

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

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JOURNAL OF THE
Q R P SOCIETY



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.....Published in the last week of each month:.....

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.

..... Q R P SOCIETY TRANSISTOR TESTS
PRELIMINARY REPORT

Tests held on Sunday 15th, Monday 16th and Tuesday 17th of August, 1954, were well supported by the listening amateurs, but due to strong static discharges caused by thundery weather on Sunday and Monday the reception conditions were not at all favourable. Tuesday evening, however, showed some improvement and better results were obtained. It is now thought that the tests should, in future, be held at a later hour because, even when conditions are good, the relatively low power of the transistor transmitters does not provide a signal capable of cutting its way through telephony interference (such as fish phone) at distances greater than a few miles; by eleven pm, however, Top Band has usually quietened down and there is every indication that long distance working should be possible.

(Please turn to page 15)

57/2 - August 1954

.....: DESIGN OF QRP SUPER-HETS,: by DAVID WHITE, G3JKA.

REGENERATION: - (For diagrams see page 5)

The use of regeneration enables a high performance to be obtained with few valves. However this is at the expense of an increase in the difficulty of handling the circuit. For this reason, in commercial practice, regeneration is rarely encountered. The QRP enthusiast should be willing to put up with such difficulties.

Regeneration is used for two main purposes, (a) to improve the selectivity and (b) to increase the sensitivity. In a super-het (a) is normally best achieved in the IF stages and (b) in the RF stages.

R. F. REGENERATION -

This is most often used when the Rx has no RF stage and will improve the image rejection at the higher frequencies. The simplest way to do this is to take some of the signal frequency energy from the mixer anode and feed it back to the grid circuit. It is not practicable to vary the amount of feed back by varying the electrode potentials of the mixer. Thus a variable condenser in series with the feedback coil must be used. The circuit is shown in Fig 1. The degree of RF selectivity obtained is so great that, if the signal and oscillator circuits are ganged, it will be necessary to provide a trimmer, adjustable from the front panel, to compensate for tracking errors.

A better method of obtaining the same result is shown in Fig 2. Here a separate valve is used to give a better control of regeneration. If battery valves are used the feedback must be taken from the anode of the regeneration valve and in this case it will probably be found that a very large effective capacity has been shunted across the mixer grid coil. If the use of a triple-wound coil is not desired the aerial may be fed as shown in Fig 3.

NEXT MONTH - - - - - A LOW POWER "FIELD DAY" RECEIVER, by G3JKA.

I. F. REGENERATION:-

Here we are mainly interested in obtaining higher selectivity with a certain amount of improvement in sensitivity. Feedback is usually applied from anode to grid of the IF amplifier via a small capacitor. Careful adjustment of the tuning of the grid and anode windings of the associated IFTs is required to achieve optimum results. Single ended valves are best and the feedback capacitor can be two pieces of wire run close to each other since very little capacity is needed.

It may however be more useful to consider regeneration as applied to the detector. Here the circuits can be the same as would be used for detection in a TRF set. It may be advantageous to use the circuit shown in Fig 4. To obtain the highest degree of selectivity it is desirable to use the highest possible value of grid leak R1. When a pentode is used the screen voltage should not be higher than 20-30 volts. The anode voltage should be as high as possible consistent with the valve ratings. If trouble is experienced with rough regeneration, and assuming that the grid leak and condenser are not at fault, the screen volts are probably too high.

This circuit is capable of very high selectivity and is probably the most sensitive for use in a QRP receiver. Due to the large gain obtainable it is desirable to control the gain of any preceding IF amplifier to prevent blocking. It is not, however, always necessary to include an IF amplifier; the detector may immediately follow the frequency-changer. If a regenerative detector is used it will not of course be necessary to include a BFO.

- - FOR ALL DIAGRAMS SEE PAGE 5 - -

WALTON-ON-THAMES AMATEUR RADIO EXHIBITION - - - - - OCTOBER 30 1954
ORGANISED BY THE QRP SOCIETY

Entry free to members wearing the Society badge.

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

Some Dx worked by W5MCO using 7 watts input on 7 Mc/s CW: DU7SV, KG4AT, KL7AW, PJ2CE, TI2TG, TI2PZ, JALCE, GW3ZV, VK, ZL etc.

FO8AD is being widely worked in W land on 7 Mc/s CW. He uses a 6L6 xtal osc running 10 watts. QTH is Rapa Island.

There is a nice foto of VQ2W in June 1954 issue of QST.

