western States of U.S.A., K7, VE4, 5, XE	...	0500-0800
Central America	...	2100-2400 0600-0800
South America.		
All	...	2200-2400 0600-0800
Africa.		
ZS, CR7	...	1800-2100
VQ2, 3, 4, 5, OQ, ZE, ZD, FB, FA, FT, CN,	...	1800-2100
SU, ST, etc.	...	1500-2200
Asia.		
J, XU, MX, VS1, 2, 3, 6, 7, FI, etc.	...	1500-2200
YI, ZC6, VU (North), U8, 9	...	1300-2000
Oceania.		
VK2, 3, 4, 5, 7	...	0600-0900 2000-2200
VK6, 9, VK4 (Papua)	...	0800-1000 1700-2000
ZL, VR	...	0600-0800
PK, KA, KB6	...	1600-2000

Note.—Owing to the apparent rapid change in conditions compared with 1938, it is anticipated that the band will be dead frequently between 0000 and 0600.

sent so many to them without success. This raises an interesting point. Russian receiving stations are not permitted to send reports (except on 28 Mc) to British stations, owing to the enormous number that came into this country a couple of years ago, so it is possible that the Russian Bureau is not passing cards from British listeners. The only way to get your reports to Russians is via their Moscow Bureau—anyway, Russians are not good at QSL'ing contacts with G's.

● Which Way Round?

We often get asked this question. Frank Jones, 6 Sutherland Street, Fenton, Stoke-on-Trent heard VK4FC, VK6AF, and VS7RA between 2130 and 2330 GMT and is wondering what route the signals took. The answer is that all signals heard in our evening from an easterly source take the Asian path. The signals from VK6AF would pass almost directly over Ceylon, whereas those from VK4FC would come across the middle of China, showing that practically the whole of Asia and parts of Oceania were "open" on that particular evening. The only time that Asian signals have been heard the other way round is occasionally about 0830 to 0930 GMT when J's, XU's and KA's filter through. W6's are sometimes noticed with a terrific echo about 1600 GMT, and their signals are believed to come right over the Pacific and Asia, giving an 18,000 mile path.

● Overtone and Fundamental Reception

In the lists of Calls Heard, we occasionally find that stations not licensed for 1.7 Mc operation are reported. This is so in J. J. Burchell's log from 4 Kangley Bridge Road, London, S.E.26. A German was heard at good strength. We have previously explained the principle of overtone reception caused by the oscillating detector valve of a straight receiver beating with a 3.5 Mc signal and bringing it through (apparently) on a lower frequency, but Mr. Burchell's case is almost certainly due to a fault in the transmitter. Some German stations use an ECO tuned to 1.7 Mc and then double to 3.5 in the final stage; both the ECO and PA are keyed simultaneously, and the aerial picks up enough energy from the unscreened ECO stage

to radiate a fairly good signal. German stations are of course not allowed to use the 160-metre band. An unusual call heard was XSH2ZG and we at once suggest a ship on the high seas!

● HAS

A high achievement in amateur circles is working all States of America, but it provides an equal attraction for the listener to endeavour to hear them all. Bob Everard has proved his HAS, but G. J. Rawlinson, "Gresta," Chase Side, London, N.14, finds difficulty in getting a card from North Carolina, though he has sent no less than 15 separate reports. One suggestion; don't send a report to W4FT—he has never QSL'd!

VU2EU says that he recently received 40 German DE and Russian URS reports, no postage was included and many requested stamps, one DE even going so far as to demand a complete set of Indian stamps! This is the sort of thing that stops a good-natured amateur sending cards sooner than anything else, but fortunately British SWLs seldom "demand" such things.

● Set Listening Periods

Our last 1.7 Mc period coincided with the French Contest, which gave interesting reception of F's on this frequency. There are no contests for SLPs in April, but the spring equinox should bring good 14 Mc conditions, and to see if the early mornings hold up as they did last year, we are setting an early SLP for "20."

April 8	2230—2400	1.7 Mc
April 16	0600—0800	14 Mc
April 16	1800—2000	28 Mc

● Another Contest

There is to be another contest, this time from Poland. Large numbers of SPs should be heard between Sunday, April 16, 0001 GMT, to Sunday, April 30, 2359 GMT. One point per contact on any band except 1.7 Mc will be scored by British stations. In other years, Hungary has staged a similar event about the same time, but we have no details of it for this year.

We are cutting out the 7 and 28 Mc columns from the DX Forecast until next September owing to the relative scarcity of DX signals to be expected on these frequencies, although it may be that with the changing solar cycle of conditions, 7 Mc will continue to produce a certain amount of DX—we can only wait and see. It seems definite now that conditions on 14 and 28 Mc have not been as good this winter as last, and presumably will not be up to 1938 standard this summer. This may mean that the lower frequencies, such as 7 Mc, will be better than last year.

Q.C.C.'s Crystal Mount

Those who like their Type U crystal holder, which only fits American valve sockets, will be pleased to know that Messrs. Quartz Crystal Co., Kingston Road, New Malden, have now produced a neat little baseboard mount specially for the Type U holder. It costs 1s. 3d., and an adaptor which fits the Type U unit to their old style of mount is 1s. 6d. We were down at Q.C.C.'s recently and were much interested in watching the production of their famous "rocks"—not only for amateur use, but also for the B.B.C., N.P.L. and R.A.F.

CALLS HEARD SECTION

SET LISTENING PERIOD 1, 14 Mc

Feb. 12, 1800-2000 GMT (British Empire CW stations only).

F. JONES, 6 Sutherland Street, Fenton, Stoke-on-Trent. Electron - coupled 0-v-1; 18-ft, 40°, 18-ft. high, WSW.
VEIHK, 21M, JS, 3QI, VO1D, VP4TJ, VQ4CRE, VU2LK, ZB1E, ZL2FA, ZS1BJ, 5CX, U, 6FU, GA.

H. OWEN, 2, Campion Avenue, Basford Park, Newcastle, Staffs. "All-World Two"; 33-ft. ENE-WSW.

VEIEA, HK, LN, 2GY, IM, JS, 3DA, VO1D, VQ4CRE, VU7BR, ZS1BG, BH, 5U, 6GA, ZB1E, V.

K. SLY (2FAU), 16, Buckland Avenue, Slough. 1Pen-vPen-1Pen; Inverted "L."

VEIEK, HK, 3KE, VQ4CRE, VU2LK, 7BR, ZB1E, ZL2FA, ZS1AG, BG, BH, 5BW, 6FD, FU.

SET LISTENING PERIOD 2, 28 Mc

Feb. 19, 1100-1300 GMT.

F. JONES, see SLPI.
 'Phone—CNSAJ, AV, MI, C2VG, 8DU, VP3AA, MR, YB, SVICA.
 CW—E14J, PYIHP, WIKR, YR5IG.

K. SLY, 2FAU, see SLPI.
 'Phone—CNSAJ, AV, MI, PK3WL, SULMW, SVICA, VP6MR.
 CW—CNSMO, E14J, OH5NI, OD, VQ3TOM, ZS6EG.

SET LISTENING PERIOD 3, 1.7 Mc

Feb. 25, 2230-2400 GMT

H. OWEN, see SLPI.
 'Phone—G5GN, 6TL.
 CW—F3AR, LS, MD, 8JQ, PK, QI, QM, VI, VJ, YZ, ZF, CW2BG, C2HW, YY, 5QY, XD, 6QA, 8CV, SG, HB9AW, BZ.

J. B. BURCHELL, 4, Kangley Bridge Road, S.E.26. 1-v-Pen(battery); indoor 20-ft.
 C2JB, PC, DM, RA, YY, 3AI, DI, MB, MI, OA, OB, RM, XR, YB, ZL, 4CF, 5CM, HS, PY, RI, 6HG, KR, SC, VC, 8IJ, CV, HB9AR, AW, BZ, CI, TU, F3AR, MD, LS, 8Q, OM, OL, UK, VI, VJ, YZ, ZF.

PATRICK WHITTLE, 2AOW, 32, Burleigh Gardens, Southgate, London, N.14, Battery 0-v-2; 80-ft. inverted "L" NS.

F3AR, LS, MD, 8JQ, QI, QM, VI, VJ, YZ, ZF, C2JB, PC, YY, 3GH, JV, QA, YB, 4AK, AU, 5GN, HS, QY, 6HG, 8CV, CW2BG, HB9CI.

EDWIN KESTIN, G3ZL, The Palms, Connaught Rd., Rodwell, Weymouth, Dorset. 1-v-1; 135-ft. E-W, 30-ft. high, Zepp fed at centre; and indoor 20-ft. 'Phone—CW2BG, C4DA, 6SB, SQ.

CW—G2RA, YY, 4DA, 5PZ, QY, RI, 6HG, 8IJ, F3AN, LS, MD, 8AW, JA, JQ, QL, VI, VJ, ZF.

SET LISTENING PERIOD 4, 7 Mc

Feb. 26, 1900-2100 GMT.

K. SLY, 2FAU. "Sky Champion;" inverted "L."
 'Phone—E14J, 5P, 7M, 8M, 8L, CM3KC, CW2UH, ON4JX, RS.

CW—CNSAJ, MI, E19M, F(10), F3RY, WJ, 8CF, DA, IH, CM2NQ, 3QA, OHINY, ON4DR, SP7KM, U3CO.

