

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

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EDITORIAL

On another page of this issue you will find final arrangements for our "Open-Day". I have rechristened it thus in view of the amended schedule which has been adopted following the large number of letters which have arrived regretting that the date we chose falls in writer's holiday period. It is probable that this would have been the case to a certain extent whatever date we had picked during the latter part of the summer and, by way of making amends, we hope it may be possible to follow up with an indoor meeting during the winter. Anyway, for an initial "do" the revised scheme will, we think, prove even more popular - and we certainly want everyone to go home with a strong desire for a repeat event.

I wonder how many of you have noticed the gradual swing of interest in contemporary technical press back to QRP technique. It seems as if the sudden spate of TV and QRO-communications mania is on the wane at last - an occurrence which we forecast often enough since our very early issues. Certainly we have found more of interest in this month's batch of mags than has appeared for a long time. For instance, G5JU's "Aerial Coupling and Loading" in The S.W.Mag; "Midget QRP Portable Transceiver" in Radio Amateur; and, of course, in The Bulletin, Jack Hum's "First Steps On Two" is of really vital interest to our VHF Section newcomers.

COMMENTARY: There is very little to report this month. G3CGQ (Luton) sent the writer a 435 Mc/s converter to test, but the transporting was not executed very well. G6LX and G3BFP were in GC on vacation, and the former is "peevd" because he has not yet worked GC although he has often heard "it". G2AJU's request for QRP gear with 1.4 volt valves will be looked into, but members can help best. Would it be possible to substitute 1.4s for the 6.3 valves in the super-regen circuit? GC3FSN still waits a QSO (and an 832 from the writer). EI2W was heard recently at S9 when condx were good (what about a line, Harry?). G3BLP (Surrey) was also S9. Don't be afraid to write to me or the Ed. Letters are essential in order to compile this column. GC3CNC.

AN INTRODUCTION TO THE SUPER-REGEN, by J.Whitehead.

Probably most SWLs are unaware that the super-regenerative receiver played a vital part in the war. Disguised under the nom-de-guerre of "IFF Unit" it enabled the identification of friendly aircraft and shipping by automatically responding to a radar beam and causing a known signal to be transmitted in reply. But perhaps even this clever piece of work is insufficient to decrease the disfavour which surrounds the type. A mass of research naturally preceded this service function and we have been provided with extensive knowledge of the more complicated aspects, but the simpler forms of S-R have not greatly advanced since the "early days". They do, however, meet two important requirements of peace time radio - first, as an initial receiver for VHF's and, secondly, as the easiest means of controlling a model by radio.

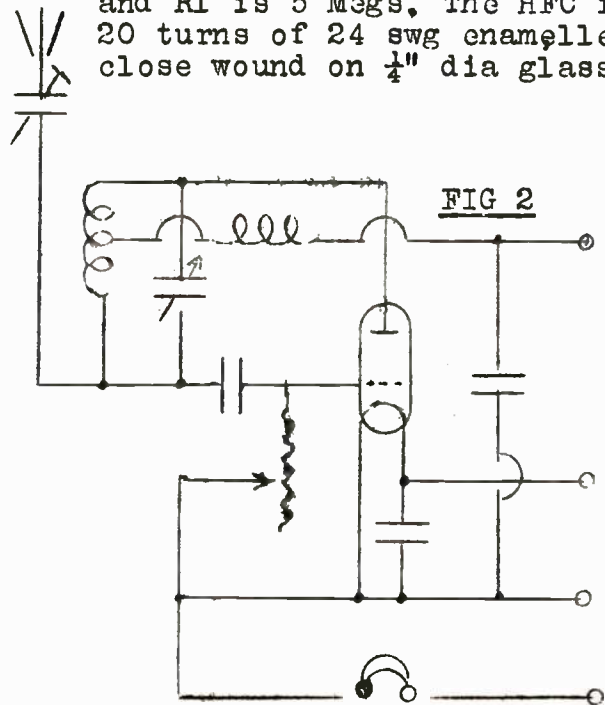
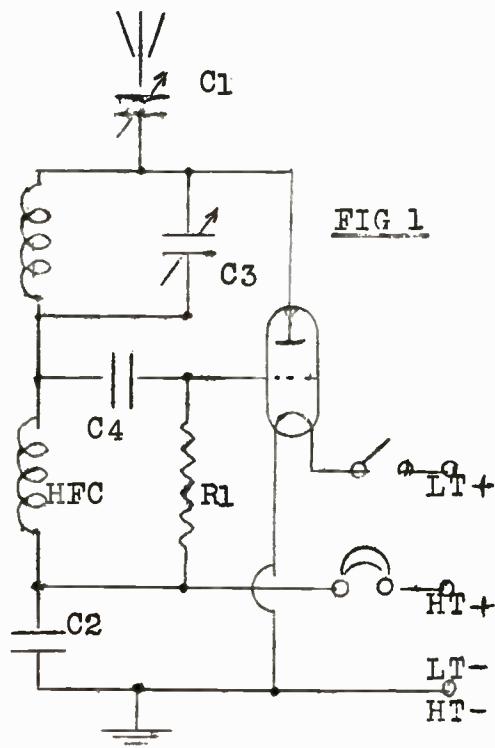
The S-R circuit is noted for three points - (1) lack of selectivity, (2) propensity to reradiate and (3) high gain. This

