

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

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.....
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Q R P SOCIETY



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PRESIDENT: Mr E. Banks, GC2CNC.
PAST PRESIDENT: Mr A.O.Milne, G2MI.
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Deadline for publication in next issue is the 12th of next month.

EDITORIAL.

The Ws have much more expressive exclamations than we can muster over here. For instance, I should have said "Well, for crying out loud!" the other day, had I been a W, when I got the two letters from which I quote the following -- The first letter said, "...Although my interest in QRP remains as strong as ever I shall not be renewing my subscription to your Society as I can find nothing interesting in your magazine, especially from a transmitting point of view..." The second letter said, "Congratulations on the excellent quality and contents of this months mag. It really is interesting -- a mag one can take a pride in having and in reading..." "Well, for Lands sakes alive!"

Leaving aside the obvious rejoinder that it is difficult to please everyone all the time, let us consider for a moment what MOST of us OUGHT to be interested in. Certainly we all subscribe, in a general sense, to an interest in Low Power, but within that overall description lie as many and as varied separate aspects of the hobby as

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are to be found in amateur radio as a whole -- except in one solitary instance. YOU CANNOT BE QRO IF YOU ARE TRULY PORTABLE. That is the one sphere of the entire radio hobby which is exclusively QRP. By all the laws of logic, therefore, it should follow that MOST of our members OUGHT to be thinking, designing, constructing and working PORTABLE.

In the five years past we have, perhaps, failed to give portability its true importance in our mag. Let us try and amend the position by making this a PORTABLE YEAR.

Towards this objective we have, this month, arranged the basis of a PORTABLE GROUP for which Geoff Baskerville (65 Hazon Way, Epsom, Surrey) will act as reporter for News and Activity items. Geoff is one of our keenest enthusiasts in this sphere and he is intensely anxious to do justice to the new Group if every member who is at all interested will play their part by backing him up. Don't forget -- if you have reports of /P activity, proposed /P skeds, sudden /P brainwaves or well proved /P advice, write to Geoff who will sub-edit all items into a readable monthly column. This is rather important, OMs, as it does help me very greatly in compiling each issue by reducing the sorting out which otherwise fall upon me at HQ. It does NOT, of course, apply to design or constructional articles which should always be sent direct to HQ.

To give you something to get your teeth into at the start we should like to have your views on (a) entering a team for the 1955 RSGB Low Power Field Day, and (b) running a contest for the Best Portable Rig constructed by a member during the year -- possibly divided into 3 sections, Rx, Tx and Tx/Rx. We might even run to a suggestion (c) that we organise a Portable Contest of our own!

We are quite willing to make the next issue a PORTABLE SPECIAL, so don't be introspective -- let us have your ideas so that WE can judge if they are any good or not.

DARE WE, FINALLY, SUGGEST THAT SEVERAL OF OUR MEMBERS WHO BELONG TO THE R.A.E.N. COULD GIVE US SOME FINE CONSTRUCTIONAL ARTICLES?

.....: DESIGN OF QRP SUPER-HETS :.....
THE FINAL ARTICLE OF THE SERIES
by DAVID WHITE, G3JKA

We have come to an end of the discussion of the separate stages of the receiver and all that remains is to suggest some practical arrangements of these individual circuits.

Fig 1 shows the most simple layout possible: a frequency changer followed by a regenerative detector. The only points of interest here are the choice of IF and the choice of oscillator frequency. Up to about 4 Mc/s an IF of 465 Kc/s should be satisfactory. For higher signal frequencies the IF should be raised to higher than 1.6 Mc/s. The oscillator frequency should be chosen so that the image falls on the side of the signal where there is least possibility of strong signals giving image troubles.

These remarks apply in general to most of the following circuits.



FIG. 1.

The next step is to place an IF stage between the frequency changer and the detector. This gives added selectivity and greater sensitivity.

As a further step towards improving results at high frequencies

an RF stage may be added but it is probable that in most cases the circuit of Fig 2 will prove the better solution.



