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- **Base**
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- **750 volts, max.**
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- **Anode Impedance**
- **Anode Dissipation**
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- **3.0 mA/V**
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<thead>
<tr>
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<th>100-250 Volt A.C.</th>
</tr>
</thead>
<tbody>
<tr>
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<td>15 Watts</td>
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<td>Input resistance</td>
<td>2 Megohms</td>
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<tr>
<td>Input capacity</td>
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</tbody>
</table>

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### Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Editorial</td>
<td>9</td>
</tr>
<tr>
<td>The 160-Metre Story. <strong>The Editor</strong></td>
<td>10</td>
</tr>
<tr>
<td>From the SWL End. &quot;Erin go Bragh&quot;</td>
<td>15</td>
</tr>
<tr>
<td>Heavy Scoring!</td>
<td>15</td>
</tr>
<tr>
<td>On the Amateur Bands. <strong>Old Timer</strong></td>
<td>16</td>
</tr>
<tr>
<td>Conditions—The Month's Survey</td>
<td>17</td>
</tr>
<tr>
<td>Letters to the Editor</td>
<td>18</td>
</tr>
<tr>
<td>The Other Man's Station—G3BO</td>
<td>19</td>
</tr>
<tr>
<td>&quot;Have You Heard . . . ?&quot; F. A. Beane, 2CUB</td>
<td>22</td>
</tr>
<tr>
<td>Notes and News from the East. <strong>Reported by VU2EU</strong></td>
<td>24</td>
</tr>
<tr>
<td>Here and There</td>
<td>25</td>
</tr>
<tr>
<td>Listeners' DX Corner. <strong>The DX Scribe</strong></td>
<td>26</td>
</tr>
<tr>
<td>Calls Heard Section</td>
<td>29</td>
</tr>
<tr>
<td>100 Watts CW. <strong>The Editor</strong></td>
<td>30</td>
</tr>
<tr>
<td>56 Mc Notes. A. J. Devon</td>
<td>32</td>
</tr>
<tr>
<td>The Month's Club News. S. W. Clark, 2AMW</td>
<td>34</td>
</tr>
<tr>
<td>New Amateur Calls</td>
<td>36</td>
</tr>
<tr>
<td>Readers' Bargain Page</td>
<td>40</td>
</tr>
<tr>
<td>Station List—13 to 31 Metres</td>
<td>iii of Cover</td>
</tr>
</tbody>
</table>

---

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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 pointscoring Contests on bands of which the technique is already well known.

And if the Test has some new communication angle, so much the better.
The 160-Metre Story

By

The Editor

(from Reports)

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—not 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 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 G8GM. The only other British station heard was G6GWY, 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 205A 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 signals not audible over here there was a marked increase in signal strength. 

I have a famous ‘round ground’ earth put down in that edge in cartwheel form. I have a famous ‘round ground’ earth put down in that edge in cartwheel form.

W2CAY of Linden, New Jersey, kept the schedule for five 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 HBO. 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 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, G3CH, G3RI, G6CM 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. QVAR.

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 he has 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, W1JZJ, W80CP, W3AF, W9HC, W2QF, W8SCX, W9SCB, W1MA, W6OAN, W1CPL, W2DFX, W2FW, W8BUA, W8QO, W8SNA, W8MEO, W9ARX, W9DWA, W2EYS, W8DQY, W8FFK, W2LRC, W3ALB, W2FGK, W4FAZ, W4FLF, W9YFL, and Canadians V1EIA and VE3AG.

Though not all operating on every day of the Test, they kept the calling and listing 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 15 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 cn 1.7 Mc.” We should think it does! His transmitter is 59-RK23-P/P 10, with 150 watts and a ¾-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, G6CM, G6SQ, G6VC, G6ML, G8PI, G8SG and G18LF. This will please many of them, and show that contacts should be fairly easy in that direction.

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-559 on Feb. 12, and W2CAY RST-449 at 0615 GMT on the 14th. SM7QY uses a simple 15-watt 6L6 ECO, an east-west 1-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
DX reception is out of the question, because the radiated from the cables leading to the apparatus; heard here. A local dye-works uses an HT separa-

APPg-0.15/400 ECO /PA, G8ML is very active on American 'phones, 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 APPg4-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 separa-

for (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 W4FAV. 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 45 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 re-

sulted. His transmitter is 6L6 CO and the radiating system an aerial-counterpoise arrangement with 54-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 H59CB 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.