would appear to give us two "cons" to one "pro", but, in fact, point (1) can be an asset on VHF where signals are fewer and further between than on lower frequencies, provided that the S-R is regarded purely as an "introductory" or stand-by rig (see Mr Hum in the June RSGB Bulletin on this subject). Point (2) can be neutralised by the addition of a buffer stage which, if tuned, may even assist with point (1). The third point, of course, is all in favour. In effect, then, for the restricted functions in which we are interested, there is a strong balance in favour of the type.

The S-R receiver entails the production of an interrupted oscillation, the frequency of interruption being below the natural frequency of the oscillator but above the signal modulation frequency. This interrupted oscillation is best generated by a separate valve or "quench-oscillator" (q-o), but, with suitable grid values, it may, more simply, be produced by the detector valve itself, a process known as self-quenching. Since the q-o, while building up, is a great many times stronger than the signal the reason for the high gain of the circuit is explained. This build-up of the q-o must commence from a signal voltage or, in the absence of a signal, from the circuit-noise level so that the cut off of each cycle must be complete and no overlap must occur. The selection of quench circuit values is, therefore, of considerable importance and involves a quench frequency which would fall in the audible range when related to a signal in the lower frequency (medium and long wave) bands. In practice the grid condenser should be about 50 pF and the grid resistor (grid-leak) 5 to 10 megohms. Q-o may be controlled by variation of HT from the extremes of zero build-up (low HT) to continuous oscillation (high HT) and the correct setting for self-quenching and signal sensitivity will be recognised after a little experience by a characteristic hiss in the phones which diminishes upon receipt of a signal. The simplest forms of these

34/4

self quenching detector circuits are shown in the following sketches. In Fig 1 C1 is $3/5$ pF; C2, .001 uF; C3, 50 pF; C4, 50pF and R1 is 5 Megs. The HFC is 20 turns of 24 swg enamelled close wound on $1/4$ " dia glass.



There is little that need be said about construction except to urge the shortest possible wiring especially for the coil which should, in fact, be mounted actually ON the terminals of the condenser C3. Minimum inductive coupling should be arranged between this coil and the HFC. C1 ensures oscillation

over the whole range of C3. R1/C2 controls the quench and, if C1 does not produce satisfactory quenching over the full range of C3 the values of R1 and C2 should be varied. Much the same remarks and component values apply to Fig 2 which is a somewhat different layout.

Next month we hope to take this subject a step further with a discussion of a single valve "forced-quench" circuit and an RF buffer stage to counteract radiation. Elsewhere in this issue will be found a description by GC2CNC on a complete S-R circuit.

::: SOCIETY NEWS & ACTIVITY :::

J.I.Mearion (Newton Abbot), having completed the exams which have kept him QRT for some time, has begun an extensive rebuild. A special Rx for 20 is first on the list, to be followed by another "special" for ten. Joe suggests that we should issue Membership Certificates, a point to which we will give attention as soon as this issue is cleared. He is also trying out an Rx alleged to consume .005 watt (We should like the gen, OM.).

