

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

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JOURNAL OF THE
Q R P SOCIETY



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EDITORIAL

Three points arise for comment this month, of which two require your very earnest attention. The first is OPERATION "ARIES". The latest details appear on page 9 and I cannot stress too strongly the fact that this Society can, with the cooperation of ALL our members, play a really useful part in this most notable event. We want reports from every corner of the country, and from overseas. If you only get one signal -- if you only catch the callsign, let us know AT ONCE. Your report, however meagre, will add important information to the analysis which will be drawn up after the return of the expedition, and will, meantime, tell the crew how well their signals are being received and how good their coverage is.

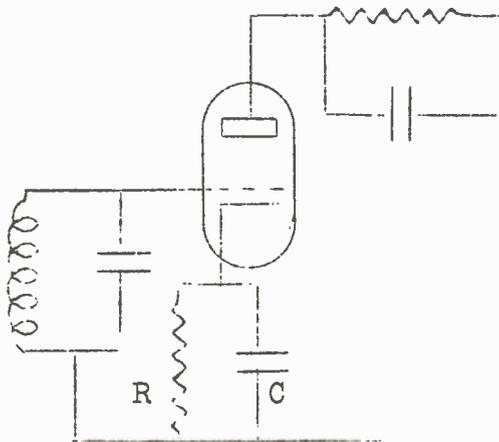
The second point relates to the new Amateur Transmitting Fees. No comment is called for here, but please refer to page 15.

The final point is a purely domestic problem which has forced itself gradually on my attention during the last four or five months.
(Please turn to page 16)

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

DETECTORS and AUDIO AMPLIFIERS (continued):

In order to prevent current flowing into the grid of a triode & still maintain the necessary non-linear relationship desired in order to achieve detection we may bias the grid back almost to the point of cut off. The tube mutual characteristic is sufficiently curved at this point to provide the non-linearity. The high bias results in a low anode current which, from the QRP point of view, is ideal. The grid is so far negative that it should never draw current and thus a high input impedance is presented to the tuned circuit. This form of detector is known as the "anode bend" type.



The figure shows a typical anode bend detector. In most of the older books and circuits the value of C has been wrongly stated as being sufficient to give adequate decoupling at both RF and AF frequencies. Normal values were a 25 μF electrolytic in parallel with a 1000 pF mica condenser. This arrangement will give rise to a high value of gain for the stage but the distortion will be high. The more correct arrangement would be to bypass the cathode resistor for RF only. However this does give a lower gain and since, for our purposes, gain is far more important

than quality it would be best to stick to the older arrangement.

The value of R to be used will vary from 10 K to 100 K. The anode load should be quite high, of the order of .25 megohms. It will

be desirable to have some RF decoupling in the anode circuit also.

This circuit is highly recommended where high selectivity is required, say in a CW receiver where no AVC is desired. It is not possible to derive AVC from this circuit and the addition of a diode to provide this will only damp the circuit once more and nothing will have been gained.

One further type of detector can be considered. This is the "infinite impedance" detector. It has only one advantage over the anode bend type, a slightly higher input impedance, but it has the considerable disadvantage of a gain of less than one so that, for our requirements, it is not much use.

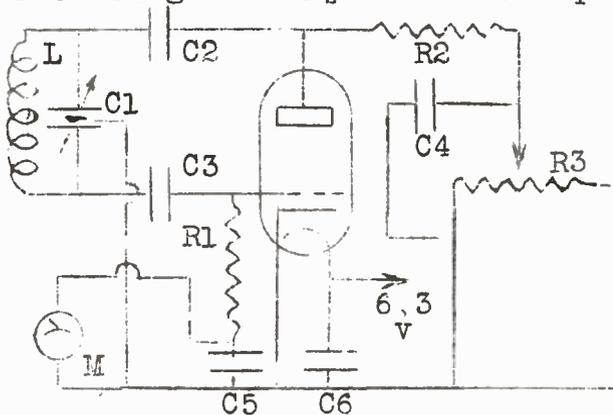
(To be continued next month)

.....: TEST EQUIPMENT FOR 2 METRES - G3HCW :.....