J. BURCHELL, see SLP3.

CNSAJ, 8MI, CTILZ, D3FOF, E19N, 5P (phone), F3RY, CF, 8CF, IH, F3BI, CK, DV, CO, KJ, RM, RG, 8AA, TP, VJ, WK, WW, XT, YT, YZ, HB9CD, PA0CD, 5M5SC, SPIFI, CM, 2KN, TA5SC, YR5CH-5BR (used double call sign).

H. OWEN, see SLPI.

'Phone—F8ZK, ON4GX, RS.
 CW—CNSMI, CTILZ, F3LS, MI, RH, TT, 8AA, TO, UK, VJ, WK, XT, ZF, F3RY, 8CF, HB9BZ, CD, CE, ON4DB, OZ3RO, SPIFI.

C. G. TILLY, BSWL319, Bristol, 6. 1-v-2; 48-ft. semi-vert., NS.

EA9BJ, E15P, 7M, 8L, F3BX, EO, MO, OD, WE, XC, 8ZK, J1SL, LX1DY, LYIAP, ON4RS, ZB.

BRITISH CALLS HEARD OVERSEAS

M. W. SOPLOP, 54, Chestnut Street, Allegheny, N.Y., U.S.A. 13.1.39 to 27.2.39, 0630-1000 GMT; RME69 and DB20; R strengths given.
 C2IW-5, BY-7, 3ZF-8, SJ-8, BN-6, QC-7, GA-7, 3IQ-6, UK-6, XN-8, IC-6, ZI-5, OZ-6, 4BH-7, DC-6, 5LM-5, BM-8, PC-7, QI-6, CJ-5, TN-7, NS-6, BQ-8, 6PL-7, JB-7, 8TH-6, QJ-7, GP-8, AR-8, DZ-6, GI-7, HH-9, CW3QB-7, E17M-8, 8J-7.

M. F. WILLIAMS, 119 South Eighth Street, Newark, New Jersey, U.S.A.
 14 Mc 'Phone—G18UU, GM2UU, 6RG, SR, 8RJ, CW2IP, 6JW, C2AI, 2AK, 2GF, 2DV, 3CC, 3DO, 5JO, 5IU, 6AG, 6AN, 8GX, 8IG.
 28 Mc 'Phone—GM5KF, 6RG, C2AV, RY, CG, IS, KU, LA, MI, MY, PU, 3DM, 5GI, GS, LI, LY, 6AG, BH, BW, DL, PY, 8DT, IG.

WM. H. G. METCALFE, VU2EU, c/o Peshawar District Signals, N.W.F.P., India (strn. at Quetta, Baluchistan). 1-v-1. (RST given in brackets).

7 Mc CW—(21.2.39)—C2CT (369), HU(359), LC(347), 3FX(459), KT(339), SR(449), SS(369), TK(479), ZA(459), KU(339), QH(359), VI(459), 4BM(359), NW(349), YR(459), 8JM(449), JJ(359), CM(359), 5ND(249), PX(559), 6CL(359), SJ(349), CM2NG(349), 5OD(569), 3GG(369).
 CW2NG(349), 5OD(569).

7 Mc 'Phone—G4CY(35).
 14 Mc CW (Feb. 17, 19 and 20)—C2FH(349), 3NO(349), 5DQ(339), RV(446), 8FV(559), GB(559), CM5SC(558), 6HZ(589), 8GN(457).

BERS455. QRA same as VU2EU. 1-v-1; from Feb. 6-18.

7 Mc CW—C2FT(368), HY(459), 3RN(359), 6YR(357), WY(379), 8MH(468), TI(449), CW4CX(249), CM5RO(368), 6SJ(469), 8SV(259).

14 Mc CW—C2AS(249), 3TT(469), 5LP(344), 8DD(479).

3.5 Mc 'Phone—C2XV(25).

1.7 Mc GENERAL

M. G. BOURKE, 2AOU, Jersey. 1.1.39/7.3.39.

WIKUW, FJY, BB, AW, KUW, 3DO, VEIEA, SM7QY, UC, D4SZK, E16F, LYIJ, HB9CI, F3LS, 8VJ, QI, QM, FA8BG.

3.5 Mc GENERAL

BOB EVERARD, "Belle Vue," Nelson Park Street, St. Margarets-at-Cliffe, near Dover, Kent. "Sky Champion" or Marconi SH6. 8.2.39/8.3.39.

'Phone—W1FD, AW, FOF, DOA, AAH, ADM, FMP, IWG, JXV, 2AST, FLX, GMG, 3DQ, AHS, BFZ, BIN, CNY, ETU, DMV, EOP, CEI, EOZ, FAM, CRO, AWU, DRO, 4OC, JW, LU, RS, BYG, BZA, ASR, DGO, 5BB, 8LEH, BOZ, 9GAO, MN, RFE, LRJ, VEICL, GR, CR, LR, GD.

14 Mc GENERAL

K. BUNSTON, Broad Hinton, Wilts. 0-v-1 (tridex); 33-ft. end-on, EW. 28.1.39-5.3.39.

'Phone and CW—C3AT, CM2AO, BA, MZ, PW, CQ2JG, JJ, JV, WM, WO, XX, 7CX, VP, 8BC, VC, C7RAF, CT3AB, CX2CO, FB8AA, AH, FM8AD, FT4AE, AN, AK, HC, FG, HH2B, MC, J2JJ, KG, NF, K4EMG, ESH, FAY, FCV, KD, K5AC, AF, 7HAR, KAICI, BR, SP, 7TT, KF6DHW(?), LU9BV, NYIAD, PKIRI, MF, WA, 4FS, KS, PYIDI, DS, GS, 2AL, JC, 7RO, ST6KR, TA2BS, U8ID, 9ML, VE3APL, AER, AGM, IV, LL, GT, QI, VN, 4AU, SR, 5HR, EF, VO, ZM, SR, QP, SW, VK2ACR, ACV, ADE, AEK, AFD, AFP, AGS, AJD, AJF, AJK, DA, DG, EG, EO, FM, PV, PX, TI, 3BM, PM, US, VR, QK, DP, DT, HT, VQ, VF, ED, IW, XZ, PG, HG, KX, EP, VX, 4BB, SA, RC, RY, G, CB, RQ, WA, AO, JX, PX, 5BF, BH, JA, JS, JU, RJ, RQ, 6BE, MU, MW, RU, 7GJ, LZ, VO3X, VP4TK, 6FO, MR, MY, 9G, L, X, VQ2MI, 4KTC, KTF, VR4AD, VS1AL, 2AL, ED(?), 7RA, VU2AN, DR, ED, FO, HB, HC, LK, PK, 7BR, W5BOM, BML, DVE, ZZN, CDC, EHM, YF, 6CIP, DOB, CQO, MEK, NLZ, LHN, KJF, AVB, CXX, DIC, LXV, NCM, ITM, EGH, LJD, HUA, PKA, 7AYO, CMB, DLK, DSZ, ESK, DL, FCZ, FP, DX, JB, TO, 9TXG (Kans.), XELAM, XU4XA, 6W, XZ2DY, YV1AQ, 4AE, AM, 5ABF, AC, AM, ZC6EC, RL, ZEIJG, JS, ZL1LS, LZ, MB, MR, 2BZ, FG, KM, GW, VM, GM, FA, CI, JX, LO, LW, 3JA, DJ, AP, PA, DV, GR, FZ, CZ, KX, 4GN, FK, AO, AK, BO, BR, DO, GA, BB, BK, GM, ZS1AG, BL, CN, ZX, 5S, U, O, CU, CX, BS, 6S, BF, AJ, FU, DW, CV, BY.

GENERAL HOME LOG

R. J. LEE, BRS1173, Heathfield, Sussex. 0-v-1. Heard during BERU Test.

E14J, ST6KR, VEIMK, HK, MK, LN, 2EE, 3AJX, 4HM, OB, 5AAD, NF, VO1D, 4Y, VK2ADE, AFP, ER, TI, DG, EO, 3BV, PG, QK, DT, VO, 4PX, JU, 5RQ, 6WZ, 7LZ, VP2AT, IC, 3ZA, 4TO, VQ2HC, JC, 3HJP, 4CRE, RHL, 8AF, VS1AL, 6AH, 7RA, VU2LK, FO, 7BR, XZ2DY, ZB1E, V, S, ZC1AT, 6CE, ZD4AB, ZLIMB, FA, AR, LS, 2GW, FA, CI, 4DQ, CK, FK, BP, GA, ZS1BH, 5U, 6T, BJ, DM, BT.

