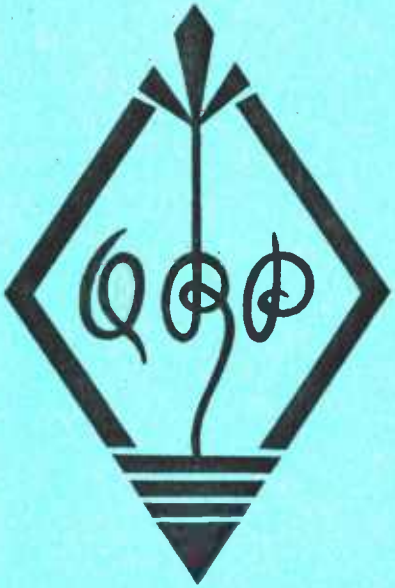
JOURNAL OF THE
Q R P
RESEARCH SOCIETY



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"Q R P"

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ISSUE No 33

JUNE 1952

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EDITORIAL

Many of you who read SWM will have seen the current announcement of the Bedfast Club that their main activity at the moment is the construction and provision of QRP equipment for members in hospital. Some of our members would, I am sure, be interested to assist this really worthwhile scheme and I know that the Bedfast organisers would be extremely happy to receive any such assistance. I believe I am right in saying that the scheme covers the provision of equipment, not only for WFSRA members who happen to be temporarily bedridden, but for ANY radio amateur whose case is brought to their attention. It is one of the most praiseworthy aims, so I feel, which the spirit of ham radio has yet evolved and I am sure that any QRPRS member who felt himself able to offer either equipment or constructional time would be well repaid. The WFSRA Hon Sec (A.H.Bird, G6AQ, 35 Bellwood Rd, Waverley Park, S E 15) will put any enquirer in touch with the right department.

We are grateful to the Editors of Monitor, the ISWL magazine, for a mention of our proposed Inter-Society Contest and a welcome awaits any ISWL teams which may be entered. At the moment certain snags in the organisation of this contest have yet to be solved and the commencing date will have to be postponed for a month or two. We feel, however, that a contest of this kind offers such possibilities for extending the bonds of interest and understanding between normally isolated clubs and societies that the rules must be made acceptable in every possible sense even at the expense of some delay.

:::::: AN EF50 TRF, by DAVID WHITE ::::::::::::::::::::::::::::::

The receiver described below was commenced about eighteen months ago and started life as an O-V-1 using two EF50 valves. After much experimenting a circuit was produced which really performed well. During the course of these experiments various kinds of reaction control were tried including capacity, capacity and screen volts, and screen volts alone. Although regeneration in some instances was found to be very smooth it was proved that any control circuit which included a varying capacity resulted in an unbearable frequency shift, especially on ten where it was impossible to keep a station in tune while varying the reaction. Thus screen voltage variation was decided upon and the preset circuit evolved. The potential deviding potentiometer is used as a rough adjustment for each band and the series resistor is used as a fine control. This reaction circuit was found to be so smooth that a 50:1 slow motion drive was used on the series resistor, thus giving an extremely fine control of reaction.