(Continued from last month)

THE GRID-DIP OSCILLATOR (120 / 160 Mc/s)

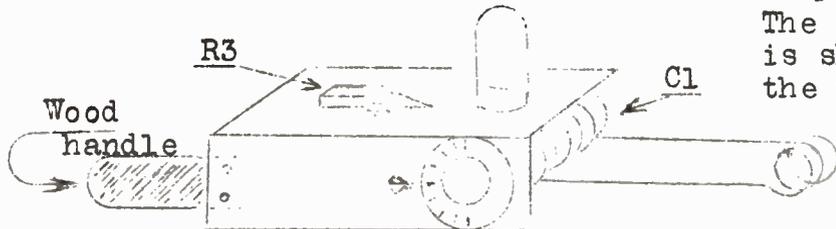
The GDO is constructed on an L shaped piece of aluminium, the side being 5" x 1½" and the top 5" x 2".



C1 is a 25 x 25 pF midget split-stator condenser. C4, 5 and 6 are .0005 uF midget micas. C2 is 50 pF and C3 is 10/30 pF, also midget micas. R1 and R2 are 20 K and R3 is a 100 K pot. The meter is a 0/500 uA moving coil. The valve is a 6J5. L is a 3 turn coil of 14 swg enamelled, the windings spaced to ⅜" inch long. The coil is mounted out from one end of the chassis on 2½" long supporting wires. It is important that the connections from C1 to the valve should be as

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short as possible, only the minimum of the wire ends of C2 and C3 being used. The grid current reading should be above 200 uA at any point on the dial. In the prototype it is 200 uA at 120 Mc/s and 500 at 160 Mc/s. R3 is used to reduce grid current if necessary. The GDO is calibrated with the absorption wavemeter ("Q R P" March issue) and coils of different values can be tried until the required range is covered.



The layout of the prototype is shown in the sketch with the valve and R3 on the top of the panel and C1 at right angles mounted on the side of the panel

.....: THE O-V-2 "HUNTSMAN" :.....

For a long time much interest has been expressed in the receiver which has consistently gathered top place for it's designer in the QRP C-Z Panel, and below we are happy to present Peter's description of his receiver.

First, however, we must ask his pardon for the sudden inspiration which caused us to christen it the "Huntsman". Had this been just an ordinary Rx the fact that the designer's name was Peter Huntsman would make this a pretty poor joke, but the records which the Rx has continually produced prove it to be a very successful huntsman on it's own merits.

And yet, as Peter says, the circuit is conventional with no special refinements and there is not very much to say about it.

"The valve line-up," he writes, "Is 9001 used as a triode detector, 954 LF and 954 output. If you don't happen to have a 9001, a 9002 or 9003 will do if you juggle with the voltage on the anode. The 954

valves are used for three reasons: (a) they are small and mounted in screens under the chassis, (b) no valve holders are needed and (c) last but by no means least you can get as many as you need for 2/- or 2/6 each. Providing the valves are bought from Alpha Radio or some equally reputable source this Rx can be equipped for under 12/-

If normal octal valves are used there will be no need to go in- to details here. Should screens be used with 954s, however, the lay- out is a bit different (we shall try and get details in the next issue -- Ed.)

The usual precautions should be taken when wiring the tuned circuits, ie short leads using heavy gauge tinned wire and sleeving. If possible a good slow motion drive should be used and an epicyclic drive for the reaction control.

Power can be taken to the set via a Belling Lee 5-pin power plug which can be mounted on the rear of the chassis

