

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

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JOURNAL OF THE
Q R P SOCIETY



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PAST PRESIDENT: Mr A.O.Milne, G2MI.

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Deadline for publication in next issue is the 12th of next month.

.....:.....: FORWARD PATTERNS :.....:.....:

The first issue of this journal was dated September 1949. We have reached our sixth birthday. We have achieved much of which we can be justly proud, but, as always, our policy is to look forward, not back. The celebration exhibition which we have arranged for next month, therefore marks our confidence in the future of QRP rather than our satisfaction with the past. There seems to be little doubt that the transistor has laid the pattern for forward progress, and what could be more essentially QRP than that? Already a large number of our more active members have acquired these mighty midgets -- some have gone so far as to make their own, indeed -- and a good deal of practical work has been carried out with them.

May we urge more and more members to transistorise! May we look to the time, surely not so far ahead, when this journal will not have to depict the diagram of a valve at all!

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.....: THE WALTON AMATEUR RADIO EXHIBITION :.....
ORGANIZED BY THE QRP SOCIETY

On SATURDAY, 30th OCTOBER 1954, the first exhibition to be organized by the QRP Society will be opened in Walton -on-Thames by the President of the Radio Society of Great Britain, Mr A.O.Milne, G2MI.

This is OUR EXHIBITION -- our sixth anniversary celebration!

The purpose of the displays will be to convey to the visitor a comprehensive idea of the varied and often valuable work being carried out by radio amateurs; to emphasise the efficiency of QRP, especially as regards "local" radio communication; to underline the increasing uses to which QRP is being put; to review all types of contemporary equipment, and to mark the birth of the transistor "era".

The exhibits will be laid out as follows:

- Stand 1: A display of modern components arranged under the personal supervision of Mr F. Hicks-Arnold, G6MB.
- Stand 2: A display of historical items of radio interest from the fine collection of Mr A.W. Knight, G2LP.
- Stand 3: The BRITISH AMATEUR TELEVISION CLUB.
- Stand 4: Messrs PROOPS BROS of KINGSTON. On this stand a large and varied assortment of new, "surplus" and ex-service radio gear including components, valves, receivers, transmitters and test equipment will be for sale at extremely attractive prices -- an unrepeatable opportunity for the constructor.
- Stand 5: The sound controlled oscilloscope, a special attraction for the junior visitor.
- Stand 6: Messrs DATA PUBLICATIONS. Current copies of Radio Constructor and all available back issues may be obtained here, as well the full range of the firms Data Books, report pads, filing system for QSO records, and their recently introduced radio

- constructor's transfers, "Panel-Signs".
- Stand 7: The RADIO AMATEURS EMERGENCY NETWORK. This stand will carry the "head quarters" station and plotting layout during their active demonstrations as well as displays of their latest highly QRP gear and much interesting literature.
- Stand 8: The INTERNATIONAL RADIO CONTROLLED MODEL SOCIETY will show a selection of their most interesting developments in extreme miniaturisation of receivers, escapments and transmitters as well as several fascinating working models.
- Stand 9: A surprise exhibit specially loaned by the NATIONAL PHYSICAL LABORATORIES, Teddington.
- Stand 10: The EXHIBITION Q R P STATION, G3JNB/P, which will be "on the air" during most of the afternoon.
- Stand 11: The Q R P SOCIETY, displaying many of the developments being carried out by members of the Society including the very successful G3IEE transistor transmitter, the FDR4 receiver described by G3JKA in this issue, a 70 cms Tx/Rx and other items of miniature and very low power equipment.
- Stand 12: A QRP sized electronic organ providing 3 octaves, loaned by The NATIONAL PHYSICAL LABOPATORIES, Teddington.

"Live" demonstrations will be carried out continuously throughout the afternoon from 3.0 pm till 8.0 pm, enabling the visitor to hear phone contacts being made by station G3JNB/P; to see and hear the RAEM dealing with a specially arranged disaster of national dimensions; to see the IROM Society's already famous bridge laying tank in action; and to see, hear and take part in demonstrations of amateur television on closed circuit.

