## JOURNAL OF THE Q R P RESEARCH SOCIETY



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World Radio History

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PRESIDENT: Mr A.O.Milne, G2MI. CHAIRMAN: Capt A.M.H.Fergus, G2ZC. HON-SECRETARY, TREASURER, EDITOR: John Whitehead, 92 Ryaan's Avenue, Walton-on-Thames, Surrey

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Apologies for the lateness of last month's mag, CMs. I hope that this and future issues will reach you in better time. While it was, of course, disturbing to get so many letters anxiously enquiring "where's my mag got to ?" it was, also, rather encouraging as it did prove beyond doubt that "QRP" is an eagerly awaited "event" each month.

The cause of the delay was one of those infuriating pastimes where one's family goes sick in turn -- and, as each of us has some hand in the production of the mag, the result was complete disorganisation.

The HQ Rx has gathered dust and cobwebs, but, while convalescing, we did manage to get most of the "bits "wired in the holiday portable. I don't recommend this process -- the size of hole that an Adcola will burn in the bedclothes is quite fantastic!

One lesson emanated from this spasm -- don't try and miniaturise with standard components! A quarter watt resistor looks tiny enough by itself on the bench, but it is peculiar how much space it takes up in a deaf-aid size chassis. If air tests indicate a change of value somewhere I can foresee a 90% strip down on the agenda to get at it! We shall certainly make a point of building the HQ Rx on a sizeable experimental chassis in the first place. Compactness comes later.

QRP RESEARCH SOCTETY

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JOURNAL OF THE

| 43/2                                    |         |      |     |          |  |
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Bob Eldridge, ex-G3AGQ: As I write this Bob and his family are three days out across the Atlantic. I have sent off an airmail letter, which I hope will be the first one he opens in Vancouver, wishing him 73 and the best of good luck, not only from myself but from all our members -- I know that you would endorse this! Typical of Bob was his last gesture in the Old Country. He returned to me, for safe keeping, the Kaleveld Cup which he had won last October and -- from his own pocket he had added a fine, 2" high, black plinth which adds an astonishing dignity and sense of value to the cup. If any of you would care to write to Bob (and those of you who have been abroad for any length of time will know how welcome letters from "home" can be) his address, temporarily, will be c/o Imperial Bank of Canada, Vancouver, B.C.

<u>A.W.Gutteridge</u> (Ashford, Kent)who joined us last November got his Call Up papers by almost the same mail as his first copy of "Q R P". Though we haven't heard much of him in consequence, it is nice to be assured that our mag has given him some pleasure in the interval and that he "is just waiting to get back into circuit again and join in our club activities". (Good luck, OM -- we shall be even more active by October 1954!)

Fred Bailev, G3HJL (Boreham Wood) says that he is entirely in agreement with 2AOL's suggestion of QRP Set-Freqs. He has been hoping to get onto Top Band, but NFD preparations have rather interfered with other occupations lately. (No, unfortunately, the Isle of Wight counts as Hants, OM)

Morty Banks, GC2CNC (Jersey) is extremely tied up with examinations (not connected with radio), but what time he has been able to give to the hobby he has spent on VHF exclusively. He has given a lot of attention to checking the radiation pattern from his yagi with the Xtal diode rig described later in this issue. Incidentally MONTY OFFERS ONE YEAR'S FREE SUB TO "Q R P" FOR THE FIRST REPORT RECEIVED FROM AN SWL MEMBER ON HIS 145 Mc/s TRANSMISSIONS. Proof must be provided in the form of the report that CNC gives to the station he is working, any remarks he makes and, of course, QTR etc. Monty is on CW, 145.13 Mc/s, mostly 1910/1930 hrs.

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Ray Butcher, GC3FSN (Jersey) has sent apologies via Monty for his long silence -- reason, impending matrimony! (Well, we'll have to forgive you, OM, for never let it be said that we nag!) We'd still like to hear from you, though.

W.E.Stephen. GM3IVZ (Methil, Fife) has taken over his brother John's membership, the latter having changed his QTH, and is anxious for contacts on 80 (4 watts, VFO) and on 20 (up to 12 watts rock bound)

<u>Fred Bailey, G3HJL</u> (Boreham Wood) is carrying out a "finalising" rebuild, whereby all those ideas that have been tried out in the past few months are being made permanent. This includes a foolproof BK cum switching system that will (it is hoped!) be operated entirely by the key, doing everything except write the QSL!

Allan Herridge, G3IDG (Balham, SW 12) has had 374 QSOs with 190 stations in 6 countries and 29 counties and has now got going on 80. Ever hopeful, Allan remarks that he has only another 94 countries to go for DXCC!