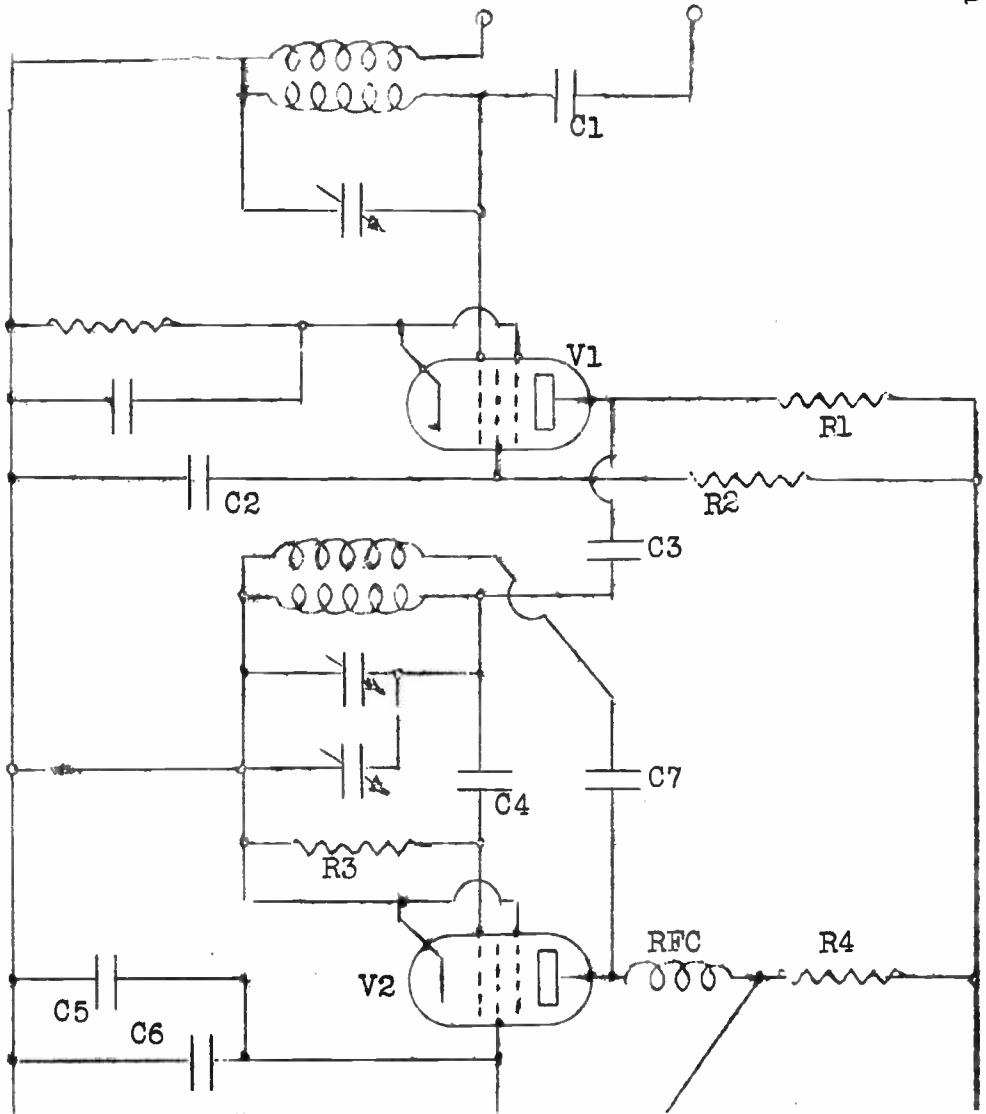
In any TRF set designed for use mainly on phone, as this receiver was, the reaction control is one of the most important parts of the set, which may help to explain why so much trouble was taken in this instance. When the circuit had been perfected as an O-V-1 some experiments in automatic reaction control were tried, but with little success