This really fine exhibition, in which there is so much of great interest to every type of amateur and to the "lay" public as well, has

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only been made possible by the willing cooperation of certain individuals and of the clubs and societies who are taking part. We cannot record sufficiently our thanks to all those concerned for their invaluable help, and we would point out that here indeed is a demonstration of the true Amateur Radio Spirit for all these people who are combining to provide an exhibition of unparalleled coverage are doing so without thought of personal gain or kudos. Our best thanks to them, & infact the only thanks we can really offer, is to provide a record attendance and thereby show our interest and appreciation.

Your attendance, too, will help the cause of a most deserving local charity, The Chorister's Parents Guild of St Mary's, Walton, the funds of which are devoted to the replenishment of robes, books and other essentials for the continuance of the excellent work being done by the Walton Parish Choir.

The exhibition is to be held in the Church Hall, adjacent to St Mary's Parish Church and to the centre of the town, and may be reached by the path leading through the churchyard from Church Street. London Transport and Green Line bus services from all districts stop within a few yards of the hall. The Southern Region provides a half-hourly service throughout the day to Walton Station from Waterloo, Surbiton, Guildford, Woking and all stations on the Portsmouth line, all trains being met by the special Walton Station bus which stops at Church Street.

For motorists the police have granted special parking facilities on the South side ONLY of Church Street, EAST of the entrance to St Mary's Church.

Admittance to the exhibition will be free to members of the QRP Society wearing the Society's lapel badge. Otherwise admittance will be by ticket, price 1/- (children half) obtainable at the entrance. Blocks of 6 or more tickets may be had at 8d each by application to the Hon Sec, QRP Society, NOT LATER THAN 23rd October.

..... DESIGN OF QRP SUPER-HETS.
THE FDR4 RECEIVER, by DAVID WHITE, G3JKA

This receiver was designed for one specific purpose -- Low Power Field Day, 1954. It embodies many of the principles outlined in this series of articles.

The circuit is a four valve superheterodyne covering 3.5 to 3.8 Mc/s. The frequency changer and IF amplifier are standard, apart from the RF gain control, R4, which is a potentiometer in the IF amplifier screen. This is to eliminate complications due to the need for bias batteries or split HT and LT negative bias.

