

**JOURNAL OF THE  
Q R P  
RESEARCH SOCIETY**

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JOURNAL OF THE

ISSUE 52

Q R P SOCIETY



- FIFTH YEAR -  
FEBRUARY 1954

.....PUBLISHED IN THE LAST WEEK OF EACH MONTH:.....

PRESIDENT, Mr E.Banks, GC2CNC  
PAST PRESIDENT, Mr A.O.Milne, G2MI. CHAIRMAN, Capt A.M.H.Fergus, G2ZC  
HON-SECRETARY, TREASURER, EDITOR,  
John Whitehead, 92 Ryden's Avenue, Walton-on-Thames, Surrey.

EDITORIAL.

In the five weeks during which the 1954 Council has been in operation some most important decisions have been reached. New power ratings have been sanctioned and new periods of duration for some of our contests have been approved -- both of which points are dealt with elsewhere in this issue

Most important of all, however, is the decision to extend the basic policy of our Society. In the past our attitude has always been one of passive assistance to those whose interest lies in the improvement and utilisation of QRP equipment and technique. As a Society we thrived upon that policy and have gained ever increasing strength, both numerically and in territorial coverage.

IT IS FELT THAT THE TIME HAS ARRIVED WHEN WE MAY WELL BEGIN TO WEILD THIS GROWING STRENGTH IN A CAMPAIGN TO ASSIST THE RELIEF OF THE CHAOTIC CONDITIONS PREVAILING THROUGHOUT THE AMATEUR "BANDS" BY A REAL ENDEAVOUR TO POPULARISE THE IDEA OF QRP WORKING. WE MARK THIS EXTENSION OF OUR POLICY BY A CORRESPONDING SIMPLIFICATION OF OUR TITLE, DELETING THE WORD "RESEARCH". WE THUS BECOME --

- THE Q R P SOCIETY -

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.....: OUR EXTENDED POLICY :.....

We know that, if the GPO were to introduce legislation making it illegal to work beyond the power limits recognised by the Society, much of the present crippling QRM on so many bands would no longer exist. Twenty watts, on a quiet channel, has been proved time and time again to be world encompassing. Five watts when not swamped by 150 plus is enough to carry a signal anywhere in Britain. . . . to say nothing of across town!

But, before the QRO boys set out in their thousands upon a mass slaughter of all our members, let us state clearly that we do not in any way set ourselves to urge such an immediate solution.

What we do propose is a much more peaceful method, though it may take a great deal longer to achieve. We hope through conscientiously preaching the gospel of QRP to gain a steady, if still small flow of converts from the ranks of QRO. But our main thrust will be directed at the rising generations of amateurs. Upon them we know that we can exert a great influence for the rational use of radio power -- a heavy smoker finds it hard to break the habit, but where indulgence has not existed there is no sense of loss.

If, in years to come, amateurs could look back and admit that our Society did play some small part in easing conditions on the bands, our very existence would be more than justified. To this goal we shall turn all the normal channels of our Society and especially our increasingly popular "Student Adoption Scheme".

Let the "Green Diamond" of the QRP SOCIETY proclaim that you are yet another believer in the rational use of radio power. If you have one wear it always. If you have not got one, then send 2/6 to us at HQ and we will post one to you by return. They bear the emblem shown on the front cover and are of the same quality as the RSGB badges.

DESIGN OF QRP SUPER-HETS

by David White

G3JKA

When the section of this article dealing with frequency changing was written very little was said about the design of suitable coils for use in a super-het circuit as it was assumed that most constructors would be using commercial coils or coil packs. However, if the set is to cover many bands, this involves a fairly large financial outlay. For this reason this section has been inserted here.

The methods, involving cumbersome formulae or numerous charts, which are normally used in coil design and super-het tracking will be found in any standard reference book. Investigation will show that, somewhere, the author usually says "final adjustments of values must be made experimentally" or words to that effect.

This is still true of the method to be described here, but since experiment is required in any case, it is possible to use a far more simple design procedure than is normally used, particularly if the range to be covered is restricted, as for "ham band" operation it usually will be.