Jack Harris, G2BOF (Sutton, Surrey) sends us another nice list for the "200" and an introduction to a number of the Sutton & Cheam RS members who are interested in QRP (Thanks, Jack -- of course I'll send them the gen with pleasure). Jack and the Sutton lads are very busy preparing to do battle with the Thames Valley ARS for the Cullen Cup on April 26th, so, if this reaches you in time OMs, do rally round and give them a contact.

<u>Fred Stonestreet</u> (Willesden Green, NW 2) is busy again on Two, and has added a 2 metre calibrated wavemeter to the shack equipment.

Den Auton, G3IHI (Swindon) has at last got the QRP Tx rigged to his satisfaction. It now runs a 6AC7 Clapp/ECO, .8 watts input to Top band or 80, EF50, 2.5 watts on 80 to 40 metres (class 'A'), TT11 on

80, 40 and 20 metres at 8 to 10 watts. The pi-coupler can be connected to take the output from any stage or the whole thing used as an exciter for a QRO rig.

Peter Huntsman (Hexham-on-Tyne)asks for information on KF3AA. He was heard to tell a W9 to QSL via W1PGG. Peter has a new antenna rigged now which seems to giving good results in all directions.

Ian Clen (temporarily West Hartleppol) managed to get five days at home in the shack at Easter but his antenna, which got itself earthed in the big storm in Feb, is still grounded so that he didn't get much joy. He's hoping for a longer leave at Whitsun however.

Norman Basen (Peel, I.O.Man) points out that the new SET-BAND contests would be a valuable means of recording varying condx throughout the country if we could get enough of our members to "play" regularly. Norman has had a very "dead" spell with his rebuilt Rx ewing to a dud AF tranny. Reversion to RCJ has livened things up again.

David Mainhood, G3HZW (Chelmsford) has joined us this month and will, I hope, give us plenty of interesting points to "chew" over as his particular enthusicsm is propogation condx on freqs up to 30 Mc/s. His present gear is a Franklin VFO with a pair of 6J5s running about 1 watt on 3.5 Mc/s.

<u>Foy Church</u> (temporarily Cirencester) is yet another of our members who has been forced out of circulation by the RAF, though his interest and enthusiasm remains undimmed. He is planning to pay Den Auton in nearby Swindon a visit shortly.

Sam Hall, GRADE (Otford, Kent) is finding "200" contest going becoming slower and prophesies that he may be claiming a certificate in about Dec 1954! (You'll prize it all the more, OM!) He has been busy on the VHF gear lately and has managed some contacts. He remarks on the high percentage of phone on the band now. GC3EEK gave him his first GC contact on Two, and he heard Monty, GC2CNC, but did not manage to work him.

IVAL DIAN DOLLAR NOT. ONG 11

| 43/5 |                 |   |
|------|-----------------|---|
|      | RADIATION METER | ••••••••••••••••••••••••••••••••••••••• |

The simple but very useful little rig which Monty, GC2CNC, has been using to check his antenna radiation (as mentioned in the Society News above) is, basically, a modefied crystal set. A number of other uses will cour to the reader at once -- for instance, monitoring telephony transmissions, absorption wavemetering, and RF signal tracing. The crystal used is an 1N34 or similar, the meter a 0.500 micro-amp and the jack a closed circuit type. The fixed condenser is .0001 micro farad and the variable 100 pF. The coil of course should be suitable for the band in use.



In the sketches on the previous page Fig 1 shows the antenna for 145 or 435 Mc/s, the dipole being a half wave on either band. Similarly Fig 2 is the antenna arrangement for other bands. Fig 5 is the circuit itself, and Fig 4 an idea of the final assembly. Here the sockets for plug-in coils are shown on the top of the cabinet and also the socket X for a vertical antenna for use with the Fig 2 scheme. All the plugs marked 'A' are taken to the two sockets AA on the back of the cabinet which is shown in Fig 5, which also carries the sockets B which are provided foruse with a pair of probes.

A month or two back we published an article on self-quenching super-regenerators and included a couple of suggested circuits to illustrate our points. Although both of the circuits shown were what may be truly called "old-timers", they had not actually been airtested by us. The present description of a very similar layout has, however, had some five years of pretty continuous use in the shack of our old friend Ted Stonestreet. The prototype, as a matter of fact, was the first Rx which we ever described, appearing in our first issue in Sept 1949.

As always with a super-regen we must underline the standard warning regarding re-radiation. This must surely be known to all users and prospective users of the type by now but it is a fact, nevertheless, that these receivers will cause interference over wide areas if used without a buffer stage. Therefore great discretion is required in testing such a set and an RF stage should be added before any regular use is made of them.