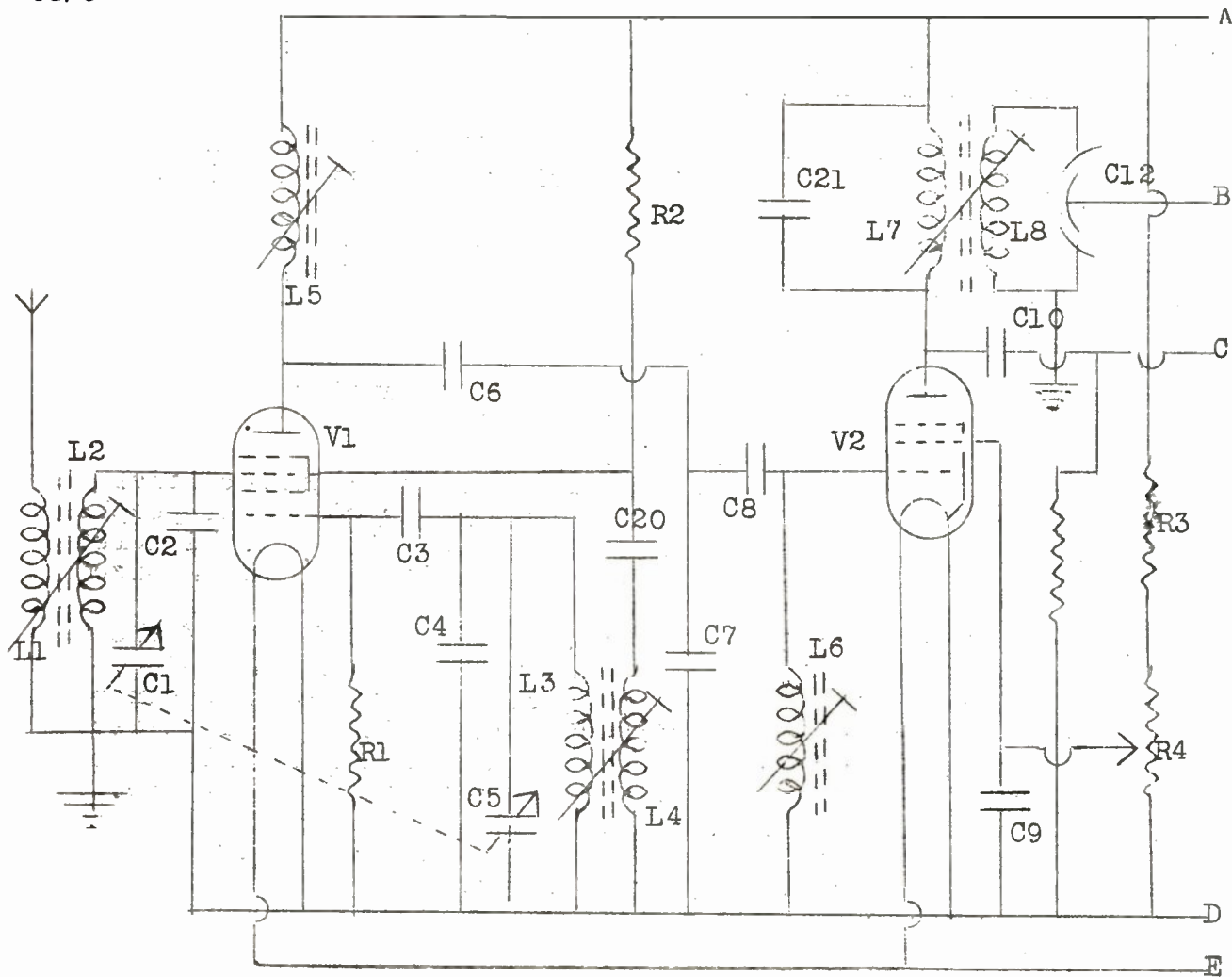
The IF frequency is 465 Kc/s and was set by putting the regenerative detector into oscillation and tuning it in on an 1155. The rest of the IF circuits were aligned to this.