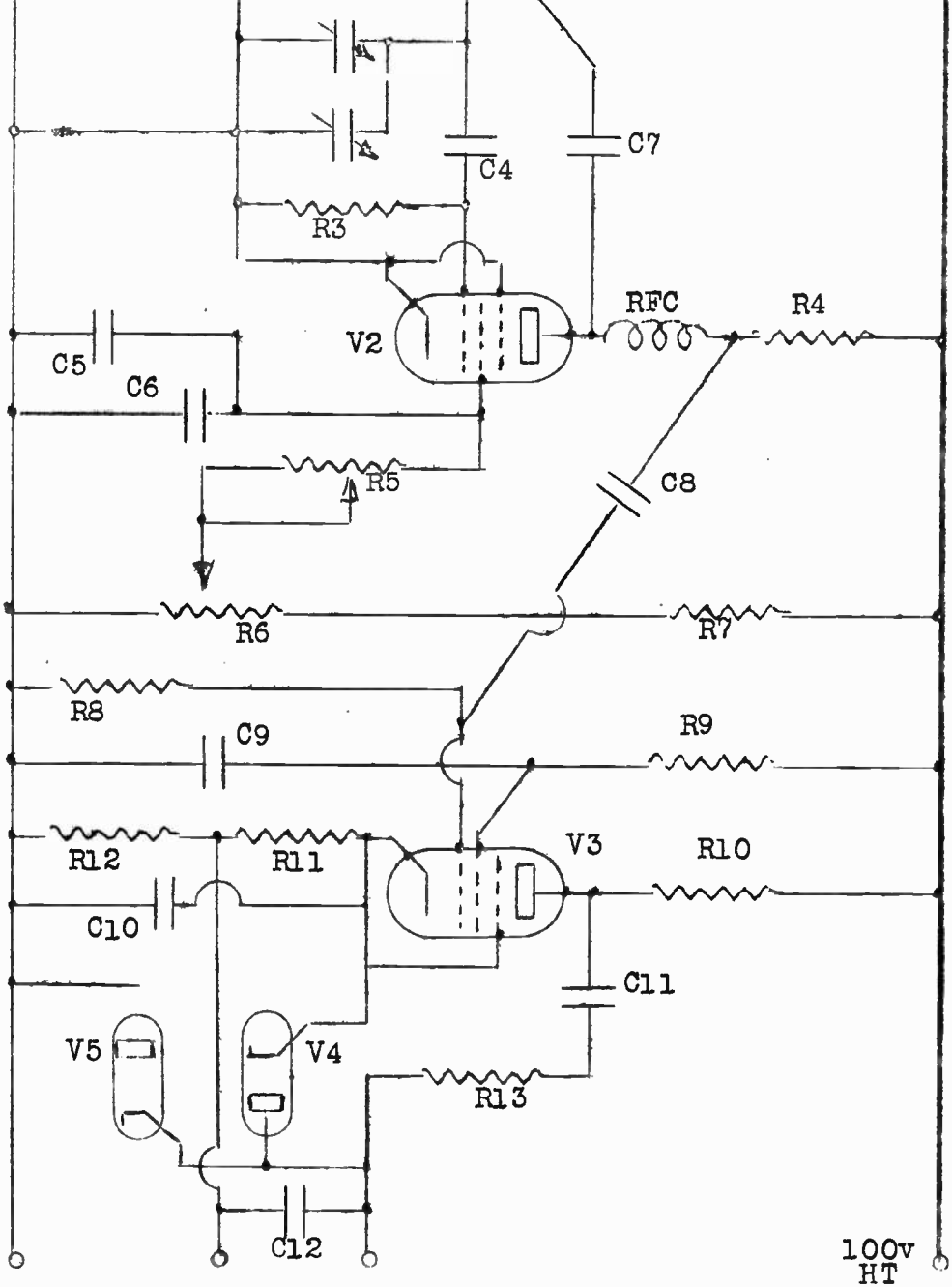
The next step was to add an HF stage. This was an EF50 and, besides adding appreciably to the skirt selectivity of the set, it gave a fair amount of gain.

Finally the noise limiter was added. This was slightly different to the one which I described in "QRP" last month as there was no provision for control of output and the total bias on the last valve was only 0.4 volts which meant that the maximum signal received by the phones was approximately 0.14 volts RMS which was quite adequate.

The set was capable of working down to TV sound without trouble.

Towards the end of these experiments transformer coupling between the detector and the AF valve was tried, using a 3:1 transformer,





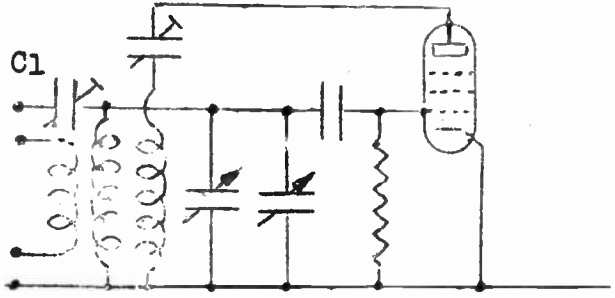
33-2b

but little increase in gain was recorded. This was probably due to the mismatch between the load required by the detector and the effective impedance of the transformer primary. A pentode used as a reacting detector requires a very large load impedance indeed.

The coils used were, as far as possible, iron dust cored and a system of plug-in coils was utilised throughout. The main tuning condensers are 100 pF and the bandspread capacitor is 12.5 pF.

If the RF stage is omitted the tuning arrangements shown in the small sketch should be used. Provision is made for balanced or single ended input.

In this set the writer feels that he has reached the limit of what can be expected from three EF50s in a QRP TRF circuit. General conclusions reached after these extensive experiments are that TRF sets for phone reception are quiet and sensitive when compared with a super-het of equal complexity but that the skirt selectivity is not good enough even with an RF stage. It is possible that regeneration in the RF stage would help, but this would probably make the set almost unmanageable. If one is willing to put up with this lack of selectivity then the TRF should be a type of circuit which, from other points of view, would compare very favourably with a super-het. However, in the last resort, it is the operator, NOT the set, which is the main factor in the efficiency of a receiving station.