Cyril Coare (Romford) is expecting to get his call-up papers at any time now, so his radio activity has dwindled, but he hopes to get into the signals branch and thereby "keep his hand in".

L.P.Harrison (Huddersfield) is running two sets at the moment - a O-V-1 and a TR9 which he finds gives much inferior results to the two valver. He would be interested to receive any gen or conversion data on the service job which would help to get better results from it.

GRAJU, Jack Cowles (Ipswich) has done us proud this month with a six page letter. He was very pleased with our new badge, & says that he will soon look like Goering with RSGB, ISWL, FOC,

34/6

TOPS and now QRP! (The new WFSRA badge is a likely addition, too!)
G3HJL, F.R. Bailey (Boreham Wood) has taken us up again on our remarks about Sellotape and sends along some actual data which shows the tape to be .003" thick with a bursting point of 45 lb/sq in and 600v dielectric strength. He hopes to be going QRP/P in the near future.

G3AAU, Bob Kenny (Enfield) is not moving to GM as threatened after all. This is nice news and sounds as if the personal QSO which we had arranged and rearranged so many times may eventually take place even now! (What say, Bob?)

Harry G. Wells (Waltham Cross) acknowledges receipt of "the furniture", otherwise the Carter Shield, which he won for 1951, and is now concentrating on something to enable him to keep it! On 11th June he heard one of the new "countries", JY1OG - ex ZC1.

C.E. Atherall (Tunbridge Wells) was recently given one of the BTH range crystal diodes and proceeded to make up the sub-miniature Xtal Rx described in an earlier issue of "QRP". To his astonishment the first signal was a bit of semi-Dx BC programme! He is now designing a S-G RF stage to give a little extra bite.

G3IHI, Den Auton (Swindon) is still trying out various antennas. He has heard ZB1GBP a couple of times but has not been able to work him yet. He has, however, worked both ZB1STC and ZB2I, who were old friends of Den's ZB2L days.

W.P. Griffiths (Ashted) is looking forward to further gen on VHF gear (we've made a start this month and there's plenty more to come, OM) and he suggests that we give attention to a QRP TV rig! (In all seriousness I have no doubt that will come in time, but the chandelier manufacturers will have to reduce their EHT demands first)

G3HCW, A.E. ASHBY (Pontefract) has written to us for the last time as a "free man". He is quite resigned about it as he hopes to

be in a house with mains about Xmas time (handsome compensation, OM!). The new QTH promises to accommodate a 265 ft antenna, too. (Good luck, OM, congratulations and all best wishes to you both).

A.L.F. West (Habbaniya, Iraq) has been silent for a very long time during his wanderings with the RAF and, especially as he is one of our "foundation" members, we were particularly pleased to get a letter from him the other day which is well worth reproducing in full elsewhere

G3AGQ, Bob Eldridge (Salisbury) says that he finds it increasingly difficult to make his 1.5 watts heard on 3.5 Mc/s, but with a little more time available now he hopes to be able to hunt out a few more QSOs. I am sure a lot of our own members could help in this direction.

G3BKP, J.E. Whittle (Darwen, Lancs) built the Tx for the local group NFD and is now getting out nicely on it on 40 with six watts though results on 20 are not so good. The rig is a 6JC-EF50-1G25, VFO-CC-BA-PA. There is also a handy-talky for ten almost complete at 3BKP (and we should like the gen on both, please, Jim)

GMR0UV, Jack Sinclair (Lamlash) confines himself to a very brief note from which we gather that he is at present QRO. (We still like to hear from you, OM. As a fellow member of this Society we are all interested in your news even if QRO or QRT).

G3BDL, S.T. Phillips (Christchurch, Hants) is truly QRP with .8 watt on 80 metres, 1.5 on 2 metres, and 2.0 watts on twenty. (We should very much like full details on the 145 Mc/s rig, OM) Incidentally, Syd has an exceptionally nice QSL card showing the famous Priory.