G8LF 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.659) 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 G8LF, 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 out-

standing. 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, W2FGX, W4FAV, W4FLF and heard—in addition to W1AW, W3BTQ and W8BLP on 170, W1CPI and W9YFL on 500, G3JU 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-599. His own reports were about RST-329 average.

G2DQ of Wickford also did well, working W1BB on four occasions, W1ME three times, and on February 14 at 0607, W2CAY, with RST-599 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 6L6-0.15/400 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 60,000-volt EHT grid feeder line only 160 feet away from his aerial, causing tremendous static noise on all bands 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 4-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 300 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 509; 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 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 (4-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 47-46-15/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 swot 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 W1BB, W2GIL, W3EQ, W4ESD, W8LOR and W2JZR. A most creditable performance from yet a third North Devon entrant.

Cecil Martin of Burlesdon, 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 Burlesdon on no fewer than 32 separate occasions, the next most
frequent being W1ME 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 W1AW, W1BB and W2CAY on an "Eddystone All-World Two," with a 33-ft. end-on aerial ENEWSW, 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 during morning periods or in the evenings included FA8BG, FA3RY, FA81H, HASH, HA4C, OZ1I, LY1J, U4ZX (UNOL), OZ1W, FSQM, 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 G6UM. 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 W1BB'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 0630 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 (G7QZ), Jowers (G5ZJ), Whyte (G6WY), Farnie (G6W5F), Morgan (G6SM), Paddon (G2IS) and Parsons (G88NP).
April 1939

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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 of a kind I should be ashamed of now. I had sent out "reports" to various long-suffering amateurs, and it is only on looking back that my 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 design to reply. Is this fair to a listener? After all, such reports must be of some use, and IRCs are 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 nxr 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 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 going and QSOs made for my benefit.

Thud, 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.

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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.

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 sections, one 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.

Rotary Beams

An interesting list reaches us from Messrs. Holiday and Hemmerding, 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, splicing, 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.

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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 skillful 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-
poles arrive. 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 which 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. AC4YN got the first LY/G contact on 1.7 Mc. HA4C gave 459 and 'phone has been worked with G66O, 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.

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 Parnham, 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 Newbury; short waves were lost at 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 12 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 a square deal.

Square Deal for the BCLs

A Very Far Cry

The last relief ship brought me a July copy of the MAGAZINE, which I first saw in Singapore 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, Coocos Keeling Is., c/o Messrs. Cable & Wireless, Ltd., Singapore, Straits Settlements.

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. Gillies, 11 Cranworth Street, Hillhead, Glasgow, W.2.

How Did It?

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 7081, 14062 and 28830 kc will be employed.—R. T. Dealey, 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 for 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.

Low Power Mains Apparatus

I have long been a reader and while approving of the balance of your contents I 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 amateur mains men cannot afford high-power rigs even if the law allowed it!—L. Elliott, 2FNO, 40 Peter Avenue, Willesden Green, London, N.W.10.

Trawler Trouble

When is something going to be done about this "Fish Fone" business? They are the bane of my life and also the 2170 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!—H. H. Griffiths, 25A, Augusta Road, Moseley, Birmingham, 13.

Trawler Trouble

[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.]

Square Deal for the BCLs

The Short-Wave Magazine
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 Tungsram 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 base-boards. 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 micrometer.

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.
### PREMIER 1939 HIGH FIDELITY AMPLIFIERS

**Makers of High Grade HAM GEAR AT REASONABLE PRICES**

**PREMIER 1939 HIGH FIDELITY AMPLIFIERS**

A NEW COMPLETE RANGE OF 7 HIGH FIDELITY PA AMPLIFIERS FOR AC or AC/DC MAINS OPERATION.