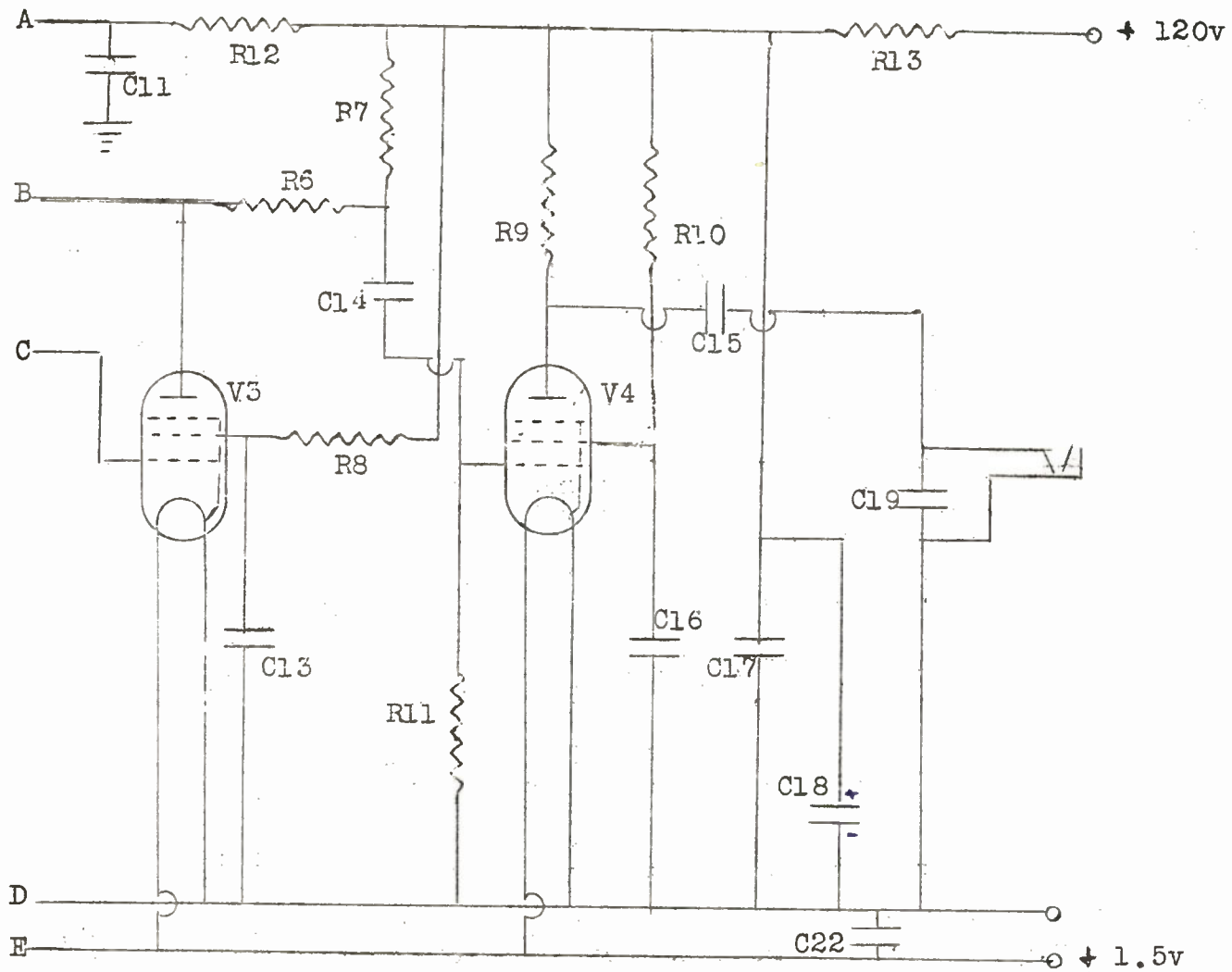
Regeneration is controlled by a solid dielectric differential condenser. The use of this type of condenser may surprise some people but the frequency is only 465 Kc/s and the losses will be negligible. Moreover, this type of condenser gives high capacity with small size and low weight.

The LF amplifier is quite standard. It may be omitted if the receiver is not to be used with a large amount of extraneous noise, but on a field day the noises off are generally not under ones control so that a fair amount of gain is desirable. R13 is inserted in order that the same HT voltage may be used on both Rx and Tx. If R13 is removed the HT consumption is approx 5.5 mA at 90 volts (ie, 495 mW). The LT consumption is 200 mA at 1.4 volts.

The receiver is constructed inside an ex-government box originally housing a Xtal monitor type 2. All coils and valves are screened by a system of copper partitions.

Although the receiver, as it stands, covers only 80 metres, it will cover Top Band with only a modification to the coils as shown in





the following table:-

	<u>L1.</u>	<u>L2.</u>	<u>L3.</u>	<u>L4.</u>
TURNS:	15	60	45	15
S.W.G:	36	36	36	36

