

VK3NY

# AMATEUR RADIO



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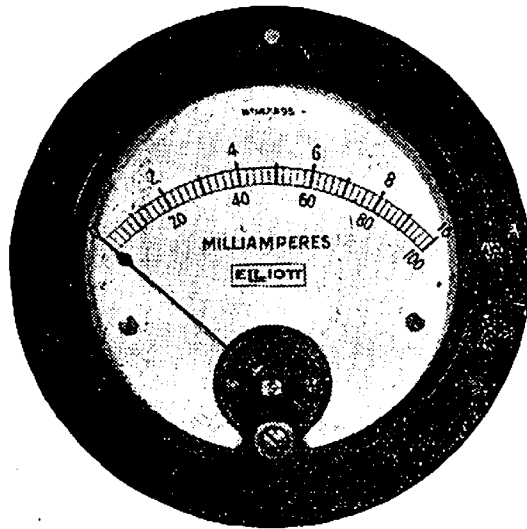


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# AMATEUR RADIO

Published by the Wireless Institute of Aust., Victorian Division.

Vol. 6 No. 1

1st JANUARY, 1938.

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All Communications and MSS. should be forwarded to the Editor, "Amateur Radio," BOX 2611W, G.P.O., MELBOURNE.

Subscription to "Amateur Radio" is 6/- per Annum (Post Free), paid in advance.

Should you not receive your copy of "Amateur Radio," notify your Divisional Secretary at once.

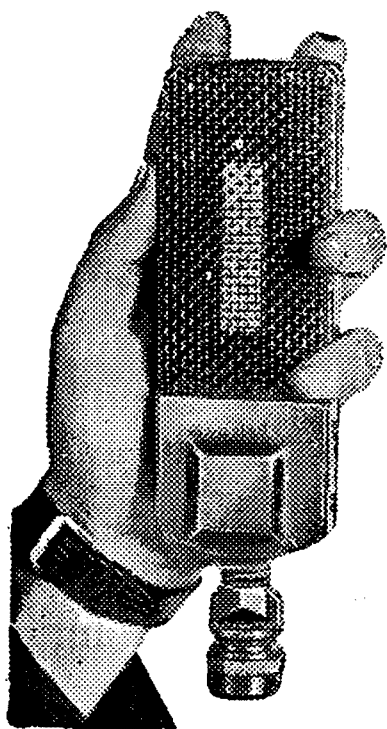
Advertising and Publishing Office: Address Publicity Manager, "Amateur Radio," Whitehorse Road, Box Hill, E.11. Phone: WX 2429.

NOTE.—ADVERTISERS' CHANGE OF COPY MUST BE IN HAND NOT LATER THAN THE 20th OF THE MONTH PRECEDING PUBLICATION.

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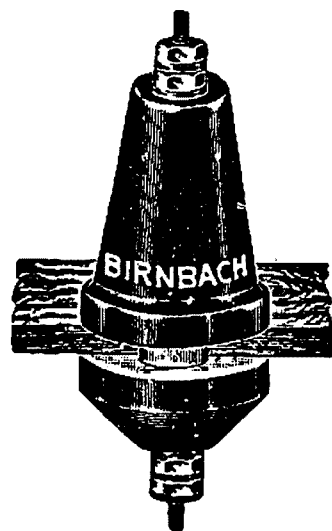
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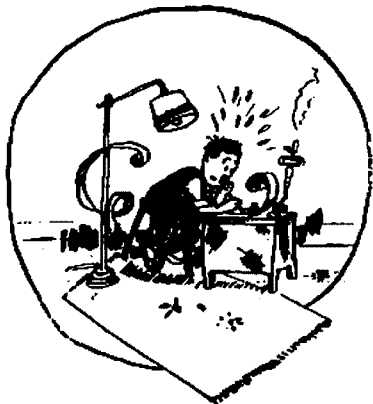
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## EDITORIAL

The advent of Christmas means that the New Year is not far ahead. Sometime during the holiday period we'll warrant every Ham will muse, if only for a few minutes, on the events of the past year and the hopes of the coming one. We somehow gain a new hope and determination as we set our feet on the pathway of 1938, for there are fresh fields to conquer just ahead. That is the charm our hobby possesses, for every conquest made two more problems arise—our task is never done.

The past year has seen much accomplished, but, as it will ever be, much only partly done. 56 mc is still as tantalisingly obdurate, 112 mc and above relatively virgin ground. 1938 gives promise of being a highly eventful year. CAIRO!!! What thoughts, hopes, fears, what far-reaching consequences are wrapped up within the compass of those five letters! The Federal Convention promises to be one of the biggest and best ever held. What a gathering of Hams there will be in Sydney next April. Fortunate indeed are those who will be able to attend these contests! Could one imagine a more bewildering array than are presented during the first 13 consecutive week-ends of the year. You can work South Africans or W's, the Empire or VK's, use high power or low power, one band or all bands. Who said Ham Radio was losing its punch? Hard to please would any man be who could not find one contest to his liking out of the collection available. And 56 mc. We have yet to record the first "DX" interstate QSO between any two States. Without a little interstate co-operation we are likely to be writing that same sentence for the January issue the following year. Those who are working on the band

seem content to play around in their own back yard and hope for the triple miracle of coincidence to happen; that signals break through to the other State, that someone there just happens to be listening, hears them, and replies, and you happen to hear the reply. Co-operation within each State seems fairly solid, but surely we can aim higher than that.

The National Field Day! THAT makes one's pulse beat quicker already. From the experience gained from the one just concluded, FHQ should be able to amend the rules to make the next one a memorable one indeed. That statement is no criticism of the last one though; FHQ, you did a great job, and personally we can say we enjoyed that week-end as much as anything we have ever done in Radio.

What a hobby! What a year gone by of DX, QSO's building and rebuilding, contests, friendships made and old ones more firmly bonded. Without Ham Radio could you have had half as much genuine pleasure, spent half as much money, lost half as much sleep, and yet wanted the whole lot all over again? We doubt it. What of 1938? Ham Radio is no damped wave petering out, but pure CW going on and on and on, so turn that gain up a couple of DB, old man. 1938 is going to be a whow!

One of the Editors has just demanded to know what this is meant to be, an eulogy of Ham Radio, a New Year party, or what? Who cares anyway; the cup of Christmas cheer is brimming, so here's to the happiest and brightest New Year, gang!