Bob Kanyon (Liverpool) has been very tied up with examinations, both his own and other peoples (he is a school master!) of late. The results of his own (C & G in radio) were satisfactory, he thinks, and he comments on the help that QRP constructional

34/8

experience afforded him in answering some of the questions.

ZB1GBP, R.F.Hawksley (Malta) has got going at last, though a little above the QRP level, and his interesting letter is reproduced in full below.

G3CHE, L.H.Brown (Huddersfield) has just moved to a new QTH, so activity is suspended temporarily. He says that there will be 4 Txs in a short row when he gets going again - 3GYH, 8CD, himself & 3HEQ.

"Deck" Garrard (Ipswich) is hoping to achieve DXCC, -HAC and HAS with his present O-V-O (HL2) with 45 volts HT. As an example of the capabilities of this little rig he sends the following log for one month's work on 14 Mc/s phone: CX2CC, ET3R, FF8CN, HC1FG, HH5SS, HI6EC, HK1HV, HP1LA, HR1AA, HZ1TA, JY1OG, KG4AU, KG6ACZ, KL7ADR, KP4KC, M1B, MP4KAC, OQ5CQ, PY1CK, TF3SF, VP6WR, VQ3CP, VQ4RF, VQ5AQ, VQ6WR, XE2FC, YI3BZL ZC4RX, ZC6UNJ, ZS6BW.....Yes! - a O-V-O with 45 volts!

E.S.Smith (Eltham) has acquired a set of deaf-aid valves and is exploring the possibilities of something really portable - or perhaps it should be "pocketable"! (Your badge will be coming very shortly, OM)

G3HUH, Miss Verna Stent (Staines) has promised to come along to our OPEN-DAY, provided that she is not the only YL present, so please someone, bring another YL along - even an XYL might do at a pinch!

GC2CNC, "Monty" Banks (Jersey) is still bashing that cricket ball around despite a strained back during the early part of the month which gave him a chance to relax and work up his "200" score. He has put up a 7 Mc/s Windom which has proved it's worth in QSOs with VQ4DO and SU1GK. Monty would like to see 2AJU join the "200" contest (So would I, Monty, but I'm afraid Jack has too much on hand, what with the local club, the ISWL and his other commitments)

G3EDW, Peter Gollidge (Chingola, N.Rhodesia) is spending a

couple of months with friends in East Africa, but the chances are, if the right job turns up, that he will make it permanent. So, for the moment, he has reverted to the SWL status with a little 1-V-1 (0.9 watt input). Peter's first letter, written on the Warwick Castle and posted at St Helena, came as a surprise here - and a very interesting letter it was, though too long, unfortunately to pass on in these columns. A second one came, following his arrival at Chingola, and this one, I think, is too interesting to pass over (Thanks for both, Peter, and the best of luck, OM. Don't forget us among your new surroundings.)

.....: MODS TO A STRAIGHT Rx, by A.L.F. West. :.....

Having just received my copy of RSGB Bulletin for May I had to write and draw your attention to the article by W.H. Allen, G2UJ, on "A Modern Straight Receiver", since the circuit shown offers great possibilities as a QRP/QRO rig. In the set as shown the HT consumption, according to the author, is $6\frac{1}{2}$ watts with 250 volts, but, by two simple mods and dropping the HT to 120, the HT consumption becomes 1.2 watts. The set as shown is built round B7G valves and is a 1-V-1 using a power valve in the output stage to drive a speaker - but, by substituting a voltage amplifier, I am sure the efficiency would be improved. For comfortable speaker listening when using 250 volts HT the output voltage could feed a conventional output tube, and all set changes for QRP/QRO could be controlled by a single switch, with the source of low HT being a variable w.w. pot. across the HT line. There is no reason I can see why this set should not be instantly convertible by a switch from QRP to a roof-raising QRO rig and I am sure that many of my fellow members who have not read the article would be interested in this novel set as a basis for further experiment or as a

34/10

dual purpose rig as it stands. With incorporation of normal 370 pF tuning and good commercial coils it would make an ideal set for the QRP enthusiast who also likes to sit back occasionally, light his pipe and enjoy the entertainment of the SW BC stations. If the same set can be made to fulfil both needs without loss of efficiency then we have made a considerable saving of expense, space and cobwebs of jumper leads that go with trying to boost the output of a QRP rig through the usual amplifier. I hope that someone will take an interest in the possibilities presented by G2UJ's article as it is the first 1-V-1 I have seen presented in The Bull in many a long day that has not been "just another straight."

