

OFFICIAL REPORTS
OF THE



Q R P
RESEARCH GROUP

ISSUE FOR

MAR 1950

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DEDICATED TO THE
ADVANCEMENT
OF LOW POWER RADIO.

QRP

EDITORIAL.

The Carter Shield has already been introduced as a trophy to be presented to the QRP Research Group member who achieves the most meritorious development in QRP receiver technique during the year. The rules governing the presentation of the shield have now been finalised and we are able in this issue to clarify the rather vague initial description.

This is an important announcement since it will be of interest to ALL our members. Many of us are interested in Dx contests as has been proved by the quite voluminous correspondence arising out of the recent QRP Handicap session, but, unlike our friends the QRO boys, we are all much MORE vitally concerned with the design and construction of our rigs. So I am quite sure that 100% support will be given to the contest for our own Shield.

It is to the enthusiasm of Mr. T. H. Carter of Hawkhurst, Kent that we are indebted for the gift of this valuable trophy, and since it was given to us in the early days of our formation, when our activities were entirely restricted to receiver technique, it remains for competition on a receiver basis only. It is hoped, however, to be able to announce before long the acquisition of a similar trophy for competition among the Tx members of the Group.

Read the rules through carefully, OMs, and let me know what you think about them. The Research Council retain the right to amend these rules so that if you have any good ideas on the subject it is not too late to include them.

Finally, don't be put off by the formidable appearance of the rules. They are bound to seem a bit verbose and complicated because

they have of necessity to cover every possible point. But, just because your Rx is not designed on some startling new principle, it most certainly does not mean that the rig is not worth submitting. If you have an Rx in any of the categories laid down in Rule 4 which gives good results there is only one thing to do -- send it in! The other chaps are probably thinking just as little of their own chances and anyway you might even be the only entrant in the category. Don't forget that faint heart never won fair -- contest!

The progress of this competition is going to lend a new zest to your interest in SW radio. Every month you will be awaiting your "Q R P" with a new eagerness, anxious to see if it contains another rig in your category, and following the endeavours of the other entrants with a new interest. But remember, like every aspect of QRP Research Group work, it's success requires YOUR co-operation. If you take the attitude that it's not worth while, then it won't be; or if you think it's beyond your capabilities, then it is. You can make it a flop as easily as a shattering success, OM. It's up to you.

OUR PRESIDENT'S LETTER.

With great pleasure I publish herewith our President's first letter. He says:--

"May I express my appreciation of the honour in being appointed President of the QRP Research Group of the ISWL. I have been following the progress of the Group's journal with interest, and feel sure that the coverage of the transmitting aspect will add to it's success."

"Following on the Editorial in the February issue, I also would like to make an assurance that the incursion of a few calls does not mean any subordination of the SWL interest -- I myself think it will tend to the opposite, for it must be remembered that most QRP transmitters also use QRP receivers."

"A personal note, here. I think I must be classed amongst the

world's worst listeners, or transmitters, in the sense that I probably have less QSOs and QSLs to my credit than anyone else. The reason is that I am primarily a constructor, so please don't expect too much of me in the contests!"

"Cheerio for now and -- Happy Listening."

"C. Overland, G2ATV."

RESEARCH GROUP LIBRARY.

At present the following volumes are available for loan to members at a charge of 6d. per month plus postage:--

- (1). Admiralty Handbook of Wireless Telegraphy, Vol 1.
- (2). Radio Laboratory Handbook,..... Scroggie.
- (3). Radio Engineering..... Norris.
- (4). General Electrical Engineering..... Kemp.
- (5). Wireless Coils Chokes & Transformers..... Camm.
- (6). Practical Wireless Service Manual..... Camm.
- (7). Radio Training Manual..... Camm.
- (8). Newnes Short Wave Manual..... Camm.
- (9). The Superhet Manual..... Camm.

.....: THE OP-AID :.....

I have recently had the privilege of a preview of this book. There is no doubt at all that it is an improvement on the old Annual, good as that was. There is no other publication on either side of the Atlantic that has so much essential information so compactly assembled and so easily obtainable. It gives you everything you want to know "on the spot":-- International Prefixes, Amateur Prefixes, Call Areas, Distances, Zone Boundaries, Local Time Conversions, Amateur Codes and Abbreviations, International Q and Z Codes, Standard Frequencies, QSL Bureaux of The World, The Amateur Transmitting Licence, and The Morse Code.