F9UC/Corsica operates 20 metre phone using 6V6/807 with 20 watts input and folded dipole antenna.

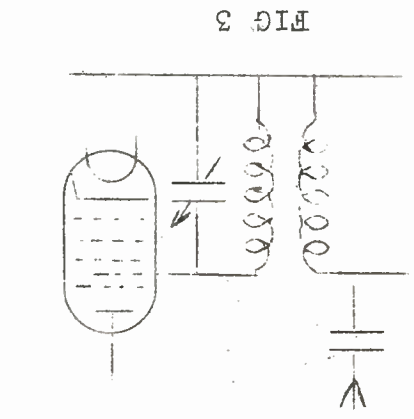
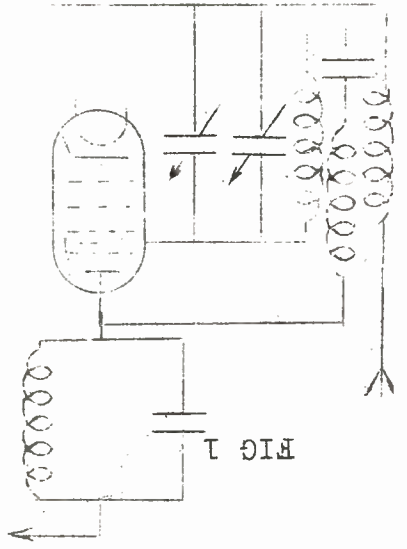
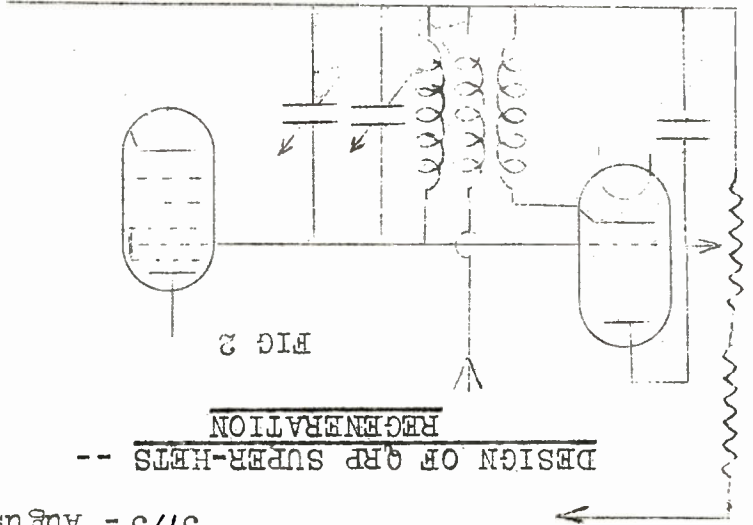
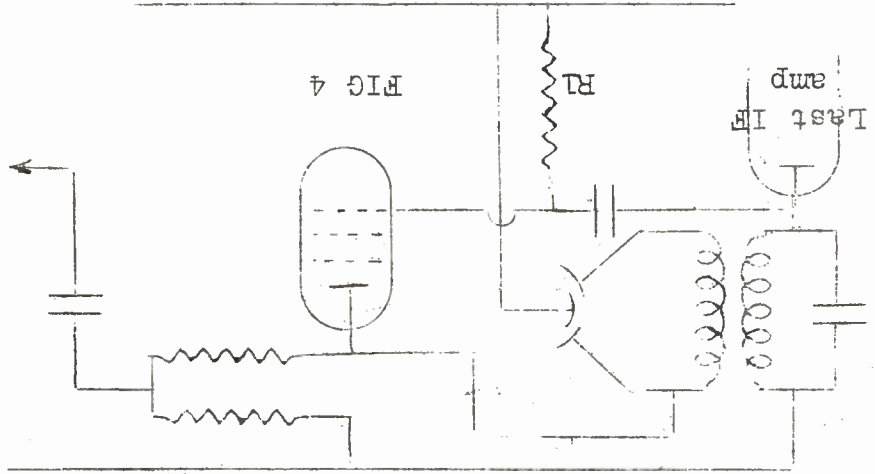
For you VHF boys: Note in August '54 QST in "The World Above 50 Mc/s" -- FASRJ Algiers, worked F9BZ Toulon last June 12th on 144 Mc/s using only 2 watts input and folded dipole antenna. The distance is nearly 600 miles.