Now for any super-het we have:--

$$f_o = f_s \pm f_i \dots \dots \dots (1)$$

where  $f_o$  = oscillator freq,  $f_s$  = signal freq and  $f_i$  = intermediate freq (IF), and this condition must always be fulfilled. Usually  $f_o > f_s$  so that  $f_o = f_s + f_i$  but it is sometimes advantageous to put the oscillator on the low frequency side of the signal to achieve better sensitivity or, perhaps, freedom from strong signals in the image freq range.

Before we can begin our calculations we need to know the amount of capacity swing that is available in the variable condenser that is to be used for tuning purposes. This will be the difference of the max and min values and, if these are not known, it is possible, for con-

condensers in the range 100 - 300 pF maximum, to say that minimum capacity is one tenth of maximum as a rough guide.

Let us assume that the receiver is to tune from a freq  $f_1$  to a freq  $f_2$  where  $f_2 > f_1$ . In order to determine the parallel capacity that it is necessary to shunt across the given variable to enable it to just cover this range we make use of two formulae. The first, for use when the tuning range is small compared with the maximum frequency range, is-

$$\frac{Qf}{f_1} = \frac{dc}{2C} \dots \dots \dots (2)$$

where  $Qf = f_2 - f_1$ ,  $dc =$  capacity swing,  $C =$  required shunt capacity (including minimum capacity of variable)

Equation (2) may be rewritten as:--

$$C = \frac{f_2}{2} \times \frac{dc}{df} \dots \dots \dots (2a)$$

where the symbols have the same meaning as before.

If however the range to be covered is relatively large, say greater than 1.5 : 1, the following formula should be used as equations (2) and (2a) are only approximate.

$$C = \frac{dc}{X-1}$$

where  $X = (f_2 / f_1)^2$  and the other symbols are as before. The value of  $C$  thus found may be used in the RF tuned circuits and to a first approximation may be used also for the oscillator.

Therefore 
$$L_0 = \frac{1}{4\pi^2 C (f_2 \pm f_1)^2} \dots \dots (3)$$

Hence  $L_0$ , the value of the oscillator inductance, may be found. Alternatively an abcx may be used for a capacity  $C$  and freq  $(f_2 \pm f_1)$ . For the RF circuits  $(f_2 \pm f_1)$  will be replaced by  $(f_2)$ .

(To be continued next month)

CLASSIFIED "AFS" IN "Q & P" CAN BE INSERTED AT 2d per line (minimum 6d).  
Try it for that gear you want to sell. Closing date 10th of each month.



.....: RECONSTRUCTION WITHIN THE SOCIETY :.....

The extension of the Society's activities over the last few years has been so great (and so rapid) that it has become obvious that "internal economy" of the Society must be reorganised in order to cope with the still greater expansion which most certainly lies ahead. We have achieved this necessary reorganisation without in any way changing our basic policy or the "atmosphere" which has become such a pronounced and popular feature of our make-up -- our "personality" is the same as ever.

All that it has been necessary to do is to divide the Society into a number of internal Sections over each of which a manager will be appointed as and when required. The Sections at present existing in the Society are:--

THE GENERAL TRANSMITTING SECTION  
 THE GENERAL RECEIVING SECTION  
 THE V H F SECTION  
 THE OVERSEAS SECTION  
 THE T R F SECTION  
 THE STUDENT'S SECTION  
 THE MODEL CONTROL SECTION  
 THE D.F. SECTION  
 THE AFFILIATED CLUBS SECTION

--- and I have no doubt that further sections will be added to this quite imposing list from time to time

.....: REVISED POWER MAXIMUMS :.....

We have been churlishly dogmatic on the matter of power in the past; we have said - "5 watts, ON, take it or leave it". When we made that rule our activities were restricted to a relatively small sphere.

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We had no overseas members, we had no pretensions to VHF and we were not particularly interested in the possibility of "hopeless" conditions. Our aim was almost exclusively to prove that QRP could "get out". Obviously we must amend this ruling in view of our very much wider coverage and in view of the fact that we hope, in the coming years, to encourage an ever increasing use of QRP. As we have always said, it is impossible to lay any hard and fast division between QRP and QRO -- no one can say that a watt either side of an arbitrary figure puts the case out of court, and to insist that 5 watts shall remain our limit for all the conditions that we now cover would be ridiculous.