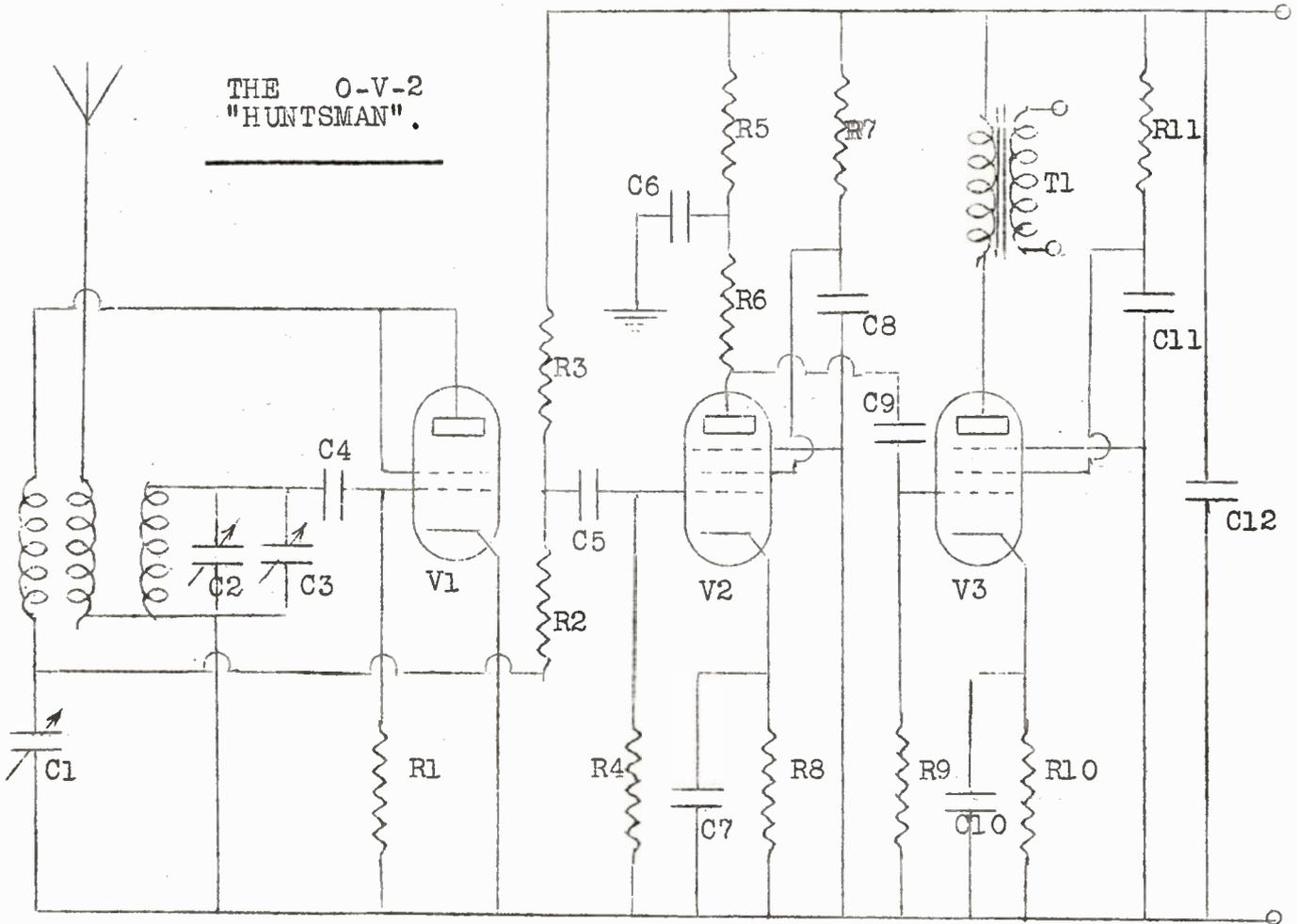
(Ed-- The circuit diagram is on the next page with the compon- ent list facing it on page 7. Together with layout details we hope to get Peter to let us have a good deal more gen on this highly effie- cient rig next month. There is no need to stress it's capabilities as it has been occupying a leading place in our contests for many months. Meantime, any queries on the circuit should be sent, with SAE for reply, to Peter Huntsman, 2 Lincoln Terrace, Hexham-on-Tyne.)

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

DEN AUTON, G3IHI, has grown a new 67 ft centre fed antenna with tuned feeders 34 ft long which is giving good results and he has more mods planned for it when he can get a mast lashed to the chimney. A new TVI-proof QRP Tx is under construction. Den has had a personal QSO with Trav, 2HAW and is anticipating others with the Acton, Brent- ford & Chiswick boys (ABC are affiliated to us, OM, so QSP 73 from us)

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THE O-V-2
"HUNTSMAN".



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COMPONENT VALUES FOR THE O-V-2 "HUNTSMAN":--

C1, 80 pF. C2, 300 pF. C3, 12.5 pF. C4, 100 pF.
C5, .01 uF. C6, .1 uF 350 v. C7, 25 uF 25 v. C8, .1 uF 350 v.
C9, .01 uF. C10, .25 uF 25 v. C11, .1 uF 350 v. C12, 8 uF 350 v.
R1, 2 Meg. R2, 1 K. R3, 260 K. R4, 1 Meg. R5, 10 K.
R6, 100 K. R7, 100 K. R8, 1 K. R9, 1 Meg. R10, 1 Meg.
R11, 100 K. V1, 9001. V2, V3, 954.

D.J.WILLIAMS has improved his reception considerably by the addition of an ATU, and has an add-on RF stage under construction for the O-V-1 which is still giving yeoman service.