FIG 2.

The first IF should be above 1.6 Mc/s and the second may be 465 Kc/s or preferably lower. The IF amplifier may be inserted or not as desired, and the detector may be regenerative -- it certainly

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should be if the IF amplifier is omitted.

Finally we come to what I consider to be the most ambitious QRP superhet that could be tried with present components.

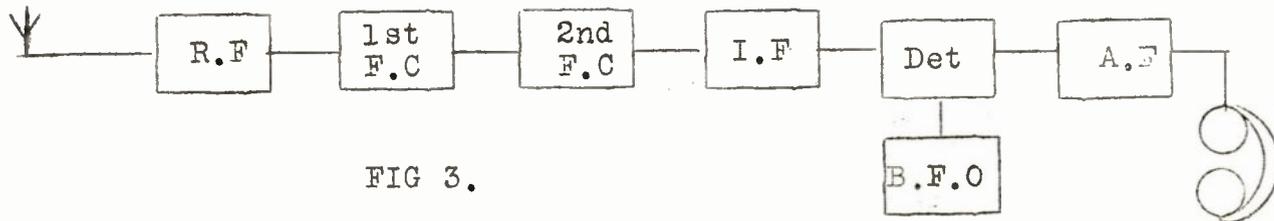


FIG 3.

Fig 3 comprises a receiver covering amateur bands from 160 to 10 metres which is a double super-het with a high first IF at 2.5 Mc/s and a low 2nd IF of 100 Kc/s. This 2nd IF could easily be 85 Kc/s to take advantage of available components. It should be possible to keep the HT requirements within the 1.5 watts limit without sacrificing efficiency in any way.

Higher sensitivity and better image rejection can be achieved in any of the above circuits by the addition of RF regeneration and with this addition a layout such as Fig 3 would be able to compete very favourably with many commercial receivers.

..... SOCIETY NEWS & ACTIVITY

BRUCE PRIDGER, W0SAK, of New Bloomfield, Missouri, U.S.A uses a 6F6/2E26 transmitter running a max of 36 watts into a $\frac{1}{2}$ wave end-fed antenna, with a National NC173 Rx. Bruce is 15 and would like to correspond with a young English ham interested in comparisons of equipment and operational technique.

DAVID WHITE, G3JKA, is likely to be operating QRO for a period in the near future, but he will not completely desert QRP for, as he says himself, "In working someone on QRP one knows that at least one

can do something better than the QRO only boys."

TED JONES, G3EUE, has a new rig (6J5 osc - EF50 buffer - EF50 PA) running 1 watt on 80 metres. Ted suggests a 3.5 Mc/s QRP contest for a week-end during the early summer -- what say, chaps; any support?

GEORGE TILLET is putting in all his spare time studying for the May RAE and has been completely inactive in consequence, though he has laid some extensive plans for a QRP station in the event of his passing the exam.

NORMAN BASON is in the thick of moving to a new home and is very happy at the prospect of having inside "shack" accommodation and room for a more ambitious antenna system. He hopes that these advantages will make up for the drop in his contest scores in the mean time (Best wishes for the success of the move, Norman, and I hope the XYL is quite fit again now).

N.J. McINTOSH has been QRT for a while owing to his wife being rather seriously ill -- and likely to be confined to bed for the rest of this month, with Mac doing all the chores. (May she be well and truly on the mend by the time you get this, OM!)

BOB KENYON is interested in the possibilities of using Ferrite Rod aerials for short wave portable work -- has anyone any gen on the suitability of them for high frequency work?

A.M.H. FERGUS, G2ZC, whose health has not been any too good for several years, has had a particularly bad time during the deplorable weather this winter. His radio activity, in consequence, has been nil, but he is still able to give us greatly valued comments and advice on matters connected with the Society. This we appreciate all the more in view of the difficulties with which we know he has to contend. (We all sincerely hope that a fine summer will put you on your feet again, Fergie).