COMPONENTS LIST:-- R1, 39K - R2, 39K - R3, 39K - R4, 100K ww - R5, 5Meg - R6, 3.9K - R7, 100K - R8, 220K - R9, 50K - R10, 100K - R11, 270K - R12, 6.8K - R13, 5.6K - C1, 50pF - C2, 220pF - C3, 300pF - C4, 220pF - C5, 50pF - C6, 220pF - C7, .03uF - C8, 220pF - C9, .1uF - C10, 300pF - C11, .1uF - C12, .003uF differential - C13, .1uF - C14, .05uF - C15, .05uF - C16, .1uF - C17, .1uF - C18, 10uF - C19, 500pF - C20, 470pF - C21, 300uF - C22, .1uF

COIL DATA FOR 80 METRES:--

- L1: 10 turns, 28 swg, close wound over L2.
- L2: 29 turns, 28 swg, close wound.
- L3: 26 turns, 28 swg, close wound.
- L4: 10 turns, 28 swg, close wound over L3.
- L5: 200 turns, 36 swg, single silk covered and enamelled.
- L6: as L5.
- L7: 175 turns, 36 swg, single silk covered and enamelled.
- L8: 50 turns, 36 swg, single silk covered and enamelled, wound alongside L7.

L5, L6, L7, L8 are all pile wound. All coils are wound on Aladdin type PP5892 formers, 13/32" diameter with appropriate dust cores.

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

TED JONES, G3EUE, who has been forcibly QRT for most of the year, will, we expect, be heard before long from his new shack up among the rafters. He has nearly completed what sounds like a really fb den in the attic with a newly laid floor and benches down the whole length on

both sides, and of course complete privacy.

DARTMOUTH & D.A.R.S., G3JEV, plan to come up on 1.8 during the winter and will be looking for other Society members. They have been mainly on 14 Mc/s with 5 watts through the summer. Member G2DPP is now a confirmed QRP addict (1.8 & 3.5, and a nice QSO with GC2CNC already in the log), and Ron Coleman has passed his RAE. Hon Sec '4RJ says the club is looking forward to the QRP contest again this year.

ALFRED "BUD" RUGEL, WØPRM, is interested in making skeds with Society members for the coming season on 80 and 40 Mc/s CW. Send him a line direct, chaps:- 304 North Park Boulevard, Independence, Kansas, USA. Bud is genuinely keen on QRP and skeds with him might well form the basis of spreading our creed through W, so this offer is not only one of interest but is of great importance for the furtherance of our Society doctrines.

ALLAN HERRIDGE, G3IDG, will be celebrating the third anniversary of his call just as this issue goes out. He has recorded steady going if no hectic activity and claims 666 QSOs with 348 stns in 17 countries and 32 counties. 304 QSLs have gone out with 219 received.

ALEC WEST, one of the foundation members of this Society, has been very quiet of late, but service condx are never conducive to high activity. Alec is stationed at Abingdon and does manage to get home for weekends sometimes.

NORMAN BASON, sends us a particularly interesting letter this month with details of some experiments that he has been carrying out. Unfortunately, Norman, with the QRP Exhibition drawing near we cannot yet give the idea full attention, but it certainly sounds as if you have something worth developing there, OM. Let's hear more!

MUF STERRY, is giving a lot of thought to the conversion of a deaf aid to a portable Rx. This should be an interesting development & we are curious to know why it has not been tried before. It would seem to be quite possible if only one band is asked for and TRF circuitry adopted.

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N. J. "MACK" McINTOSH finds that instructing RAF radio ops all day is far from conducive to evenings spent on construction of private gear. Even so he has got rid of his Hallicrafter S20 and is down to "brass tacks" on a QRP Rx at last. Let's know what transpires, Mack.

DAVID WHITE, G3JKA, apologizes for being unable to report any QSOs with VK or ZL by the Kingston & D.A.R.S. QRP Section station during Low Power Field Day. The station, however, did have a good day and everything went more or less according to plan.

ERNEST "MONTY" BANKS, G02CNC, is gradually working his TTX further and further afield. Since the TTX Tests he has worked G3IGW in Halifax and G3FTV/A in Ripon which is a coverage of 342 miles. He found 145 Mc/s open the other night and worked Cornwall for the first time -- G3AGA and G2BAT, both in Falmouth.