The President and members of the Federal Executive extend to all members the Compliments of the Season.

# The 6L6-807 Combination

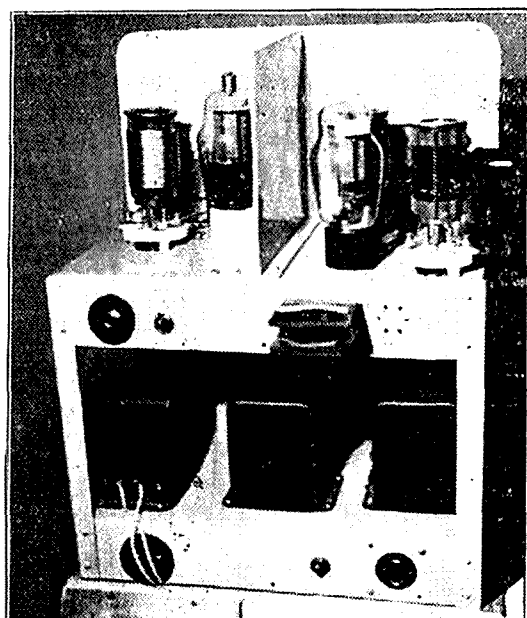
(By VK3ML, Technical Editor.)

There is definitely such a thing as "fashion" in radio. Take, for instance, the screened grid tube, the penthode, the beam type tubes, tri-tets, class B modulation, multi-element aeri-als, and multi-valve receivers. Did we not graduate from Hartley oscillators, blooper receivers, high capacity three-element tubes, and the faithful old Zepp aeri-als to, what we care to call these days, modern equipment? Just for the moment we seem to be in the thick of the beam tube era. First, there came the 6L6, then the 807. The ham has not been slow in cottening on to these outstanding performers, and it is not surprising to learn of so many stations being equipped with beam tubes either in the AF or RF section. From what we can pick up, a combination such as is described here, is, for the moment, the fashion of the day. A 6L6-807 combination will give all the power necessary to live up to the power licence with a minimum of equipment and space. It will work from 250 volts and lower, up to 500 volts, and is therefore universal in that it suits a country as well as a town man. Such a combination has been standard equipment at VK3ML for some time now, and any other transmitters built are exact duplicates in order that valves and components may be interchangeable. The 807 is capable of driving a pair of 800's crazy as far as grid current is concerned, and a guaranteed 100-watts input on 28 mc is easily obtained.

The transmitter as illustrated in the photo and diagram was built up for the National Field Day in December, and worked from a bank of ten forty-five volt B batteries. Class B plate modulation obtained from a 79 tube was sufficient to give a full 20 watts of modulated energy. Highly satisfactory results were obtained from this outfit from 7 to 28 mc.

Using the 6L6 as the tri-tet crystal oscillator, some hams have run up against the old trouble of fractur-

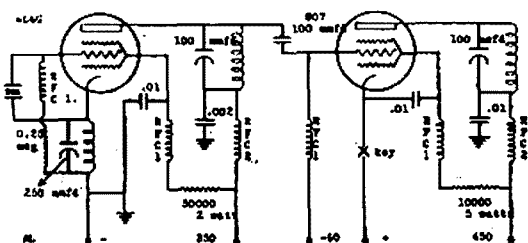
ing crystals. The only cause of this is, of course, feed back or regeneration in the stage itself. The regenerative type of tri-tet using cathode or even condenser feed-back regeneration does not appeal to the writer on account of this factor. Originally this transmitter employed cathode regeneration, and the trouble encountered did not make it's use



"The bottom stage carries the modulation equipment complete. On the right of the top chassis is the 6L6 cathode coil and condenser. Next is the 6L6, to the left of which is its plate coil. On the left side of the baffle can be seen the 807 and its plate coil. Tuning condensers are mounted in line with the 6L6 and 807 tubes, and are brought out to dials on the front panel."

worth while. The plain, straight, tri-tet, with a cathode coil tuned to the fundamental frequency of the crystal was reverted to, and success was achieved immediately. With a high C in the cathode circuit the output compared as favourably as with that obtained from the regenera-

tive type, less lots of worries and strained crystals. It is a wise motto in radio to stick to a standard. A combination of the 6L6-807 variety has been the subject of many articles in overseas journals, and it seems rather superfluous to even show the circuit once again. However, as so many mistakes in wiring diagrams and component values occur in American publications, that may lead to excessive currents and voltages, it is of no harm to illustrate the hook-up of a tried and well-performed transmitter.



It is well to note that RF chokes have been freely used in this outfit, and their use is well worth the slight expense. The proof of the pudding is always in the eating, and having tried these circuits both with and without chokes in plate, grid, and screened grid leads, let it be said that a chokeless transmitter cannot compare from the efficiency point of view with one using RF chokes that actually do choke. Regeneration tendencies and erratic performance, and instability, are overcome to a very great extent by RF chokes.

Of very great importance in transmitter design is the matter of RF returns. Experience has taught the writer that this is an equally vital factor as a short lead carrying RF. One may overlook the fact that the RF must have a complete circuit with a return lead, and pay little attention to the grounding of condenser by-passes and earth returns. It is a wise policy to employ one common HEAVY earth return lead to the filament of RF stages and to connect each stage with a heavy wire. Trusting to earths on the chassis is a poor idea. In wiring up this transmitter the first wires soldered up were the common earths, from which all by-passes and returns were run.

As each of the variable tuning condensers had to be insulated from the chassis, and panel use was made of insulated adjustable brackets, this

permitted the outfit to be completely wired up and independent of the front panel for condenser supports. As Eddystone coil formers were used for all the coils, it was possible to employ coil Frequentite coil sockets in place of the sub-chassis type, thus permitting wiring of R leads direct to the condensers, and consequently avoiding the necessity of taking leads through the aluminium chassis. This is a saving in lead lengths, as well as loss in efficiency. A baffle was required between stages to overcome some slight feedback, and it can be plainly seen in the photo.

In the tuning up process use was made of the grid current meter in the 807 stage. A maximum of 5 milliamps grid current on all bands was chosen from the manufacturer's tables. Once all the experimental work was completed in lining up, this meter was dispensed with and sole reliance was placed in the plate current readings. This 0-150 milliamp meter, by the way, reads the total current drawn from the power supply, and does away with the idea of meter switching. As a single wire matched impedance aerial is used with this rig, there is not need for an aerial coil; the line being tapped up from the ground end to suit the load necessary.