BILL HARDIE (Oshawa, Ontario) says that his plans for an all-transistor Rx have fallen through (for the moment only, we hope, Bill) and that surplus radio gear is almost extinct in Canada though it

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seems plentiful enough across the border.

JIM PEARSON complains that his QTH, Barrow-on-Humber, provides him with an immense surplus of fish-phone. His regular Rx, a O-V-1, has been tried with an RF stage without any apparent improvement and he is anxious to know if any member has found an answer to his problem. Jim would like to form a local QRP Group so any member in the district is asked to get in touch with him:- 1, Sheffield Villas, New Holland, Barrow-on-Humber, Lincs.

BILL IBALL queries the QTH for G3GIH, G2BVM and G3ETP, heard at various times recently on Top Band. ('5GIH is Middx and the others are, as you thought, Suffolk, OM). Bob again promises to let us have gen on his QRP Rx. He says it is quite a conventional job and stresses that operating is the important aspect. He is in need of a 6-pin Raymart coil base -- can anyone oblige?

BOB IBALL (if I haven't mixed him up with brother Bill again!) is greatly assisting our hopes for founding a W Group by sending his copy of the mag each month to Stewart Perry, W1BB, who in turn passes them to a friend. Bob has had veries on his Transatlantic Logs from W4HFC & W4ZQ. (Thanks for info on '3HKQ, Bob -- have passed to G.B.)

.....: STRAIGHT FROM THE STATES :.....
Reported by Bud Rugel, WØPRM

Radio conditions seem to have dropped to another low here in the U.S. Of course, there are days when the bands are open and much Dx is heard, but this is the exception and not the rule.

W2CUQ/9, Will, uses a transceiver at 5 watts input with a 130 ft longwire. Has worked 21 countries and works consistently into VK and ZL on 40 CW. Promises to join the Society soon. W8FRD, Al, uses 6V6 VFO - 6L6 PA running 20 watts; Rx is an NC173 and antenna a 66' Zepp. Al needs only Asia for WAC on 80 and already has WAS on 80 and 40. He has worked such as KH6,G,FA,VP4,FP8,KP4,KV4,KG4,CO,VP7,VP9,KZ5 and VE

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on 80 and is also interested in becoming a member.

At WØPRM a new country worked is OX3SL on 20 CW. In process of building a 2 element "shortbeam" for 20 metres. Elements only 20' long, centre loaded coils and boom only 7 foot. Cost about 20 US dollars. Properly tuned it gives a 5 db gain over a folded dipole. Hope to give operational details next month. Of late have heard several DX stations who use such beams; W6SAI, ZD6BX, EL2X. The 2 el "shortbeam" is a perfect antenna for restricted space and QRP.

From Jan QST & CQ: ZD6EF operates QRP on 40 CW. FB8BR runs 8 watts on 20 with ground plane, has been worked by many Ws. Understand some W station had licence suspended when found to be running 1300 watts!! JZØDN ex-PACØDN on Biak Island uses battery power on 40 CW only. Top Band News: Look for HK4DP on 1870 and 1890 Kc/s with KW from 0500 to 0900 GMT Sundays. TI2BK operates 1805 and 1830 Kc/s 150 watts week-ends. VP7NG on 1880 Kc/s with 40 watts.

Till next month, best regards, Bud, WØPRM.

.....: QRP SOCIETY SPARES SERVICE :.....
ALL CORRESPONDENCE DIRECT TO MANAGER: G5CED, 17 Ethel Rd, Broadstairs.

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19" bl crackle 813 P. stage, grid & plate mtrs, grid cct band switched for 14, 21, 28 Mc/s with PA plug in coils each band, volt stab grid supply, separate power supply on chassis for this & 400 v clamp tube, 6V6 for screen of 813, complete with 813, VRL50/30, 6Y6 & 5Z4. Any reasonable offer and again terms arranged.

Both above items MUST BE SOLD -- buyer arranges collection and pays carriage.

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S A L E S.