With the exception of the 3-watt models, all Premier Amplifiers incorporate the new Premier Matchmaker Output Transformer, enabling any single or combination of speakers to be used. All 8, 10, and 15-watt systems are provided with two separate input channels which can be mixed to any level. The 30- and 60-watt systems have 3 input channels. The built-in Pre-Amplifiers ensure that the gain is sufficient for any low level crystal or velocity microphone. The actual gain of the 6-, 15-, 30- and 60-watt amplifiers is over 100 decibels. Tona controls are also incorporated.

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<tr>
<th>Kit of Parts</th>
<th>Completely with Valves. Wired &amp; Tested.</th>
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<tr>
<td>3-watt AC Amplifier</td>
<td>£2: 15.0 £8-10-watt AC/DC Amplifier</td>
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<tr>
<td>3-watt AC/DC</td>
<td>£4: 15.0 15-watt AC</td>
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<tr>
<td>6-watt AC</td>
<td>£5: 5.0 8-10-watt</td>
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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.

New Premier Self Powered R.F. Tuning Unit, incorporating Pre-Amplifiers ensure that the gain is sufficient for any single or combination of speakers to be used. All systems are provided with two separate input channels which can be mixed to any level. The 30- and 60-watt systems have 3 input channels. The built-in Pre-Amplifiers ensure that the gain is sufficient for any low level crystal or velocity microphone. The actual gain of the 6-, 15-, 30- and 60-watt amplifiers is over 100 decibels. Tona controls are also incorporated.

**PREMIER SHORT-WAVE KITS**

Are all sold complete to the last detail. All valves and coils are included as well as theoretical and wiring diagrams, and lucid instructions for building and working. Thousands are giving excellent results all over the world.

### PREMIER L.T. TRANSFORMERS

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<tr>
<th>All Primaries tapped 200-250 volts. Between winding insulation 1,000 volts.</th>
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<tr>
<td>2.5 v., 8 amps CT.</td>
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<td>4.5 v., 5 CT.</td>
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<td>5 v., 3 CT.</td>
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<td>6 v., 2 CT.</td>
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<td>6.3 v., 3 CT.</td>
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<td>7.5 v., 3 CT.</td>
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<td>10 v., 3.4 CT.</td>
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<td>12 v., 4.5 CT.</td>
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<td>14 v., 4 CT.</td>
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<td>22 v., 1 CT.</td>
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<td>2.5 v., 3 a, 5 v., 25 a</td>
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<td>2.5 v., 3 a, 5 v., 25 a</td>
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### 3,000 volt Test Type

- 2.5 v., 5 a CT. | 11/6
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- 10 v., 4 a CT. | 14/6

Auto Transformers. Step up or down AC mains between 200-250 volts. Complete with Xtal and coils for 7 and 14 mc. operation. £10.10.0

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- 2,500 ohm field
- 2,000 ohm output
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- 2,500 ohm field
- 2,000 ohm output

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- Collaro 37 Motor, 100 250 v. A.C., 12 in. table and unit plate, auto stop and start, 30/-
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<tr>
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<td>3/-</td>
<td>0-1 m/A.</td>
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<td>0-1 m/A.</td>
<td>17/-</td>
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<td>0-50 m/A.</td>
<td>22/-</td>
<td>0-500 m/A.</td>
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<td>0-100 m/A.</td>
<td>22/-</td>
<td>0-250 m/A.</td>
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<tr>
<td>0-250 m/A.</td>
<td>22/-</td>
<td>0-1 m/A. movements with calibrated scale volts—ohms—m.g.</td>
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<td>8/-</td>
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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 bogey 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-continents" 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-tenths 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; TAB (31.69 m); WXXK (25.27 m) and VLR3 (25.25 m) with physical jerks. Strangely enough, and to my consternation, apart from the little personal note I am keeping abreast of the changes made in this country. Up to the time of

● 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.

Australia. VLR3, Melbourne, 25.25 m, 11850 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. Y15KG is still available on 41.67 m though generally buffeted by severe QRM. Reports on either may be addressed to "Qsar-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.

Philippines 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, 9223 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), Cudinamarca, Bogota, occasionally R9-9 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 Cudinamarca 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 extreme range, with chimes 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 ( ends programme received 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 Havana 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., H11N (ex-HIN), H11Z (HIZ), etc. H11N, 48.06 mc, on scene 2000-0300 with 2250, etc., items 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.