SKETCH OF THE ALTERNATIVE TUNING CIRCUIT WHEN THE R F STAGE IS OMITTED.

C1 is 3 / 30 pF.

COMPONENT VALUES: C1,C3-10pF. C2,C9-0.1uF. C4-150pF. C5-2.0uF. C6-0.001uF. C7-3/30pF. C8-0.01uF. C10-50uF. C11-0.02uF. C12-0.002uF. R1-25K. R2,R10-50K. R3-½meg. R4,R5,R9,100K. R6-20K. R7-30K. R8-1.5meg. R11,R12-100 ohms. R13-15K. V1,V2,V3-EF50. V4,V5-6H6. HT-100 volts.

:::::::::::::::::::: THE V H F SECTION ::::::::::::::::::::::::

COMMENTARY, by GC2CNC.

I hope that the next issue of "QRP" will provide comments, suggestions and criticisms from readers. Naturally, when this article was written there has not been time for you to write to me, therefore you must bear with me for one more month. In this district preparations have been going ahead with increasing zest. GC3FSN has at long last erected his new 145 Mc/s beam - a multi-element array, made mostly from dural tubing. However, Ray cannot get it up high enough to clear his roof, so it's effectiveness is lowered. His QTH, too, is in a valley which makes results still more difficult to achieve. He has heard GC2CNC, but his transmissions were not received by 2CNC or by GC2FMV. A converter and a transmitter are nearing completion at the latter station, the converter having, in fact, been "bench tested", but no signals have yet been heard from amateurs. The antenna at present is a simple half-wave dipole, but a four-element yagi is on the way.

A LECHER UNIT FOR 430 Mc/s.

On this band (and on all bands, really) there are certain "musts". There must be an oscillator, an absorption meter and a wavemeter or lecher unit. A lecher unit can be very simply constructed on a piece of wood 2" x 1" and about 42" long. Fix stand-off insulators in pairs at each end, each pair being 1" apart. Use 14 or 16 gauge bare copper wire as "lines" between the insulators, each line being held taught by expansion springs at one end, a slight strain being put on the wires be-

fore final fixing so that they will retain their 1" spacing all along. At the end without the expansion springs, fit a loop of 8 swg copper wire (or tube), about 9" in length. This must be rigid. Now make a slider to move along the wooden portion, having a metal top which will short-circuit the parallel lines. Finally, mark off inches on one side of the unit and centimetres on the other, so that you can use whichever measurement you prefer. Most of the radio journals have given articles on the method of using lecher units, but, if any readers are interested, I will see how much space the Editor will spare for an explanation (You give us the gen, OM, we'll find the space - Ed.).

SUGGESTIONS.

Has anyone got data on a really QRP transmitter for 145 Mc/s? It must be crystal controlled. And what about a QRP receiver, too - at present the range does not matter (40 miles would be ample). Finally, I have always been a boy at heart and like sailing model boats, so will someone produce gen on VHF model radio control?

::

SOCIETY NEWS & ACTIVITY.

GC3IDP - Peter Amy (almost in ZE) got an extension of his embarkation leave, borrowed some gear from Monty 2CNC, and promptly worked a YJ1 on 14 Mc/s CW. Monty comments that he has never even heard one until this chap turned up at RST 338, and adds that the success of the contact was probably due, largely, to Peter's "excellant morse".

GC2CNC - Ernest Banks (Jersey), being a keen cricketer, playing in a league team and in two evening teams, finds that his radio time is a bit restricted at this season. Even so he did try hard, this month, to get his score in the "200" up to the century. Having failed by three he managed to improve his bowling average with a nice 3 for 15!

Peter Huntsman (Hexham-on-Tyne) has been working on a field-day Rx - a 1T4/1S4 O-V-1 with plug-in Eddystones and bandspread. The O-V-2 is next on the list for a rebuild as it suffers from a thin chassis

which alows connections to strain when changing coils. The new chassis is 11" x 6" x 3" and has been tested for strength by being jumped on.

Fred Stonestreet (Willesden Green) thanks Bryan Read for the gen on AJ2 and mentions that he has also had the OD which Bryan logged last month. Fred's query this time is "... who or what is ZS2MI - everyone seems to have heard it except me...". Fred would be interested to have a line from Erland Larsson on super-regen topics as he has always found that better results are to be had with a triode than with a pentode.