It's worth every penny of the 1/4 post free which is all it costs you through "Q R P".

.....: :.....

THE CARTER SHIELD CONTEST RULES.

(1). The Carter Shield is to be presented annually to the QRP Research Group member who achieves the most meritorious development in QRP receiver technique during the year.

(2). Responsibility for assessing the merits of all entries shall rest entirely with the Research Group Council who's decisions in all aspects of the competition shall be final

(3). The period of the first annual contest shall be from the date of issue of these rules (March 1st, 1950) to December 31st, 1950 inclusive.

(4). The competition shall be divided into four sections, each covering the design and construction of receivers in the following categories:--

- (a). "Personal" S W receivers.
- (b). U H F QRP receivers.
- (c). QRP mains receivers.
- (d). QRP Super-hetrodynes.

(5). All entries must be sent in to the Editor of "Q R P" and must be clearly written and very fully described with as much detail as possible. Great care should be taken to check that circuit diagrams are correct and clearly drawn. The entrant's name should be included prominent on the first page and all descriptions should be free from other correspondence matter.

(6). The merit of each entry will, in the first instance, be assessed from the entrant's own description, but every competitor must be prepared to forward the actual receiver, if required to do so by the Council, for their inspection and approval. No receiver should, however, be sent in unless the Council's request for it has been received.

(7). Every entry submitted will be described in detail in "Q R P". The most interesting ones will be passed on to the editorial staff of The Amalgamated Short Wave Press at who's discretion they may be featured in fully illustrated articles in Short Wave

News or Radio Constructor. In such cases the entrant must be prepared to have suitable photographs taken of his gear and any entry thus actually published will be paid for at standard rates.

(8). The Council, in it's assessment of the entries will be primarily influenced by any original developments likely to be of service in the advancement of QRP receiver technique as a whole. Consideration will also be given to such general points as:-- Selectivity; sensitivity; gain (HF and audio); hand capacity; regeneration; threshold howl; mechanical stability; signal/noise ratio; hum level; tone; etc, etc; not forgetting appearance and general workmanship. All such points should therefore be mentioned in the entrant's original description.

(9). The winner in EACH of the categories laid down in Rule 4 will receive a framed certificate of merit,

(10). From these four winning receivers the Council will select one which, by it's outstanding achievement of design, construction and performance, warrants the presentation of the Carter Shield to it's designer whose name will be engraved upon the trophy.

(11). The Council retain the right at any time to amend or modify these rules.

(12). ALL correspondance relative to the contest must be accompanied by a stamped and addressed envelope, otherwise replies may be delayed.

(13). There will be no restriction to the number of entries which one competitor may send in, nor to the number of categories he may enter.

(14). All 9 entries must be truly QRP, the maximum allowable HT consumption being one and a quarter ($1\frac{1}{4}$) watts.

GEAR CHANGE

EXCHANGE meter, AC volts, five ranges: 0/1.5, 0/6, 0/15, 0/60, 0/150 volts, and two 8D2 valves for small mains transformer, 250-0-250, 6.3v 3A, 5v 2A; A. J. Bennett, 3 Whitchurch Way, Canley, Coventry.

WANTED: All dry O-V-0 to cover 28 and 14 m/cs. Urgently required by 636731 Sgt. P. Short, RAF, Sundern, BAFO, BAOR 15.

EXCHANGE "as new" Ekco eliminator (output 60v, 120v) and brand new speaker output transformer, for any useful QRP gear (particularly 1T4 or 1R5); A.D.H.Looney, 81 Alstonfield Rd, Knotty Ash, Liverpool 14.

ACTIVITY

A.J.Bennett (3079), Coventry, receives our congratulations on the arrival of a Junior-Op. (Sorry, OMs, we seem to have got our activities mixed!).

Peter Short (DL2/3468), BAOR 15, has rigged two HL23s into a O-V-1 using 45v HT and 4.5v to the series connected filaments, He is getting quite promising results with an aerial mounted between the insulators of a derelict phone line. His present ambition is to build a really efficient O-V-1. Good luck OM, and if there is anything that you can't get for the Rx in DL drop me a line and we'll send it out.

F.A.Herridge (3373), Balham, is at present using a O-V-1 (HL2K into 21OLF) which will feature shortly as a Rig of the Month. It has several quite unusual points to it's credit. Future plans include an RF stage for the O-V-1 (VP23) and a charger and eliminator. Incidentally, OM, thanks for the most excellently clear sketches and diagrams.