GUATEMALA. Stations FQ8AA (or AH), “Radio Guateoupe,” 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 Guateoupe. Please address all communications to P.O. Box 125, Point a Pitre, Guateoupe, French West Indies, Goodnight everybody, with a march at 2350, etc., items 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.

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

ROMANIA. “Radio Romania, Bucharist,” heard near 9190 kc until 2200, when programmes are concluded with the national anthem. News in English is given from 2150 on certain days. Annunciators of both sexes are employed.

U.S.S.R. Moscow heard with English propaganda and resume 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; VK2ME on schedule; VK2ME 0700-0800 and adds that during April DJL (19.857 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...
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 QRM. VU2FO had 99 contacts in the Junior BERU Contest and scored 901 points, and 90 contacts with 592 points in the Senior. He comments 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. 24J is active on the following frequencies: 1400, 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 the QSTAG can be found on 11930 kc. VK9GW, V. Gilchrist, Bulolo Power House, Bulolo, New Guinea, works HC1JG and has been heard (Continued at foot of previous column).
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, however, still be recognized 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.
The Short-Wave Magazine

Great Britain.

experience behind

emerges, however, and we say this with considerable

Countries

and suggestions and this month's mail has broken

feature the cream of the short-wave listeners in

These are CN8, CR4, CR7, CS1V (Port.), D, El,

balds Green,

possible and just mentioned your interesting points

letters, it would help if you kept them as brief as

carve him down from the claimed 75 to 69 as he

UK is the club prefix in USSR.

YU and YT are both used in Jugoslavia, whereas

a VS8 call would be bogus, thirdly FA7 and TS

station active in Bahrein is VU7BR and therefore

First, it is known that no Czecho-Slovakian activity

have to be proved before we can accept them!

include UK, OK, TS, YU, VS8, FA7, which will

complete his 100 countries on 'phone with FN1C.

frequency and only a week before his illness he

months he heard all continents on 'phone on this

recent information suggests that it could not have

W1KKP who—as quoted in our January

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 229 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) ½-wave

14 Mc dipole, (3) ½-wave Johnson Q running due

N-S, (4) ½-wave 28 Mc dipole. K. Moody used an

8 v. super and scored 69 points on 3 bands, 16 sta-

tions 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

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, Bahrain Petroleum Co., Bahrain 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.

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. Matthers, 36 Lr. Beechwood Avenue, Banelagh, Dublin, has just received a card from TG91BA 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 Rincón 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.

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**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, ZZ2EZ 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.

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**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 (GR7X), 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.

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**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 C4AHT—we can tell you that he gives the following address, Enrique 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, Leoncelle (Kalina), Belgian Congo. Norman mentions that ZS6AK and ZS5BN will QSL good reports, and that VE5AHB 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 ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... 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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 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 11-ins. long by ⅛-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, valve-holders, 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.

<table>
<thead>
<tr>
<th>HT volts.</th>
<th>Bias</th>
<th>Grid mA for max. output</th>
<th>No load resonance current</th>
<th>Permissible loading for max. output</th>
<th>DC Input watts.</th>
<th>RF Output watts.</th>
</tr>
</thead>
<tbody>
<tr>
<td>400</td>
<td>-32</td>
<td>15 mA</td>
<td>11 mA</td>
<td>60 mA</td>
<td>28</td>
<td>16</td>
</tr>
<tr>
<td>750</td>
<td>-60</td>
<td>40 mA</td>
<td>18 mA</td>
<td>150 mA</td>
<td>112</td>
<td>72</td>
</tr>
</tbody>
</table>

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.

Mention the Magazine when writing to Advertisers. It helps you, helps them and helps us
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 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 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 1600 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.

The regular G6DH-G2OD schedule (53 miles) at 2210 has produced many contacts—most prominent 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 3, 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, G6PO was heard (R4 with a dirty note) at 2140 GMT, but only for a few seconds and contact was not made. Hilton 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 Bridgford. Nota., 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. G2HO, 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...
South Again

G6XW, 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 a lot. On Thursday, May 11, 1000-1200, and 1900-2100, 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.

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 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 play 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 are 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!—En.) The QSO's here have been disappointing, mainly because no permanent state is possible—the gear has to be dismantleed 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.