Despite this unfortunate tendancy the S-R type is undoubtedly the simplest and least costly means of affording the SWL a start on VHF and Rx discussed here is a proved success.

The valve used is an EC52, supplied from a 65 volt HT and a couple of 800 cycle lamp batteries. Probably the most important note to make

is that NEITHER side of the tuning condenser or coil are at earth potential and therefore <u>must</u> be insulated from the panel and chassis. For 145 Mc/s the trimmer Co will have to be removed and it MAY be found necessary to remove C2 as well, though this depends on individual layouts to a large extent.



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Yet another of our SWLs has done the trick! Vic Brand of Kingston has today collared the call 3JNB. Before long the white hairs of you editor will be gracing the only SWL among you! (Good luck with the new call, Vic, Let's have the gen when you've settled in). 43/8 <u>BLOCKED GRID KEYING</u> ......

In reply to GW3HZZ's remarks on this subject last month, Den Auton, G3IHI, writes:-

"I agree that the method I suggested (Issue 41 - Ed) differs from the normal blocked grid method, but the results are the same. In fact normal cathode keying is, in effect, blocked grid as **dp**ening the cathode circuit of any valve drives the grid very highly negative. I have recently discovered that this method was suggested for oscillator keying in SW Mag some years ago. Anyway, whatever the name, the system is simple and effective. As regards 3HZZ's remark 'passes current to the verge of oscillation in the VFO valve', in my case the VFO actually oscillates all the time .The additional bias only reduces the output to such an extent that the following stages produce QRPP. In other words, keying my Tx increases it's output from, say,  $\frac{1}{2}$  watt to 20 watts. A point about this is that, if the station being worked can hear the "back wave". it means that a QRP QSO is possible."

"Another method of keying which I have been trying is FSK in the VFO unit with the cathode bias keying in the following stages. This has the advantage that the load on the VFO supply is constant, so no variation in frequency due to VFO heating and cooling takes place, and the Tx can be left running all the time during QSO without interfering with the Rx. Not liking relays, a double circuit key is used, one pair of contacts shorting the additional bias, the other adding an extra 200 pF to the Clapp capacity. But the result is only an effective change of a pF or two. The same idea can be used for ordinary FSK of course, but a value of keying capacity which gives adequate FS for LF bands exceeds the limitations of the HF bands. This method has no harmful effects on VFO stability."

(See page 9 for diagrams of 3IHI's FSK circuit - Ed)

## THE BAND ALLOCATED FOR THE MAY SET-BAND CONTEST IS 7 Mc/s



Well, we've had our mean about this in the Editorial! So far this year the family have produced spasms of (1) erysipelas, (2)mumps, (3) pheumonia, (4) pleurisy, (5) tensillitis. So of course the H-Q Rx has had to wipe it's own nose! Actually, however, we have made quite a bit of progress, having acquired a set of six 465 Ke/s IFs (of somewhat dubious service origin) which will enable us to make a real step forward within the foreseeable future. Also in the Editorial we had a piece to say about miniatureisation and, having learnt our lesson that for a purely experimantal undertaking you must have enough room to swing an iron, we get busy between spasms 3 and 4 above and knocked up a nice rigid chassis  $10\frac{1}{2}$ " x 8" x  $2\frac{1}{2}$ " deep with a panel  $7\frac{1}{2}$ " x 8". The pieces for this came, actually, from the cabinet of a semi-stripped IFF unit which we "won" for 3/- from a local junk sale and the whole thing went together in it's new form without any cutting at all. What

THE H-Q

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is more, all the edges are nicely flanges which gives a most professional appearance and extra strength. This chassis and the ex-service IFs are, let me repeat, solely for the experimental stages of the job. Once we have the prototype perfected we shall rebuild it into the form we have already considered, with the egg-box screening and double deck chassis and, perhaps, with home wound IFs. But to wind IFs at this stage, and under our present difficulties, would take us far too long.

Having thus got within sight of all the necessary components (and hoping that our junk box will produce the remainder as we progress) we have given some thought to the BASIC circuit diagram. This has resulted in a perfectly normal and entirely standard FC / IF / Demod layout, the diagram of which appears on pages 10 and 11. It will be seen that the appropriate leads are switched so that one, two or three pairs of IF transformers can be used as desired. The first pair of IFs are, of course, permanently in circuit as they form part of the basic circuit, while the second and third pairs have been drawn only as skeleton components. It is here that YOUR experience and YOUR designing ability can come in to play.