S.Beharrell (321), York, remarks (in sending in his log which was regrettably held over from the last issue) upon the strange increase in Dx as soon as the contest was over!

Arthur Looney (2959), Liverpool, complains bitterly of the dead blanks on 20 every day lately after about 2130. Well, OM, you are not alone in this for nearly every letter received lately has contained much the same comment. Arthur's letter continues by describing how, in sheer exasperation, he built up a O-V-O for 10 (from a previous issue of "Q R P") and his first trial of it brought in W2UKK -- only to have everything blotted out by four local G2s who swamped the band for the rest of the evening with bright cross-town banter. Desperately Arthur flung away the 28 m/cs coil and hitched a single turn of 18 swg across the terminals of the bandset. Out of the dead silence that was no more than he expected he suddenly heard a police car receive directions from it's Hq. Then an American voice (at 9 plus) requested landing instructions from the nearby Air Force base.

A. E. Stonestreat (2945), Willesden Green, sends in a most interesting letter (after far too long a silence, OM). His O-V-O (Sept Rig of the Month) is still going strong and has raised his countries heard total to 62 on 28 m/cs. Having checked up the actual consumption of this rig he finds it is only .12 watts at 120 volts. During a visit to a local ham A. E. S had the most unusual experience of making a 100% solid contact with a W who was working portable in his car as he drove up to work from his home outside New York.

Bob Brooker (3457), Heme Hill, who put up such a fine score in the recent contest, points out that he was lucky in being on holiday during the whole week and was therefore able to put in about eight hours listening every day. Well, OM, I don't think this lessens the credit due in any way at all. Eight hours a day for a week takes a lot of determination.

C. E. Atherall (1668), Tunbridge Wells, has been having just as much trouble with condx on his favourite BC bands as have all our amateur band enthusiasts-- he says he has never known a more erratic period of "simply wicked" condx. Charles is very interested in reflex circuits and would appreciate any sound gen on this type. He wants something that REALLY IS a pocket portable before the holiday

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season. Well, that sounds interesting so if anyone has anything to offer we'll make a feature of it in an early issue.

D. W. Auten (2440), Plymouth, is at present confined to using a B2 Rx with about 5.5 watts HT, but he is experimenting with ways and means of reducing the rig to something approaching QRP consumption. He is also toying with the idea of a Xtal "pocket portable" and would like to hear of memabr's experiences with either conventional Xtals or the ex-radar Xtal diodes.

G. Parrott (5333), East Lothian, despite two dipoles and a long wire on the roof in a situation which he finds is usually quite good for Dx, has nothing nice to say about recent condx. He has found that the "bag" on ten consists mainly of VK in the mornings and W in the afternoons. At the moment he is experimenting with running two 1C5s off 9v HT.

G. H. M. Yule (1877), Keasden NW 10, has an interesting story to tell this month. A friend of his, staying in High Wycombe, overheard a couple of beds discussing the merrits of his (G. H. M. Y's) O-V-O which appeared in the Jan issue of "Q, R P". Neither G. H. M. Y nor his friend know the two enthusiasts concerned and neither do we at HQ -- it just goes to show how "Q, R P" is getting around.

PRACTICAL AERIALS, (4), The Doublet.

The half wave doublet antenna is the origin of that now familiar sight in TV areas, the "di-pole". It is easily recognisable too as a descendant of the Delta type which we considered last month for, essentially, it is no more than a Delta with the wire cut in the middle and rejoined through an insulated section as shown at B in Fig 1. Each active Half (A in Fig 1) is $\frac{1}{2}$ wavelength long, calculated from approximately the middle of the band it is required to receive. The insulated centre section, B, should be from 6" to 9" in length.

Now, in last month's notes on the Delta, it was stated that the twisted flex system of feeder would not be satisfactory, but the arrangement of the doublet in Fig 1 does lend itself quite well to the use of flex providing the feeders are kept as short as possible.

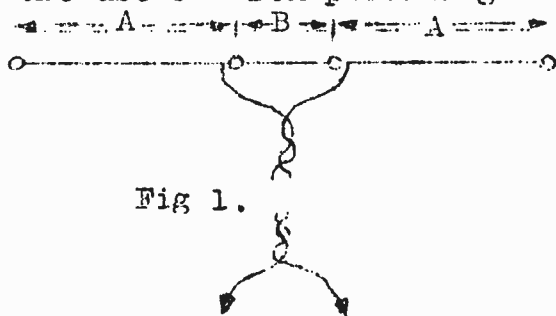


Fig 1.