Note-paper 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 G5PD (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. BRF0R (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 Edgummm (meters), Tungsram (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, Marconi phone cathode-ray tubes and Evrizone 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 BRS551) 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 BROMLEY 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 hand is ready to co-operate with readers, and this nucleus hopes 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 manufacture 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. ASHITON-UNDER-LYNE Society will by now have recovered from what promised to be a first-class “hambfest” last Sunday. Many members are applying for AA’s; 2BBV and 2FSZ are recent recipients. G3NX, G3FM, G3WI and G6DV have joined Group C of the C.W.R. Listening stations have been formed into a “joint” 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, aerials 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 made, 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 on this wave are still the main topic. 2PGH is G4GG and 2PFR 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. G5MF 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—G6FP, 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 2CSQ, who presented the club with some gear. 2PKZ has joined up and promised to tell of his station; the call 2CRW 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.

GSWQ (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 aerials. —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, Broadfoot Avenue, Ashton-under-Lyne.
BELFAST—J. Gallaugher, 90, Somerton Road, Belfast, N.1.
BRADFORD—G. Walker, 2AWR, 33 Napier Road, Thornerby, Bradford.
BRENTWOOD—B. A. Pettit, G3VD, The Laurels, Worrin Road, Shenfield, Essex.
BRIGHTON—F. R. Jupp, 2FAD, 35 Bradling Road, Brightont, Sussex.
CARDIFF—H. H. Phillips, 2BQ, 132 Clare Road, Cardiff.
DEPTFORD—G. Edwards, G2UX, 14a, Louisville Road, Upper Tooting, S.W.17.
DURHAM—D. F. Chest, 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, 2DOO, 118 Coln Crescent, Edgware, Middlesex.
EXETER—W. J. Ching, 9 Vicell Place, Heavitree, Exeter.
HODDESDON—T. Knight, Junr., 2FWU, Caxton House, High Street, Hoddesdon.
ILFORD—C. E. Largen, 44, Trelawney Road, Barkingside, Ilford. *Phone* : Royal 4361 or Chigwell 129.
KILMARNOCK—R. Mitchell, 2FSD, 151, Bonnyton Road, Kilmarnock.
KINGS LANGLEY—A. W. Brett, G3NR, 6 Hempstead Road, Kings Langley, Herts.
LIVERPOOL—C. E. Cunliffe, 308, Stanley Road, Bootle. *Phone* : Brotein 418.
PECKHAM—L. J. Orange, 11 Granards Road, Peckham, S.R.15.
SHEFFIELD—D. H. Tomlin, 32 Moorsyde Avenue, Walkley, Sheffield, 10.
SHEPPED—F. G. Maynard, 2CVM, 160, Invicta Road, Shierness.
SLOUGH—R. Syl, 16 Buckland Avenue, Slough.
SOUTHPORT—R. W. Rogers, 6GVR, 21, Chester Avenue, Southport.
STROUD—K. D. Ayers, 2FRG, 8, Hamwell Leaze, Cashes Green, Stroud.
SUSSEX—E. C. Cosh, Anslyn, Mill Road, Angmering; C. J. Proctor, G2ZY, Aubretia, Seafield Road, Rustington.
SWINDON—D. T. Boffin, G3HS, Lindsey House, Coxley Street, Faringdon, Berks.
Wallingford—P. C. Spencer, 5GRM, 11, Nightingale Road, Bushey, Herts.
WEYMOUTH—E. Kestin, G3JL, 55, St. Mary Street, Weymouth.
WILLESDEN—G. H. Talbot, 2PTD, 46, Snarebrook Drive, Stanmore.
WIRRAL—J. R. Williamson, 33, Harrow Gro, Bromborough.

**NEW AMATEUR CALLS**

We are glad to publish all new two-letter G calls and the QRAs of overseas readers.