ACKNOWLEDGEMENT

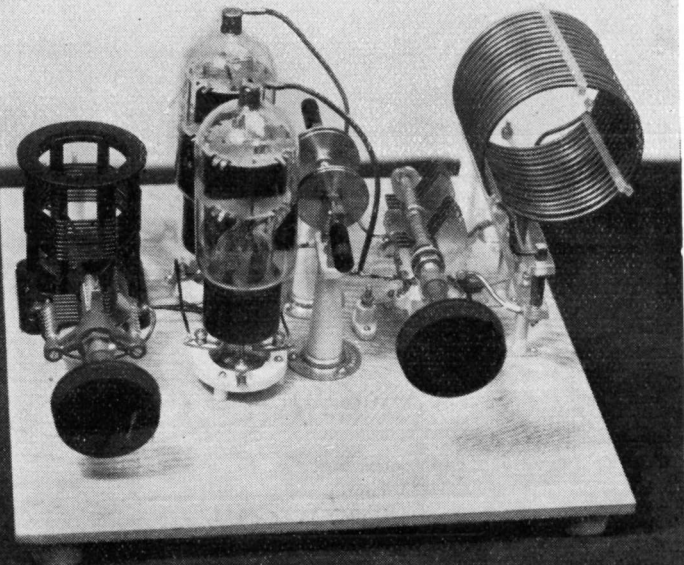
K. I. C. Freeborn, Watford; R. Hall, New Waltham; D. J. Mathers, Dublin; P. Sawyer, Croydon; C. Smith and I. Clark, Forfar; N. Stevens, BSWL1039, London, N.W.10; B. W. Warren, G6CI, Coventry; R. A. Woodward, Yeovil.

100 Watts CW

Using TZ08-20's in Class-C
Push-Pull for high RF output

By

Austin Forsyth, G6FO
(Editor)



Showing general layout of the TZ08-20 push-pull RF amplifier. Note the Polar 2 x 30 mmF tank tuning condenser and the Denco coil assembly, with a QCC unit on the grid side. RF leads are kept very short throughout and the baseboard supported clear with wiremen's insulators.

HAVING covered recently the design of several low-power mains and battery transmitters, we are dealing this month with a rather more ambitious piece of apparatus—a push-pull RF amplifier which can be run at 100-120 watts input when fully driven and operated with 750 volts on the plates. Now, we know quite well that the majority of our readers do not use inputs of 100 watts and more, or anything like it, whatever their licensed power may be. But there are many who are interested in what in this country is high power, and we have therefore produced a design suitable for general-purpose work over a power range of 25-120 watts, i.e., where only normal driving facilities are available, with PA voltages of the order 400-500 volts, the RF amplifier as described here is quite suitable and will be found capable of giving plenty of output at high efficiency.

The table of operating data accompanying this article has been derived from measurements made on the model illustrated and it will be seen that details are given for two possible working voltages, 400 and 750; when intermediate voltages are used, interpolation will be very near for all practical purposes.

The next point in the design concerns the question of frequency range. In view of the fact that the three bands most commonly used by G stations are 7, 14 and 28 Mc, it has been thought wise so to arrange matters as to make sure of reasonably good efficiency on each of these. Remember that we have often said that it is almost impossible (and without adopting all sorts of expedients, quite impossible) to produce a transmitter or receiver which will give level performance throughout the amateur range; it just cannot be done. It is also difficult to arrange the standing values to get equal output on the three bands mentioned, but the present design may be said to come near enough to what is required in this respect.

Thirdly, the valves. While all sorts of combinations of triodes and pentodes can be employed, it is axiomatic that when there is sufficient drive for them, one cannot go wrong with "hard, well-biased triodes and high plate voltage." They are

easy to get going, have no tricks in the standard circuit, and with the valves now available, good efficiencies can be obtained. Those used for this RF amplifier are Mullard TZ08-20's, low-priced, robust, conservatively rated, and more than an adequate answer to the parallel American type.

● Circuit

The diagram shows a straightforward link-coupled push-pull amplifier, plate neutralised in the familiar way, and having an electrically balanced output tank by reason of the two-section tuning condenser. The grid side is tuned by a single condenser because in practice it does it quite as well as a split-stator type provided the coil is accurately centre-tapped—which is important. Theoretically, two-section condensers should be used for both grid and plate, and in particular cases there might be some improvement by balancing the grid circuit with a 30 x 30 mmF instead of the single condenser shown.

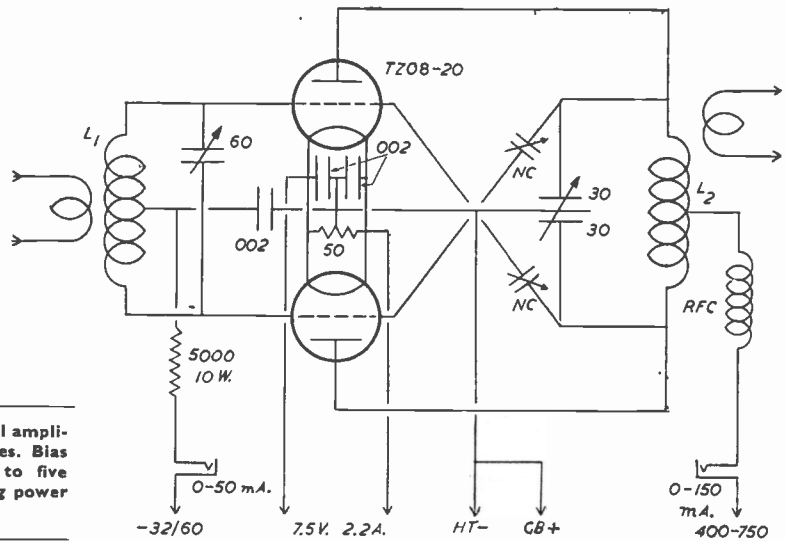
It is necessary to by-pass the filaments of the TZ08-20's and also to obtain their electrical centre for the cathode return leads; this is done by means of the condenser-resistor arrangement indicated in the diagram. The choke RFC is important and for 28 Mc it is sometimes worth while putting a special 10-metre choke in series with the compromise value used for "all-band" operation.

● Construction

As usual, we try and make this as clear as possible in the photographs. In case someone says that the leads of the grid tuning condenser cannot be of equal length with that layout, the answer is that they are made so, though neither photograph shows it very well. Actually, one lead is taken from the rotor lug and run to clear the moving plates, and the other from the stator tag remote from the screw on the QCC coil base to which it must be connected; moreover, the length of this lead is made the same as the other by curving it under the condenser. Similarly, the plan view shows the two connections to the grids of the valves to be equal, as are all the RF leads in the circuit right up to the tank coil.

Note that the TZ08-20 has its anode taken to the top cap, and that the two plate leads are "bulged" away from the neutralising condenser plates. Unfortunately, the knob of the tank tuning condenser hides the method of mounting the latter, which is a Polar standard two-section type rebuilt for high-voltage RF work. Messrs. Wingrove and Rogers are now producing these very reasonably priced components for the purpose, the modification being to double-space each section, remove the

Circuit of the 7-28 Mc push-pull amplifier, using Mullard TZ08-20 valves. Bias values can be increased up to five times cut-off but higher driving power will be required.



baffle plate between them, and fit a short pigtail from the middle of the rotor to a connecting lug placed centrally in the steatite base. The result is a 30 x 30 mmF transmitting condenser with a plate spacing of rather more than .06-ins., giving a DC breakdown voltage of about 2000. Thus, connected split-stator as in our circuit and *without* a high-voltage fixed capacity in series with the earthed rotor, this condenser can be used with an ample factor of safety when the DC plate voltage is 750 for CW working and around 500 volts in a fully modulated RF amplifier. *With* the rotor series condenser (which itself should be safe at 1000 volts) these figures can be doubled. The standard design of the Polar two-section condenser is such that it finishes very compactly to small physical dimensions, with high-grade insulation and no closed loops. It can be mounted either to baseboard or panel, on stand-offs, or on an insulated bracket.

In this case, we have devised a neat and solid mounting by using two strips of Trolitul fixed across the feet in the base, these in turn fitting over a couple of small stand-off insulators screwed to the baseboard. The Trolitul insulation can be 1½-ins. long by ¼-in. wide, the fixing holes being located by using the base of the condenser as a template. Between them goes the hole for the s/o insulator.

The only other points to mention about construction is that a Denco coil assembly is used for the tank side (specify 7, 14 and 28 Mc coils centre-tapped), with a corresponding QCC centre-tapped plug-in coil for the grid. The RF choke, grid tuning condenser, neutralising condensers, valveholders, stand-offs and insulating pillars for the input and output links are Eddystone, the leak is a Radio Resistor Co. 5000 ohm 10-watt, and the by-pass condensers are TCC type M. All these (Please turn to page 37.)

Operating Data for Frequency 14 Mc.

HT volts.	Bias.	Grid mA for max. output	No load resonance current.	Permissible loading for max. output.	DC Input watts.	RF Output watts.
400	-32	15 mA	11 mA	60 mA	28	16
750	-60	40 mA	18 mA	150 mA	112	72

N.B.—7 and 28 Mc readings will be slightly different, the former giving about 10% more RF output with lower grid drive, while on 28 Mc a grid drive of 48 mA will be required for 65 watts RF output with 750 volts. Minimum plate mA (col. 4) will be lower on 7 Mc and higher on 28 Mc. All these figures assume a reasonably efficient low-C load circuit.