PETER AMY, ex-GC3IDP, is still hoping to get a radio club going in Shaibah, Iraq and seems to have worked the Station Adj' into a state of all-for-it. (Good luck, OM -- keep plugging!)

C.N.BLATHERWICK, G3VU, reminds us of the early days of radio (and what happy and exciting days they were !) when John Scott-Taggart and Capt Eckersley were familiar names. He wants to try some of the circuits of those days with modern valves. (Don't think you'll gain much, OM--the circuit values will be all wrong unless you find bottles with corresponding characteristics).

BILL HARDIE has been having a really hectic time -- he has got married, emigrated to Canada and settled in Oshawa -- and still finds time to read "Q R P"! The new locality looks a bit difficult as it is alongside a main "highway" and has the local broadcast stn antenna almost next door (All the best, OM, and 73 to Mrs Bill).

SAM HALL, G2AOL, managed to make better progress with his "200" position owing to an Easter "expedition" into remote Wales, but he is still earnestly waiting for 40 to open up. Meantime another junior op has arrived to complicate matters (Hearty cheers from all members, OM) Sam says that his all-time score in this direction is now two. (Wonder which member of the Society holds the record?)

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E.W.GARDINER has done well on C-Z scores this month and is thinking about a new "loft" aerial for further improvement. Early morning listening is also on the agenda for the near future.

NORMAN BASON has got over the spring cleaning campaign at last and has acquired a very promising new shack in the process. The only trouble seems to be antenna shielding from very high walls and buildings on all sides. So the next move is to raise the beam on a mast. Norman hopes to get over from the Isle of Man for our Nov "teafest".

J.A.STEPHENSON must, we think, be near to holding the record for consistency -- he built his first 1-V-0 in 1923 and has stuck to O-V-1s and 1-V-1s ever since. His present sets are O-V-1 (DL35s with 18v HT) and 1-V-1 (DF91, DAF91, DL94). (We should like to have the gen on both sets, OM, if you could send us details for the mag)

BILL POTHECARY has just begun work again after being laid up, much of the time in hospital, due to contracting pneumonia for the sixth time in his life. We are happy to say he seems to be recovering well after having been out of circulation since the 13th Feb. (Look after yourself, OM -- we want to see you with us on Nov 27th).

G. STOKES is another real old-timer who holds a PMG certificate for reception of signals in 1923 and is still as enthusiastic over QRP gear as ever.

GEORGE PARTRIDGE will be interested to know that the BBC Eng Information Dept say that they have no knowledge of the transmissions between 70 and 90 Mc/s which he required information on last month. They mention Wrotham on 91.4 and 93.8 Mc/s and suggest that the sigs heard might have been "experimental point to point services".

W A N T E D ! -- Radio Constructors for 1950 complete and Jan & Oct 1951. Short Wave Mag for Sept 1948

S A L E O R E X C H A N G E !n -- Radio Constructors for Jan, April, May, June, July 1953 and Oct, Nov 1952. Wireless World, May to Dec 1950 (8), all 1951 except July (11), all 1952 (12) and all 1953

except Jan, May, Nov and Dec (8). Gordon M. Sutcliffe, 12 Upper Bell
Hall, Saville Park, Halifax, Yorks.

.....: OPERATION ARIES - 2 :.....

At half past two on the afternoon of May 22nd, the Motor Yacht "Aries" cast off from HMS Steadfast, Kingston, outward bound on her Atlantic Voyage.

To the accompaniment of cheers from the naval cadets and many spectators, the yacht moved up river to the Kingston bridge, returning a few minutes later on her way down stream, escorted by the Steadfast launch whose crew, lining the rails, stood at ~~the~~ salute. Mingling with the heavy throb of powerful engines came the sound of a bos'n's pipe and shouts of "Bon Voyage" from the jetty.

It will be remembered that "Aries" is to be engaged in extensive tests of the prototypes of new radio equipment and Amateurs all over the world are assisting the trials by providing a voluntary listening service. We have been assured that to a great extent the success of the expedition relies upon the nature and number of such reports.

Unfortunately, due to licensing difficulties, the station G3JQJ will not be operational during the voyage and so it is requested that REPORTS SHOULD BE SENT IN TO QRP HEADQUARTERS BY POST OR LAND LINE (92 Ryden's Ave, Walton-on-Thames, Surrey, .. Walton-on-Thames 1619). Station G3JNB will be working on 3574, 3660 and 3670 Kc/s at various times during the next month and will gladly handle any information that refers to "Aries".