Both the chassis shown in the illustration are 10" x 6", with a turn-over of 2".

All that remains to be detailed in this brief article is the coil data chart. Right throughout, number 18 gauge tinned copper wire is employed for the coils. The chart given, as stated before, is for coils wound on standard ribbed and threaded 14 turns per inch formers.

Crystal	Cathode	Plate	Plate
80 metres.	6L6.	6L6.	807.
Band.	Turns.	Turns.	Turns.
40	20	22	22
20	20	7	7
10	20	7	3
40 metres.	Turns.	Turns.	Turns.
40	shorted	22	22
20	7	7	7
10	7	4	4½

When using the 807 on the fundamental of the crystal it is necessary to short circuit the cathode coil and the 6L6 then functions as a plain penthode oscillator.

# RADIOTRON 1608

- High efficiency
- Ceramic base
- 50 Watts Class B Audio (2 valves)
- 18 Watts Plate Modulated
- 27 Watts Class C Telegraphy
- 40 Watts maximum input
- Maximum ratings to 45 MC
- Low plate voltages
  
- 20 Watt (Dissipation) Triode
- Filament 2.5V 2.5A
- Amplification Factor 20
- Plate Voltage 425 max.
- Plate Current 70 ma. max
- Medium 4 Pin Base
- Typical output
  - 18 Watts (Plate Modulated)
  - 27 Watts (Telegraphy)

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# RADIOTRONS

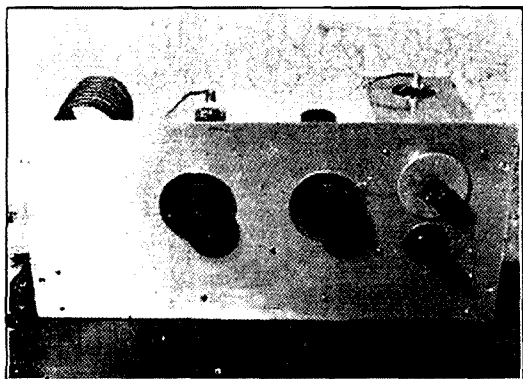
(Advertisement of Amalgamated Wireless Valve Co. Pty. Ltd.)



## The Transmitter at VK3MV

The transmitter described here is a relic of the bad old days --25-watt days. However, one or two features are worthy of mention, and an 807 will shortly replace the present power amplifier.

The circuit differs in some respects from the usual two stage job. First, the keying. This is accomplished by a blocking bias applied to the suppressor of the Tritet oscillator.



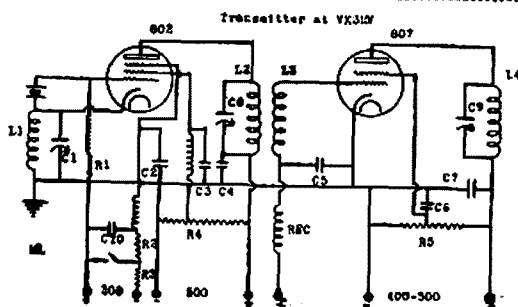
Suppressor keying was chosen, as, together with the shielded oscillator, it permits break-in operation, and is completely free from chirps, clicks and other keying troubles. Secondly, the coupling between stages. The advantages of this method are:— Assists compact design, is much more efficient than the capacity-choke system, and does not require an additional tuned circuit, which would be necessary with link coupling.

The controls on the panel (Fig. 1) are, right to left, cathode condenser, oscillator plate condenser, and amplifier plate condenser. The rear view (Fig. 2) shows the simplicity of the lay-out. Left to right, can be seen the shielded oscillator, oscillator plate tank in the centre compartment, and power amplifier section.

Aluminium is used for chassis, panels and shields. Measurements are—Chassis, 17in. x 8 in. x 2½in., panel 19in. x 8½in. The shield box, which contains the oscillator tube, cathode tank, by-passes, and crystal mount, is 8in. x 5½in. x 4in. The shield between oscillator tank and

power amplifier is 8in. x 6in., and its purpose is to prevent any stray coupling. All shielding is built up with ¼in. square brass rod, which makes a very sturdy job. The shield around the amplifier, which extends to the tube's internal shield, is a coil can, whose top has been spun out in a lathe.

The oscillator tube is mounted above the chassis, so that about ¾in. of the 802 protrudes through a hole cut in the top of the box. It also allows the by-passes to be connected directly to their respective pins.



### 3MV TRANSMITTER COMPONENT SPECIFICATIONS.

C1 200 m.mfd	R1 50,000 ohms
C2, 3, 4, 5, 6, 0.1 mfd	R2 10,000 ohms
C7 0.002 mfd	R3 50,000 ohms
C8 100 m.mfd	R4 25,000 and
C9 100 m.mfd	10,000 ohms
C10 0.25 mfd	R5 25,000 and
	10,000 ohms

### COILS.

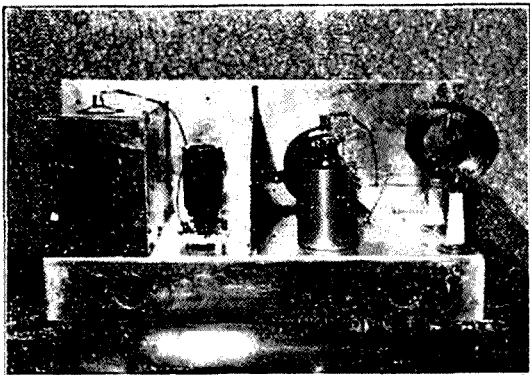
Oscillator cathode and plate coils are wound on Eddystone threaded four-pin formers (14 turns per inch).

	7 mc	14 mc	
L1	9	9	18 g enamel
L2	20	8	18 g enamel
L3	6	3	30 g D.S.C/
L4	13	5	¼in. copper tubing 2½in. diameter

To facilitate the changing of crystals, which must be shielded, a tube socket is mounted in the top of a rugged coil can. A 2½in. diameter hole is cut in the panel, and the bottom of the can welded flush with the surface. The usual base of the can, together with a circular piece of aluminium, form a cover which is only about an ¼in. out from the panel when in position.

The remaining construction is quite straightforward, and can be followed from the photographs.