.....: STATION ZB1GEP, by R.F.Hawksley :.....

Since June 10th I have been active on 14 Mc/s only, with 18 to 21 watts (depending upon the mains supply) feeding into a half wave aerial. The rig is doing it's stuff and really behaving well. Of course it looks a bit weird - "horrific" underneath - but beggars cannot be choosers. The Rx (BC348) still has colly-wobbles but I manage to cope alright. So far I have had 60 QSOs, including 14 countries. The condx are very poor for, as yet, I've only heard Europe with a few local N.African stations and it sounds more like good condx on 80 than anything else. The other night I loaded up just a bare three watts and worked a couple of Fs at 559, but as condx don't warrant wasting time on QRPP my 21 watts does very well. I've had a look round 80 metres but there isn't much on and 40 is just the witches cauldron of commercial QRM. I only wish I could try 21 Mc/s, but I've no more gear and in January I shall be repatriated for demob in March. My average

34/11

RST in England is 579 and I'm usually in the first 100 Kc/s of 14 Mc/s, so if any member hears me please give me a shout, but NB on the dead beat of my signal as I can only use the BFO to search and listen, the local osc., despite all efforts, disliking intensely slow shifts.

.....: EN ROUTE TO VQ2, by G3EDW :.....

Here I am at last. I had a fine trip on the Warwick Castle, calling at Las Palmas, Ascension, StHelena, Lobits and Walvis Bay and going ashore at all except Ascension and Walvis Bay. I didn't call on any hams as I couldn't spare the time from sight seeing. The weather was fine nearly all the time and I enjoyed every minute of it. I landed at Capetown on Sunday 8th June and spent a couple of days exploring the place with a friend. Although time was so short we managed to do quite a bit of window shopping and had bus rides to a couple of the beaches and a long walk round Table Mountain. I began to feel quite at home there and was very sorry when the time came to leave. Our train passed through some beautiful scenery climbing into the hills just after leaving Capetown, but after that the Karoo and Kalahari were very dry and barren. Bulawayo was reached and I changed onto Rhodesian Railways. Next morning, after having a glorious view of Victoria Falls, I was in N. Rhodesia where the bush seems much greener and more interesting than in the dry south. I arrived at Nkana on the copper belt on Saturday 14th and my aunt brought me the rest of the way (32 miles) in the car. Chingola is only a small place and most of the people here work for the Nchanga Copper Mine. It is very modern and the buildings are widely spaced with plenty of trees in between. I like it and am looking round for a job. I managed to

34/12

fiddle around with my little 1-V-1 Rx and have picked up some of the local hams on 7 Mc/s fone, but I need to do a bit more work on it before it will cover the other bands satisfactorily. There are a number of local hams but I think they are all QRO merchants on 28 and 14 Mc/s fone with 7 Mc/s for local work. Hardly any of them use CW and I don't think they ever try 3.5 Mc/s. Last Sunday I visited VQ2NS and had a very nice welcome and some fine QSOs. If and when I get settled out here I shall send home for some gear and then see what a spot of QRP can do from VQ2. Meanwhile I am just an SWL again.