Moreover, if the heavily rubber covered type of flex known as "cab-tyre" is used, and the upper exposed end of the insulation is effectively sealed off to prevent the entrance of moisture inside (plastecine with an outer covering of insulating tape is useful here), such feeders can be highly efficient.

An even better "match" however can be obtained by the system shown in Fig 2. You will remember that the impedance at the centre of any half wave

aerial is approximately 73 ohms and that (subject to varying quality and make) the impedance of flex feeders (including cab-tyre) is

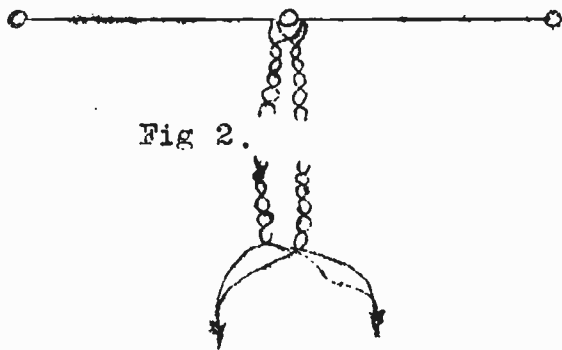


Fig 2.

somewhere about 100 ohms. Now we can obtain a feeder impedance of 70 ohms (which is quite a near enough match for reception requirements) by using TWO lengths of cab-tyre connected in parallel. That is to say, the two red cores go to one side of the aerial and are joined together at the Rx, while the two black cores go to the other side of the aerial and again are joined together at the Rx. And, since this produces 70 ohms feeder impedance, we

can obviously go direct to the 73 ohms centre point of the aerial wire -- ie, in place of the 9" insulated centre "gap" of Fig 1, we

now use a small "egg" insulator only to separate the two halves of the aerial, incidentally the length (in feet) of a half wave aerial is easily found from $L=467.4/f$, where f is the frequency in m/cs.

A variety of other means of matching feeders into half wave aerials exist, but most of them are fairly abstruse to calculate and awkward to construct; and, what is more, though they may be advantageous for Tx needs, little gain is achieved by them so far as reception is concerned. If still greater efficiency is wanted recourse will have to be made to one or more reflector elements which will introduce pronounced directional properties, adding the difficulty of necessitating some means to rotate the antenna. Of course there is no doubt that a strongly directional aerial SHOULD be the aim of every ambitious SWL and, later in this series we shall discuss directional and beam equipment, but there are a number of more simple rigs which have to be dealt with first.

Incidentally your TV pal is quite likely to tell you that your doublet MUST be polarised in the same sense as the Tx rig. That is, if the Tx antenna is vertical (as it is at Alexandra Palace) the Rx aerial must be vertical too. Well, most amateurs transmit on a horizontal aerial anyway, but the polarisation argument doesn't hold unless you are quite close to the Tx QTH. The "sense" of polarisation is lost long before the waves have travelled very far.

Now, a final note suggested by a letter just to hand. The writer was disgusted with the results from a half wave doublet of which he enclosed a diagram. Inspection showed that he had earthed the outer element of the co-ax feeder. In other words he had completely isolated one half of his aerial and was, in fact, using it as a quarter wave end fed rig. If you find the Rx needs an earth while it is running off a doublet a separate line should be run direct to an earth plate, but never earth the feeders.

OPINION:-- Quotes from the month's mail.

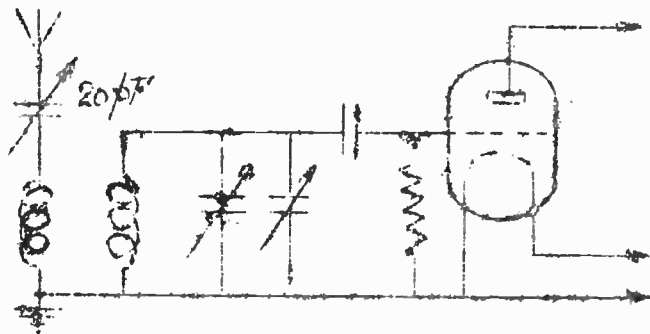
(1). "...I have never known such friendliness and co-operation as I have received from all departments of the ISWL. Wouldn't it be nice if we could make all our politicians members!"