Putting the rig in operation is not difficult. All the tuning is done as usual, except that when operating on the fundamental frequency the cathode condenser is set near minimum capacity. Keying bias is approximately 230 volts, but if there is any trace of R.F. in the oscillator plate tank with key up, this must be increased until complete cut-off is obtained. A signal can be heard in the monitor with the key up, but this is from the cathode circuit, and is less than 5 $\frac{1}{2}$ .



To date the rig has only been operated on the fundamental (7 M.C.), and results have been gratifying. Previous rigs caused clicks in two of the three B.C. receivers located in the same house, but this job does not affect them in any way. Very local experimenters also report that no clicks are discernible. This is a step forward, as nothing is more annoying than to have a QSO spoiled by the chappie in the next street.

In conclusion, a word of warning. Do not attempt to use a Tritet on the fundamental unless a well screened tube is used. Tubes such as the 59 are unsuitable, as in addition to excessive feed-back the suppressor does not have sufficient control of the plate current.

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## Reducing Background Hiss in Superhet Receiver

(By VK2ABS)

Many ham superhetrodyne receivers, while possessing ample selectivity and sensitivity, are cursed with an intolerably large amount of background hiss, which is particularly noticeable when two stages of I.F. amplification are used. Many signals which would otherwise be QSA 5, are drowned in the receiver background noise, and the useful sensitivity is thus greatly reduced.

The writer recently had occasion to design a nine tube amateur receiver, and some preliminary experiments were conducted with the object of keeping background hiss as low as possible. It was discovered that almost all of the hiss originated in the first detector stage, the usual R.F. pentode of the 57 or 6C6 variety being a particularly bad offender, regardless of the type of oscillator injection employed.

Regeneration on the first detector (a 6C6 in this case) was tried, and although the gain of the stage was increased very considerably, unfortunately the noise level was increased in the same proportion, so that actually from the aspect of noise level, regeneration was of little advantage.

A pentagrid converter type 6A7 was next tried, but results were much the same as with the 6C6, except that considerable "pulling" was noticed between the oscillator and detector tuned circuits, especially on frequencies higher than 7 MC.

The next scheme tried was an EK2 octode, used as an oscillating first detector in the usual way, and immediately a large improvement was noticed, the gain being much higher than any other scheme yet tried and the background hiss very low indeed. The EK2 performed very well on 3.5 MC and 7 MC, but unfortunately the stability on 14 MC was rather poor. Despite all efforts at shielding, it was found impossible to eliminate the "pulling" effect between the two tuned circuits.

(Continued on Page 10)

## Applying the Radiotron 1608

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The release of Radiotron 1608 makes possible the design of a transmitter with a plate input to the final stage of 25 or 30 watts, giving an output of 16 or 18 watts carrier, with provision for 100% modulation. This new valve is capable of operating at full ratings at frequencies as high as 45 megacycles. It has an isolantite base in order to eliminate losses in the base at the highest frequencies. The plate voltage under plate modulated conditions is only 350 volts maximum, and under other conditions 425 volts maximum. With a plate dissipation of 20 watts, the maximum output is as high as 27 watts for class C telegraphy.

The application of a triode valve appears to be most valuable in the final stage to which plate modulation can be applied, so that the maximum carrier output for a limited plate input may be obtained. A driving power of only 2.7 watts is necessary for a carrier output of 16 watts, so that there should be no difficulty in obtaining the necessary driving power even if the buffer is used as a frequency doubler. The difficulty with all plate modulated transmitters is that the modulator tends to become the most difficult and expensive part of the equipment. This is especially the case with type 6L6 or similar valves that are used under class AB2 conditions. Not only is the operation of these types somewhat critical, but carefully built and correspondingly expensive transformers are necessary.

It has been shown in Radiotronics Technical Bulletin No. 78 that a powerful audio amplifier incorporating 2A3 valves in push-pull, with back bias, may be constructed without the use of any inter-valve transformers. The circuit of this 13.5 watt class AB1 amplifier is reproduced here, and it will be seen that it consists of one 6C6 high gain pentode driving one 6C6 connected as a triode, and operating as a phase splitter, which in turn drives two push-pull 42's connected as triodes against resistance coupled to the output stage. The

advantages of this circuit are obvious, since not only is a transformer no longer required, but the fidelity is extraordinarily good. The overall performance of this amplifier on a resistance load is flat from below 30 to above 10,000 cycles per second, and when used as a modulator this performance should also be obtained. In this amplifier there are no critical adjustments to be made, and the only transformer required is the modulation transformer. Since the modulation transformer requires a primary load of 4,000 ohms plate to plate, a much simpler design of transformer is possible than with valves requiring a higher load resistance, and consequently a higher inductance. The use of triode valves in the modulator has distinct advantages, since no damage can be done either to the valves or to the equipment by overloading in the final stage of the modulator.

When Radiotron 1608 is operated under the conditions given below, the resistance imposed on the modulator is 4,200 ohms, which is almost identical with the load required by the 2A3 valves in the modulator. The consequence is that a transformer, having a primary to secondary ratio of 1 : 1 overall is satisfactory.

The recommended operating conditions for an input of 25 watts are:—

Plate Current .. ..	25 watts
Plate Input .. ..	77mA
Load to Modulator ..	325 volts
Plate Voltage .. ..	4,200 ohms

A very effective transmitter can therefore be arranged by using type 6L6G as triode crystal oscillator, second 6L6G as doubler or quadrupler, and a final stage consisting of one 1608 plate modulated by the amplifier. If still higher power is required, it would be possible to use two 1608's in push-pull modulated by a push-pull class AB1 arrangement using 6L6G valves. With either arrangement it would be possible to operate at full output down to 10 metres, and under suitable conditions to obtain good output at 5 metres.

The nearest equivalent to the 1608 among the older types is the 801, which has been widely used. Radio-iron 1608 employs a heavier and stronger filament operating from a 2.5 volt supply. The filament of the 1608 is oxide coated as compared with the thoriated tungsten filament in the 801. The lower filament voltage drop in the 1608 should improve the performance on the higher frequencies, while the higher amplification factor of the 1608 (20 as compared to 8 for the 801) results in easier driving. The higher mutual conductance of the 1608 makes possible the same plate efficiency on 425 volts as the 801 is capable of providing on 600 volts.