MIKE DRANESFIELD, G3JKO, has been having a gay old time on 80 & 160 with 2 watts, but seems to be completely baulked on 7 Mc/s. He is considering a change of antenna and wonders whether to go for a folded dipole or a 66' long wire end fed.

H. J. HINKS points out that we failed to mention in our description of his O-V-1 (June issue, page 6) that the panel and chassis must be of metal. He adds that "in the quantitative design stages due regard was paid to use of random aeriols, detector efficiency and performance etc, but, owing to the wide frequency coverage, the job is still a compromise."

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QSLs - - - QSLs - - - QSLs - - - !

Will every member who has not already sent in a copy of their card to HQ let us have one in time for our Exhibition (page 2 this issue). We particularly want to have all our members represented on the backcloth to our stand. We already have a very fair collection from our older members, but we want THE LOT!

.....: THE KALEVELD CUP, 1954 :.....

WINNER 1951: Monty Banks, GC2CNC
 " 1952: Bob Eldridge, VE7BS
 " 1953: Monty Banks, GC2CNC

The contest for 1954 will take place during the week Sat, October 16th to Sat, October 23rd.

The logs of all contacts during that period must be submitted, the three best contacts (selected by the Society Contests Committee) forming the basis of the individual scores. Contacts may be on any band, but must all be on CW. Max power must not at any time exceed 5 watts. A readability of less than R4 will disqualify the contact. A description of the equipment used during the contest must be submitted with the completed log.

SCORING WILL BE CALCULATED ON THE FOLLOWING BASIS:--

Mileage points x Band multiplier
Transmitter wattage

Mileage Points will be: 0/1000 miles, 100 points; 1000/2000, 200 points; over 2000, 300 points. Band Multipliers will be 160 metres multiply by 5; 80 x 3; 40 x 2; 20 x 1; 10 x 2; 2 x 5; 145 Mc/s x 10. Transmitter wattage will be considered as the power supplied to the final stage, no preceding stage to take more.

In cases of ties the overall value of the weeks log will be taken into account. The decision of the Contests Committee will be final and binding. Entries must be submitted not later than Monday 1st November.

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.....: STRAIGHT FROM THE STATES, by WØPRM

For you fellows interested in Transistor operation QST of February 1954 has a short article of interest on a VHF TTX. Built by K2AH using an RCA Transistor and a 22½ volt hearing aid battery dropped to 8 volts through a variable resistor input of about 24 milliwatts the signal was strong enough for modulation 25 miles away, but K2AH was unable to find a small enough audio system.

Some DX worked here at WØPRM on 20 CW with 20 watts input; VP9BL VP9BM/P, VP9BQ/P, VP9L/P, VE8YC Frobisher Bay, VE8PD Ferguson Lake N.W.T., TI2WR, VE1JI and assorted Ws. On the night of August 8th worked on 40 CW with "lash-up" 40 metre vertical, VK2AMD in New South Wales. This with 20 watts input and received RST 449, so v y psed.

Some QRP notes taken from September QST: On 7 Mc/s K2AKW raised KH6ANL with 3,75 watts input. K2DGT running 4 watts input to a 20 ft high "hunk of wire" raised on 7 Mc/s HB1MQ, KV4AE, PJ2AI, YV5FH and an SP9.

Would like to make skeds with any interested fellows this coming season on 80 and 40 CW. Till next month; 73, WØPRM.

.....: QRP SOCIETY SPARES SERVICE

(ALL CORRESPONDENCE direct to Manager: G3CED, 17 Ethel Rd, Broadstairs)

SALE:--

- (1):-- 8" speaker in polished wooden cabinet with volume control & matching transformer, £1.0.0
- (2):-- Goodmans 6½" speaker (no matching transformer), 4/-.
- (3):-- Assorted resistors, brand new, 7/6 per 100.
- (4):-- Henley "Selen" soldering iron (instrument type) 25W, 210/250v, used only twice, 10/-
- (5):-- Two surplus brand new 813 valves, offers or exchange for mains

TRF communications Rx or good power pack.