THE BEST SUGGESTIONS RECEIVED FROM ANY MEMBER FOR THE LAYOUT OF THIS SUBSIDIARY CIRCUIT WILL QUALIFY AS AN ENTRY FOR THE CARTER SHIELD AND WILL CARRY WITH IT ONE YEAR'S FREE SUBSCRIPTION AS WELL. Points to be born in mind are the inclusion of a crystal filter, S-meter and any other details which will give our QRP single signal Rx the advantages of the best commercial products. The "basic" circuit need not be reproduced in full, but circuits submitted MUST be clearly drawn especially as regards the points of contact with the basic circuit if the latter is skeletonised. Please do draw your circuits on paper seperate from other correspondence and do not try and reduce the scale to note paper size.

Note that in the basic circuit diagram the IFs have been taken out ABOVE the HT line in order to clarify the layout and give room for the following IF sequence. It makes no difference to the circuitery. (Editor's note: - I shall really have to sack that printer. I see he has got the two halves of the diagram on pages 10 and 11 round the wrong way. Unfortunately it is too late to change it round now so, on his behalf, OMs, I must apologise and hope that you will be able to imagine it as it should be).

43/13

Component values: --

<u>Cl</u>, to be determined by trial. C2, 3,30 pF. <u>C3</u>, 100 pF. <u>C4</u>, 100 pF. <u>C5</u>, 0.1 uF. <u>C6</u>, 100 pF. <u>C7</u>, 100 pF, <u>C8</u>, 3/30 pF. <u>C9</u>, 150 pF. <u>C10</u>, 0.01 uF. <u>C11</u>, 0.1 uF. <u>C12</u>, 0.05 uF. <u>C13</u>, 0.01 uF. <u>C14</u>, 100 pF. <u>C15</u>, .005 uF. <u>C16</u>, 0.1 uF. <u>C17</u>, 0.01 uF.

R1, 1.0 Meg. R2, 27 K. R3, 180 K. R4, 27 K. R5, 27 K. R6, 1.0 Meg. <u>R7</u>, 6.8 Meg. <u>R8</u>, 22 K. <u>R9</u>, 2.2 Meg. <u>R10</u>, 470 K.

Incidentally the new IFs have centre taps to both primary and secondary windings.

Please, OMs, when writing to us do remember the following points which add surprisingly to our peace of mind here:-

- (1) Date your letters
- (2) PRINT your address
- 3 Keep contest entries seperate from other correspondence.

4) Put your name on all contest entries

(5) Submit contest entries in the same form in which they appear in the mag

This is the oldest trophy held by the Society and is presented annually for the most meritorious development in QRP technique published in the mag during the year. We have mentioned it this month in cennection with the H-Q Rx, but ANY QRP gear is eligible.

| :::                              |  | THE QRP  | "200" CONTES   | T :::::::                                   |   |
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|                                  |  | COUNTIES WO  | DRKED (Mc/s)<br>3.5  | ;<br>7_                                     | TOTAL   |
| 1:<br>2:<br>3:<br>4:<br>5:<br>6: | G3AGQ<br>G2BOF<br>G2AOL<br>G3HJL<br>G3FAU<br>G3HCW | $\begin{array}{c} 54 & (-) \\ 56 & (50) \\ 55 & (47) \\ - & (-) \\ 16 & (-) \\ 12 & (-) \end{array}$ | $\begin{array}{c} 47 & (-) \\ 37 & (37) \\ 45 & (10) \\ 35 & (16) \\ - & (-) \\ - & (-) \end{array}$ | 9 (-)<br>18 (18)<br>3 (-)<br>- (-)<br>- (-) | 110 (-)<br>105 (105)<br>103 (57)<br>35 (16)<br>16 (-)<br>12 (-) |

Another of our printer's errors crept in last month when we credited 3HJL with a few too many in his All Time score. Thanks for pointing it out, Fred. So 2BOF has got there in theory at least since Bob will not be able to compete from Vancouver (unless, perhaps, he strings up a few hundred Yankee transistors!). No doubt BOF will be there if fact by next month. Come on, Sam, don't let him get away with it, OM!

| :::                  | ••••••   | ::                  | THE 1               | 953                  | QRP          | C-Z P | ANEL             | ::               | :::::::              |                        | :: |
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| 1:<br>2:<br>3:<br>4: | P.Huntsman<br>E.W.Gardiner<br>A.E.Stonestreet<br>N.Bason | 12<br>23<br>18<br>8 | 33<br>8<br>23<br>14 | 82<br>71<br>54<br>50 | 7<br>22<br>1 | 2     | 8<br>8<br>7<br>5 | 9<br>2<br>0<br>5 | 27<br>24<br>21<br>19 | 116<br>106<br>91<br>74 |    |