(Continued from page 8)

This suggested using the pentode portion of the EK2 as a mixer and using a separate, well-shielded oscillator stage. Accordingly a type 6D6 was used as an electron coupled oscillator, the cathode of which was capacity coupled to the EK2 Mixer. Various ways of injecting the oscillator output were tried and the most satisfactory method was to use the oscillator grid of the EK2 (i.e., the one nearest the cathode) as an "injector grid," and the anode grid, which was now not required, was connected to the screen grid. This arrangement, while somewhat unorthodox, gave splendid results, the gain being definitely better than any other system tried, yet the noise level was lowest. Incidentally, it was found that a screen voltage of about 75 volts gave the best sensitivity, this voltage being comparatively critical. We can recommend this system of frequency conversion as being well worth trying.

**IMPORTANT NOTICE.**

All Wireless Institute officials and experimental licencees are advised to address correspondence to the Radio Inspectors Department officially and not to individuals. This form of address frequently leads to delay in correspondence, as the individual so addressed is sometimes absent when the letter is received, and delay naturally results.

**Australian and Victorian QSL Bureau**

**VK3R J Qsl Manager.**

Owing to the insistence by the Postal authorities that cards to countries outside Australia must be prepaid at letter rates of postage, I regret to announce an increase in Qsl charges to 9d. per dozen cards irrespective of destination.

Cards from previously remote South American countries, such as Venezuela, Nicaragua, Uruguay, Brazil and others, are coming to hand. These should delight the hearts of W.A.C. aspirants. Reports from Mac of 3XZ, who, with 3HZ, spend their time at 3UL Warragul, show encouraging activity and results on the U.H.F.

Doug Tacey, 3DW, in an interesting summary of his gear, regretfully announces that "time marches on," even in Shepparton, where an O.V.1 is no longer sufficient.

3BG, who has recently made W.A.C., and had his 2000th Q.S.O., intends to avail himself of the increase in power now permitted. A new bug also adds to the station's efficiency.

F.H.Q. should thank Bell Sievers, VK3CB, for the gratis publicity given to the Sydney celebrations and tests. Bill made the journey home from the December KP meeting, with a large sticker implanted 'tween his shoulder blades.

A few VK stations still "ape" B class stations on the various bands. Scope for the Vigilance Committee exists in this direction, and in the matter of the infringement of the 7 mc force regulations.

The Qsl manager and his budding assistant, Joyce, extend the season's greetings to all.

Qras of the following VK3 stations are solicited:—3EE, EC, QO, QS, TT, VQ, VR, WR, WU, ZV.

Congratulations to VK3DG, Dick Giddings and his YF of Stratford, on the arrival of a junior op—the first.

Cards for the following VK3 stations are available at the Bureau, 23 Landale Street, Box Hill:—

3AT, BJ, BS, BV, CA, CC, CU, CV, DJ, DS, DU, ES, FA, FM, FN, GB, GJ, KT, LL, LS, NA, NB, NC, NF, NT, OU, SE, SF, ST, TB, TQ, TY, UF, UJ, WH, WW, XA, YA, YG, YM, Ashman.

## Where are we going on 5 Metres?

The Editor,  
"Amateur Radio"

Dear Sir,

I am of the opinion that it rests with the experimenter to take some of the Poppy Cock out of the 56 mc band?

Very little indeed is known of the behaviour of waves at this frequency. In 1921-22, when I proposed to the Institute that we, in Australia, should be receiving American amateurs on 200 metres, very little was known of that particular band. Despite a great deal of discouraging criticism we got them—hundreds of them. This was done by a group of enthusiasts and a little intelligent organisation.

56 mc should be tackled in the same way. The W.I.A. has better opportunities for organised experimental work to-day than ever it had.

Now, what do we know about 56 mc? We assume in the first place that the signal should be sent parallel with the earth, but why?

Some of the fellows have been directing 56 mc waves by beams of all kinds towards distant points now for several years, with what net result? A few isolated cases of long distance transmission, but nothing consistent has been achieved, and no real theory formulated as to how and why.

I submit that our theory is wrong; we have no real proved basis for the assumption that waves parallel with the ground are the answer to the problem.

Experience would rather tend to indicate that something does happen at a height above the ground—perhaps much further up than it is suspected.

This thought suggests the reversal of the application of the beam instead of rotating our beams round the point of the compass parallel with the ground as in "A," an organised period of test with beams projecting at varying angles of incidence may bring results.

I feel that a period of serious research on these lines may ultimately bring results on 56 mc which will allow operation equal to perhaps 14 or 28 mc. There is nothing to prevent the construction of beam aerials to work laterally and vertically, and in this manner all manner of combinations could be tried. What will be wanted will be six or eight enthusiastic experimenters in each State to do some serious work.

I hope the W.I.A. will get down to something of this nature, and let us attempt to crack some of the problems of the 56 mc and higher.

Yours faithfully,  
H. KINGSLEY LOVE.

### THE I.R.E. TROPHY CONTEST.

Note amendment to Rule 2. The second week-end date and times should read: "12 noon EST Sunday, 30th, till midnight EST 30th January, 1938." Note also the amended message.

### VIC. DIV. GENERAL MEETING.

VK3 members note that the next General Meeting will be held on Tuesday, 1st February, when the Key Section will be the hosts of the evening.

---

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## Correspondence

The Editor,  
Dear Sir,

Canley Vale, N.S.W.,  
8/11/1937.

I beg space in your valuable paper to voice approval of "Old Hombre's" article ("A.R.," October). However, a few points were overlooked by "Old Hombre," namely, regarding procedure when about to cross for reply in course of QSO. We all know, or should know, the regulations, but some of us certainly don't.

For example, almost every night, on 7 mc, North Coast VK2 can be heard calling thus: — Hotcher! B-r-r-r. This is V-K-2-X-Z H. Well, old-timer, I'll bounce it over to you now, it's yours take it away! Okey Dokey! Compare this with the P.M.G. Handbook, section 112. Quite different, isn't it? But we must remember that these fone hounds must have "poisonality" in their voices in order to appear big? in the eyes of the general public. Of course, 7 mc must be used, as dual wave sets do not cover 3.5 mc.

Imitators of "Fats Waller," plus heavy nasal accent, think they sound like N.B.C. announcers, but let us hope the W.I.A. will rid 7 and 14 mc of these pests soon.

While listening on 7 mc recently I heard a 3-letter chap of recent origin say, "I can't read cw, OM; I forgot that stuff long ago."