The monitoring schedules were given in our last issue and it is expected that the best freqs will be 5320 and 8160 Kc/s. It is hoped that ALL QRP members will do their utmost to assist in this venture. DETAILS OF REPORTS WILL BE PASSED OUT TO "Aries" AS SOON AS THEY ARE RECEIVED so that the crew themselves may be able to see how they are "getting out".

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

Nice report from Manager Ted Stonestreet again this month -- these VHF boys seem to be having quite a lot of quiet fun among themselves. The Group has certainly come to stay this time and it is very pleasing to find the Group members reporting in to their manager without undue prodding! Ted reports that GC2CNC has a new outdoor rotary beam ready for erection (should be up by now!). Monty can frequently be heard calling G3JGJ, G4SA and GW2ADZ. '3BII has been informed of Monty's skeds and it is hoped they make contact. Incidentally it seems that Monty has a lethal weapon waiting for your editor as he heard G5TZ/A in April on his one lung and I went and postponed the start of the contest until May! (Sorry, Monty). G3BII complains bitterly that out of 57 QSOs on 2 he has received only 36 QSOs back. He has heard G5TZ/A calling '2CNC so hopes he is on the way to a QSO soon. He is cleaning up the switching in his shack meantime. J.A.CUSDIN is very interested in VHF and very anxious to get his ticket. He has heard "all the usual inhabitants" of the 2 metre region. NORMAN BASON has sent an absorption wave meter along to Ted for calibration and seems to be full of "brain waves" which afford the Group much fun in sorting out. G3JNB has a Tx/Rx based on GC2CNC's design for 70 cms and G3JKA's 70 cms rig was a feature of this mag recently. The Kingston QRP Section SWLs say they are going to produce 70 cms receivers as soon as the Tx bods give them something to listen to. TED STONESTREET himself has found his listening time somewhat reduced by the demand for letter writing, but he is getting quite a kick, he says, out of seeing the Group prosper. On two he has heard G3BII, G3FUH, G3FYY and G3ISA recently, and (on 20 metres) he heard for 3 nights the famous call W2XZM/MM which hit the headlines at the time of the Flying Enterprise saga not long ago.

BADGE PRINTING BLOCKS (see mag heading)..... post free 2/6
LAPEL BADGES (gilt and green enamel)..... post free 2/6

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THE C-Z CONTEST for the Partridge Cup (now held by Peter Huntsman) remains, as ever, the most popular and best supported contest that we have offered. It is an SWL event for the highest annual (Jan to Dec) score of countries and zones heard on 3,5, 7, 14, and 21 Mc/s with receivers conforming to the General receiving Group regulations.

	<u>3.5</u>	<u>7</u>	<u>14</u>	<u>21</u>	<u>Total</u>	<u>Zones</u>	<u>C plus Z.</u>
Peter Huntsman	20	55	100	2	109	34	143
E. W. Gardiner	7	-	65	24	73	20	93
D.G.Gordon	16	3	55	5	59	20	79
Norman Bason	20	26	47	-	58	17	75

THE 145 Mc/s RECEPTION CONTEST is a cumulative event for stations heard on 2 metres only. Scoring is by the number of stations x mileage. Any type of receiver or convertor/receiver is eligible providing the TOTAL power remains within the 3 watt VHF Group standard.

No entries to date.

THE VQ2W TRANSMITTING CONTEST:-- This is a new one! We have named it after Peter Gollidge who will be better remembered to our older members as G3EDW and who has devised the rules which we think are really good ones. Let us quote them exactly as he wrote them in his last letter to us. He said: "The idea is that QSOs should be classified by their distance, in effect giving each competitor six radii (Ed-Peter said "zones", but we have amended this for fear of confusion with the use of the word to indicate locality). Radius A covering 0/500 miles from his location, radius B from 500/1000 miles etc. Each month he would score ten points for the first and second QSOs in each radius and each subsequent QSO would rate one each for contacts in radii A & B, 2 points for radii C & D, and 3 for E & F. Any bands may be used. A station may only count for points once each month but may be worked and counted again for any other month. Maximum power to be 5 watts. Either phone or CW may be used. To count for a QSO the report received should not be less than R3 S4 T8. The points are drastically reduced after the

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first two contacts in each radius in order to concentrate interest on those 12 basic QSOs. Once having obtained them the rate of scoring becomes rather slower and it would be difficult for the leaders to build up a large and discouraging lead over the rest of the competitors. The accent is not on record breaking but on regular and consistent communication. In other words, anyone who, each month of the year put in his 12 basic QSOs would have little to fear from a more sporadic operator however brilliant the latter's efforts. Another point is that all stns contacted would count no matter what their distance or county or country, so even the local net could be counted once a month and thus EVERY active QRP station would have a score whether he were concentrating deliberately on the contest or not. To allow for illness, business etc, or stations who may wish to join in part way through the year I think the order of merit should be determined by the average of the monthly scores!"