The set-up here at WØPRM is a vfo-dblr-pa rig running 20/35 watts input, with 66 foot Zepp xmitting antenna. Rx is a HQ 140x and Windom antenna. In process of building up a 6L6 xtal osc for 14 Mc/s to use in VQ2W Contest. Was formerly DL4LQ in Stuttgart 1951-52-53 wid 6 watts vfo rig on 40 and 20 metres. Would like to hear from any member whom I worked -- worked many QRP G stations.

(And that, chaps, brings to a head an ambition I have hoarded since the first year of our mag -- a regular news item Straight From The States! WØPRM ("Bud" from now on) is overflowing with enthusiasm & I am sure that his page will become increasingly interesting and really helpful. I have searched hard for someone to fill this important need for keeping us abreast of latest news and developments in W, and here we have the answer -- WØPRM, Alfred "Bud" Rugel, 304 North Park Blvd, Independence, Kansas, USA Thanks a lot, Bud!)

EXHIBITION TIME COMING UP - - - - - GOT YOUR QRP SOCIETY LAPEL BADGE?
Fine quality, gilt & green enamel, post free for 2/6.

DESIGN OF QRP SUPER-HERTS --
REGENERATION



57/6 - August 1954

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

GEORGE PARTRIDGE, G3CED, and DAVID MAINHOOD, G3HZW, have been carrying out a demonstration on the Isle of Thanet 80 metre net (1200 BST, 3700/3730 Kc/s every Sunday) of the adequacy of QRP for local net working and the lack of advantage in QRO! On Sunday 8th August they enrolled G5ZA (who thought he had come down to Broadstairs for a holiday!) to crank the hand genny in Georges' garden. Result a solid QSO at 1 watt input with G3HLX in London.

BILL CALLENDER, VP4LW, whose QTH is McInroy Street, Curepe, Trinidad, should have had a word of welcome in the mag last month, but we'll try and make amends in future! Bill is running 25 watts at the moment but is going to see what he can achieve with less. He says that several of the "boys" at the club are interested in the Society.

JOHN YEEND, G3CGD (RSGB TR Cheltenham) also earns a welcome this month. John's chief interest is antenna development and he bemoans the fact that space restrictions at home prevent him indulging except when /P. His next best love is the TRF receiver -- he refuses to use any other type.

JOE STEPHENSON (SWL) is not at all impressed with present climatic condx in his home town of Shipley except for the fact that it seems to have improved the 14 Mc/s band to the south (evenings) and to the west (2100 GMT onwards). He also found Top band remarkably good on 24th and 25th of July.

P.J. COPPINS, G3GET, has found that a simple mod will allow his TU5B to cover 80 as well as 160. He simply disconnects and bends back one of the leads to the 30 pF fixed condenser across the ECO tuning coil. The ECO then easily covers 80 on range 4. The PA needs no mod.

W. WRAIGHT (SWL) earns our thanks for supplying to the QRP Soc library a copy of Radio Designers Handbook. He also has Wireless World complete from 1950 to 1953 for disposal (for postage only).

57/7 - August 1954

IAN GLEN (SWL) has been taking part in much concentrated QRP work with the local (Berwick-on-Tweed) club who are busy building equipment for RAEN. He is also starting a 6"x4"x4" Rx to go in the panier of his motorcycle from a circuit described in "QRP" about two years ago.

PETER HUNTSMAN (SWL) has his new 2 metre beam erected on a 25 ft mast. He and BOB WHITEFIELD (SWL) took out Rxs during NFD and heard 62 and 45 NFD stns respectively together with several European portables. Peter is using a new 160 metre Rx to keep up a continued search for TTX transmissions (particularly from GC2CNC).

HARRY WELLS, G3JZQ has worked members G3JAL, 3JKO and 2BOF recently, and, despite Surrey being a bad area from his QTH (Waltham Cross), he did manage to work the "Kingston" net one Sunday (3JAL, 3JKA, 3ACP being on at the time). Is running 2 to 3 watts, Top band only now. PA is a 6F12, picoupled to 240 ft antenna, preceded by Clapp VFO/ buffer doubler. During July worked 28 counties with this rig including GI and GM.

KEN NORVAL, G3IFN has migrated to Basildon in Essex where he is revelling in mains after 3 years on gas. (Expect you have contacted 3FAU by now, OM -- if not the QTH is 23 Shackledell, Leaves Spring, Stevenage, Herts).

ROGER TAYLOR, G3JAL should, by now, have finished the course that has been restricting his radio activities to weekends. But in any case he has been doing well with regular appearances on the "Kingston" QRP net. In his last letter (which should have received comment last month) he asked for better support for this net. I can safely say his request has already been answered!