We cannot claim that our new power limits are foolproof -- someone is bound to encounter difficulties somewhere whatever limits are imposed, but we feel that the new schedule is reasonable and does give encouragement to use QRP under almost all conditions.

The new limits are as follows:--

GENERAL TRANSMITTING SECTION (which covers the use of all frequencies below 30 Mc/s in all districts of Gt Britain) shall maintain a maximum power throughout ANY QSO of 5 watts to the final stage, no preceding stage taking more, EXCEPT when establishing contact during which RESTRICTED period 4 times the above power may be used.

GENERAL RECEIVING SECTION (covering the same frequencies and districts as above) shall maintain receiver consumption to a maximum of  $1\frac{1}{2}$  watts total HT.

V H F SECTION (covering all frequencies above 30 Mc/s) shall maintain a maximum power of 10 watts for transmitters and 3 watts for receivers

OVERSEAS SECTION transmitters will be permitted a maximum of 20 watts

(Footnote: The "restricted" 20 watts allowed in the G.T. Section does not, of course, apply for Top Band use. In this Section there is no restriction to the type or power of receivers used.)

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.....: KINGSTON & D.A.R.S., QRP SECTION .....: :  
Report by G3JNB

Pioneering the QRP design of the future, Tony Cockle, G3IEE (Kingston Section member) joined the QRP net on Sunday, 14th Feb, running 35 milliwatts to a Transistor Transmitter. Tony put in a 589 signal at G3JNB, a distance of two and a half miles. Advance details of the rig appear elsewhere in this issue.

Roger Taylor, G3JAL, leads the Section in showing the capabilities of QRP, with the receipt of a Top Band report from an SWL in Czechoslovakia. Roger, running 3 watts to a CO on 1830 Kc/s, was given RST 549 for the transmission at 2140 GMT on Nov 7th. The SWL, OK3-10603, used a three valve receiver coupled to a 40 metre antenna.

Geoff Baskerville, having completed a new O-V-1 consisting of 2x1T4, promptly reverted to a O-V-0 by the simple expedient of blowing a filament (to make the party complete his TV tube followed suit!)

David White, G3JKA, whilst waiting the first 70 cms signals from G3JAL and G3JNB, has rebuilt the Top Band rig and is radiating a very nice signal.

Successful in his GPO morse test, Gerry Alderman is now swoating for the next RAE.

Reg Henson has acquired a battery wavemeter, Type W1117, covering 20 Kc/s to 20 Mc/s, and WOULD BE GRATEFUL IF SOMEONE COULD SUPPLY CIRCUIT DETAILS. A very welcome addition to the shack is a magnificent mahogany desk, the appearance of which automatically requires one to reach to the top drawer for the Havana's!

John, our Editor, has managed to find time to construct a one valve "special" for Top Band, to be followed by other single stage units to cover all bands down to 70 cms.

In fact the whole Section has been very busy and continues to show great and increasing enthusiasm.



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////////// PRACTICAL TRANSISTOR Tx, DESIGNED BY G3IEE .....  
////////// Described by G3INE .....  
//////////

The technique of QRP operation has now entered an entirely new phase. "Two-watt" types are on the way out and the days of the triode CO are numbered!