A few days later this fone merchant called me on cw, using freq of 6.85 mc. I immediately answered and said, "QSY, OM, wi freq 6.85 mc."

The answer came back, "R.OK, OM, but pse repeat my report."

After three attempts to make him understand, he did not come back.

This fone business should be stopped, and a good remedy would be for P.M.G. to enforce a fixed percentage of operating time to be on cw, say, 75 per cent.

According to Sept., 1936, regulations, fone on 7 mc after 5 p.m. is to be limited to genuine experiments, but listen to the trash put over after 5 p.m. Not one QSO in thirty is a genuine experiment.

It is certainly a pity the Vigilance Committee is not more severe in checking up on 7 mc and 14 mc.

Regarding high-power permits, I

recently heard one fone merchant use 100 watts to work four miles!

Yours for Radio,  
LES. TANNER, VK2ABL.

P.S.—As I write I find the "brilliant" all fone fellows from 7 mc are now "testing" on 14 mc during DX period with beautiful music and witty (?) announcing.

## Wireless Questions

### 3. HOW IS TIME MEASURED IN HEAVISIDE LAYER DETERMINATIONS ?

(What is a simple method of measuring the time interval between that of the released signal and the return of same?)

#### Answer to Problem Three

The most convenient method of measuring the height of the Heaviside layer is by the application of the principle of echoes. A receiver is connected to a cathode ray oscilloscope in such a way that the time interval between any two impulses applied to the receiver a small fraction of a second apart can be measured. This is accomplished by the application to the time-base plates of the oscilloscope of a frequency of some hundreds of thousands of cycles a second.

If the period occupied by one half-cycle of the time-base frequency is accurately known, the length of the time-base trace on the screen must equal that period, and a knowledge of the wave form of the time-base frequency enables the trace to be calibrated into sub-divisions of the time occupied by a half-cycle. A transmitter is established near the receiver, and a pulse is transmitted. This is recorded as a peak on the time-base line on the oscilloscope. The signal travels to the Heaviside layer and is reflected back. The oscilloscope records a second peak, due to the echo a fraction of a second after the direct signal is recorded.

The time difference between the signal and echo can be measured directly from the oscilloscope screen, and from it the difference in the lengths of the signal path and the echo path can be calculated. When this difference in path lengths is established, the actual height of the Heaviside layer can easily be deduced.

## South African Relay League

Annual International DX Contest.  
JANUARY, 1938.

S.A.R.R.L. — South African-International DX Contest — Annually (second and third week-ends in January of each year), commencing 1938.

Dates for 1938.—8th January, 1938 (0200 GMT) to 9th January, 1938 (2200 GMT), and similarly on the following week-end, 15th January, 1938 (0200 GMT) to 16th January, 1938 (2200 GMT).

CQ Call.—All DX stations to call CQ S.A. Test.

Bands.—All.

System of Reporting. — R.S.T. report followed by a selected serial number. Only one contact is allowed on each band, but stations worked during the first week-end may also be worked during the second week-end. "Skeds" must not be arranged either between stations or for other stations.

Scoring.—Two points each for exchange of serial numbers between two stations on any band. One point each in the event of only one serial number sent and received.

Districts.—U.S.A., Australia, New Zealand, Canada and Argentine, to be divided into their respective districts.

Zones.—DX stations (excluding the following countries); — ZS1-6, ZT1-6, ZU1-6, CR6, CR7, VQ2, VQ3, VQ8, ZE1, ZN1 (Bechuanaland),

ON4 (Congo), FR8 and FB8 (28 Zones), will multiply points scored by number of above zones worked. African stations multiply points gained by countries or sub-divisions worked.

Awards. — The "Ross-Kent DX Floating Trophy," as well as a certificate, will be awarded each year to the full member of the League in the Union, who scores the highest number of points in the contest. In the Union of South Africa, the Rhodesias, South-West Africa, and Portuguese East Africa, only League members will receive certificates. All such members to be in good standing immediately prior to the commencement of the contest. Elsewhere a certificate will be awarded to the competitor in each country or sub-division who scores the greatest number of points. N.B.—No certificates will be issued on winning scores of under 100 points.

Returns.—These must reach South African Radio Relay League Headquarters, P.O. Box 7028, Johannesburg, South Africa, not later than the 15th March each year.

General.—DX stations outside the South African zone will multiply points gained by the number of South African zones worked. Contacts with ships at sea or in port do not count. Only one contact per station per band is permitted each week-end.

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# Some Notes on the 5 Metre Field Day

(By VK3PS.)

About two months ago 3JO suggested that a five-metre field day should be held in conjunction with the National Field Day on 5th December. The suggestion was followed by several long discussions between 3JO and 3PS on the said band, and a plan was formed which subject to suggestions by other interested parties, was put into operation on an almost ideal day for the time of year.

By means of radio, letter and notes published in "Amateur Radio," all parties who were interested were advised of the details, and arrangements were fairly complete when, according to schedule, 3PS put out a call on dual transmission 7040 kcs and 59 mcs at 10.30. However, owing to interference from VK2 phone stations and other factors, there was no response on 40 metres, and the checking channel was soon abandoned.

The portable stations who were on the job were 3VII-3JO on top of the You Yangs, near Geelong, and using a 76 oscillator with about 4 watts input and an H type array with reflectors. 3OT-3LG were on top of Mount Tarrangower, near Maldon, and about 15 miles northwest of Castlemaine, with push-pull 45's, 15 watts input and an H array. 3OF took up a position in the mountains near Foster; he was using a push-pull rig with a 201A and 171A and an H type array with reflectors. 3DH went to the top of Pretty Sally on the Hume Highway, near Wallan, but was not successful there, and eventually moved to another location near by, and although he did not contact anyone was heard by 3VH and 3PS, and he could hear 3VH.

Country stations at fixed locations were 3HZ, at Warragul, "right under 3UL's antenna," using a stabilised oscillator with 45's in push-pull, 20 watts input, and radiated with two vertical half waves in phase, the bottom of the antenna being only 8 feet from the ground, and 3RS, at

Congupna, "on top of 3SR's mast." 3RS had a most disappointing day, as he heard nothing, although on the job 1400 to 1730. We can't understand why he did not contact 3OT, as the latter had his beam trained on Shepparton several times, and the country between them is very open.