ARTHUR LOONEY (SWL) spent his holiday in the Isle of Man and had a personal QSO with Norman Bason. We haven't heard from Arthur for a very long time, but we know he is kept extremely busy with local radio organisations. (That's not a dig, Arthur! I know what it is to be up against more commitments than it is possible to execute!)

57/8 - August 1954

NORMAN BASON (SWL) has been a bit swamped recently by the holiday season in Isle of Man, but he has managed to get all his new unit rigs going except the SH convertor which he scrapped. He has also got two xtal diodes (acquired from Arthur Looney during his visit) rigged for 40 metres with quite surprising results. He plans to have a try at a transistor Rx during the coming winter.

GUY MOSER, G3HMR was, unfortunately, unable to find time to visit us here during a recent rush trip to Guildford, but we are still hoping to see a good deal of him later this month. He did have a personal QSO with Sam Hall, G2AOL, which he enjoyed very much.

SAM HALL, G2AOL is shouting "Eureka!" from the roof top -- he has got his 200 counties and will shortly be receiving the "seemingly impossible" "200" Certificate. Sam has joined the RAEN and is planning both /A and /M equipment. He is including 80 and 40 in his portable gear as he anticipates visiting some of the rarer counties shortly & hopes to give the WABC types a spree.

FRED BAILEY, G3HJL wonders if a more "exotic" call would winkle out those last few counties on 80 (so listen out for XØTIC chaps!) Despite house decorating Sam has built a modulator but comments that a couple of modulated watts don't seem to go very far.

MIKE DRANSFIELD, G3JKO finds that he cannot hear the "Kingston" QRP net (his QTH is Nottingham) on account of the local Derby net on 1860, but, during a recent visit to his parents' home in Purley he did manage to join the net with G3JNB, 3JKA, 3JAL and 3FRV. He had an fb QSO with G3CED on 80 as well despite annoying QRM from QRO stns. Mike has promised to listen out for the TTX tests now taking place.

"BUD" RUGEL, WØPRM is available Mondays, Tuesdays & Wednesdays between 1500 and 1800 GMT on 14012 and on 14080 Kc/s and will make every effort to QSO all QRP stations. He would also like to arrange SCHEDULES WITH ANY QRP SOCIETY STATION. (See Straight From The States for his QTH). He says Dx should improve with the coming cooler Wx -- average "below peak" temperature for July was 111.8 deg F!

.....: QUOTE FROM "QMF" -- THE TOPS CLUB ORGAN :.....:

The next Topsfest will be held at Walton Hall, Warrington, Lancs on August 29th. Doors open from 1500 with tea at 1700 and the meeting proper at 1800. Late comers welcome up to 1830.

.....: QRP SOCIETY SPARES SERVICE :.....:
 (ALL CORRESPONDENCE direct to Manager: G3CED, 17 Ethel Rd, Broadstairs)

- (1):-- 18 SET Tx/Rx in metal carrying case with antenna socket. Covers 6 to 9 Mc/s, £2-15-0. Matching phones, 8/-. Special carbon mike, 7/-. Key with plugs to fit, 7/-.
- (2):-- 18 SET Tx only, complete, £1-7-0. 18 SET Rx only, comp., £1-7-0 Metal carrying case for 18 set, 10/-.
- (3):-- 38 SET Tx/Rx walkie-talkie, easily adapted to 7 Mc/s band, 9" x 6½" x 4", with valves, but less mike, phones, battery & antenna rods, £1-9-6.
- (4):-- 38 SET MARK 3, similar to above but superior job, die cast construction, crystal calibrator, £2-12-0.
- (5):-- 88 SET Tx/Rx, slightly larger than a house brick, 14 valves in 1R5 range, super construction, 4 switched xtals, complete with lightweight head/breast mike/phone set & ditto telephone handset, takes 96v & 1½v battery. New carrying case, £7-10-0.
- (6):-- Wavemeter, ex-Admiralty, modern construction, 150-250 Mc/s, needs external supply, £1-17-6.
- (7):-- TBY8 Tx/Rx, 28-80 Mc/s, int. Xtal check points, vibrator power pack with 4v bat (chargeable by 6v car bat), American, brand new & complete--phones, mike, key, ant rods, vib & bat, £11-0-0.
- (8):-- 800 ohm .3A Mains Droppers, 1/6.

ALL CARRIAGE PAID.