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materialise our small credit balance will be absorbed in the first quarter of the year. In the early days of this Society your Secretary-Treasurer was more than willing to meet any small deficits which might arise and he did so on several occasions from his own pocket. Owing to radically altered circumstances, however, he can no longer accept such responsibilities -- nor, at this relatively advanced stage, should it necessary for him to do so. If all members receiving subscription reminders would make a point of prompt payment no difficulties would be encountered.

..... "SIMPLE TOP BAND TX"

by Victor Brand, G3JNB

For the first transmitter the majority of new licencees go through their radio books for a reliable and well proven design. Many, like myself, are attracted by the VFO circuit in the RSCB publication, "Simple Transmitting Circuits". The simplicity of that design, making its construction almost foolproof, does much to ensure that even the beginner's endeavours are rewarded with a very stable and T9 note over the whole Top Band. However, whilst the cathode follower section isolates the oscillator most effectively, it does of course reduce to a certain extent the output from the unit as a whole, resulting in insufficient drive for a straight connection to the PA. I do NOT recommend, as mentioned in the booklet, inserting a tuned circuit in the anode of the second half of the 6SN7 -- peculiar things will happen to your stability!

It is, therefore, obvious that a small amplifier is necessary in order to present a useful RF voltage at the grid of the PA.

Using cheap valves and receiving type components, the illustrated transmitter was built up on an old chassis and panel (since "titled" with black crackle to "look good"!) and has so far provided eighteen months of enjoyment, reliable service and good reports.

Power input can be varied, if you wish, and it is quite a good idea to have a switch to put the PA HT to either the 400 volts or to the 200 volts line of the previous stages, thereby being able to run, say, 7 or 2 watts at will. Using phone on 2 watts input will give reliable communication over 5 to 10 miles radius; for the same input on CW it is only necessary to look up the lists published from time to time in these pages to see what some of the "Top Band Tycoons" can do on a few milliwatts -- relatively these two watts are almost QRO!