G4FU—F. S. Close, 44, Sunderland Road, Heaton, Bradford, Yorkshire.
G3FWD—B. A. Parsons, 19, Howell Road, Ely, Cardiff.
G4JL—J. H. Mclennan, Westwood House, Cooper Lane, Bradford, Yorks.
G4GW—G. A. Farris, South Lodge, Harley Lane, Heathfield, Sussex.
V3BCO—L. Talbot, Bel Air, East Coast, Demerara, British Guiana.
V3FL—L. Fonseca, 35, Robb Street, Georgetown, British Guiana. (QSL contacts via G6DT.)
100 WATTS CW continued from page 31

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MAINS power pack transformer (120-300), 11s.; H.M. portable gram., 15s.; phone. -Stocks, 10, Bywater St., Leeds, 11.


“EVERYMAN 4" complete, Osram 4-valve batt. compl. - Tristram speaker. - Osram 12V, 128 Buckingham Road, Heath Chapel, Stockport.

EXCHANGE “Kensco” bugkey (un-used, in new cond.) for G.I.O. "Silvertown" key and - R. E. Sedgwick, 85 Bulkington Road, Nntieaton.

SALE-1938 6-valve, Philco all-wave AC/DC receiver, 10-gn. model. £7 or nearest. — Alison, 64 Syon Lane, Isleworth, Middlesex.


“P. WIRELESS SW2” complete, 12/6 or offers; E’stone, b’spread. unit, 5/6; other parts. — R. F. H. High, Buckingham Road, Heath Chapel, Stockport.

T7 TRANS. with HT1 rect.; 250-255 volts. (2 Lts). Want Tx gear or bus. — R. F. H. High, Buckingham Road, Heath Chapel, Stockport.


“SKY BUDDY” wanted, in good condition—2DBR, Stedmans Stores,12 Maiville, Nr. Farnham, Surrey.

G生成器, 15v. in, 15v. out, 500mA out; quiet running, £3 10s. - E. Adlam, Plymouth, Devon.

NEW E.D.C. rotary converter; 32v. in, 120v. out, 30mA out. - P. E. Donnelly, "Shalimar," Balmoral, Belfast.

“CRYSTAL and Holder Wanted, 40m, Bradford, Market Street, Ashby-de-la-Zouch. — Bradfor.


SALE, Eddystone “AW3,” with 16, 50m. coils, phones. Order perfect, less valve. — R. A. Simpson, 2A, West Barnby, Nrs. Whitby, Yorks.

S.W. Radio disposing of components at Bargain prices. Parts to build 4 and 2-valve RX, £6 10s.—D. B. J., 40, Station Road, West Ealing, London.

7 M.J CC CW TX. Built on chassis, less Xtal, 25s.—BI-ZQ, 80, Wyberton West Road, Boston, Lincs.


TWO Exide Accumulators, 45ah, 6 months old, 4s. each. - Bulgin LF3 Bases.— L. Payne, Elmiora, Litts- way, Croxley Green, Herts.

SALE or Exch. TX Gear. Wb speaker (34/0.5m) as new. - Peto-Scott Experimenters Kit, cost £5 10s. — Peto-Scott, Perivale, London.

CLEARING out surplus Tx and Rx gear, cheap; valves, meters, coils, var. cond., etc.—2DBR, 4 Hill St., Aberdeen.

WANTED—Copy of Bulgin “Radio Progress” for high Induct, LF choke.—A. McHugh, Riverside, Belclaire, Co. Cavan.


NEW AND CLEA. OUT surplus Tx and Rx gear, cheap; valves, meters, coils, var. cond., etc.—2DBR, 4 Hill St., Aberdeen.


WANTED—Copy of Bulgin ‘‘Radio Progress’’ for high Induct, LF choke.—A. McHugh, Riverdale, Belclaire, Co. Cavan.

SALE—Ex. condition. 50s.—J. Plaskett, 31 Yeowart House, Aberdeen.

SALE—“Kilodyne 4” plus full b’spd, 45s.—2DBR, Stedmans Stores,12 Maiville, Nr. Farnham, Surrey.

GENERATOR, 15v. DC in, 15v. out, 500mA out, little used, perf. perf. FB. b sup. with smoothing, 17/6.—GILLL, 14 Highfield Cottages, Wilmington, Dartford.

EXCH. new Thoradizer 7 coupler, 13 kc IF trans. (Winter 1000) and cash for Brown "A" 4000 ‘phones.; ZARK, Winderady, Cadby, Wirral.