DON'T FORGET OUR SPARES SERVICE OFFERS ONLY GOOD STUFF -- NO JUNK HERE!

57/10 - August 1954

..... QRP SOCIETY - VHF GROUP

At the rate this VHF gen is coming in from Manager Ted Stone-street I foresee us having to launch another mag soon! And when month has to be held over like the June issue which was squeezed out on account of space it causes quite a pile up! In June G. STOKES asked for gen on modifying an RF26 unit into a self-contained Rx for 144 Mc/s, but as his query went unanswered (we really are sorry about that, OM) he has now dismantled it and is rebuilding on the lines of "The Huntsman". NORMAN BASON has received his wavemeter back duly calibrated and seems at long last to have got his Rx onto the band. He is going to have a go at another rig built round a 1291 valve. ALEC CLARK, G3BII is still locking out for Monty, GC3CNC, having had no joy so far. His switching rearrangements are now complete and have made life a lot easier. He has a weekly sked with G3FUH and has worked a few other stns, but nothing exciting, furthest being G5YK (Moreton-in-the-Marsh). Alec would like any gen on fitting an S-meter to a BC 348. GC2CNC is finding his new slotted antenna very promising and is increasing the height and adding a 4-element Yagi to the top. As for TED himself, he seems to have been having a quiet spell lately apart from a couple of condenser breakdowns and an accident with the Milliamp Meter. He has made his beam into a folded dipole which, after an initial miscalculation, seems to be promising. To J.A. CUSDIN we offer our very sincere sympathy on the death of his mother which took place in June (Of course we understand not hearing from you, OM. We shall be looking forward to a line any time you feel like renewing the contact.)

Well, so much for a brief summary of the VHF news up to date. I hope I've not missed too much this time! Hope I shall get over the accumulated 145 Mc/s contest scores as easily!

57/12 - August 1954

It is possible that, with a little ingenuity, the necessary circuit changes could be made switchable, though we are not aware if the owner has arranged this in the prototype. The change over consists of joining (B)X to (C)O. (C)X is left "in the air". (B)O is joined to (A)X. R6 is reduced to 1 meg and R3 increased to 7 K.

.....: THE QRP SUNDAY NET :.....

There is no doubt that, despite a cynical smile or two at first from a few of the sceptics, the QRP net has caught on. Neither is there any doubt that, as it continues to spread, it will be doing a valuable job in spreading our gospel that five watts is enough for any QSO in the Home Counties.

The Net is now running a regular attendance of ten members:-- G3JKA, 3JXA, 3FRV, 3JAL, 3ILC, 3JJG, 2HAW, 3JFB, 3ACP and 3JNB -- and is frequently "visited" by friends from all over the surrounding districts, one notable "caller" the other Sunday being G2MI, Mr A.O. Milne, President of the RSGB and Passed President of this Society.

Details of the Net are as follows:--

FREQUENCY: 1900 Kc/s or as near as QRM allows.

TIME: Commencing at 1430 hrs GMT with call "CQ/QRP de G3JNB"

POWER: 5 watts maximum for stations in the Home Counties.

CONTROL STATION: G3JNB.

.....: KINGSTON & D.A.R.S. - QRP SECTION :.....

The Section has been strengthened by the promotion of Gerry Alderman who has acquired the call G3JXA. Several members are designing gear for the K&DARS QRP Contest which has been put back a month & now covers Sept, Oct, Nov. The Section has entered "solid" for the RSGB Low Power Field Day and is having a rehearsal on August 22nd,

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Dave White having completed for this event the special QRP Super-het which is to form the climax of his series of articles, "The Design of QRP Super-hets", and of which we hope to commence giving details next month. The Section is fully in the TTX tests which are now taking place and on which a preliminary report appears in this issue.

.....: TTX - - - - FLASH! :.....

We have just heard that C.L.Wright, G3CCA, of Mowmacre Hill, Leicester has worked Holland with a Tetrode Transistor Transmitter running 60 milliwatts.

.....: 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 power maximum 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:	G3JKO	39	4	43
3:	G2BOF	37	3	-	40
4:	G3HJL	6	24	-	30
5:	GC2CNC/2	5	2	1	27

THE COUNTIES CERTIFICATE CONTEST for an 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.

This month we offer our sincere congratulations to Sam Hall. G2AOL, on his well deserved achievement of the required 200 contacts. Sam has worked hard for this certificate and is only the second member to gain one, GC2CNC having been the first.