W.H.Wraight (Maidstone) wants us to produce full data for an all-sub-miniature Rx with deaf-aid phones and layer batteries. His work often keeps him out all night and a spot of easy Dx-ing would be very welcome. (Hold on a bit, OM, and we'll see what we can do - Ed.)

E.W.Gardiner (Diss, Norfolk) made his first concentrated effort on Top Band this month, but he did not forsake 14 altogether and added 9 new countries and one zone to his C-Z score with VU,HC,FL8,ET,VP4,ZP ZC4,HR and JY1OG.

Norman Bason (Peel, Isle of Man) admits that he has never entered a contest until he tried his hand at the C-Z Panel. He is now so keen that he "can't seem to find enough time for listening". He says that he now realises the importance of contests in that they provide an incentive to increase the efficiency of equipment and employ new ideas. His best calls for the month are CE,CR4,CR7,HH,KP4,KV4,LU,OQ,OX,PY,TF,TG, VS7,YI,YV,ZC4,ZP,4X4 on 20 and FK38BC on 40, about which he would like some data

H.G.Wells (Waltham Cross) has been at the sticky end of a roll of wallpaper this month which has cut down his radio time a bit, but even so he has logged OD5,VQ5,KL7,YI3,VS2,ZD2,CX2,MP4 and a number of VQ4s which, he says, are almost sure to found during the evening. These are on 14 megs and, I believe, Harry is just a wee bit envious of the calls recorded by Bryan Read and Peter Huntsman!

G2ZO - A.M.H.Fergus (Farnham) has been on the QRT list through illness for quite some time now but, judging from his last letter, he is up and about again and will be on a recuperative holiday for the

rest of this month. That his letters, while full of radio interests, do not mention a word of his own health seems typical of Fergie's spirit, and I, to my shame, have not found time to write and ask him, but I know that many of our members are wishing him well (and, re your last letter, Fergie, the target was so well hit that it has now disintegrated! Ed.)

G2AJU - Jack Cowles (Stutton, Ipswich) has at last found time from hisduties as President of the ISWL and from his work (and anyone connected with farming has a full time job at this season!) to write a long and interesting letter and he hopes to return to QRP activity later in the year. He mentions that, in 1949-50, he worked 60 counties and 13 countries on Top Band only with 3 watts input. Jack is very keen on real portability and wants to see what can be done on 144 Mc/s with valves of the 1.4 volt range.

G3IHI - Den Auton (Swindon) has a lot of work ahead of him in rebuilding his gear now thathe is up and about again. At present he has only the QRO Tx (20/25 watts) and Rx at work, but a QRP VFO Tx is next on the list, then a mod to the B2 Rx for 100v HT. The aerial is due to go up another 10 or 15 feet as well. Unfortunately Den lives very close to the local power station and, despite the much publicised claims that everything is 'suppressed', Den suffers from a great deal of noise.

G3CED - George Partridge (Broadstairs) reports that the Rota Scheme for the Society Spares Service is going nicely, but that and the reconstruction of an 18 set for Top Band has kept him pretty "quiet" of late. To make up for this he has received a QSL from VK3XU for a 5 watt contact on 20 and another from a KH6 for 5 watts on 80. George was /P in Worcestershire between June 10th and 19th.

Ian Glen (Weston-super-Mare) spent NFD with G8FC/P, the RAF HQ station and had a most enjoyable time until it came to packing up when he got well and truely soaked. Using 4.2 watts they made 104 contacts, the most noteable being a W6 who gave them 589 to his own 579 (600 W). Unfortunately the RAF didn't agree with Ian's proposed visit here and

found him a guard duty instead of the 48 hrs he had hoped for. However he will be visiting G3GZA in Bristol shortly and has passed on the latter's invitation to the other hams at Locking.

Ted Ault (Kettering) is gathering together the gen for a 144 Mc/s Rx. He and W.F.Pothecary have rigged up a closed circuit between their shacks, which are only about 100 yards apart, for morse practice.

Jack Thompson (Innerleithen) has been in very poof health since he came out of the forces last June and has ended up in hospital. We are glad to report that he is better now and we can quite understand not having heard from him in the mean time. He does not agree with my comments last month on the uses of Selotape as insulation for coils. He has made considerable use of it, he says, and has found it satisfactory

G4QW - J.Allnutt (Merton Park) is suffering enforced inactivity due to business "QRM" at the moment, but his interest is as keen as ever and we shall look forward to any news he may be able to send us at any time.