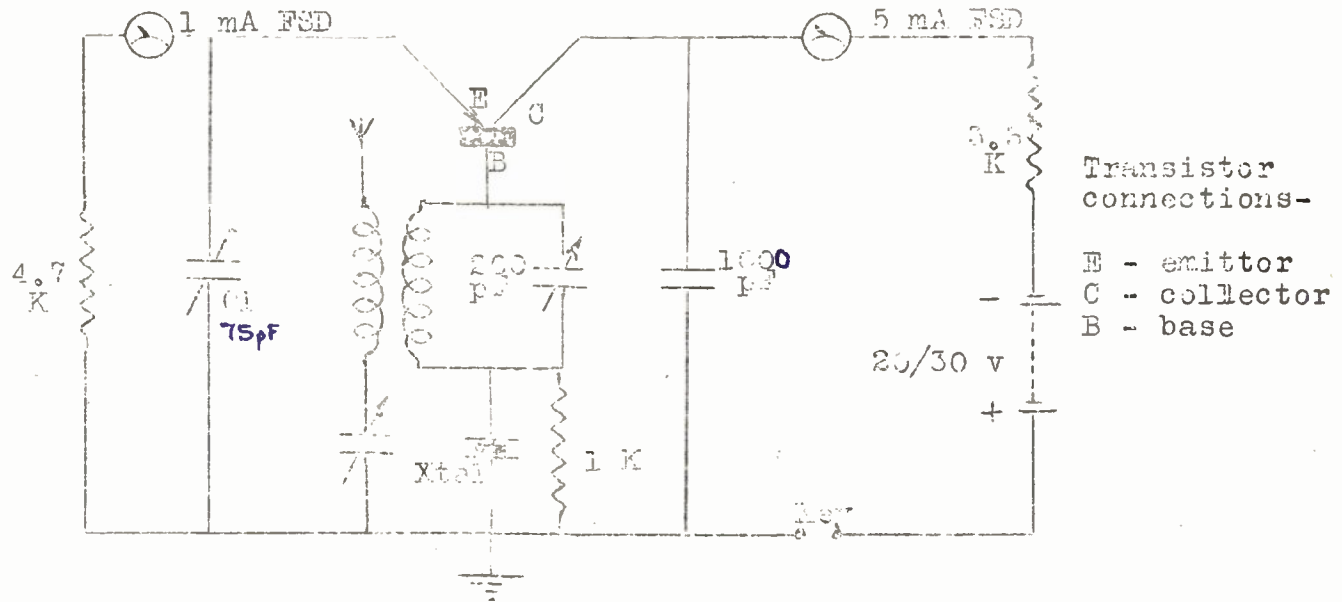
Tony Cockle, G3IEE, has been working fellow members of the Kingston & D.A.R.S., including the writer, with a 35 milliwatt transistor transmitter. This tiny rig, using a Mullard OC50 (advertised in the Feb Wireless World as being readily available for experimental purposes at a price comparable with that of subminiature valves - Ed.) gives a very nice signal on Top Band and is relatively inexpensive and simple to build. It is stressed, however, that CONSTANT METERING IS ESSENTIAL TO SAFEGUARD THE TRANSISTOR, since its maximum dissipation power (approx 30 milliwatts) must never be exceeded.

A 200 pF variable is used to resonate the circuit, a high value of inductance being necessary to obtain maximum efficiency. The adjustment of the preset condenser, C1, is quite critical as it controls the state of oscillation. It is, therefore, advisable to use an air-spaced 75 pF variable. Great care should be taken with the transistor. It MUST NOT BE UNPLUGGED WHILST THE BATTERY IS CONNECTED and the base should not be disconnected before the remaining elements; HEAT FROM A SOLDERING IRON CAN DO GREAT DAMAGE.

As shown in the diagram, the tank coil is coupled to an antenna tuning unit in the conventional manner. A good earth is most important. The keying is excellent, giving a well formed character with no chirp. A dead aid battery can be used to energise the Tx, the whole rig being accommodated on a very small chassis.

By replacing the 3.3 K resistor with a pair of high impedance phones, the circuit will act as an oscillating detector. The rig, therefore, has distinct possibilities as an efficient, crystal controlled, pocket transceiver.

THE CIRCUIT YOU HAVE ALL BEEN WAITING FOR :--



This is not just another theoretical circuit. It has been air-tested and signals have been well received at a distance of  $2\frac{1}{2}$  miles. Thus commences the new era in radio -- in GRP radio.

Our warmest thanks are due to TONY COCKLE for the magnificent achievement in being first off the mark with a practical and highly efficient transistor rig, and to VIC BRAND, G5JNB, for the collection and reporting of the gen.

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CLASSIFIED ADVERTISEMENTS - - - - - FOR SALE

VALVES - VR01 red; VR101, VP52 (5/6 each). VR56 (4/3). MHD4, VMS4/B (5/3 each). VR21, VP22, VR91 silver (rough cases) (2/- each). FB34 (1/5). Three 2v pentodes (1/6 the lot). Four 2v triodes (1/- each). 6AC7 (12/6 each). 6L6M, 6AK5, 6X15, 6X6M (10/- each). 6V6M, 6SN7 (9/- each). 4Z, 6J7M, 6Q150/30 (9/- each). 5044, 6J5M (7/6 each). 6AC7, KT33C (6/- each). 1E11, 6J53E, 2L0M (5/- each).