(2). "...The great point about this (QRP) contact, written or personal, is a thing you don't have in radio clubs. I am sorry to say this but I have been to two clubs and find that QRP is, in the majority of cases, put on one side and, unless you are an HRO or large superhet enthusiast, you are treated with little interest and I have been bitterly disappointed. However "Q R P" is the answer

(3). "...I would like to applaud your efforts in "Q R P". It certainly takes real enthusiasm to lead forth such an endeavour as this, with keen SWLs ready to spot the unfortunate flaw by which all the good work done accurately is put in the shade!"

MODIFICATION TO RIG OF THE MONTH No 3.

For the recent "Q R P" handicap contest Bert Glass made a couple of modifications to his Rx which was featured in the November issue. These may be of interest to several of our readers who



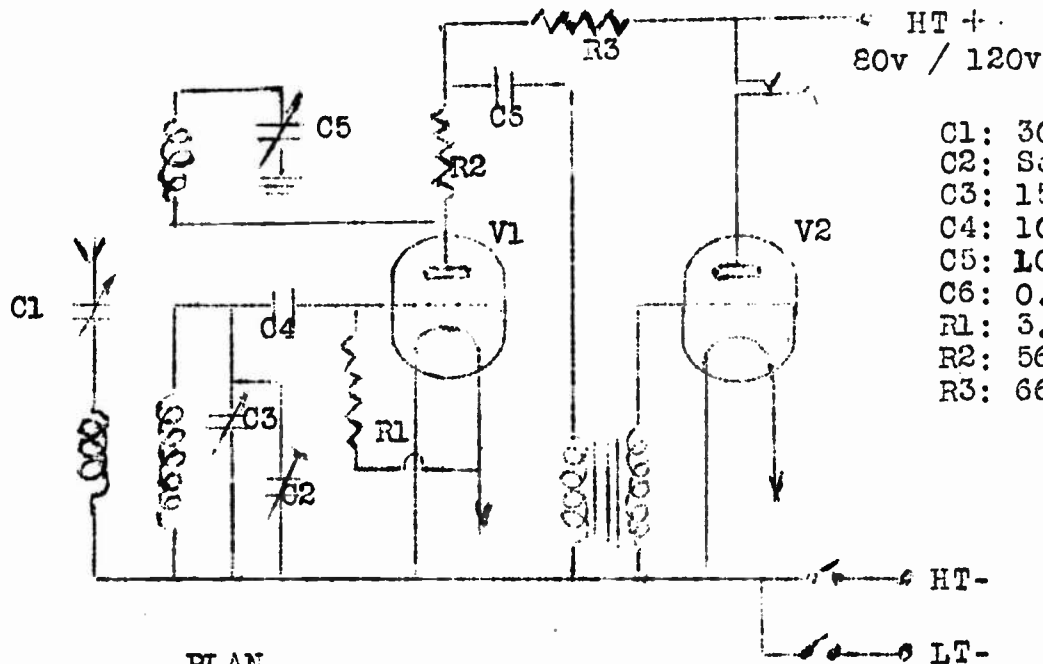
constructed the Rx from the original description. The present mods consist of the insertion of the 20 pF preset in the antenna lead and the alteration to the coil layout as shown in the sketch. Bert says these mods have increased efficiency on 7, 3.5 and 1.8 m/cs and have brought in "plenty of Gs on top band".

RIG OF THE MONTH, No 7: By R. Brooker.

Herewith a brief description of Bob Brooker's contest winning O-V-1. A point of interest is it's absolute simplicity, proving once again that the secret of success in QRP receivers is in attention to layout with a minimum of "frills". Another feature of this Rx is that it is designed specifically for use on one amateur band only, the bandset being accomplished by a small padder, C2, and the tuning carried out entirely on what would normally be a band spreader. This idea is certainly worth of attention since there is no doubt that it does enable the greatest possible efficiency to be gained for reception on the one band. It brings to mind the possibility of the real O-V-1 enthusiast running a series of "specialist" receivers each one being designed for the ultimate peak of efficiency on one specific band-- a point that was common enough among services gear and one which is not just a fanciful dream for the QRP enthusiast since constructional costs are reasonably low.