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		<u>1.8 Mc/s</u>	<u>3.5 Mc/s</u>	<u>7.0 Mc/s</u>	<u>TOTAL</u>
1:	G2AOL	83	64	53	- 200 -
2:	G2BOF	69	62	44	175
3:	G3HJL	12	66	-	78
4:	G3JKO	-	39	4	43
5:	GC2CNC/2	6	2	19	27

THE TOP BAND PANEL is an SWL annual contest (Jan to Dec) for the highest scores 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	3	23	26
E. 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.

This month we have great pleasure in announcing that Peter Huntsman has very kindly offered to donate one years subscription to the QRE Society as a prize for SECOND PLACE in this contest. Thank you, Peter!

	<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	93	2	-	97	25	122
E. W. GARDINER	9	-	31	35	5	90	23	113
Norman BASON	20	27	70	-	-	81	28	109
D. G. GORDON	16	7	66	27	6	72	21	93

57/15 - August 1954

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 and the total HT consumption of the Rx (or Rx AND convertor) must not exceed 3 watts. Stations 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	19	333	6327	nil	6327
D.G.Gordon (June)	2	36	72	78	150
D.G.Gordon (July)	3	44	132	150	282

THE VQ2W CONTEST is for stations worked throughout the world on any band, the max power to be 5 watts. Scoring is based on distances (1) up to 1000 miles, (2) up to 2000 & (3) over 2000 miles. First & second QSOs in each case are awarded 10 points. Subsequent QSOs will gain 1 point, 2 points & 3 points for distances (1), (2) & (3) respectively. The monthly scores will be averaged.

	<u>REPORT</u>	<u>SCORE TO</u>	<u>THIS</u>	<u>AVERAGE</u>
	<u>No</u>	<u>DATE</u>	<u>MONTH.</u>	<u>TO DATE</u>
G3JKO (June)	1	nil	213	213
G3JKO (July)	2	213	108	160.5

.....: TRANSISTOR TESTS - PRELIMINARY REPORT :.....
 (CONTINUED FROM PAGE 1)

It would seem that the most consistently readable signal radiating over "Dx" distances would be that of our President, GC2CNC, in Jersey who was using the negative resistance oscillator circuit which was described by G3IEE in the February issue of "Q R P".

The signals radiated by G3CCA in Leicester, using the latest Tetrode Transistor at 60 milliwatts, were heard as far south as Twickenham, Middx (See also "QTX - FLASH" on page 13 of this issue)

57/16 - AUGUST 1954

We tabulate below a selection of the reports which are still being received by control station G3JNB (Mr Vic Brand, 137 Surbiton Hill Park, Surbiton, Surrey), and a full report and analysis of the tests will appear in next months issue of "Q R P".

G02CNC, JERSEY:-

				RST
Sunday,	2142 hrs,	heard by SWL R. Iball (Worksop, Notts)		449
"	2045 "	worked G6GM (Holsworthy, Devon)		479
"	2100 "	" G2JF (Ashford, Kent)		449
"	2140 "	" G3HDQ (Woodford, Cheshire)		569
Monday,	2142 "	" GW3ZV (Glamorgan)		55/69
Tuesday	2139 "	" G3GQS (Helston, Cornwall)		579
"	2130 "	heard by SWL R. Iball (Worksop, Notts)		449
"	2135 "	" " " Peter Webb (Tiverton, Devon)		578

G3CCA, LEICESTER:-

Sunday,		heard by G3RD (Twickenham, Middx)		449
"	2130 hrs,	" " SWL G. Bonham (Coventry)	approx	539

G2DMR, SUTTON, SURREY:-

Sunday, Monday,	}	heard by G3JAL (Thornton Heath)		55/69
Tuesday,				

G3IEE, KINGSTON, SURREY:-

Sunday,	2132 hrs,	heard by G3DCN (West Harrow, Middx)		239
"	& Tuesday,	" " G2HAW (Hounslow)		599X
"	& Monday,	" " G3RD (Twickenham, Middx)		579
Tuesday,		" " G3JKA (Kingston, Surrey)		599

G3JNB, SURBITON, SURREY:-

Sunday & Monday	"	" G3RD (Twickenham, Middx)		559
"	" Tuesday	" " G2HAW (Hounslow, Middx)		599X
"		" " G3JAL (Thornton Heath)		549
Tuesday		" " G3JXA		599

N E X T M O N T H:- The FULL Transistor Test Report; The whole story of "ARIES"; The special G3JKA Super-het; The Walton Radio Exhibition.