ALL ABOVE CARRIAGE PAID.

WANTED:--

- (1):-- Power Pack for R103 Rx.
 (2):-- DCC 90 valves.
 (3):-- 68T or 68P Tx.

.....: SOCIETY CONTEST REPORTS :.....

THE "200" CONTEST (for the GC2CNC cup now held by G2BOF) for the largest number of British Counties worked during the year (Jan to Dec) on 1.8, 3.5 & 7.0 Mc/s with a maximum power of two watts.

		<u>1.8 Mc/s</u>	<u>3.5 Mc/s</u>	<u>7.0 Mc/s</u>	<u>TOTAL</u>
1:	G2AOL - - - - -	57	39	33	129
2:	G2BOF - - - - -	61	21	15	97
3:	G3JKO - - - - -	30	45	5	80
4:	G3HJL - - - - -	6	24	-	30
5:	G3EUE - - - - -	-	21	-	21
6:	GC2CNC/ <u>TTX</u> - - - - -	11	-	-	11
7:	G2BOF/ <u>TTX</u> - - - - -	8	-	-	8

THE COUNTIES CERTIFICATE CONTEST for the ALL TIME total of 200 counties composed of a minimum of 50 on each of the set bands, working under the rules of the "200" Contest above.

		<u>1.8 Mc/s</u>	<u>3.5 Mc/s</u>	<u>7.0 Mc/s</u>	<u>TOTAL</u>
1:	G2BOF - - - - -	80	62	46	188
2:	G3JKO - - - - -	30	45	5	80
3:	G3HJL - - - - -	12	66	-	78
5:	G3EUE - - - - -	-	21	-	21
6:	GC2CNC/ <u>TTX</u> - - - - -	11	-	-	11
7:	G2BOF/ <u>TTX</u> - - - - -	8	-	-	8

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THE TOP BAND PANEL is an SWL annual contest (Jan to Dec) for the highest score of countries and counties heard on 160 metres only with receivers whose HT consumption shall not exceed $1\frac{1}{2}$ watts.

	<u>Countries</u>	<u>Counties</u>	<u>TOTAL</u>
D. G. Gordon - - - - -	6	45	51
Peter Huntsman - - - - -	9	39	48
Norman Bason - - - - -	4	28	32
E.W.Gardiner - - - - -	5	18	23

THE C - Z CONTEST (for the Partridge Cup now held by Peter Huntsman) is an SWL event 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 total HT consumption. The Runner-Up receives a years sub to the Society free (presented by Peter Huhtsman).

	<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>
Peter Huntsman - - - - -	20	56	109	26	2	117	35	152
Joe Stephenson - - - - -	22	5	94	2	-	98	25	123
Norman Bason - - - - -	20	27	74	-	-	84	30	114
E.W.Gardiner - - - - -	9	-	81	35	5	90	23	113
D.G.Gordon - - - - -	16	7	66	27	6	72	21	93

THE V H F RECEPTION CONTEST is an all time cumulative event for stations heard on 145 Mc/s only. Scoring is by number of stns x mileage. Total HT consumption of the Rx must not exceed 3 watts. Stns may be counted once only in each month.

	<u>Stns Hrd.</u>	<u>Miles.</u>	<u>Points.</u>	<u>Previous.</u>	<u>SCORE.</u>
G.V.Haylock, G2DHV	-	-	-	6327	6327
A.Stonestreet (May)	2	6	12	nil	12
" (August)	10	77	770	12	782
D.G.Gordon	-	-	-	282	282
E.Banks, G02CNC (May)	2	117	234	nil	234

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THE VQ2W CONTEST is specially designed to be of interest to our overseas members. WE REGRET THAT IN LAST MONTHS ISSUE WE QUOTED THE MAXIMUM POWER AS 5 WATTS -- THIS SHOULD, OF COURSE, HAVE BEEN 20 WATTS which is the maximum power recognised for the stations of members of our Overseas Division (see issue of Feb 1954, page 6). Scoring is based on distances -- Ten points are granted for the first two contacts at any distance; subsequent contacts are counted at 1 point up to 1000 miles, 2 points up to 2000 miles and 3 points over 2000 miles. Final placings are taken as the average of each entrants returns.