G3AFL - Walter Baker (Berwick-on-Tweed) is another whose business commitments are over-heavy. At present he is without a Tx and has not the time to spend in construction. He is wondering, therefore, if any of our members might have a QRP Tx which they would be prepared to sell. It should, preferably, be for 160 and Xtal controlled. His QRA is 4 Devon Terrace, Berwick-on-Tweed.

Michael Haighton (Aberdesach) is very keen on the new VHF section and would like to see really detailed gen on a 1 or 2 valve Rx in our pages as soon as possible. (I think we can promise you that, Michael, as a series of articles on the subject is taking phape here and I hope that Monty, our VHF Manager, will be able to vet the first of them in time for next month's issue: Ed.)

G3CQU - Ken Raffield (Old Coulsdon) is one of our new members this month, despite the fact that I "filed" his initial letter among the old shoes and cigarette ash on the floor behind my desk for a fortnight before I accidentally found it. Ken's gear is described elsewhere in this issue.

G3IDG - Allan Herridge (Balham, S.W.12) has recovered from the trouble with his wrist and is active again. On the constructional side he is working on an automatic CQ-sender. He has had 170 QSOs with 112 stations in 3 countries and 26 counties and has had the quite high average of 73% returns on his QSLs.

4X4CJ - Bob Avigor (Orleans, France - temporarily) is very keen that we should start an International Circle with a maximum input of 15 watts. He has in the past tried very hard to get various Ws, whom he has had in QSO, to form a low power club, but the answer has always been that nothing below 15 is of interest to those who normally regard 25 as low. Bob himself uses 6 watts and, at that, has WAC and 63 countries.

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SOCIETY BADGES

The first batch of button-hole type badges have been despatched and those who ordered pin type will be getting theirs shortly after this issue has been cleared. The general opinion seems to be that we have got a neat and attractive job at a very reasonable price (2/6 post free). Although we made a relatively large purchase of these, we do suggest that anyone who has not yet placed an order should do so without delay as it may take some time before we can get further supplies.

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HOME COUNTIES FIELD DAY

In answer to the many members who have urged the planning of a Society "get-together" in London, it has been suggested that an informal field day would provide even greater facilities for "getting to know the other fellow"with none of the rather restricing atmosphere, & certainly with far less drain on Society funds, than would be possible

by hiring a hall. PROVISIONALLY, the date chosen is Sunday August 17th and the venue Horseshoe Clump, a knoll of high ground amid the lovely country just off the Portsmouth road beyond Esher. It is hoped to be able to provide a direction finding demonstration and to run a contest for the greatest number of contacts with Society member's fixed stations. A half hour service from Waterloo reaches the meeting place at Horsham station and from there a walk through farm land and country lanes leads to the site.

Final arrangements and full details will be published next month. Meantime do, please, let me know if YOU can come along, OM, as it is rather important for to know how many are likely to attend.

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A R-C BRIDGE FOR 30/-, by G3CED.

The writer recently purchased a kit of parts for thirty bob and, within two hours a wide range resistance capacity bridge was under test and has now become an indispensible addition to the shack of G3CED. It's accuracy, when checked against that of an expensive meter instrument proves sufficient to satisfy the needs of the writer. The capacity ranges from 500 pF to 50 uF and the resistance 10 ohms to 5 megohms, each covered by three scales. Comprehensive instructions are included with the kits enabling the assembly to be done "blindfolded". A few points are, however, worth mentioning. The escutcheon is mounted upon a 'masonite' panel and speedy and accurate drilling of holes was achieved by first piercing the holes with a marlinespike (attached to an ex-WD knife) and finishing off with a ¼" round file. Another tip well worth pointing out is that the potentiometer knob must be fixed in a certain position. This means that the screwdriver used for locking the knob must pass through the line of the six way switch and, to do this, the knob of the latter must be temporarily removed and the switch pushed back below the panel. Make sure, therefore, that the

panel hole for the switch is made large enough for this operation to be easily carried out. On the writer's instrument a PO type jack was mounted to take the headphones and an on/off toggle switch was fitted to switch on the 4.5 volt flat battery which is strapped to the 2 uF condenser.

This remarkable kit is obtainable from Messrs Radio Mail (Dept Q) 4, Raleigh Street, Nottingham and should have a wide appeal among our members.

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THE QPP C - Z PANEL.