IGRANAL no. 125, tuning pack; beautifully made, complete with cond., coils, v. holders, escutcheon, &c.; £2. —J. Mankin, 13, Benview St., Glasgow.

SMALL, AC power pack (925 rect.), 78 post paid. Exch. Pen4VA for VPA or equiv.—Gallant, 44, Portland Street, Norwich.

“AW TWO” mains model, like new, complete with 2 coils, £3 8s. Stamp for other gear to Broadbent, 7, Hilda St., Goola.

LOAN copies of “T & R Bulletin” in exchange for “QST.”—2DEX, North Parade Terrace, Monmouth, Mon.

SALE or exch. “Trophy AC3,” fitted bandspd, 45s.—3DBR, Stedmans Stores, Short Heath Rd., Nr. Farnham, Surrey.

S. R. T. “Kidslyne 4” plus full b’spd, in case, £3. £3 est. regtn. pre-selector compl. 30s. Ac elim, 10s. — Holden, 3, Urquhart Place, Aberdeen.

“AW TWO” mains model, like new, complete with 2 coils, £3 8s. Stamp for other gear to Broadbent, 7, Hilda St., Goola.

SALE or Exch. TX Gear. Wb speaker (34/0.5m) as new. - Peto-Scott Experimenters Kit, cost £5 10s. — Peto-Scott, Perivale, London.

SALE—250 m, great performance on USW (verified). — F. C. Smith, “Pennywell,” 10b, Sycamore Square, Elstow, Beds.

WANTED—Copy of Bulgin “Radio Progress” for high Induct, LF choke.—A. McHugh, Riverdale, Belclaire, Co. Cavan.

SALE—600 m, 1000 m. All spec. with steel cab., valves, 4 coils comp. with steel cab., valves, 4 coils — Broadbent, 7, Hilda St., Goola.

CLEARING out surplus Tx and Rx gear, cheap; valves, meters, coils, var. cond., etc.—2DBR, 4 Hill St., Aberdeen.


SALE, Eddystone “AW3,” with 16, 50m. coils, phones. Order perfect, less valve. — R. A. Simpson, 2A, West Barnby, Nrs. Whitby, Yorks.

SALE—Vols. 10 to 13 (July ’34 to June ’38) “T. & R. Bulletin,” 4s. 6d. per vol. or 17s. 6d. lot. Carr. forward.—GSHH, 29, Newcastle Road, Reading.

We cannot act as an intermediary for an advertise in this section.

Advertisements must reach this Trade and Box Number advertisements cannot be accepted.