	REPORT	SCORE TO	THIS	AVERAGE
	<u>No.</u>	<u>DATE</u>	<u>MONTH.</u>	<u>TO DATE</u>
M.Dranesfield, G3JKO	3	321	146	155.7

.....: QRP SOCIETY - VHF GROUP :.....

The editorial staff suffered a severe telling off this month re failure to include certain scores in the VHF contest panel. Due regret is hereby expressed, but please OMs do keep your contest returns on separate sheets. Hope we have now got the scores straight -- if not, will you please RPT? This month Alec, G3BII, reports a most interesting contact with G3XC/M which arose when the latter was parked $\frac{1}{4}$ mile away and continued, with variations in sig strength corresponding to the contours of the intervening country, until G3XC/M was 7 miles distant. A.E.Stonestreet has found 2 metres open in brief spasms this month, though he heard nothing of the 2 metre contest. J.A.Cusdin did, however, when he paid a visit to G3DIV/P during the contest; he says that sigs were rolling in from all over the country .

The first QRP DATA BOOKLET, entitled "The Language of Amateur Radio", will be on sale next month on our stand at the WALTON AMATEUR RADIO EXHIBITION -- A dictionary of abbreviations and Q code - - 6d.

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.....: TRANSISTOR QSO REPORTS :.....

STATION G2BOF, Jack Harris of Sutton, Surrey, using an OC51 in the G3IEE circuit at 500 mW reports contacts with G3IQN (Edgware) 449; G3JQY (Hanworth) 569, GM3GUS (Dunfermline) 239, G3IUQ (Ealing) 429 for 100 mW, G3JII (Morden) 599, G3JJZ (Catford) 549, G6MU (Morden) 589, G3ACP (Chessington) 539, G3IRP (Morden) 599; G6QN (London SW 19) 589, G3JNB (Surbiton) 569, G3JZQ (Waltham Cross) 349, G3GZB (Wood Green) 33/49, G3HYJ (Norwich) 229, G3JCL (Wallington) 569, G2HAW (Hounslow) 33/49, G3DYQ (Lancing) 429, G3IVH (Norwich) 54/29 in daylight, G3JFT (Derby) 449 for 50 minutes solid except for one over when '2BOF used the 2 watt rig on account of excessive QRM, G4DH (Ashted) 579, G3HQX (Mitcham) 599, G3ILC (Kingston) 579.

G2BOF can now claim Surrey, Middx, London, Herts, Sussex, Norwich, Fife and Derby -- 8 counties towards the QRP "200/TTX"!

STATION GC2CNC, Monty Banks of Jersey also using a G3IEE circuit sends us the following report:-- July 15, G2NJ (Hunts), GC3HFE (Guernsey); July 18, G2HAJ (Hants); August 15, G6GM (Devon), G2JF (Kent), G3HDQ (Cheshire); Aug 16, GW3ZV (Glamorgan); Aug 17, G3GQS (Cornwall); Aug 26, G2HDT (Staffs), G3FTV/A (Yorks); Aug 29, G3JQI (Sussex).

TRANSISTOR REPORTS: All members using or experimenting with Transistor transmitters or receivers should, please, regard it as a really important duty to pass reports and full information to us for inclusion in the mag. The full report on our recent Transistor Tests is not yet complete and will have to be held over to next month in order to enable the completion of the analysis. Meantime all members can help by reporting Transistor news of any kind -- the importance of the transistor in the future of radio must now be obvious to everyone, and it is certainly the root of QRP.