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"....a very nice effort. It is very distinctive, and it should not be difficult to spot a fellow member, The 'Green Diamond' will no doubt be the means of making many otherwise unlikely personal QSOs." - So says one of our members about the new Society badge - -

2/6 post free from the Hon Sec

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..... THE INTERNATIONAL CIRCLE

The seed of this suggestion came from Bob Avigor, 4X4CJ. He has taken a great deal of trouble in the past to try and form a QRP fraternity among W hams and some of the VK clans, but it is well known that, in W-land, 25 watts is regarded as almost the min useful power. I have met with much the same response myself in trying to rouse interest in the QRP Society among various Ws. Many of

our own members, moreover, when they go overseas, migrate to what we at home regard as QRO. It is impossible to draw any definite line between QRO and QRP and, though we have, since our inauguration, regarded 5 watts as an arbitrary maximum, it has been decided, in order to cater for circumstances prevailing overseas and especially in the hope of reaping the undoubtedly useful interest of W hams, to create a section, to be known as

THE QRP RESEARCH SOCIETY INTERNATIONAL CIRCLE

in which the maximum input power shall be 15 watts. This is a preliminary announcement and I hope to be able to publish full data in our next issue.

Meantime, before becoming engulfed in a flood of protest that we are abandoning our low power principles, let me assure all our staunchly QRPP enthusiasts that this move is entirely additional to our present set-up and does not in any way alter the principles already existing. The International Circle is, like our VHF Section, an added service to cater for those whose needs we have disregarded in the past. There will be no relaxing of our general 5-watt limit - rather shall we encourage those who join the "Circle" to gradually reduce their inputs to our general level.

::::::::::: HOME COUNTIES OPEN-DAY :::::::::::::::

As mentioned in the Editorial, response has been much reduced by the prevalence of annual holidays. It has been thought advisable, therefore, to amend the original idea of a more or less standard field day and to offer, instead, an opportunity for an informal get-together here at QRP headquarters. A pleasant room will be available with arm chairs for the old and infirm (or for shelter since, being England, it will probably rain) opening onto a small lawn which will give space for demonstrations (if any gear

34/14 inspected

can be found to demonstrate). There will also be a shack where the editorial crystal set may be inspected and where the current issue of "QRP" will be seen in various stages of production. Except that there may, with luck, be some grub to dispose of and (if we can borrow enough cups from our neighbours) some tea to be drunk, the rest of the proceedings must, for the moment, remain a mystery. But, whatever we may be able to think up in the mean time, it will provide an opportunity for an enjoyable ragchew and for any member who can attend to get to know others who, till then, will have been no more than names. Do try and come along - and if you think you may be able to DO WRITE FOR THE SPECIAL LEAFLET which I am preparing to show you how to get here. Don't forget the date:

SUNDAY, AUGUST 17 th

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

COUNTIES WORKED DURING 1952 ON:	<u>1.7</u> Mc/s	<u>3.5</u> Mc/s	<u>7</u> Mc/s	<u>TOTAL</u>
1: GC2CNC	37	44	48	129
2: G3AGQ	38	9	-	47
3: G3EDW	30	10	5	45
4: G3HJL	-	21	-	21
5: G3FAU	16	-	-	16
6: G3HCW	12	-	-	12

So Monty has passed the halfway mark at last! But the second half must obviously be the hardest going and will become increasingly so towards the end. AGQ has passed EDW this month, and of course we can expect no more entries from EDW, unless he eventually decides to return from VQ2 - we'll leave his score in incase.

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

	COUNTRIES				C Total	ZONES	GRAND TOTAL
	3,5	7	14	28			
1: Huntsman, P.	15	51	131	-	136	34	170
2: Gardiner, E.W.	26	16	91	20	97	32	129
3: Read, B.J.	12	8	95	7	97	29	126
4: Stonestreet, A.	18	21	74	-	94b	24	118
5: Huntsman, R.	1	34	80	-	92	20	112
6: Gordon, D.G.	20	16	70	12	80	28	108
7: Garrard, D.	10	3	70	-	82	20	102
8: Kenyon, R.L.	2	-	67	-	67	22	89
9: Wells, H.G.	-	16	58	9	66	21	87
10: Bason, N.	11	16	48	-	56	20	76

Here again we have proof that the higher you get the harder it is! One score in the first six has gone up two points - but what a change in the remaining four! R.L. Kenyon has made a lovely increase and "Deck" has leapt straight from 73 into the hundreds!