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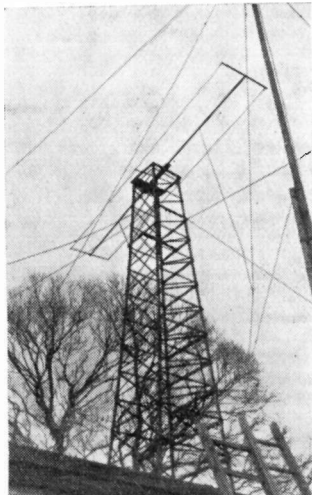
56 Mc Notes

By
A. J. Devon

February Test Report—Individual Activity
—May Schedule—News Items

OUR space this month was to have been devoted to a full account of the Test Period arranged for February 22-26, during which we anticipated that—due to the promised high activity—many new inter-G records would have been made. The activity certainly materialised, but conditions simply folded up, and though we have a fine crop of some 30-odd reports from all over the country, the bald truth is that the Test was a failure so far as DX was concerned.

However, the almost complete cut-off for five days of all but ground-wave signals is in itself interesting, as it can be said that this is the first time in



The 2-section W8JK rotary beam at G6DH, Denis Heightman of Clacton. The top is 35-ft. above ground level and the aerial looks across flat country in all directions.

the last six months that such an effect has been noticed on 56 Mc. Our "Survey of Conditions" elsewhere in this issue shows that they were normal up till about February 24, when a severe ionosphere storm started and magnetic disturbances of some intensity were also observed, together with a display of Aurora Borealis. Signals down to 26 Mc—the highest observed frequency—were absent, with a DX fade-out after dark. All this happened between February 24-26, from which we are led with due caution to the possible conclusion that not only was the 5-metre band equally affected and in much the same way as the lower frequencies, but also that it came under influence *before* they did.

Though this somewhat negative result of the Test Period is as disappointing to us as it must have been to the many operators who came on to find only the locals audible, what does emerge is the serious interest in 56 Mc, as most people who have written say they would welcome further organised Test Periods of the same kind. So we are making arrangements accordingly.

● Reports

Denis Heightman, G6DH of Clacton, who during the last few years has devoted all his time to the

UHF bands and has produced much useful data of a practical nature, has some interesting comments to make. He missed the "Aurora night," but says that on a previous occasion its occurrence brought him 56 Mc reports from up to 120 miles, with echo, and adds that in his opinion the intense ionisation produced by the "Northern Lights" is capable of bending UHF waves. This is borne out by the fact that W2JCY and others told him that on February 24 many short-skip contacts took place in the States at distances up to 1500 miles. The complicating factor on this side is that we in Europe have no 56 Mc stations to look for at reasonable ranges, like 500 miles and over. G6DH runs a schedule with ON4DJ nightly, 2130-2140 GMT, and they beam at one another across 85 miles of sea. Though the regular G6DH-G2OD schedule (83 miles) at 2210 has produced many contacts—it failed on February 25, incidentally—G6DH has not yet been able to work the Belgian. He goes on to say that conditions were extremely good during January 30-February 5, when R8 'phone QSOs were possible with G2OD, and at odd times during February G2AO, G2MC, G5MA, G6QZ, G6VA and G6VX were worked from Clacton, G5AA, G5BY, G6OT and G8OS being heard. All these are over 60 miles, with G8OS 110 miles away in Sussex.

G5BY of Croydon was of course on the job throughout the Test Period and was partially rewarded by the logging of four new stations—G3NR, G3WN, G6OH, and G6PG—out of the 18 he received, the vast majority of which were locals. On February 24, G6FO was heard (R4 with a dirty note) at 2140 GMT, but only for a few seconds and contact was not made. Hiltoñ O'Heffernan has further improved the 56 Mc receiver described in our February issue by fitting air-spaced trimmers, increasing the band-spread and lowering the IF frequency to 1560 kc.

G2MC, Pinner, who came on for some part of each day's schedule, logged G8OS (40 miles) as his best DX, the other 15 stations heard or worked all being locals. The gear at G2MC is a 9-valve superhet, a 50-watt CC transmitter with an output frequency of 56.96 Mc, and the aerial a rotatable dipole 30-ft. high.

● Up North

The report from G8JV of West Bridgeford, Notts., though it mentions "locals only" during the Test, is very welcome because it sheds some light on what they are doing round there. A schedule G8JV-G8KD (40 miles) has been maintained for nearly a year, in the course of which astonishing QRKs have been obtained after aerial tests at both ends. G2HQ, right in the heart of Sheffield and screened by hills rising to 800-ft., has also been worked once and is heard fairly regularly at G8JV (40 miles), but the latter rightly considers his recent reports from 2BZX, Ashton-under-Lyne, and G3BY, Audenshaw, as even more exciting. The distance is not, as G8JV says, very great, but the 60-mile path passes right over the Derbyshire Peak district, at least 1500-ft. high, so that reflection seems certain

and gives much scope for useful experimental work with aeri-als. Of these, G8JV has a dipole, a long-wire and a beam consisting of six $\frac{1}{2}$ -waves in phase. At G8KD, the latter aerial is two points better than the long-wire, which in turn is one point up on the dipole. G8JV makes one very significant suggestion—that the 'phone carriers we moan about on 56 Mc are probably the oscillator harmonics from local BCL receivers. So much for our frequent exhortations to "key that carrier"!

Bryan Groom, GM6RG of Galashiels, who has much elaborate QRO 56 Mc equipment, keeps his famous beam directed at the States nearly all the time. Recent week-end tests, arranged to take advantage of an expected change in conditions, have not yet brought GM6RG the DX we feel certain he will eventually get on the band.

An interesting digest on 56 Mc work in and around Sheffield itself comes from G8KD/G8KF, who remarks *apropos* his aerial tests with G8JV at 40 miles that their contacts are now of a strength and reliability comparable with the reception of the medium-wave broadcaster. G8KD finds that varying weather conditions do not affect this path in the slightest, confirming some recent results further south, as reported in these pages. The Sheffield people active on or interested in 56 Mc are G2HQ, G2MF, G3FA, G3NJ, G3MY, G5HK, G8KT, G8RX and G8QX. They are all going CC and have quickly found that super-regenerative receivers of any kind are useless, if only for the interference caused by the non-HF stage type. There is already much QRM on the 5-metre band in Sheffield due to local transmitters' harmonics from other frequencies.

G5MQ, Liverpool, was on schedule practically throughout the Test, but beyond working G2VG, heard nothing else. He confirms that conditions were hopeless because the Manchester and Southport stations were not coming through. Barbara Dunn, G6YL of Felton, was also there, but says she never even *expected* anything to happen! G6YL has had much experience of the UHF bands and predicts that if Continental co-operation is forthcoming this summer, we should almost certainly break some new ground.

G6QZ, Norwich, though alone on 56 Mc for a radius of 50 miles or so, is consoled by the reflection that practically any contact he makes must at least be semi-DX. He is very active, anxious for co-operation, has a good location, and well-tried equipment consisting of a CC 6L6-6N7-T20 25-watt CW transmitter, a 1-v-1 TRF receiver using Hivac valves (after G6DH, modified), and two aeri-als: An 8 $\frac{1}{2}$ -wave north-south Hertz and a 4-element W8JK 2-section beam, mounted horizontally, and rotatable through 180° by means of cords from the house. This beam, fed by 90-ft. of 450-ohm stub-matched line, gives much better results than anything else yet tried. A summary of G6QZ's 1938 activity reads: Operating on 142 days, 386 calls radiated, 36 QSOs made, of which the best were with G6CW (Nottingham, 107 miles) and G5BY, 105 miles.

● South Again

G6XM, Farnborough, who has done well on 56 Mc when conditions let him, has nothing exceptional to report for the Test Period but says he is working each Sunday, 1100-1200 and 2000-2130, also on Wednesday evenings at the same time. He asks that more people come on earlier in the evening, around 8 p.m., instead of at bed-time. G2ZV, Rustington, Sussex, another keen 5-metre man, has a new superhet with two IF stages, using Acorns at

the front end, and a 4-element rotary beam 36-ft. high, with two reflectors and one director, RF from the CC transmitter being piped to it by coaxial cable. On February 24 at 2315 GMT, a good contact G2ZV-G5RD (65 miles) was recorded, and G6WL, London, N.17, was heard at 60 miles.

Other reports come from G3NR, Kings Langley, who kept the schedule solidly with his 6L6-T205/20-6L6-6L6 transmitter and rotatable Y-matched $\frac{1}{2}$ -wave aerial and reflector, the straight 0-v-1 bringing in "usuals" only; G6FU, Lewisham, S.E.13, whose experiences were similar; G3HW, Teignmouth, also locals only, but he passes us the glad news that there is now some useful activity on 56 Mc in S. Devon; G2QY, Mill Hill, N.W.7, who worked a semi-local in G6PG (Gravesend, 28 miles) using a 1-v-1 receiver with Hivac valves and a 6L6-6L6-T20 transmitter, the aerial being 66-ft. end on; G2JK, Tooting, who worked G6XM at 28 miles with a 10-watt 53-6L6-6L6 transmitter, 0-v-1 receiver and 50-ft. W3EDP aerial; G6VC, Northfleet, Kent, who heard about a dozen stations at semi-local distances, including G2OD (44 miles), G2MC (34 miles) and G6OH (30 miles), and has also received ON4DJ, all on an 0-v-2 with a 66-ft. aerial; and G8LY, Constance Hall of North Waltham, Hants, whose best DX was reception of G5BY (48 miles) on an 0-v-2.