About his rig Bob says:--

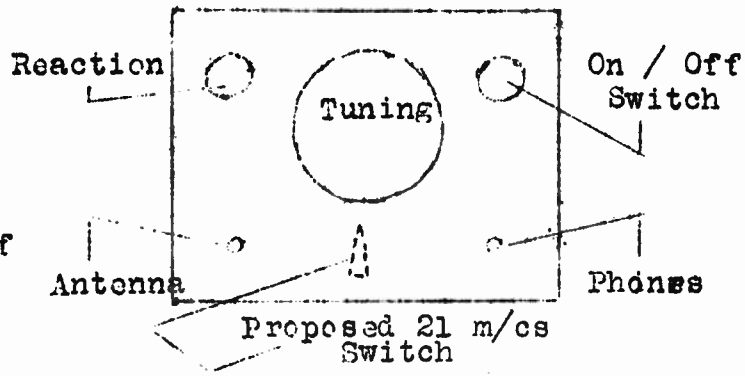
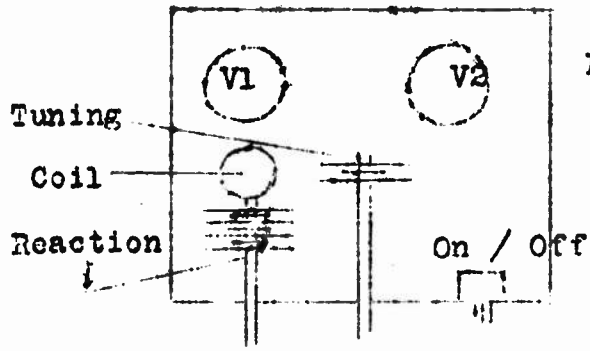
"From the enclosed circuit you will see that there is nothing very unusual about this Rx. It is almost a skeleton circuit in fact. As it stands it covers the 28 m/cs band only tuning entirely with the 15 pF condenser. I am thinking of using a fixed capacity (value as yet unknown) to be brought in by a switch, in order to cover the 21 m/cs band when it comes into use. Other bands, I hope, will eventually be covered by using different coils. Another modification that I think may be an advantage is to control the reaction by means of a variable resistance in the anode of the detector. At the moment tuning is rather tricky because of the variation caused by the reaction condenser. Hand capacity also used to cause a bit of trouble but I got over that by looping the phone lead around my arm, which I admit is a rather Heath Robinson affair but it does do the trick. It might be better if I earthed it. The aerial in use is an inverted L, consisting of 33 ft of wire with a 19 ft top (running E - W), Ignition interference is very pronounced in this locality,



- C1: 30 pF max
- C2: See text
- C3: 15 pF
- C4: 100 pF.
- C5: 100 pF.
- C6: 0.1 uF.
- R1: 3.6 Meg.
- R2: 5600 ohms
- R3: 66000 ohms.

PLAN VIEW

PANEL LAYOUT



The intervalve transformer is, in the original set, a salvaged unit from a Polish mine detector and has a 4:1 ratio. The coil, home wound on a Denco polystyrene former, is a plug-in type of $\frac{1}{2}$ " diameter, the turns being as follows: --

<u>COIL</u>	<u>SWG</u>	<u>TURNS</u>	<u>SPACING</u>
Grid	20	5 $\frac{1}{2}$	Covering 5/16"
Aerial	20	2	Close to cold end of grid coil
Reaction	32	3 $\frac{1}{2}$	Between grid windings

With the above values it is found possible to cover the whole 28 m/cs band. The trimmer should be adjusted until WWV on 30 m/cs is heard with the 15 pF condenser almost completely unmeshed. On tuning to the other end it is then possible to bring in WAR, AE4VS and the other military amateur radio service stations on 27.990 m/cs. The best time to carry out this adjustment is between 1200 and 1700 GMT as WWV etc are not usually to be heard at other times.

The chassis is of 16 swg aluminium, 9" x 5" x 2 $\frac{1}{2}$ " with a matching front panel, 9 $\frac{1}{2}$ " x 8 $\frac{1}{2}$ ". The tuning condenser is driven via an epicyclic drive which has a 2 $\frac{1}{2}$ " knob, and no scale is used, though it would be an easy matter to fit one.