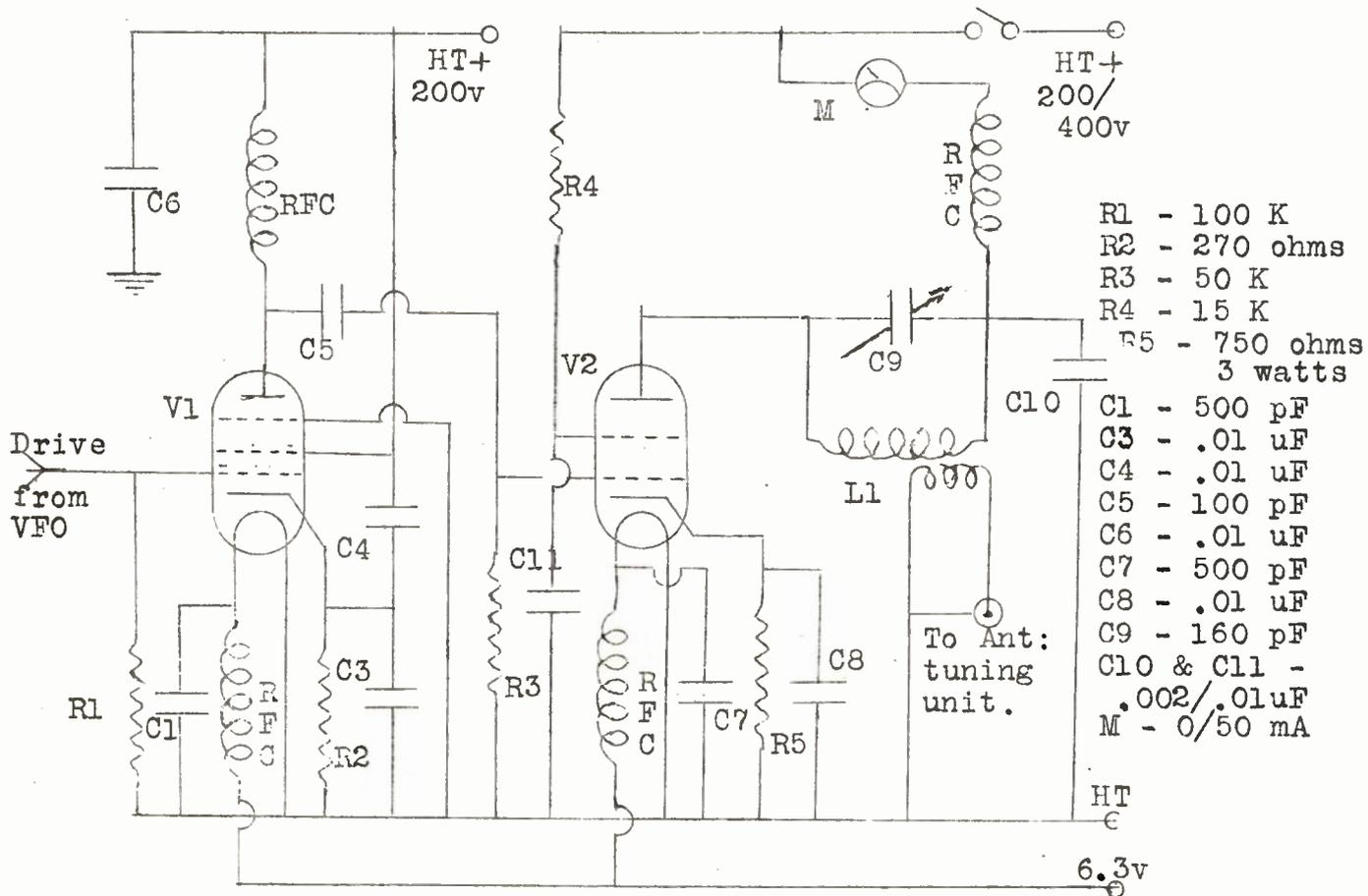
When constructing this (or any) unit don't make life hard for yourself! Sit down and work out the best orientation for each valve-holder and large component to give the shortest leads. By "leads" I mean the tags on the components themselves -- with the exception of the supply leads hardly any extra should be used at all in the actual business departments of an RF circuit.

A few points regarding this particular rig. Do use a locking ring for the EF50 and its base; the heater chokes are three layers of 18 swg enamelled copper wound on small pieces of dowel about $\frac{3}{4}$ " long and $\frac{1}{8}$ " diameter -- put one in the VFO as well; these and their associated 500 pF micas should be right up on the valve-holder tags; if you are using the rig for both phone and CW, change the PA decoupling condensers from .01 to .002 uF; for CW operation the Clapp oscillator can be keyed quite comfortably, thereby practically eliminating the possibility of key clicks in nearby BC sets, which can arise from keying a heavy PA cathode current -- the 6V6 under no-drive conditions runs as a Class A stage, drawing about 20 mA at 250 volts HT; on pressing the key drive is applied and the grid is biased to the right operating point.