● May Test Schedule

Yes—we'll have another, for May 10-14 inclusive, 2000-2230 nightly, Saturday afternoon 1400-1600 and on Sunday, May 14, 1100-1300, 1430-1600 and 1830-1930, all times BST. Further, we propose to schedule a corresponding Test Period each month throughout the summer, in the hope that not only will the long-expected DX materialise, but also that some new inter-G results will be obtained.

● News Items

In the West, G5JU (Bristol) and G5WU (Penarth) have made the 27-mile one-way contact on 56 Mc, and it is only a matter of experiment to get solid working at good strength both ways. Fred Miles, G5ML of Kenilworth, the well-known DX station, has 500 watts going into the first Mims rotary beam in this country, and 2FNV reports that CN8AV is now on 5 metres daily at 1100 GMT. From VU2EU we hear that he and VU2AN will start up during the summer with CC transmitters and beam aeri-als, and that all VU's thought to be interested in 56 Mc are being asked to co-operate. Further news will be available later.

Don Knock, VK2NO, is getting consistent results with VK2LZ over a non-optical path of 80 miles and, based on his latest 56 Mc receiver, has devised an efficient superhet converter which he is making up for co-operating stations at distances up to 200 miles.

From the April material for RADIO, *via* E. H. Conklin, W9BNX—from whom we have a lot of interesting material yet to be absorbed—we gather that in the States they are at the moment chiefly interested in "Transcons," or east-west relays on 56 Mc. More good medium distance working is recorded and there is a note about W9NY of Milwaukee, who kept a regular watch on the band for CW DX throughout 1938, for which he deserves much credit, though according to W9BNX several other CW operators not reporting at all have done very well, and many 'phones have worked more stations than W9NY.

The Month's Club News

ONCE again we report a goodly number of clubs (or prospective societies!). It seems that there might have been more, for one correspondent sent his appeal for space with a request that we first of all told him if there was anything to pay for insertion; the answer is No. All we ask is that secretaries stamp their envelopes and see that they reach us by the 15th of the month; please do not anticipate acknowledgment other than through these notes, though at times we are able to surprise by a return letter.

● Summer Hopes . . . and Some Are Facts!

The serious aspect of outdoor experiment is about to commence, and as will be seen by the following notes many clubs are preparing once again to mystify onlookers by erecting portable stations.

* * * *

There is still much information to be recorded and theories tested before the amateur relinquishes his interest in direction finding. Commercial applications are in daily use, but how many of these would prove effective under field conditions? BRENTWOOD may justly claim to know something in this respect, not by spasmodic efforts but careful discussion during the winter meetings, which has resulted in well-formulated plans being put into practice. Soon after Easter members will co-operate with Romford for tests; later on other Essex societies are to assist the portable G8HV. Illness has reduced attendance recently, but as all are now making progress G8KM's QRA should be fully occupied for meetings on the 6th and 20th of this month.

After the Surrey Radio Contact Club's AGM, held at CROYDON on the 14th of last month, when a successful year was reviewed and subs. increased, Mr. Billingshurst (a member) spoke of his experiences with midget portable receivers used by him whilst on hiking tours. The speaker then mentioned experiments in the peculiar apparatus that could be carried by a swimmer to facilitate direction finding whilst engaged in rescue work at sea. The outfit had been successfully demonstrated, though modifications were anticipated.

We have no intention of suggesting the season has commenced by showing this photograph of one



of DEPTFORD's 1938 events, which may serve to arouse interest. G2UX and assistant were testing on 7 Mc telephony, using a half-wave centre fed (72-ohm). Results proved directional effects with this type, and after the inside work of rebuilding the transmitter and a hastening of Morse practice it is hoped to visit Westerham for further data.

Negotiations are being conducted between SHEFFIELD and Derby SW Experimental Society with a view to joint open-air activities ("if we have any summer this year," says secretary Tomlin). We thank the latter for some Sheffield photographs, but as The Scribe claims they all concern the recent Contest he is judging we cannot advise reproduction in this section—the Editor will have to exercise his prerogative! 2DPJ, noted for his constructional prowess, is shortly adding his name to the "New QRA's" feature on page 36.

SOUTHPORT amateurs are using 80-metre gear for their field-day efforts. The site has been selected and individual members are under contract to construct apparatus for their particular duties. The last meeting consisted of a discussion on "The directive properties of Aerials," in which most of those present were keen to share. G4DF was congratulated on becoming the town's first G4.

The affairs of WILLESDEN are now reported as much improved, so much so that a field day is planned and membership increased. April meetings are the 12th and 26th.

● Amateur Critics

Many refinements made to commercial apparatus after demonstration are directly due to criticism offered by listeners in the club room. It is no use ignoring suggestions made by the prospective user, for he often visualises use under conditions differing from those of the designer. The process of supplying just what the amateur requires is gradually improving production, and the good work should continue, even though at times the lecturer may feel disparaged—both sides will ultimately benefit.

"Watt's a Therm?" BRADFORD SW Club are able to answer this one, for they have seen the possibility of gas-operated receivers as developed by the Milnes Co. of Bingley. Results rather staggered the owners of G3NN, who will possibly be describing their station somewhat on these lines: The rig here is a quarter-inch by-pass CO driving two blow-pipes in suck-blow as the PA, the mod . . . (Turn it off!—Ed.) The QSO's here have been disappointing, mainly because no permanent state is possible—the gear has to be dismantled after each meeting. This is to be remedied shortly, when it is also hoped to have facilities for aerial erection.

2AFO has demonstrated his portable CO/PA before fellow-members at BRIGHTON. The club transmitter is now complete, but up to the time of writing has not undergone test.

Notepaper used by DOLLIS HILL shows five changes in the executive, and as attendances have not been up to scratch we hope that more settled conditions will come about. Good material is on tap, for G8PD (chairman) has by practical demonstration initiated members into the use of the cathode-ray oscilloscope; 2DLB has spoken of the theory of alternating currents, and G6SK (presi-

dent) gave a series of mathematical talks on power packs, PA and modulator design during March.

ILFORD (G3QU) reports regular events. Those of recent interest have been talks or demonstrations by Messrs. **Ediswan** (C-R tubes), T.C.C. (electrolytic condensers), Haynes Radio (C-R gear and amplifiers), "**Avo**" (meters), Everitt Edgcomb (meters), Tungram (valves). On April 13 E. G. Coe provides a transmitter demonstration and a week later 2COT presides over a "gramophone evening."

Three commercial demonstrations have followed one another at ROMFORD: Hivac valves, Marconiphone cathode-ray tubes and Evrizon amateur receivers. G3CQ, owner of the receiver, ably brought in some DX under difficult conditions; now members are looking forward to a similar test of the same company's later model.

A local dealer has helped the SLOUGH club out by loaning a "Sky Champion" receiver and associate meter for indicating relative strengths of received signals. The ensuing discussion on "R" strengths was taken up by all those present. Members' apparatus has been exhibited by the same trader, resulting in the creation of much popular interest in the club. VP6AH has called and talked on conditions in Barbadoes.

● Five New Clubs

With present-day politics in such unhappy mood and summer well on the way, it is pleasing to report a quintet of new or proposed clubs in one issue. It will be remembered how we mentioned KILMARNOCK in March, and now it only remains to tell of results. Twelve days after announcing the suggestion we had a letter to say the Society had been formed and then had a membership of 25; a fine clubroom has been procured; two poles erected for a Windom aerial; and all details fixed. Meetings are Tuesdays and Thursdays at 8 p.m.; Saturdays from 2.30, and the motto seems to be: Walk in and see us sometime.

The above should provide hope for the following. First comes ex-G5HX (now BRS3511) who, with 14 years of Amateur Radio behind him seeks to get BROMLEY on the club map in order to facilitate discussion on points of interest. If Scotland can do it then so can readers from this part of Kent.

D. F. Chatt, BSWL959, and R. Bowes, 2DTA cannot trace a club in DURHAM and therefore are out to rear one. Suggestions are welcomed.

Gloucester is ten miles from STROUD, where local amateurs have decided to launch out on their own and save the travelling time. A small band is ready to co-operate with readers, and this nucleus hope very shortly to book a club-room.

Later news is that the Stroud and District Amateur Radio Club has now been formed and G5HC is taking the Morse class in hand.

Finally, at a recent meeting of local enthusiasts, it was decided to form the WATFORD and District Radio and Television Society. Officers were nominated and application is welcomed.

H. L. Didymus, c/o Mrs. Basham, 14 Ferrers Avenue, West Drayton, Middx. would like to hear of a local club—can anyone help?

● Visits

During their visit to EXETER Telephone Exchange members of the local club asked and received answers to many questions; of especial interest was the radio gear, where a pair of wires that could carry twelve frequencies was shown. The manu-

facture of car batteries has been explained by film and talk; the following meeting was in the form of a test of the society's reconstructed amplifier.