D. X. LOGS.

R. BROOKER (3457), Herne Hill, O-V-1 (.? watts), 28 m/cs.

- 14.1.50 {1103/1150}: CN3ET; HC2JR; UA6SF; VS9AH
 21.1.50 {1045/1120}: EKLRW; MP4BAB; TA3GVU; VQ4CJG
 22.1.50 {0950/1436}: MP4KW; MT2E; PY2CK; UB5BV; VP6IS; VQ4ERR; YO7WL
 28.1.50 {1019/1515}: AP2J; CN8EO, 8EW; VP4TO; YK1AC; ZC6DH
 29.1.50 {1000/1710}: FA9OW; KP4QZ; MD2MD; TA3FAS; TI3TG; W6CGQ, 6FJF
 4.2.50 {1150/1408}: EK1AD; HZ1AB; ST2AM
 5.2.50 {0940/1705}: CN8EL; MP4BAO
 12.2.50 {0955/1705}: AP2G; CM9AC; KP4DC, 4DY; ST2KR.

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A. E. STONEBRIE (2945), Willesden Green, O-V-0 (.12 watts)

28 m/cs:-

25.12.49 : CTLPK; OH2RY; TA3GVU; VFLJB; WLPFJ, ICY; W2BAT, 2HNV;

W3JMA, 30XJ; W4HWZ, 4LKZ; W6HOR; W8EDP, 8DEY, 8YHR;

W9HFI, 9QHR; WØBDV, ØDAS, ØJRY, ØUCA, ØWJA

26.12.49: OH1NI; SM8VP; WLBH, 1LFT; W2CIF, GSM, HSV, JYM, KLW;

W3ATC, 3QWW; W4MDA; W8FLT; W9JC, 9JFF; WØBDV; ZB1AB, 1AJX;

ZD1FB.

L.1.50: OH2OK, 2OV; W3BID, GBY, HMM; W4ILD, MT, RXA; W5KTL, 5OTF/MM;

W9EBQ, EIR, QYQ; W1PAT.

PETER SHORT (DL2/3468), BAOR 15, O-V-1 (.13 watts), 14 m/cs:-

January: CN8BB, MZ; CT1BF, QZ, UA; EA2CA, 3BD, 4CM, PG; EK1AB, AD, AZ

EA8JO, 9KI; MD2AM; OH1NS, 2NL, QQ, 3PP; OK1PW, YN; PY6CO,

7XC; SVØAJ, WY; VO1AH, L, T; VQ2WP, 4CJQ; W7JMY; ZB1BD;

ZD1KO; ZE2JN; ZS1B, 6DY, SB, UR; 3V3AA, AB, AP, AT, BB;

4X4BL.

A. D. H. LOONEY (2959), Liverpool, O-V-1 (? watts), 14 m/cs:-

15.1.50 (2210): ZB1BU (No other sigs heard on the band).

16.1.50 (1855): ZB1AH (No other sigs heard).

17.1.50 (1900): ZB1BU (Band faded out again).

23.1.50 (2030): FA9JI; CN8EO,

24.1.50 (2035/2315): CN8EO; PY2CK; LU4CN (Good sigs till band faded).

25.1.50 (2030): PY1AC, 6CO. (All sigs heard very weak).

27.1.50 (1415/1430): A run of DLs and PAØJA (Very strong sigs)

" (1715/1800): SM5EC, 7UH; OH2TT; OK1HI; EK1HB (Fade out)

3.2.50 (2200): CR5UP (Heard for 30 min: through slight QRM.)

12.2.50 (2130): EK1MD. (Announcing his call as "Exposure Killed One Mad Doctor")

14.2.50 (1830/1900): OH6OH; SP5AC (QTH: 320 P.O. Box, Warsaw)

S. BEHARRILL (321), York, 1-V-2 (1.2 watts), 14 m/cs phone:-

16.12.49 (1908/2210): CO8MP; EA9AI; PY6CO; VFLBB, GG, VC; VQ4SC.

18.12.49 (1945/2153): EK1AD; LU6AJ; VP9F; VQ4SC; WSHED, RLT.

27.12.49 (1910/2215): KP4AZ; VE1MT; VO1VI; W4AIT. (Poor Dx).