Well, we propose to adopt those rules as they stand -- or at least to give them a trial run of several months. The following table will clarify the points scoring:-

<u>RADIUS.</u>	<u>MILES.</u>	<u>1st QSO.</u>	<u>2nd QSO.</u>	<u>Subsequent QSOs.</u>
A	0 / 500	10 points	10 points	1 point each.
B	500 / 1000	"	"	1 " "
C	1000 / 1500	"	"	2 " "
D	1500 / 2000	"	"	2 " "
E	2000 / 2500	"	"	3 " "
F	2500 & over	"	"	3 " "

And the form in which the monthly reports will be set out will be as follows (and entries should be submitted in similar layout):--

<u>STATION.</u>	<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>	

Now we do hope that all our transmitting members, both at home and overseas, will give this contest the full support which we think it deserves. You can join in this WHEREVER you are.

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.....: THE NEW LICENCES :.....

No doubt most of our members who are affected by the GPO decision to amend the Amateur Transmitting Licence will already have read the new rules published as a supplement to the April issue of the Bulletin and will have seen the new fees set out in the May issue of that journal.

We do not propose to review the whole document here (official copies may be obtained from H.M. Stationary Office for 6d), but the salient features, so far as we of the QRP Society are concerned, appear to be

- (1) that portable operation is permissible without restriction, using the /A suffix.
- (2) that operation away from home for periods exceeding 4 weeks is permitted if the local Telephone Manager is notified.
- (3) that no extra fees are chargeable for /A operation.
- (4) that the overall fee, after June 1st, irrespective of power, will be £2.

I have already received letters pointing out that the QRP man will now be subsidising the QRO user to the extent of 50% or 100% according to which of the existing power ratings he is paying for -- a fact which, basically, appears to be true, and which will impose a heavy and most regrettable burden upon that section of the Amateur Transmitting fraternity which can obviously least afford it.

But, when the overall picture is considered -- is the situation as bad as it seems at first glance? A heavy load of restrictions have been raised and there are no more "extras" to pay for. This alone must supply a considerable levelling effect for many QRP users -- and none of them, we know for certain, will begrudge the QRO men "getting away with it" if they are not forced to balance the budget too heavily.

It seems to finalise as a question of how many of our members are

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now paying the minimum fees, with or without the extras for portable working.

We do earnestly request ALL such members to let us have their reactions to the new position and we shall, if the resulting balance requires it, make what representations we can to official quarters. Any action we may take in the matter will be dictated by those of our members who request it. Without their views we cannot act. To put it crudely -- it's up to you, OMs!

EDITORIAL (continued from page 1)

I suppose that it is inevitable, when a Society grows to the proportions which ours is assuming, that there should be some decrease in the attitude of intimate friendliness that pervades it. But it is a symptom which we want to avoid! This Society was built on the basic rock of friendliness and we want our new members to help strengthen this foundation. Once upon a time half the letters that reached me began "Dear OM" and the other half were "Dear John". Now I seem to be "Dear Sir" to far too many of you. I am Hon-Sec and Edit-wallah purely by chance of circumstances-- I get no joy out of that. But I used to get a lot of pleasure out of being the personal friend of every one of our members. Please don't take that pleasure from me.

APPROXIMATE COIL DIMENSIONS FOR "ARIES" FREQUENCIES - - - -

Capacity (pF)	Turns and (swg) for frequencies shown in Mc/s:-											
	2325/2395		2660/2670		4455		2890		3370		3750	
300	40	(34)	34	(32)	20	(26)	19	(26)	17	(24)	11	(22)
200	50	(36)	43	(34)	25	(28)	24	(28)	22	(26)	14	(24)
100			67	(36)	34	(32)	33	(32)	29	(30)	19	(26)
50					47	(34)	45	(34)	40	(34)	26	(28)

Above are for 13/32" dia Aladdin type formers. For 1/2" dia deduct 20% t.