Advertisements must be accompanied by 6d. in stamps or P.O. made Payable to The Short-Wave Magazine, Ltd., and crossed. 2 A maximum of four lines only will be allowed, including name and address. 3 Trade and Box Number advertisements cannot be accepted. 4 We reserve the right to refuse any advertisement. 5 We cannot act as an intermediary for an advertiser in this section. 6 Advertisement must reach this office not later than the 15th of the month preceding the month of issue.
<table>
<thead>
<tr>
<th>M.</th>
<th>KC</th>
<th>CALL-SIGN, LOCATION, SCHEDULE</th>
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<tbody>
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<td>21,570</td>
<td>WNE, Wayne, S</td>
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<td>12.92</td>
<td>21,565</td>
<td>DJJ, Zesen</td>
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<tr>
<td>12.93</td>
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<td>GSY, Daventry</td>
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<td>WRXK, Pittsburgh, 1100-1300</td>
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<td>PSR, Rio de Janeiro, F, 1750-1900, 1st Th of month 1615-1700</td>
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<td>TPAZ, Paris-Mondial, 1130-1600</td>
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<td>OK, Fraga, 1400-1930</td>
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<td>PC1, Huer, T, 0630-0800; W 1300-1630</td>
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<td>WNE, Wayne, S 1700-0930, Sa 1700-1930, weekdays 1430-2000</td>
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<td>GSY, Daventry, 0800-1015, 1720-1830</td>
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<td>17,310</td>
<td>N35X, Stockholm, 1600-2200, S 1400-2200</td>
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<td>12.27</td>
<td>17,310</td>
<td>XEW, Mexico, temporarily discontinued</td>
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<td>12.28</td>
<td>17,150</td>
<td>YUC, Bandoenq, weekdays 0930-0700, 0930-1200 (Sa until 1830), 2300-0030; S 0900-0700, 0930-1200</td>
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<td>VDQ, 1100-0400, 0500-0415</td>
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<td>TP1R, Paris Mondial, 1200-1415</td>
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<td>16,130</td>
<td>WSN, Boston, 1100-1600</td>
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<td>12.32</td>
<td>16,120</td>
<td>HJ, Vatican City, 1350-1545</td>
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<td>SP19, Warsaw, 2200-0200</td>
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<td>Rdi, Sofia, S 1100-1230, 1900-2015; S 0600-2200</td>
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<td>15,740</td>
<td>WRG, Moscow, irregular</td>
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<td>15,650</td>
<td>HU, Radio Nations, S 1515-1830, M 0730-0815</td>
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<td>15,630</td>
<td>SPS, Warsow, 2300-0200</td>
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<td>15,620</td>
<td>TF1, Reykjavik, S 0120-0300, 1500-1800</td>
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<td>VZS, Moscow, 1100-1915, 2130-0200</td>
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<td>14,990</td>
<td>RRR, Vitoria, Spain, between 0600 and 2100</td>
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<td>14,980</td>
<td>CBIO, Sanlucar, between 2100 and 0400</td>
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<td>HI7X, Tijuilla, W and Sa 0000-0315</td>
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<td>CN, Valdivia, 1600-1900, 2100-0000, 0100-0900, 1300-1700</td>
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<td>OKLA, Prague</td>
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<td>WXT, Wayne, Sa 2000-2300; 2330-0000; wdays 2300-2330, 0330-0000</td>
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<td>EXBR, Hermosillo, 1700-2100, 0200-0400</td>
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<td>12.54</td>
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<td>KRO, Rome, between 0600 and 1800</td>
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<td>DJs, Zesen, 0000-1200</td>
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<tr>
<td>12.56</td>
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<td>COG, Matan, 1200-0800</td>
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<td>12.57</td>
<td>14,800</td>
<td>DZ, Vienna</td>
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<tr>
<td>12.58</td>
<td>14,800</td>
<td>I2Z, Tokio</td>
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</tbody>
</table>

**QUERY COUPON**

| S. W.M. | 4/39 |

**SHORT-WAVE BROADCASTING STATIONS**

Abbreviations: S — Sunday, M — Monday; T — Tuesday; W — Wednesday; Th — Thursday; F — Friday; Sa — Saturday.

All times GMT, twenty-four hour system.

12.31.16 62.50 m Stations were given last month.
NEW HALLICRAFTER

SKYRIDER SX23

The Skyrider 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.

Model SX23, with especially tested HALLICRAFTERS 455 kc. crystal ... £33:10:0

Matching Speaker ... £4 0 0

TUBE COMPLEMENT


Total number of tubes—11.

FREQUENCY RANGE

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).

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.

This New Sky Buddy has sensitivity, image ratio, signal to noise ratio, and all-round performance that exceeds 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.

HALLICRAFTER’S POLICY

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.

All equipment correctly imported carries a full guarantee, and we will be pleased to furnish the name of your nearest authorised dealer.

OTHER INSTRUMENTS SELECTED FROM STOCK

National NC44, A.C./D.C., 7-Tube Model, £16 16s.
National HRO, £49 15s.; or with all Coils from 10 metres to 3,000 metres, £73 10s.
RM170, £36 15s. Howard 450A, £31 10s.
Eddystone ECR, £4.5s.
RME DB20 (Black or Grey), £12 10s.

TUNGSRAM 6L6G WITH CERAMIC BASE CAN ONLY BE OBTAINED FROM WEBB’S

WEBB’S RADIO

(C. WEBB LTD.)

BIRMINGHAM DEPOT

41 CARRS LANE

14 SOHO ST., OXFORD ST., LONDON, W.1

Published by The Short-Wave Magazine, Ltd., 84-86 Tabernacle Street, London, E.C.2 and printed by S. J. Fraser & Co., Ltd. at the same address. Sole agents for Australia and New Zealand, Gordon and Gorch (Australasia), Ltd.