On the 12th of last month some members of SWINDON Transmitters' Club called in turn upon G2CL, G5HS, G5LO, and G2LV. By the time the latter was reached they had evidently learned enough to join the Sunday morning 7 Mc QRM by various 'phone QSO's. Other outings are being arranged, the next being the Swindon Telephone Exchange. At the last meeting G3FL demonstrated his 10/20-metre transmitter and was complimented upon its fine workmanship. All members are enrolled in the Civilian Wireless Reserve.

● General News

So varied are the interests of the remaining thirteen groups that we shall have to cover them under this head. ASHTON-UNDER-LYNE Society will by now have recovered from what promised to be a first-class "hamfest" last Sunday. Many members are applying for AA's; 2BBV and 2FSZ are recent recipients. G3NX, G3PM, G3WI and G6DV have joined Group C of the C.W.R. Listening stations have been formed into a "panel" with the idea of co-operating with other societies on field days, and it is suggested that more clubs might take up the idea.

G16YM (BELFAST Y.M.C.A. Radio Club) is going strong on 7 and 14 Mc CW and it is intended to include 28 Mc and 'phone equipment soon. Junior courses are relieving more advanced membership meetings with Morse and elementary theory, etc. Lectures on QRP transmitters, aeriels and instruments have been given by G15UR, G6TK and 2DTM.

"The News Reel," CARDIFF's very complete bulletin, is to hand and supports its earlier editions by reports of recent meetings and mention of those to come. The editorial deals with the new Club Room and voices optimism for the future, after retrospective comment. There were no licence-holders at the first meeting early in 1936; however, 29 now sign the book. The annual hamfest was held on March 23, 42 members and friends being present. This year, a departure from the usual was tried, in that instead of a radio meeting, the hamfest became a social evening. The presence of the ladies was the innovation, and H. Phillips, 2BQB, is to be congratulated on the efficient way in which he organised the proceedings.

EASTBOURNE have also been looking into the past, for G3AT took his hearers further back still, to the days when it was assumed that no valve would oscillate below 100 metres. Several 56 Mc circuits were explained, and comparison of portable and fixed gear made.

Ten new members have joined EDGWARE this year, bringing the total to 50—14 fully licensed and 10 AA. On March 1 Mr. Forsyth (G6FO) visited the club and described his 5-metre equipment and DX. Representatives of Messrs. Murphy came in on March 9 and gave an outline of their receiver problems. During a round-table discussion on members' transmitters G3HT's new aerial system and G2QY's 5-metre tests were specially mentioned. New calls are G6ZO, G2IM, G4GB, G4FZ. Invitations are extended to all amateurs to the first Guest Night on April 12.

Next, we have a society licensed for five-band operation under G5HO. Although HODDESDON have not been active with the higher frequencies they have cleared the cobwebs from some 56 Mc gear and now that suitable valves are available will endeavour to produce results. Direction finding is

the topic for April 12, and on the 26th USW receivers are to be discussed. 1.7 Mc is the favourite band, and with two transmitters (loose-coupled plate-modulated Hartley and a new MO/PA) interest will be maintained by adding remote control, break-in and speech carrier control.

The usual cheery note from West Herts states that call-signs are still the main topic. 2FGH is G4GG and 2FFR meets the postman at the gate! G4BS appeared in error last month as G5BB. G3NR, at the HF end of 56 Mc, is doing good work with 'phone and CW. G3MI has rebuilt and now uses a TZ08-20 in place of the 210 PA. G3PV "has also had a wash and brush up (not the op!) and has emerged with a new grey rack which towers aloft . . . although there's not much in it!" Some Hamrad components are to be viewed at KINGS LANGLEY for the next meeting.

The Merseyside Amateur Transmitting Society had a full programme for March, one of the most interesting events being a talk and demonstration on crystal oscillators. Another LIVERPOOL idea to be recommended was the placing in a hat of short notes on individual problems; these are taken out one by one and those present contribute towards a solution. Three new calls are noted—G6PM, 2BMB and 2FZK; others are to follow.

PECKHAM have gone all Tx this month with a new CO/PA (two 59's). G2VO has used the scheme successfully, so will be able to iron out any spots of bother. Another helper has turned out to be 2CSQ, who presented the club with some gear. 2FKZ has joined up and promised to tell of his station; the call 2CKW is now owned by a member who carries a portable receiver in his car during business travelling in the Westcountry and passes reports to local contacts.

Reorganisation has fully occupied SHEPPEY amateurs during recent weeks, with the result that a strong programme has been prepared. A superhet is to be made and after that a transmitter. Those present at this decisive meeting gave promise of keen enthusiasm, and we therefore hope to hear of great things emanating from the Isle.

SUSSEX Short-Wave Club held a very successful meeting on March 14, when the field-day films were shown. March 28 sees No. 2 lecture by the Chairman on the cathode-ray tube and its application. BRS 2887 is going to a Malta DF station. Final arrangements are being made for a visit to Alexandra Palace television transmitter.

G8WQ (WEYMOUTH) is testing regularly. Noticeable increase in activity has brought new members and the older ones are helping to make the club AA-conscious. 2CBZ is the latest addition to the list of call holders.

Field-day suggestions have been discussed by WIRRAL Amateur Transmitting and Short-Wave Club. On the 29th of last month the annual general meeting took place. The proposed subject for April (26th) is a discussion on aeriels. —S.W.C.

Readers interested in the notes above can get the secretaries' addresses from this list. In addition, we have up-to-date details of some 160 clubs not reporting regularly.

ASHTON-UNDER-LYNE—K. Gooding, G3PM, 7, Broadbent Avenue, Ashton-under-Lyne.
BELFAST—J. Gallagher, 90, Somerton Road, Belfast, N.1.
BRADFORD—G. Walker, 2AWR, 33 Napier Road, Thornbury, Bradford.
BRENTWOOD—B. A. Pettit, G3VD, The Laurels, Worriu Road, Shenfield, Essex.
BRIGHTON—F. R. Jupp, 2FAD, 35 Brading Road, Brighton, Sussex.
BROMLEY—H. Holbrook, BRS3511, 191, High Street, Bromley. 'Phone: Ravensbourne 5601.
CARDIFF—H. H. Phillips, 2BQB, 132 Clare Road, Cardiff.
CROYDON—A. B. Willshire, G3IG, 14, Lytton Gardens, Wallington.
DEPTFORD—G. Edwards, G2UX, 14a, Louisville Road, Upper Tooting, S.W.17.
DOLLIS HILL—E. Eldridge, 79 Oxgate Gardens, N.W.2 'Phone: Gladstone 2315.
DURHAM—D. F. Chatt, 23, North View, Sherburn Hill, or R. Bowes, 2DTA, 10, Blackgate, Coxhoe.
EASTBOURNE—T. G. R. Dowsett, 48 Grove Road, Eastbourne, Sussex.
EDGWARE—F. Bell, 2DQO, 118 Colin Crescent, Edgware, Middlesex.
EXETER—W. J. Ching, 9 Sivell Place, Heavitree, Exeter.
HODDESDON—T. Knight, Junr., 2FUU, Caxton House, High Street, Hoddesdon.
ILFORD—C. E. Lagen, 44, Trelawney Road, Barkingside, Ilford. 'Phone: Royal 4361 or Chigwell 126.
KILMARNOCK—R. Mitchell, 2FSD, 151, Bonnyton Road, Kilmarnock.
KINGS LANGLEY—A. W. Birt, G3NR, 6 Hempstead Road, Kings Langley, Herts.
LIVERPOOL—C. E. Cunliffe, 388, Stanley Road, Bootle. 'Phone: Bootle 418.
PECKHAM—L. J. Orange, 11 Grenards Road, Peckham, S.E.15.
ROMFORD—R. Beardow, G3FT, 3, Geneva Gardens, Chadwell Heath.
SHEFFIELD—D. H. Tomlin, 32 Moorsyde Avenue, Walkley, Sheffield, 10.
SHEPPEY—F. G. Maynard, 2CVM, 160, Invicta Road, Sheerness.
SLOUGH—R. Sly, 16 Buckland Avenue, Slough.
SOUTHPORT—R. W. Rogers, G6YR, 21, Chester Avenue, Southport.
STROUD—K. D. Ayers, 2FRG, 8, Hamwell Leaze, Cashes Green, Stroud.
SUSSEX—E. C. Cosh, Ansllyn, Mill Road, Angmering; C. J. Rockall, G2ZV, Aubretia, Seafield Road, Rustington.
SWINDON—D. T. Boffin, G3HS, Lindsey House, Coxwell Street, Faringdon, Berks.
WATFORD—P. C. Spencer, G8MH, 11, Nightingale Road, Bushey, Herts.
WEYMOUTH—E. Kestler, G3ZL, 55, St. Mary Street, Weymouth.
WILLESDEN—G. H. Talbot, 2FTD, 46, Snaresbrook Drive, Stanmore.
WIRRAL—J. R. Williamson, 13, Harrow Gro., Bromborough.