	COUNTRIES				C	ZONES	GRAND
	3.5	7	14	28	Total		TOTAL
1: Huntsman, P.	15	51	131	-	136	34	170
2: Gardiner, E.W.	26	16	82	18	95	32	127
3: Read, B.J.	12	8	95	7	97	29	126
4: Stonestreet, A.	18	21	74	-	94	24	118
5: Huntsman, R.	1	34	80	-	92	20	112
6: Gordon, D.G.	20	16	70	12	80	28	108
7: Wells, H.G.	-	16	53	9	62	21	83
8: Bason, N.	11	16	48	-	56	20	76
9: Kenyon, R.L.	2	-	53	-	53	21	74
10: Garrard, D.	9	3	44	-	56	17	73

There is no doubt at all that this is the most popular contest that we have ever undertaken. Ten entrants may not seem a very large total but, compared with similar contests elsewhere the proportion is quite high. The really encouraging point, however, is the regularity

and enthusiasm with which returns are sent in. I feel that it proves our SWL membership to be built on a very firm foundation. This month Peter Huntsman has again increased his lead and behind him there is a significant changing of places, some of the "backmarkers" having put on substantial increases. At this, the halfway mark for this year it might be interesting to look back at previous years. In June 1950 Bert Glass was in the lead with 133 countries and 37 zones for a grand total equalling Peter's present effort. In 1951Peter himself ahead with 124 and 36 for a total of 160, and it is noticeable that all the other scores were a good deal lower than this year.

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TOP BAND SWL PANEL.

	ALL TIME			1952		Grand
	Stations.	Countries.	Counties.	Countries.	Counties.	Total
Wells, H.G.	230	6	35	5	31	36
Gardiner, E.W.	27	?	?	3	15	18
Baker, W.B.	?	4	8	3	5	8

It seems that we have miscalculated Harry's countries scores, having credited him last month with 8 "all time" and 7 1952. Even so he still retains a substantial lead, although some sturdy competition is coming up behind him at last.

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BADGES ARE NOW IN STOCK - - - - - - - - - - - - - - - - 2/6 post free.

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THE QRP "200" CONTEST

COUNTIES WORKED DURING 1952 ON	1.7 Mc/s	3.5 Mc/s.	7 Mc/s.	TOTAL
1: GC2CNC	32	30	35	97
2: G3EDW	30	10	5	45
3: G3AGQ	36	6	-	42
4: G3HJL	-	18	-	18
5: G2FAU	16	-	-	16
6: G2HCW	12	-	-	12

This contest is certainly suffering from summer excess -- Monty has found another four counties on 3.5 and 5 on 7 Mc/s, but, beyond that, there has been no change at all. Monty is now nearly half way, but, as the second half will naturally be far more difficult with new counties getting more and more rare, it looks as though it will take more than twelve months to gain a certificate.

THE QRP "100" CONTEST

COUNTRIES WORKED DURING 1952 ON-	3.5	7.0	14	28	TOTAL
1: GC2CNC	8	16	16	-	40
2: G3HJL	1	-	-	-	1

YOU MAY HAVE HEARD -

G3HCW, the station operated by A.E.Ashby of 40 Eastbourne Terrace, Baghill, Pontefract. Ernest can be found on 160 or 80 metres practically every Tuesday and Wednesday evening after 8.0 p.m. and occasionally after 11.0 p.m. on other nights, both phone and CW. He is using a CAY 471550 unit with an AT04 valve as combined VFO and PA, throtled back to two watts for best stability, and he highly recommends these units which contain VFO, PA and aerial tuner sections, the latter being link coupled to the PA coil with variable coupling. The antenna is a 156 ft Marconi, very much bent at the far end, and the Rx is a 1-V-1 with untuned buffer stage. VP23-HL23-HJ23 taking 0.6 watt. The modulator is a carbon mike into HL23 into QP220 and the single VFO valve is modulated, care being taken not to overmodulate otherwise the frequencey stability of the system is destroyed.

G3CQU, run by Ken G. Raffield of 119 Tellers Lane, Old Clulsdon, Surrey. His TX is a CO (6V6) - PA (S07) for CW and phone on 160, 80 and 40 metres. Ken doesn't like changing plug-in coils, so the whole Tx is operated from the front. The antenna is a W3FDD which he is trying to beam westwards, and it stands some 500 feet above sea level. The main interest at 3CQU is DX with QRP, and the main ambition is to work ZL with one watt! There is, however, a very minature TX taking shape especially for QRP contests, to work CW and phone with from one to five watts.