A query has arisen this month - "how is it that, in some cases the 'C total' is equal to the sum of the countries claimed on all bands, and in other cases it is not?" The answer is that the C total column should not include any one country more than once. If OZ has been claimed on 7 Mc/s and also on 14 Mc/s it still only counts once in the C total. Those cases where the C total has been equal to the sum of the band scores can be explained either by fl luck or highly selective listening. It doesn't often happen anyway as witness this month's entry.

34/16

.....: THE QRP "100" CONTEST :.....

COUNTRIES WORKED

DURING 1952 ON - 3.5 7.0 14 28 TOTAL

1: GC2CNC	9	20	23	-	52
2: G3HJL	2	-	-	-	2

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

HEARD

DURING 1952:- Countries. Counties. Total.

Wells, H.G	5	35	40
Baker, W.B.	4	22	26
Gardiner, E.	4	18	22

It appeared that the 'all time' record served very little purpose, so we have deleted this and thereby reduced the space by nearly half.

.....: A SUPER-REGEN RECEIVER FOR 145 Mc/s :.....

(We are indebted to GC2CNC for the data on this set. A number of other members are already active on the VHF's and we should like to have gen from them on any VHF equipment they have tried out:-Ed)

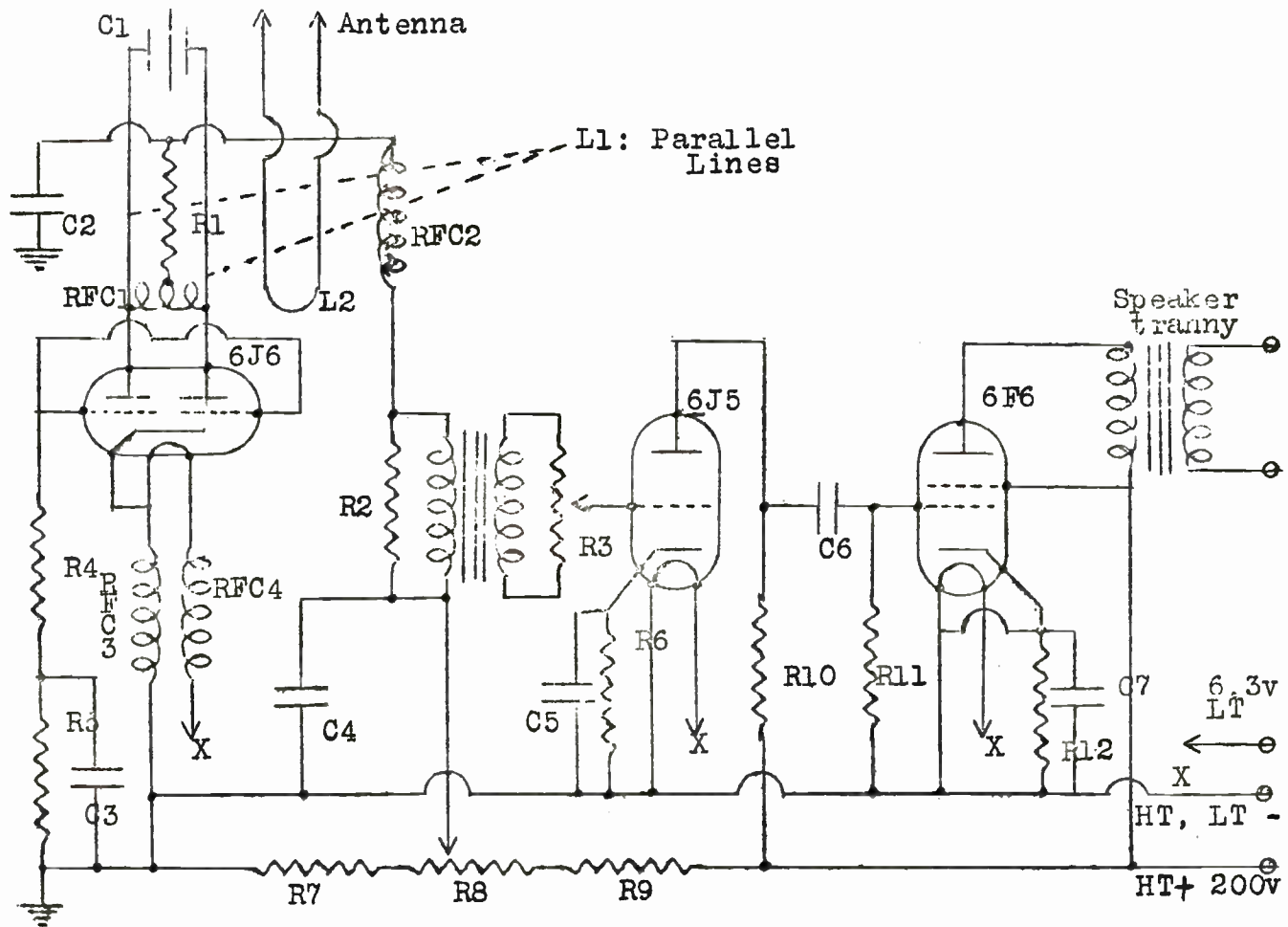
This circuit is a super-regenerative receiver and, therefore, it has it's limitations. However, it should be capable of picking up fone signals up to 40 miles or thereabouts, provided that condx are favourable and the antenna good. It is a theory circuit and has not been built, therefore no fantastic claims are made for it's qualities. It will best be looked upon as a means of carrying out experiments on the band.