City stations who were on the job all day were 3OJ, 3QJ, 3EM, 3XM, and 3PS, and later in the afternoon 3YL and 3HK came on. It was unfortunate the Gil. Miles, 7KQ, who had made arrangements to be duly installed on the top of Mt. Wellington, was unable to be on the job, as work was too pressing; from results, Gil. would have had a fair chance of a contact with VK3.

3VH-3JO undoubtedly had the best day, and despite the difficulties of getting the gear to their location they are quite prepared to go there again. They heard all stations on the air except 3RS, and worked all points heard except 3OF. At the time they contacted 3HZ, 3EM was listening to them, and he says that one of the funniest things he has heard on the air was Herb. (3JO) dancing round the top of the You Yangs, microphone in hand, confirming the contact.

The outstanding performance of the day was the "hearing" both ways between 3OF and 3OT over a distance of 153 miles air line with high mountains between them. Unfortunately, 3OF was using a very low frequency buzzer for tone modulation, and it was very difficult to read it on 3OT's super-regen, otherwise a definite contact would have been established.

3HZ worked only 3VH-3JO, but put an r8 signal over the intervening 85 miles. However, the contact has opened up a field for future tests, for the reason that while it was in progress his signals were not audible in the city, but during the latter part of it 3XM located a carrier, which came on when 3VH changed over, but could not distinguish any modula-

(Continued on Page 25)



## 28 and 56 M.C. Notes

(By A. Pritchard, VK3CP.)

The National Field Day gave an excellent opportunity for good portable work, and the 5-metre gang were not found wanting; many of the available high spots were made good use of, resulting in good long distance contacts for 5 metres. VK3VH/JO, at Flinders Peak, You Yangs, had many excellent contacts, the best being 3PS r8, 3QJ r9, 3XM r8, 3OT r8, 3HZ r8; also heard 3OJ, 3LL, 3YL, 3HK, 3EM, 3DH, 3DF, and 3NG harmonic!—the 3JO-HZ qso being 82 miles; 3OF heard 3JO, and was heard by him, this distance being 107 miles. 3VH/JO used a 76 in a series fed Hartley with  $4\frac{1}{2}$  watts input and 6L6 modulator; the antenna was an H type beam with reflectors, hung from a 30-foot portable mast. The receiver used had 4 tubes, super het.-rc ix f's. VK3OT/LG, at Mount Tarengower, Maldon, used PP45's, 15 watts input and H type beam antenna; he qso'd 3VH/JO, 3PS, 3QJ; sigs from 3OF were very weak. 3DH, on the Dividing Range, near Wallan, heard only 3VK/JO; he was using 76 series fed Hartley, 41 modulator,  $\frac{1}{2}$ -wave vertical antenna,  $\frac{1}{4}$ -wave feeders and twisted pair. VK3OF, at Foster, near Corner Inlet, heard 3OT's r6 and 3AP's harmonic! He used a PP osc., '71A-201A, modulated by a single 41, an H type beam with reflectors for the antenna system. VK3HZ, at Warragul, had PP 45's, 20 watts input—2 half waves in phase,  $\frac{1}{4}$ -wave stub in centre, and twisted pair, 8 feet above ground, and surrounded by guy wires, etc., of 3UL. He qso'd 3VH/JO r6 and heard 3OF. Some of the distances covered are:—3VH/JO to HZ, 82 miles; to 3OF, 107 miles; to City, 35 miles; to 3DH, 50 miles; to 3OT/LG, 70 miles; from 3HZ to 3OF, 37 miles; to City, 67 miles; from 3OT to 3OF, 160 miles; to City, 75 miles. This will give an idea of the excellent work done with such low power and small portable outfits. Conditions on 10 metres are about the same, and between 8.30 and 9.30 p.m., also from midnight onwards many Europeans and W's stations have good strength. On 21st November

SM6WL, G5CY, PAoXR, G2WD, G5BB, ES5D, YM4AA, D4XJF, F8EO, SM5VM, VK2TI, VK3HQ were good strength around 9 p.m. PK3BW was heard qso PAoXR at 11.30 p.m.; also K5AG and OH3NQP fair strength. G2XC qso ZE1JN, G5GI, G2WS r7 at 12.10 a.m. 22nd November, G6RB 12.30 a.m., continuing later at 3YP 12.30 to 1 a.m., W4IO, XE1AM, W4MR, W8VTI, 1.15 to 2 a.m., W8JiN, W9SPB, W8BTI, W6NYA, W1DZE, r7; W9FS r9, W5AFX r7, were qso'd by 3YP, also heard W8HEW r8, 2.10 to 2.30 a.m.! VE4RO, W6DUC, W6iTH (phone r9), W6MCQ, all of these w's had a bad echo; VK2ADE 20 mx harm. r7 at 2.30 a.m. The same day later (!) here at 3CP. OK2RS, F8Ti phone r5, PAoVB, APoQZ, all at 11.30 p.m. VK3BQ has the W8JK flat top beam in operation, on the States, and finds it is much more efficient and easy to adjust than the H type. There are many good strength W's on during the morning with peak conditions (at present) around 8.30-9.30 a.m. W5GGX, W6JYM, W2ANM, W5DSH, W9RZM, W4EEC, W4EHH, W4ECI, are usually r8 phone. On the 3rd December W3VB was contacted here at 3CP at 1.15 a.m., and W2FSN and W8NK, also VK5RX harm. were r7 at 1.30 a.m. The following early morning at 3YP, 1 a.m.! OK3VA, PAoVB were qso'd, also PK3BM r8 phone, 15 watts input; at 1.20 a.m. W4CDZ, also many 20 mx harmonics from VK5, and 2 were r8 showing many and varied skip distance paths. Sunday, 5th December, at 11 p.m., D4XJF, G2WD, VU2CQ, and PK3BM qso YL2CD, were r7/8 cw. The following Sunday VU2CQ's phone was r8 qso OK2LO at 11.45 p.m. VK2RA is having many fine DX contacts, and the 9-tube McMurdo Silver 5D certainly brings in the weak ones. 2UD, 2VN, 2TI and 2HZ are also consistent VK2's. There are very few New Zealand stations on at present; ZL3DJ and ZL2CI, the latter with 100 w and HF100 final have good strength about mid-day during the week-end.

## Divisional Notes

To ensure insertion all copy must be in the hands of the Editor not later than the 18th of the month preceding publication.

### Victorian Division

#### KEY SECTION NOTES.

(By VK3HK.)