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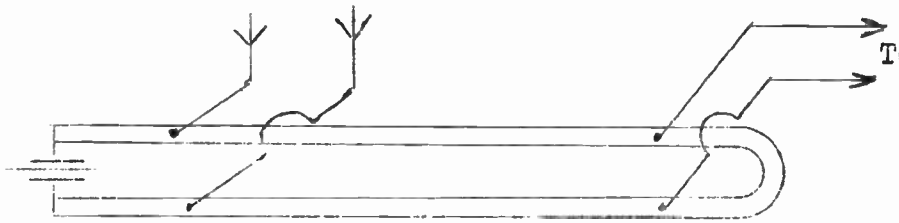
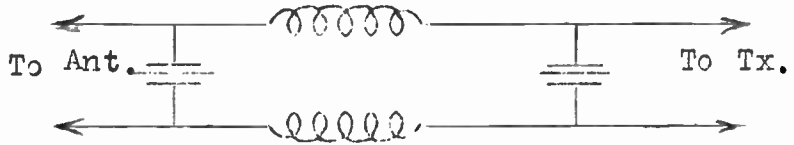
ANTENNA ADJUSTMENT FOR 145

At GC2CNC two methods of adjusting the Tx antenna are undergoing tests and, so far, the one which is supposed to be most awkward to adjust is giving the greatest satisfaction.

In the sketch A, opposite, the condenser is a VHF butterfly type with the rotors left floating. The loop is eight inches in length and



Sketch "A"



Sketch "B"

the Tx and antenna taps must be adjusted for maximum "draw". This, as may be guessed, is the "awkward" one.

Sketch B is really a pi-coupler applied to VHF. The condensers again are floating rotor butterflies. The coils are about six turns each on ½" diameter.

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SOCIETY CALLS TO JUNE 1952.

G2: AJU - BTO - DHV - HKQ - HL - MI" - UK' - ZC

G3: AAU' - AFL - AGQ - ANB - BII - CED - CHE - CQU - EAZ - EBL - EDW - EKP - ERI - ESX - FAU - GZA - GYZ - HBI - HCN - HCW - HJL - HUH - IDG - IED - IHI - NA - VU

G4: QW - XC G5: GG - QI G6: AQ' - CL' G80G

GC: 2CNC - 3FSN - 3IDP GI2DZG GM2CUV

GW: 3ELM - 8WJ EI2W HZ1HZ

OZ5U PAØXE VE8OM ZB1GBP 4X4CJ

" indicates Society President
' indicates Hon Members

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SOCIETY SPARES SERVICE

Have you enquired from G3CED about the Rota List of spares? Drop him a line and ask him to put you on the list. There are always many items available at much below commercial prices among which may be just the things you are looking for. His QRA is : G.A.Partridge, 17 Ethel Road, Broadstairs, Kent.

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OUR AUGUST ISSUE

Owing to the intervention of annual holidays it will, once again, be impossible to get the August issue of "QRP" published at it's usual time. It is proposed, therefore, to combine the August and September numbers and bring forward the publication date in the latter month, as we did in 1950. I know that this will be disappointing to many of you but I am equally sure that you are all generous enough to bear with the shortcomings of your editor. All subscriptions will automatically be credited with an extra month in lieu of the August number.

::

WANTED - to borrow for a week or two - a copy of Antenna Handbook. (Offers via "QRP".)

RADIO AMATEUR

DON'T MISS THE JULY NUMBER. There is something of interest for all transmitting and SWL enthusiasts.

C O N T E N T S

"MULTI-BAND AERIALS FOR RESTRICTED SPACE".
"V H F GRID DIP METER. Constructional details."
"NOTES ON R F AMPLIFIERS".
"MIDGET ONE WATT PORTABLE".
~~"T V LINKAGE OF ENGLAND AND SCOTLAND".~~
"HEY PRESTO!" - A constructional feature by G5JU.
"Dx COUNTRIES - Tristan da Cunha."

.... as well as all the usual news features, V H F, AMATEUR BANDS and S W B C commentaries.

A MUST for every RADIO AMATEUR! Obtainable from all bookstalls at 1/9, or direct from the publishers - AMALGAMATED SHORT WAVE PRESS Ltd, 57 Maida Vale, London, W9 at 1/11.