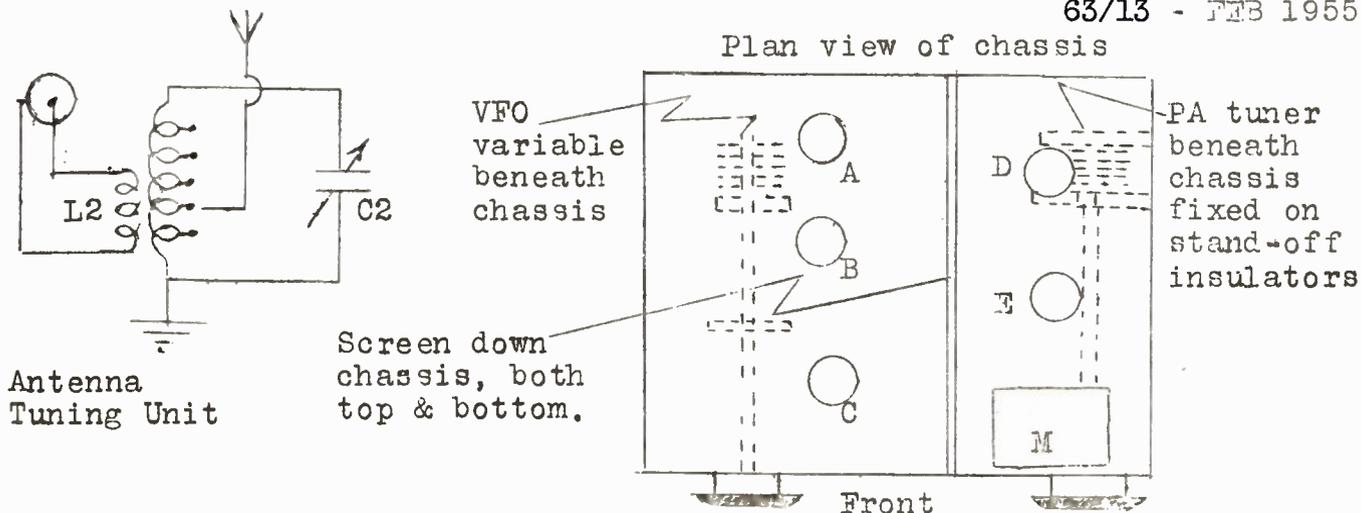
By using plenty of soldering tags and strapping everything down to avoid things "flapping in the breeze" there should be no trouble at all from drift, chirp or hum.

The antenna tuning unit is quite straight forward and enables the rig to be matched to almost any piece of wire hung in the garden, providing you can also rig a reasonable earth or counterpoise.

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V1 - EF50, Class "A" B amp. V2 - 6V6, class "A" amp driven to Class C
 L1 - 60 turns, 1½" diameter; link - 3 turns.



L2 consists of 40 to 50 turns on a 2" dia ribbed former, tapped every third turn, with a 3 turn link. In the plan view, A is the VFO coil, B is the 6SN7, C the EF50, D the PA coil, E the 6V6 and M the meter. Power supplies, including the stabiliser, are on a separate chassis. The antenna tuning unit should be placed close to the antenna lead-in and linked to the rig by 75 ohm co-ax.

..... CALIFORNIA -- FLASH -- K6DCF

Enrolment just received by airmail from Joe C. Plute, K6DCF, of Livermore, California. Joe is very enthusiastic about the Society and is a confirmed low-power man. He is ex-WØVQT, W3SGE and W9TMT, so is no newcomer to Ham radio. He runs between 16 and 20 watts input to a war surplus ARC5, the Rx also being ARC5. He works mainly 40 and 80 CW and his best Dx is KC6, Caroline Islands. (A very warm welcome, Joe, and do please let us hear often from you with news for the mag

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.....: GERMANY -- F L A S H -- NEW ZEALAND :.....:

Before the last paragraph was complete applications for membership arrived from Dr Hermann Edelmann, DJ1VS, of Nurnberg, Germany; & from Bevan Robertson, ZL232, of Levin, New Zealand.

Hermann promises to do all he can to spread the QRP gospel by reporting Society activities to his local club and to "DL-QTC" (We are interested to hear about your gear, OM, and can we fix skeds with some of our G members?)

Bevan is a member of the "NZ Association of Radio Transmitters" and is expecting to change his present "listeners" call for full transmitting ticket before the summer is out. In his first letter he sends details of the ZL hams Field Day held on the 12th and 13th of Feb -- max input to the final must not exceed 20 watts and the Tx plus Rx must be portable, either CW or phone, all power from batteries, PE set or vibrator. (Let's hear more from you, Bevan)

.....: TRANSISTOR GROUP :.....:

It is with great pleasure that we announce that Roger Taylor, G3JAL, will be acting as Reporter for the new TTX/TRX Group. Do please give him your wholehearted backing, OMs -- you should be playing a big part in our 1955 urge for greater portable activity! Who will be first with a really efficient transistor transceiver?