CHASSIS - Battery, with valves, good working order, MW only (15/-)

COIL BOX - ex BC453B (5/-)

CHOKES - Woden swinging PCB11, 5/25H, 15/150 mA, unused (35/-).  
Mains smoothing, 10H, 60 mA (5/-).

TRANSFORMERS - SGR522, modulation, perfect (10/-). Type FS30x, Ashworth, 300-0-300 at 100 mA, 4v-5v3A-4v-6.3v4A (17/6). Ex Philips mains tranny, OP not known, unused (5/-)

POWER SUPPLY - S441B (advertised at £3-19-0), perfect, never used, 250v AC in, 300v DC 200 mA, 12v 3A, 5v 1A out (£3-16-0 post free).

COIL FORMERS - Bakelite, 3x6 pin, 1x4 pin (9d each, 2/6 the lot)

RELAYS - 12v aerial c/o, ex USA ant c/o unit, VFB (7/6). 28v, one suitable voltage switching, one for Ae c/o (7/6 each).

VARIABLES - 3 gang 30 pF (7/6). 3 gang 120 pF approx (8/6). 2 gang 300 pF small (5/- or near offer)

SPEAKERS - 6" Rola (15/-). 8" in FB polished cabinet (£1-0-0).

PHONES - Lightweight, ex MCRL (5/-).

MCRL POWER SUPPLY - AC/DC in, 90v & 7.5v out (30/- or near offer)

ROTARY WAVE EQUIPMENT - Ball bearing base & ball bearing guying plate (17/-)

METERS - TC 0.3A, 2 1/4" (4/3). TC 3.5A, 2 1/2" (4/3). MC 0-10mA, 2 1/2" (4/3).

MIKE - Brand new Vitavox heavy duty MC on oxydised desk stand, list price £10-0-0, perfect (BARGAIN, £3-0-0).

MIKE STAND - Chrome adjustable, FB condx, suit stage work (£2-10-0 or near offer).

CLASSIFIED ADVERTISEMENTSITEMS WANTEDXTALS - Between 7025 and 7050 Kc/sTUNING UNITS - TU52 of CAYINTEGRATION - on Type 58 set & B2 Tx/Rx (with circuits)WAVEMETER - Class D. Also one converted AC mains or 6v AC supply.VARIABLE CONDENSER - 100 pF straight line.PUG KEY - Vibroplex or McElroy.VALVES - Any 1.4v 1S4 series, 1.4v aworns, TTL1, 7C5, 6J6, 6L6 (exchange suitable components)"S" METER - for S640 Rx.HEADPHONES - Lightweight HR. Brown's adjustable HR.CASES - ex TU or similar, suitable for containing equipment.COTS - B2POWER PACK - for B2.POTENTIOMETER - 10,000 ohms, 10 watt, 3" dia.

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For ALL above items, both sales and wanted, please contact the Society's SPARES SERVICE MANAGER, G.A. Partridge, G3CED, 17 Ethel Road, Broadstairs, Kent. Enclose a blank, stamped envelope.

.....: SOCIETY NEWS & ACTIVITY :.....

BILL HADDIE (Oshawa, Ontario) has temporarily retired from active membership pending final settlement in Canada. At present, he says, he is almost continuously on the move.

GEORGE PARTRIDGE, G3CED (Broadstairs) has begun to get over that summer Q.L. He has a new Top Band VFO/BA/PA working, and a VFO/PA on 20, 40, 80 and 160 metres, both with an input of 5 watts max. Slow progress continues on the "all band" rig, of which more gen is promised when it is working. A first time QSB with 2AOL is the top news item at the moment. Skeds with W2E4S have produced no joy so far.

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JOHN WOODWARD, G3GYR (Stoke-on-Trent) gets a welcome as one of new members this month. (If you have waded through all that gen, OM, we should like an account of the 3GYR station!)

E. F. JONES, G3WTF (Norbury) also adds a new call to our lists for Feb, and w'd like to hear all about 3EVE as well, OM, please.