NEW AMATEUR CALLS

We are glad to publish all new two-letter

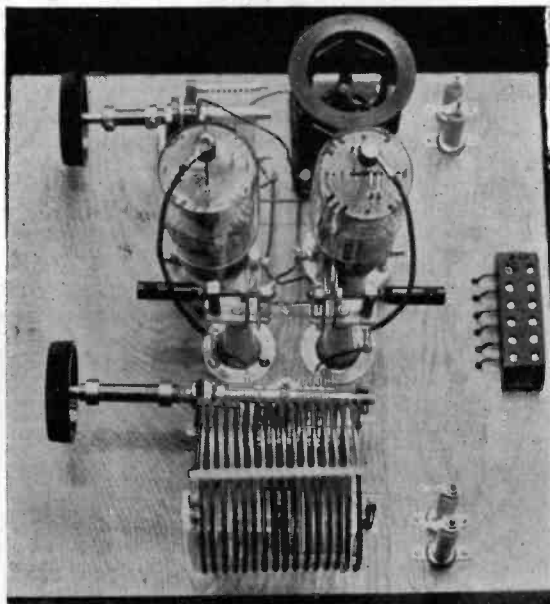
G3ZD—L. G. Robinson, 26, Latham St., Bulwell, Nottingham.
G4AV—R. H. Forward, 8, Willow Road, Farsley, Leeds, Yorks.
G4BC—G. H. Woolmer, 35, New Road, Wood Green, N 22.
G4CJ—C. Sharratt, 22, Devon Road, Intack, Blackburn, Lancs.
G4DA—L. Nash, 16, Charles Street, Weymouth, Dorset.
G4DF—W. Slatter, 5, Cumberland Road, Southport.
G4DR—D. P. Urquhart, "Kyle," Padwell Lane, Bushby, Leicester.
G4DU—A. E. Hyde, 1, Prune Street, Keighley, Yorks.
G4FJ—P. F. Atkinson, 102, Prenton Road East, Birkenhead, Cheshire.
G4FR—Capt. G. Twiss, Firfield, Farnham, Surrey (From August next, this station will sign VU2KK, 2/8 Gurkha Rifles, Lana, Waziristan, N.W. India).

G calls and the QRAs of overseas readers.

G4FU—F. S. Close, 44, Sunderland Road, Heaton, Bradford, Yorks.
GW4FW—B. A. Parsons, 13, Howell Road, Ely, Cardiff.
G4GJ—J. H. Macdonald, Westwood House, Cooper Lane, Bradford, Yorks.
G4GQ—D. Drewitt, "Cacoon," Greenway, Berkhamsted, Herts.
G4GW—G. A. Parris, South Lodge, Harley Lane, Heathfield, Sussex.
VP3CO—L. Talbot, Bel Air, East Coast, Demerara, British Guiana.
VP3IF—I. Fonseca, 33, Robb Street, Georgetown, British Guiana. (QSL contacts via G6DT.)

100 WATTS CW

continued from page 31



Plan view. Two sets of Eddystone insulating pillars carry the link couplings to grid and output tank and power is brought in with a Hamrad 6-way connecting block.

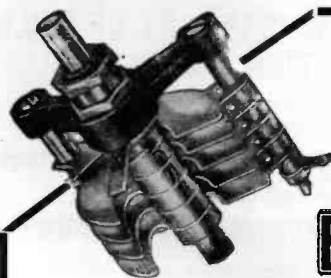
smaller components, excepting the RF choke, are mounted beneath the baseboard in the run of the supply wiring, the jacks being arranged anywhere convenient for the meter(s).

● **Operation**

Adjust to a bias value to suit the HT voltage being used (see table), switch on the filaments, and apply drive. On tuning the grid side to resonance, a grid meter reading should be obtained and then the tank can be resonated and the amplifier neutralised. On bringing the plate condenser to resonance with the neutralisation "out," a violent dip will be observed; the two neutralising condensers should be adjusted till the grid meter reading remains quite steady while the plate side is swung through resonance. Apply HT, and tune the tank condenser for minimum plate current—the amplifier will now be ready for loading.

There are, however, one or two points to note. For full RF output, the grid drive must be near the figures given when the amplifier is on load. When using plate voltages of 600 and up to the maximum, do not run the rig unloaded, i.e., keep the plate voltage down under no-load conditions, otherwise peak RF voltages of a high value may develop and cause flash-over. Similarly, do not allow the drive to run too high when there is no load on, as this only causes the grids to be over-heated and may in turn lead to the valves being damaged.

For full power RF output, an exciter unit consisting of an APP4g driving an OS-12/501 will provide ample excitation to give the grid current readings specified,



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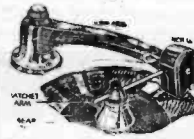
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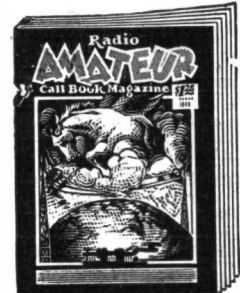
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- 2 A maximum of four lines only will be allowed, including name and address.
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All times GMT, twenty-four hour system.

M.	KC.	CALL-SIGN, LOCATION, SCHEDULE.
13.91	21,570	W2XE, Wayne, S 1300-1630, Sa 1300-1700, week-days (1230-1300).
13.92	21,565	DJJ, Zeesen.
13.92	21,550	GSI, Daventry.
13.93	21,540	W8NK, Pittsburgh, 1100-1300.
13.93	21,530	GSI, Daventry, 1015-1700.
13.94	21,520	W3NAU, Philadelphia, 1800-1930.
13.95	21,500	W2XAD, Schenectady, 1300-1600.
13.97	21,470	GSH, Daventry, 1045-1350, 1400-1700.
13.99	21,450	DJS, Zeesen, 0505-1250.
14.23	21,090	PSA, Rio de Janeiro, F 1750-1800; 1st Th of month 1615-1700.
15.77	19,025	HS6PJ, Bangkok, M 1500-1500.
16.84	17,810	TPB3, Paris-Mondial, 1430-1600.
16.86	17,790	GSG, Daventry, 1045-1350, 1400-0130.
16.87	17,780	W3XL, Boundbrook, 1400-2100.
16.88	17,770	PHI2, Huizen, S 1125-1430, M, T, Th and Sa 1225-1430.
16.89	17,700	DJE, Zeesen, 0505-1050, 1300-1600, 2150-0200.
19.52	15,370	HAS3, Budapest, S 1400-1500.
19.56	15,340	DJK, Zeesen, 2150-0350.
19.56	15,330	W2XAD, Schenectady, 1650-2300.
19.60	15,310	GSP, Daventry, 2115-2300.
19.61	15,300	YDB, Bandoeng, 0030-0700.
19.62	15,280	LRU, Buenos Aires.
19.63	15,280	DJQ, Zeesen, 0505-1050, 2150-0200, 0200-0350.
19.64	15,270	W2XE, Wayne, S 1700-1930, Sa 1730-1930, week-days, 1800-2000.
19.66	15,260	GSI, Daventry, 0800-1015, 1720-1830.
19.67	15,243	W1XAL, Boston, 1730-2000 ex. Sa; S 1400-1500.
19.68	15,243	TPA2, Paris-Mondial, 1100-1600.
19.70	15,230	OLR5A, Prague.
19.71	15,220	PCI9, Huizen, T 0630-0900; W 1430-1630.
19.72	15,210	W8NK, Pittsburgh, 1300-1900.
19.73	15,200	DJB, Zeesen, 0505-1600, 2150-0350.
19.75	15,190	OIE, Lahti, 0605-0900 1400-2300.
19.75	15,190	TAQ, Ankara, 1030-1200.
19.76	15,180	GSO, Daventry, 0800-1015, 2115-0200.
19.76	15,180	RW96, Moscow, mornings and afternoons.
19.78	15,170	OZH, afternoons.
19.79	15,170	TGWA, Guatemala, weekdays 1745-1845; S 1745-2215.
19.79	15,170	SM5SX, Stockholm, 1600-2200; S 1400-2200.
19.79	15,170	XEWW, Mexico, temporarily discontinued.
19.80	15,150	YDC, Bandoeng, weekdays 0330-0700, 0930-1530 (Sa until 1630), 2300-0030; S 0030-0700, 0930-1530.
19.80	15,160	VUD3, Delhi, 0230-0430 0630-0845.
19.82	15,140	GSE, Daventry, 0800-1530.
19.83	15,130	TPB6, Paris-Mondial, 1200-1415.
19.83	15,130	W1XAL, Boston, S 1400-1600.
19.84	15,125	HVJ, Vatican City, 1530-1545.
19.84	15,120	SP19, Warsaw, 2300-0200.
19.89	15,080	RK1, Moscow, S 1800; 0000 onwards with RW96.
20.04	14,970	LZA, Sofia, 1100-1230, 1800-2015; S 0600-2230.
20.03	14,935	PSE, Rio de Janeiro, W 2100-2110; Th (ex. 1st day of the month) 2000-2030; Sa 2900-2030; 23rd day of the month 2100-2130.
20.33	14,720	RWG, Moscow, irregular.
20.64	14,535	HRJ, Radio Nations, S 1515-1630, M 0750-0845.
22.00	13,635	SPW, Warsaw, 2300-0200.
24.52	12,200	TFJ, Reykjavik, S 1840-1930.
25.00	12,000	VZSPS, Moscow, between 1100 and 0315.
25.03	11,991	RR6, Vitoria, Spain, between 0900 and 2400.
25.08	11,962	CB1180, Santiago, between 2100 and 0430.
25.08	11,962	HI2X, Trujillo, W and Sa 0100-0315.
25.17	11,920	T12XD, San Jose, 1600-1830, 2200-0400.
25.21	11,900	CD1190, Valdivia, 1600-1900, 2100-0000, 0100-0400.
25.22	11,887	TPA3, Paris-Mondial, 0700-1000, 1615-2300.
25.24	11,835	TPB7, Paris-Mondial, 0230-0500.
25.25	11,880	VLK5, Melbourne, 2030-0720.
25.26	11,870	W8NK, Pittsburgh, 1900-0300.
25.29	11,860	GSE, Daventry, 0800-1530.
25.34	11,840	OLR4A, Prague.
25.36	11,830	W2XE, Wayne, Sa, S 2000-2300; 2330-0400; w'days, 2030-2300, 2330-0300.
25.38	11,820	XEBR, Hermosillo, 1700-2100, 0200-0400.
25.40	11,810	2RO4, Rome, between 0910 and 1800.
25.42	11,801	DJO, Zeesen, 2150-0350.
25.42	11,800	COGF, Matanas, 1200-0500.
25.42	11,800	DJZ, Vienna.
25.42	11,800	JZJ, Tokio.