Above all do remember to keep in touch with Roger:- R.C.Taylor, G3JAL, 67 Colliers Water Lane, Thornton Heath, Surrey.

.....: QRP SOCIETY CONTESTS :.....:

As always, a slow start to contest reports and, equally as always the C-Z Panel leads the field for enthusiasm and support.

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THE C-Z CONTEST (for the Partridge Cup now held by Peter Huntsman) is for the highest annual (Jan to Dec) score of countries and zones heard on five bands with receivers of not more than $1\frac{1}{2}$ watts HT consumption. A county or zone heard on more than one band may count once only in the total.

Mc/s:--	<u>3.5</u>	<u>7</u>	<u>14</u>	<u>21</u>	<u>28</u>	<u>TOTAL</u>	<u>ZONES</u>	<u>C plus Z</u>
E.W.Gardiner	11	5	54	11	-	68	20	88
Ted Stonestreet	13	14	34	-	-	44	15	59
Norman Bason	-	7	14	-	-	17	12	29

Well -- thank you for that wonderful start, E.W.G! You certainly seem to have taken my remarks of last month to heart, and we wonder if Keith Ranger will be able to compete with it from his outpost in Trans-Jordan (we can't expect a log from him yet owing to the long mail delivery time). Nice to welcome Ted back to the Panel, too! And what has happened to you, Peter -- no log, OM?

THE "200" CONTEST (for the GC2CNC Cup now held by Sam Hall, G2AOL) is for the largest number of British Counties worked during the year (Jan to Dec) on three bands with a maximum power of 2 watts.

Only one entry this month -- G3EUE, with a score of 11 on 3,5 Mc/s.

Calling Fred "Boffin" G2BOF -- can we have the cup back, OM, so that we can get it re-engraved and sent on to Sam? Sorry to upset the table decorations for the 1955 Sutton & Cheam Dinner (Hi!) but another 7 points in Dec would have done the trick for you -- better luck this year again!

Regarding the TRANSISTOR TRANSMITTING section which grew up as a portion of this contest during the past year, we suggest that it should be given full status as a contest in its own right for the future. What say, G3JAL? If you have any ideas on variations of rules let me know as soon as possible. I, personally, feel that Transistor technique is of such tremendous importance to this Society that it warrants a contest.

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.....: GRP SOCIETY STUDENT GROUP :.....

On page 11 of the last issue I announced that Geoff Baskerville of 65 Hazon Way, Epsom, Surrey had been appointed Student Scheme Manager for 1955. This, you will notice is in addition to his duties, mentioned above, in connection with the new Portable project, and I feel that it is worthy of the highest praise that, during the past month, he has written a personal letter to each student and to each tutor asking them to let him know briefly whether they feel their progress has been satisfactory and whether they have any suggestions for the improvement of the scheme.

From the whole lot Geoff has had ONE answer!

If it were not for the fact that I know deffinitely that some, at least, of our pupils are enthusiastic in their praise of the help they have had from the Scheme, I should think that the whole thing must be a tragic flop. What is even more apparent, gentlemen, is that it is downright rude! In five years of acting as Hon Sec and Editor for this Society I have become hardened to the occasional snubs which are cast at me -- the satisfaction of knowing that you are giving pleasure to the majority far outweighs the distress which the few would have me suffer. But to be entirely ignored by 99 per cent is an extremely damp-ing experience for anyone who is freely giving time and taking considerable trouble to endeavour to benefit those concerned.

Geoff has been appointed for YOUR benefit, chaps -- he and I have several schemes in mind which may be of considerable interest and help to you -- so do please try and give him the help (to say nothing of the common courtesy) which will enable him to help you by answering his letters

.....: FINAL WORD FOR THIS MONTH :.....

Please turn back to pages 9 and 10 -- subject. . . . Subscriptions!