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|--|-----------------------|--------------------|---|
|  | COUNTRIES             | COUNTIES           | TƏTAL   |
| W.B.Baker (Berwick-on-'<br>N.Bason (Isle of Man) | Iweed) 8 (7)<br>6 (6) | 60 (39)<br>42 (42) | $ \begin{array}{ccc} 68 & (46) \\ 48 & (48) \end{array} $ |

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H.G.Wells (Waltham Cross)

P.Huntsman (Hexham-on-Tyne) D.G.Gordon (Bournemouth)

E.Gardiner (Diss. Norfolk)

9

|       | Well  | . done | e, Mo | man!   | What | a,  | jump, | from | bottom  | to | top  | in this | 3    |
|-------|-------|--------|-------|--------|------|-----|-------|------|---------|----|------|---------|------|
| year' | s sco | ring   | and   | second | in   | the | all   | time | column. | It | just | shows   | what |
| a lit | tle t | rying  | ; wil | 1 do.  |      |     |       |      |         |    |      |         |      |

REMEMBER THE FREQUENCY FOR THE SET-BAND CONTESTS FOR MAY --- 7.0 Mc/s 

CONSTRUCTIONAL RECORDS 

We know from the Society News column that a good deal of construction and testing of new designs has been taking place through the winter and is still occupying much of our member's time. But we are getting very few detailed reports on these aspects of our work lately. That is why, this month, I have pointedly reminded our readers of the Carter Shield. It is one of the rules to which all our Full Members agree upon joining our Society that they will make available to other members, through the pages of this mag, records of any such work carried out. The discussions following upon the H-Q Rx project have caused widespread interest. Let us have more of that sort of thing, please, GMs. Remember, if it interests you it will interest others.

## CONTRACTORY CONTRACTORY

FULLY ACTIVE MEMBERS (continued): --

CANNING, C.R., 59 Camberley Avenue, West Wimbledon, London, SW 20. CARTER, T.H., 8 Twysden Cottages, Sandhurst, Hawkhurst, Kent. CAUGHEY, W.E. (GI2DZG), 35 Gilnahirk Park, Cherryvalley, Belfast. CHILD, W., 4 Woodland Dell, Charlestown, Hebden Bridge, Yorks. CHURCH, R.A., Kiltan Farm East, Kilver, Nr Bridgewater, Somerset, CLARK, A. (G3BII), Harrias Cottage, Hedgerley Lane, Beaconsfield, COARE, C.J., 574 Southend Rd, Elm Park, Romford, Essex (Bucks. COCHRANE, T.H., AMIEE, "Harvidon", Marley Ave, Welwyn, Herts, COWLES. E.J.R (ex-G2AJU) New QRA in Australia will follow. CREATON, W.G.L. (G3ANB), 36 Church Rd, Brightlingsea, Essex. CUNDALL, V. (G3FAU), 93 Chandos Rd, Stratford, London, E 15. DANDRIDGE, W.J., "Minerva", Windsor Rd, Bray, Berks. DARKE, H.G., 2 Church Terrace, Higher Odcombe, Yeovil, Somerset. DAVIES, W. (G3ERI), The Bungalow, Kingsley Fields, Nantwich, Cheshire DELANY, M.W. (G3JMD), 11 Hawkesbury Rd, Putney, London, SW 15. DOBSON, H. (G80G), 67 Gledhow Lane, Leeds, 8. ELDRIDGE, R.C. (ex-G3AGQ) c/o Imperial Bank of Canada, Vancouver, BC. FERGUS, Capt A.M.H.(G2ZC), 89 West St, Farnham, Surrey. FORD, R.H., "Sanaldi", Plat Douet Rd, Bagot, StSaviour, Jersey, C I. GARDINER. E.W., 21 Shelfanger Rd, Dis, Norfolk. GARRARD "Deck", "Ceaque", 17 Hill House Rd, Ipswich, Suffolk. GAUNT, C.E., 19 Connpught Ave, London, SW 14. GIBBS, F.W., 85 Rygate Rd, Bromley, Kent, GLEN, I.G.W., Priorbank, Coldingham, Berwickshire, GOLLEDGE, P.R. (VQ2W), Box 249, Chingola, Northern Rhodesia. GORDON. D.G., 70a Christchurch Rd, Bournemouth. GOURDIE, Ron. The Manse, Tarbrax, West Calder, MidLothian. GRIFFITHS, W.P., 168 Craddocks Ave, Ashtead, Surrey. GUTTERIDGE, A.W., 39 Austin Rd, Ashford, Kent.