M.	KC.	CALL-SIGN, LOCATION, SCHEDULE.
25.45	11,790	W1XAL, Boston, 2145-2330.
25.47	11,780	HP5G, Panama City, 2300-0300.
25.47	11,780	OFF, Lahti, 0605-1705.
25.49	11,770	DJD, Zeesen, 1630-2125, 2150-0350.
25.51	11,760	OLR4B, Prague.
25.51	11,760	XETA, Monterrey, 1830-2030.
25.51	11,760	TGWA, Guatemala.
25.53	11,750	GSD, Daventry, 0800-1015, 1400-1515, 1720-2100 2115-0130.
25.55	11,740	COCX, Havana, 1300-0600 (0500 Mondays).
25.55	11,740	SI25, Warsaw, 2300-0200.
25.57	11,730	W1XAL, Boston, Th and Sa 0100-0300 (Pan-American programme).
25.60	11,720	CRX, Winnipeg, 2300-0500; S 1800-0300 (M).
25.60	11,720	CR7BH, Lourenco Marques, 1710-2100; S 1500-1900.
25.61	11,718	TPA4, Paris-Mondial, 0000-0215, 0230-0500.
25.62	11,710	YSM, San Salvador.
25.63	11,700	SPB, Motala, 0620-0700, 1600-2115.
25.64	11,700	HP5A, Panama City, between 1640 and 0300.
25.64	11,700	CB1170, Santiago, 1600-2000, 2200-0500.
25.65	11,690	"Radio Boy Laundry," Saigon, 0400-0600, 1030-1400.
25.66	11,685	XGJ, Hankow, 1200-1230.
25.70	11,678	IQJ, Rome, 1837-1935, 2000-2030.
26.01	11,530	SPD, Warsaw, as SPW 22 m.
26.31	11,400	HBO, Radio-Nations, S 1845-1930, M 0750-0845.
27.17	11,040	CSW2, Lisbon, evenings.
27.27	11,000	PLP, Bandoeng, see YDC 19.8 m.
28.30	10,600	ZIK2, Belize, S, W, F 0145-0200.
28.43	10,535	JIB, Taihoku, around 1400.
28.93	10,370	EAJ3, Tenerife, between 1935-0100.
29.04	10,330	ORK, Ruyselede, 1830-2000.
29.24	10,260	PMN, Bandoeng, as YDC 19.8 m.
29.35	10,220	PHI, Rio de Janeiro, M, T, W, Th and Sa, 2300-2400; T 0030-0130; F 2300-0030 (Sa).
30.12	9,980	COBC, Havana, S 1155-0500 (M), weekdays 1155-0515.
30.22	9,925	JDY, Dairen, 1200-1300.
30.43	9,860	BAQ, Madrid, evenings.
30.51	9,833	COCM, Havana, S 1300-0200 (M); weekdays 1300-0430.
30.52	9,830	IRP, Rome, 1710-1800, 2300-0025, 0030-0200.
30.80	9,740	CSW3, Lisbon, evenings.
30.93	9,700	"Radio Martinique," Fort-de-France, 1615-1745, 2300-0100.
30.94	9,690	LRAL, Buenos Aires, M to Th 2300-0200; F 2100-2200 and 2300-0200 (Sa); S, M and Holidays 0000-0200.
30.94	9,690	T14NRH, Heredia, 0200-0300.
30.95	9,690	ZIHP, Singapore, possibly discontinued.
30.95	9,685	TGWA, Guatemala, 0300-0430.
31.02	9,670	W3XAL, Boundbrook, 2200-0600.
31.06	9,660	LRX, Buenos Aires, 1430-0330; S until 0430.
31.09	9,650	CS2XA, Lisbon, T, Th, S 2000-2300.
31.09	9,650	W2XE, Wayne, weekdays 0330-0430.
31.11	9,645	HI13W, Port-au-Prince, 1800-1900, 0000-0200 (or 0230).
31.12	9,640	CNA8, Colonia, 2330-0500.
31.13	9,636	IPR03, Rome, until 0200.
31.13	9,636	JFAK, Taihoku, 0600-0730, 1300-1525; S 1300-1515.
31.21	9,612	HI1ABP, Cartagena, between 1200-0330.
31.23	9,607	IPF5J, Panama City, 1700-1830, 2330-0330.
31.23	9,606	ZRL, Khipheuvl, S 0830-0930, 1030-1200, 1400-1615; weekdays 0445-0550, 0820-1220, 1400-1615.
31.25	9,600	KEYU, Mexico City, around 0100.
31.25	9,600	RW96, Moscow, 2300-0130 (or later).
31.28	9,595	PCJ, Hilversum, S 1825-0225 (M); T 0000-0130, 1845-2030; W 0000-0315; Th 0000-0300.
31.28	9,590	VUD2, Delhi, 0230-0430, 0630-0845.
31.28	9,590	VUD3, Delhi, 1230-1730.
31.28	9,590	VK6ME, Perth, M to S 1100-1300.
31.28	9,590	VK2ME, Sydney, S 0600-0800, 1000-1600.
31.28	9,590	W3XAU, Philadelphia, T, F 0030-0430, S 0030-0845.
31.32	9,580	VLR, Melbourne, S 0500-1230; weekdays 0225-1330; Sa until 1400 and 2200-0330 (S).
31.32	9,580	GSC, Daventry, 2115-0420.
31.35	9,570	KZRM, Manila, M to F 1000-1400, 2130-2300; Sa 1900-1500, 2130-2300; S 0900-1600.

(31.36 62.50 m Stations were given last month).

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S.-W.M. 4/39

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The Sky Rider SX23 communications receiver sets a new high for frequency stability, selectivity and noise reduction. It introduces a brand new method of stabilising tuned circuits to reduce frequency drift.

An improved wide range variable selectivity circuit is used. Selectivity is controlled by a switch in four steps from needle-sharp crystal action to broad high fidelity. The signal to noise ratio is remarkably high, and together with an improved noise silencer makes for very quiet operation.

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32 to .54 Mc. (10 to 540 metres).
Band 1-2-3-4—General Coverage (10 to 540 metres).
Band 5-6-7-8—Band Spread (10-20-40-80 metre amateur bands).

TUBE COMPLEMENT

6SK7—1st R.F. 6SA7—1st Det. 6SJ7—H.F. Osc. 6SK7—1st I.F. 6SK7—2nd I.F. 6SQ7—2nd Det. 1st Audio. 6B8—Amplified AVC. 6F6G—Power Output. 6SJ7—BFO. 80—Rectifier. 6N7—Noise Limiter. Total number of tubes—11.

AND A NEW SKY BUDDY

WITH 10-METRE BAND ELECTRICAL BAND SPREAD

Check these features!!

6 Tubes ; 4 Bands ; complete coverage 8 to 550 metres ; Electrical Band Spread ; Separate Band Spread Dial ; Built-in Speaker ; AVC Switch ; Beat Frequency Oscillator ; Pitch Control ; Send-Receive Switch ; Phone Jack.

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Webb's Radio hold the sole right to import into the British Isles equipment bearing the letters patent name "Hallicrafter." We have appointed several houses throughout the country who are authorised to use the Trade Mark "Hallicrafter" and to re-sell equipment bearing that mark.

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This New Sky Buddy has sensitivity, image ratio, signal to noise ratio, and all-round performance that excels many receivers sold at twice its price. It's complete, with all the essential controls for communications reception, built-in speaker, full coverage for 8 metres to 550 metres—a far greater value than before. The price is only £10.

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OHMITE Dummy Antennae, 72 Ohm or 600 Ohm, 20/-.

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1851, 1852, 1853 **New Valves**, 17/6. All Tungfram Ceramic Based TX Tubes.

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RME70, £36 15s. **Howard 450A**, £31 10s.

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