R. J. KEVIN (Liverpool) has been very QRL for some time past, but he has spent all available spare time on trying to evolve a S-H that would compare with his existing TRF rig. He is back to the latter now, having concluded that, for relative power there IS no comparison.

R. F. HAWKESLEY, G3GRF (London, NW 11) is feeling "very low" at having no gear with him in London and, though his spare time looks like being devoted mainly to study for many months to come, he is determined to get the Tx/Rx up from his home in the country somehow.

ERNEST ASHBY, G3HCW (Knottingly) has enthusiastically joined our new VHF Section, and he is most insensed at the ruling in the 145 Mc/s contest precluding the use of converters. He cannot see why an RF/FC unit working into a regen Det/audio set should be barred when an RF/FC/IF/det/audio line is acceptable in one unit. (I must admit I agree with you, OM, but the 1953 Contests Committee made the ruling -- let's get them to explain!)

C. E. GAINN (SW 14) sends the most concise comment we have had for a long time. His postcard says "TRF for me! Especially O-V-1"

BILL POTHECARY (Kettering) is yet another TRF Section enthusiast. It seems, however, that his Sunday sessions are frequently wiped out on Top Band by a strong Peterboro' net. And lately the temperature in his outdoor shack has been 19 degrees at times so he has found interests elsewhere. (Tux for offer re Student Scheme, OM -- noted OK).

VIC CUNDALL, G3FAU (London E 15) has been having a pretty rough time lately with his family laid up so that he has had to have time off from work to act as nursemaid. (Do hope your charges are all fit again now, OM -- I've got a fair idea of what you've been up against!)



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FRED BAILLEY, G3HJL (Boreham Wood) mentions "a real outlet for the QRP enthusiast" -- the new Radio Amateur Emergency Network. He points out that small equipment capable of being independant of mains supply is strongly indicated and suggests that we make an all-out endeavour to provide a number of suitable Tx/Rx sets among our members.

E.W. GARDINER (Diss, Norfolk) is QRT for the moment as he is moving into a new QM, but as there will be more space in the new home we hope he will be able to organise himself a nice shack.

J.R. AYELS (Eve, Suffolk) who is a Pilot Officer is off to the Middle East for a couple of years. In his last letter from home he mentions some most interesting valves -- made by a "boffin friend" -- which have a max permissible HT of 25 volts, current approx 70/100 uA and filaments that run at .5v at 100 uA (yes, micro-amps). He says they give first class results, but the LT is unfortunately critical.

HARRY WELLS, G3WQ (Waltham Cross) has a query to raise about the mileage X number of stations rule in the new 145 Mc/s cpntest. (Yes, OM, the rules were copied from the last circular of the 1953 Contest's Committee).

DENNIS BENJAMIN (Aberystwyth) has taken to heart my words after the RSGS exhibition about the beautiful finish to some of the gear, & he seems to have planned a complete re-build in consequence (Yes, do let us have a progress report, OM -- really well finished gear gives a tremendous satisfaction in addition to its efficiency).

L. ROBERTSON (Reading) is yet another TRF Section recruit. He is re-building the i-v-1 at present and is trying to get over the difficulty of two 4" dials causing the variables to lie too far apart behind the panel (I certainly don't like a cord drive, OM. Have you looked into the possibility of putting one "round the corner" so that the shafts lie at right angles to each other?)

J. HEINRICHSON (Aman) has found the QRP Super-het articles most interesting and hopes for many more of the same kind (We'll try to oblige there, OM. Sorry about the slip up on change of QRA - OK now).

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"MONTY" BANKS, GC2CNC (Jersey) has been concentrating on 145 for some time but has not found the band open to any great extent. He has, however logged one station on his O-V-O so will be putting an entry in the VHF contest. He has spent some time on a QRP Tx to switch 1.8/3.5/7.0/14.0/21.0/28.0 Mc/s. (We have a trance gen on the switching, but will hold descriptions until further details are available -- OK, Monty?)

PETER HERRMAN (Herkham-on-True) deserves our most humble regrets for having mislaid his Dec C-2 report. We are truly sorry about this, but as he won the event in any case we shall leave it at that now (The cup is away being engraved, OM, and should be with you early next month. The missing letter has come to light now, OM, so we have the O-V-2 gen and shall get that in as early as space permits).