- 30.12.59 (1924/2225): PY2BM; VP3MCB, 4TJ. (Poor Dx).
 1.1.50 (1316/2232): EK1QV; LX1AJ; VEGF; w3THP (poor Dx).
 2.1.50 (0654/2320): HI6FC; LU6AJ; PY6CO; VELKF, NB; VP9F; W8ACE, LY
 3.1.50 (1235/2202): FA3GZ, 9WC, WU. (No Dx).
 4.1.50 (1858/2030): PY7AJ, 8AJ; VE7CO; W4AIT.
 5.1.50 (1802/2002): CN8AI; W4DCO, 7ADS; ZS1GG; 3V8AA.
 6.1.50 (1811/1943): CN8BB; PY2CQ, 6CG; ZS6EY.
 7.1.50 (0818/1858): CR5UP; CT1OR, PR; JA2BO; PY1AQM; SV6WY; VK4UL
 9.1.50 (1914/2221): CE3LL; VE3WI; W4AZP, BMR, DCQ, LBI, 8GOB, NQF.
 10.1.50 (1922/2218): CO6BB, 8MP; FA9KI; PY2AK; VELGH, OA; VP9F;
 W9AQ, 0QZ.
 11.1.50 (1828/1913): HZ1JE; VEGG, 2HD, 3GO; VOLDI; W8GAB; ZS6UH
 12.1.50 (1926/2207): OQ5CF; VE3WI; VP9F; VQ4NSH.
 14.1.50 (1910/2320): CT2AB; CX2CO; YV5AB; ZD1KO.
 15.1.50 (0855/2230): OK1HI; VE4IO; VK6PJ; W9IZC and ZD1KO again (a
 new call in Sierra-Leone).
 16.1.50 (1915/1945): PY7LE; ZBLAH; W8GOB
 17.1.50 (1929/2933): VE1OA (Very poor Dx).
 19.1.50 (1900/2000): HP1PK; ZBLQ (Poor Dx).
 21.1.50 (2312/2345): ZD1KO (Poor Dx).
 22.1.50 (1833/1915): VQ4GFG, NSH; ZD1KO.
 23.1.50 (2221/2310): CO8MP; HI6FC; VE1OI, 3LH; W4CPG, 8AHF, 8BM, 0AMS
 25.1.50 (1911/2223): FA8CO; FA3KP, 9KI; PY2CK
 26.1.50 (2200/2228): CO8MP; VELRQ
 28.1.50 (1930/2105): EK1AD; PY6AG; VS7SC; ZC6ANJ; ZS6BW; 4X4M
 29.1.50 (2220/2236): CE3AE; CR5UP; ZD1KO
 1.2.50 (1850/2221): CX2CO; LU4BA, CN; 3V8AA
 3.2.50 (2205/2302): CR5UP (who said he is shortly returning to CT-
 land); CX1VD; PY1AC, 4AG.
 9.2.50 (2237/2309): CO2SG, 8MP; PY1AQM; VE3JF; VP4TB; W4DPI, 8BM,
 9QWB.

12.2.50 (1840/2235); :FA3DS, 9WU; PY7QH; VK2JP; VP9F; W8RHP; ZC6JM
 ZB1BD.
 14.2.50 (2214/2309): C02DZ, 3MP; VP7NU; KP4TF; W8RLT, 9EBQ.

FUTURE ITEMS

Additional regular features which we hope to include, commencing next month are;-- Tx TOPICS and Dx WORKED. Our existing Dx Log columns will, in future, be found under the heading Dx Heard in order to avoid confusion with the Tx item.

We hope also to complete arrangements for the inclusion of a regular feature dealing with developments in components and commercial QRP gear

To the Full Membership and Associate Membership of the Research Group (described in the supplement to the Jan issue) we have now added a third category -- STUDENT MEMBERSHIP, the purpose of which is to cater for the newcomer or novice. In the very near future we anticipate the formation of a special Section dealing with ANTENNA DEVELOPMENT .

BACK NUMBERS

Has anybody got a copy of the October issue or of the November issue which they are prepared to give away or sell? These two issues are in constant demand and, although we overprinted by what we thought at the time to be an ample surplus, our stock has long since dwindled to a single file copy with which we dare not part.

I S W L SUPPLIES.

Will all Research Group members please note that all I S W L supplies and publications are now available through the editor of "Q R P" at less than you would pay at the bookstall or direct from HQ. This discount is only possible through our ability to pass on bulk orders to ISWL HQ. To maintain such a service, therefore, it is essential that you should all make full use of it, and it is well worth while to do so as it means quite a considerable saving to you.

The rates under this new scheme, INCLUDING POSTAGE will be:-

SHORT WAVE NEWS.....	1/1 per copy or...14/6 per annum.
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REPORT PADS (50 forms per pad).....	2/6.
AMATEUR STATION RECORD CARDS (per 100).....	3/6.

and a variety of other supplies such as ISWL envelopes, badges, rubber stamps, Data books, etc, etc, all at similar rates of discount.