There is no reason why two 6C4 or 955 valves cannot be used instead of the 6J6 in the detector stage. The 6J6 are becoming scarce and expensive, so that the other valves may be preferable.

The heart of the receiver is the detector and in this circuit there is room for experiment. L1 can be approximately 8" long, but it MUST be rigid. RFC1 must be loose enough at first to be adjustable, but when the correct position has been found it must be soldered. The detector coil should be fixed directly to the anodes and all untidy, straggling wires must be avoided. The ideal is to make the unit NEAT and COMPACT without crowding. The antenna coupling loop can be varied in position to suit requirements. It might be advisable to try the coupling unit described in the June issue of "QRP". Audio stages are normal and should not present much difficulty. Once the frequency range of the detector has been fixed the receiver should be switched on. With R8 at minimum a loud rushing noise should be heard. Attaching the aerial should reduce this noise and R8 must be moved towards maximum. Now any incoming fone signals will over-ride this noise. To check the frequency of C1/L1 a Lecher unit and oscillator will be necessary, unless a local Ham would help. This latter course would be the best.

Try it out and let the VHF Section Manager know your results.

COMPONENT VALUES: C1, butterfly type, between 8pF and 30pF.-
 C2, mica .002uF.- C3, mica .0005uF.- C4, tubular 0.1- C5, electrolytic 10uF 25v.- C6, tubular 0.01uF.- C7, electrolytic 10uF 25v.
 R1, 2K 1w- R2, 50K $\frac{1}{2}$ w- R3, 0.5 meg pot- R4, 4K $\frac{1}{2}$ w- R5, 4K, $\frac{1}{2}$ w- R6, 2K 1w
 R7, 50K 1w- R8, 50K pot- R9, 50K 1w- R10, 0.1meg $\frac{1}{2}$ w- R11, 0.1meg $\frac{1}{2}$ w-
 R12, 500 ohms 1w- RFC1, pair of 50K $\frac{1}{2}$ w resistors- RFC2, 10mH choke- RFC3 & 4, about 14 turns 20 swg enam $\frac{1}{4}$ " dia 1" long-
 L1, 14 to 16 swg bare copper rods, 8" long approx, 1" apart-
 L2, antenna loop, 14 to 16 swg enam wire.



RADIO AMATEUR

THE AUGUST NUMBER will contain the following special features:-

"TV LINKAGE OF ENGLAND AND SCOTLAND".
"EFFICIENCY IN TRANSMISSION LINES".
"THE S-9er. CONSTRUCTIONAL FEATURE".
"THE DESIGN OF MAINS TRANSFORMERS."
"WORKSHOP PRACTICE."
"THE QSL PROBLEM".

.....together with the usual Amateur Band, SW Program and Broadcast Commentaries, VHF and Club News, etc, etc.

THE MAGAZINE for the RADIO AMATEUR.