TED STONESTREET (Willisden) has spent three weeks in bed with 'flu followed by tonsillitis, but has come up again as cheery as ever, and has put in a paper QSO here that is so full of news that I don't know where to start or how to get it all in this issue (Matter of fact I'm afraid it will have to stand over, OM, as we are half way down page 14 already. Tell you what -- we'll make the next one a VHF issue, OK?)

SAM HALL, G2AOL (Oxford) sends his sincere congratulations to Jack 2BOF for the remarkable last spurt which won him the "200" cup for 1953, leaving Sam the runner up, ONE point behind. Sam has made some most constructive suggestions on the long periods involved by so many of our contests and the strain caused thereby -- they have given us quite a headache here as we can see the point only too plainly and our comments appear elsewhere.

NORMAN BASON (Pell, IOM) has spent some time duplicating his O-V-O for his brother. He has also got hold of an EC52 for his new 2 metre rig. Norman asks if we know of any TRF circuit which will work up to the 2 metre band (No, 'frsid we don't, OM, but our own idea is build a converter to feed into the O-V-O -- it can still be QRP and other conversions can be made to cover other bands. It gives the grand versatility of a wholly unit-construction station).

..... COMMENTS ON THE CONTEST SITUATION .....

As mentioned in our Activity columns, Sam Hall, G2AOL, voiced this month an idea which had been worrying us at HQ for a long time. He pointed out the duration of so many of our contests, running as they do throughout the twelve months of each year, cause a very considerable strain upon the entrants and undoubtedly prevent many members from taking part at all.

Sam put forward the suggestion that, wherever possible, "any award should be made to the entrant putting in the best score for any one month....All-Time totals to be retained, but Annual Scores to be replaced by a table of merit showing the best scores per month to date for the year."

We submitted this suggestion in great haste to the Committee in the hope of being able to incorporate the result in this issue. We did, in fact, get their OK to proceed on these lines, but having given the matter further thought we are wondering if this is the solution. Will not the result be just about the same -- will not each entrant feel bound to try each month to improve the score he put in the month before and so land himself in another twelve months of accumulated contest "mania"?

As we have no desire to amend our contest rules without achieving some beneficial result we propose to leave them unchanged at this time, but WE WILL OFFER AN AWARD OF ONE YEARS FREE SUBSCRIPTION TO ANY MEMBER WHO, DURING THE NEXT THREE MONTHS, CAN SUBMIT THE SOLUTION TO THIS PROBLEM. We want our contests run basically upon their present lines, but we want also to remove from them the strain caused by long periods of concentration

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We must apologize for the large amount of material which we are having to hold over from this issue, including so many points we had promised to publish. We will do our best to catch up next month.

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.....: THE QRP "200" CONTEST :.....

<u>ALL TIME RECORD:</u>	<u>COUNTIES WORKED (Mc/s):-</u>			<u>Total</u>
	<u>1.8</u>	<u>3.5</u>	<u>7</u>	
1: G2AOL	72	64	38	174
2: G2BOF	67	62	44	173
3: G3HJL	11	59	-	70

1954 ONLY RECORD:

1: G3HJL	3	7	-	10
2: G2AOL	2	1	-	3

.....: TOP BAND SWL PANEL :.....

<u>COUNTRIES / COUNTIES</u> for --	<u>ALL TIME</u>	<u>1954 ONLY</u>	<u>TOTAL</u>
P.HUNTSMAN (Hexham-on-Tyne)	13 / 60	2 / 9	73/11
W.B.BAKER (Berwick-on-Tweed)	8 / 60	- / -	68/ -
N.BASON (Peel, Isle of Man)	8 / 51	- / -	59/ -
D.G.GORDON (Bournemouth)	5 / 46	- / -	51/ -
H.G.WELLS (Waltham Cross)	7 / 39	- / -	46/ -
E.GARDINER (Diss, Norfolk)	4 / 35	- / -	39/ -

.....: THE 1954 QRP C-Z PANEL :.....

<u>COUNTRIES</u> :--	<u>3.5</u>	<u>7</u>	<u>14</u>	<u>21</u>	<u>28</u>	<u>Total</u>	<u>ZONES</u>	<u>C+Z</u>
P.Huntsman	17	47	56	-	-	75	27	102