Another well-attended meeting of the Key Section was held at the rooms on 7th December. After the usual business was disposed of we had an account of the activities of the gang in the field day held 4th December, also a few technical questions were presented by members present for explanation. These proved very interesting to all. And now for some dope from the gang.

3LA is very QYL. 3LA is using PP. T20's and 6L6 modulators, but 3XQ has mere stages and mere trouble.

3UO is very QRL. Fan mail from 3LR.

3EN.—Trying 28 mc portable and a DX! contact with 3IW, also making a hole in 7 mc band.

3MV.—Wants to know how to work dx on 14 mc. (Ask 3MR, hi!).

3ON.—Working dx between school exams and study.

3XS.—Alas! Wants a cure for key click (use fone, hi!).

3SQ.—Going to try 56 mc wide sum local boys after holidays.

3XV.—Has got T.P.T.G. perking on 14 mc after many headaches and now plenty dx.

3ML.—Burnt up a lot of power (Ever-ready type!) during field day. Sez will now trade an 807 for 48 hrs sleep.

3EX.—QRL lately. Exams over now and is after QSO's on 3.5, 7 and 14 mc fone or cw, now using 6A6 and es F.D. and es 59 P.A.

3UH.—Is about to build a multi-vibrator.

3IW.—Finds 804 final slightly better than RK20 used previously

3CB.—Is still active on 200X fone and es 7 mc cw.

3ZC.—Working sum dx, but still looking for Sth. America.

3XR.—Rebuilding again. Rack and panel job.

3TY.—Back from VK7, QRL work, but on 28, 14 and 7 mc occasionally wide cw and fone. What about a shout from R.A.A.F. Reserve, gang?

3XJ.—Trying out 2 section W8JK beam on 14 mc to Europe. Weeks VS's and Sth. America quite well, but G is waiting for the sig.

Two hams to be Reg. Veal and Bill Mitchell are only waiting for their call signs, fone's welcome to hamdom, hi.

3ZY.—Will work anyone, anytime, anywhere, so come in please.

3HK.—Not very active lately except occasionally on 3.5 mc fone through QR Nelly. Just returned from visit to 3BM, 3KR, 3OR and others. Had fone time.

Will, that's the dope till next month, meantime hope all have had gul wide the Xmas pudding. 73.

#### SHORT WAVE GROUP NOTES.

(By O. E. Davies.)

Meetings of the Group are still keenly attended, Group experimentation being the chief cause of these fine attendances.

At two recent meetings of the Group the Capacity and Resistance Bridges were put to work, members thereby gaining some very useful and instructive information.

Early in the New Year it is intended to increase the field of experimentation, thereby, it is hoped, encouraging members to take a still keener interest in the real experimental side of our great Ham game.

As regards the individual members little can be said this month.

Herb. Stevens is still MOPA on 5. FB quality, too.

Vic. Leonard and Ron. Higginbotham are both sitting in the present class for the AOPC.

Ron. Chard is QRL work and Nite School.

Bertie is QRL work and Father Xmas.

And that about covers the lot this month.

Sincere apologies for not remembering Xmas last month, gang, but I will endeavour to make amends now with Best DX and 73e for the New Year.

## COUNTRY SECTION.

(By VK3UK.)

I wonder if you fellows have ever tried to make a suitable date for a Ham function that did not clash with one of the innumerable contests? It is a physical impossibility to arrange this Convention at Ballarat, we have talked so much about, until well into April, if we are not going to clash with some contest, and even April is a bad choice, because of the Federal and N.S.W. festivities in conjunction with their Sesqui-Centenary. January contains the S.A.R.L. and I.R.E. tests, February the B.E.R.U., March the W. test and FHQ Interstate Contest, and—but why go further?

We are making a start, at any rate. A weekly Sunday news bulletin will be broadcast from 3WI on CW on 3865 kc at 0945 hours and on 7140 kc at 1030 hours. This will be relayed on phone by 3EP at 1100 hours. Now this bulletin is to provide you with news of W.I.A. doings, so you fellows must support it. Send me any criticisms or suggestions, either about the schedule times or frequencies or the news matter itself.

The next matter is the sub-division of Victoria into convenient zones. It is suggested that the best possible arrangement would be as follows:—Eastern Zone—East of Hume Highway. Northern Zone—Between Hume and Western Highways. Western Zone—West of Western Highway. When the organisation is complete in each zone division into sub-zones may be found desirable. Each zone will require a president and secretary, and a zone correspondent to look after the notes for the mag.

## UHF SECTION.

(By 3JO.)

As the results of the field day held on 5th December are fully

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covered on other pages of this issue, there is no need to occupy space in these columns with any further descriptions. However, these notes would be incomplete without a word of congratulation to those whose fine performances made this field day the success that it was.

At the November meeting of this section, an interesting discussion was maintained on the various items of interest, namely, the 56 mc frequency metre, the 56 mc transmitter for 3WI, and the field day. It is unfortunate that the various members, who have been experimenting with a view to providing the most satisfactory designs for the frequency metre and transmitter, have been unable to spare the necessary time to bring their experiments to finality, so the construction of this equipment has again been delayed. However, now that the field day, with its attendant preparations, is over, we can expect these members to knuckle down to work and produce something worth while.

Meanwhile, activity is maintained on the 56 mc band, and seldom a night passes without a contact or so. Since contact was established with 3HZ at Warragul, on the field day, some tests have been made in order to investigate the possibilities of contacts with the city stations. Using a 7 mc channel for an immediate check on results, these tests have not as yet been successful, and have been suspended temporarily, until such time as beam aerials can be erected at both ends. As the distance between the city and Warragul is only about 80 miles, and the latter location is favourably situated on high ground, there appears to be no reason why consistent 56 mc contact cannot be established between these two centres.

3OT and 3XM can now be heard almost nightly working duplex, as of yore. Val intends improving both his receiver and aerial system before the next field day.

3PS is most anxious to get a copper tube aerial on top of his 40ft. stick, and is anticipating a great improvement as a result.

3EM recently erected the popular J type of aerial, also made of copper tube, on top of his mast, and is now able to hear and work stations that were previously inaudible.

3VH reports an improvement by using the 3LG aerial tuning circuit on his receiver, but the same arrangement tried here makes no difference!

3DH has only his portable gear at present, and is installing this in the car, so that if one location doesn't suit he can readily change to another!

The January meeting will be held on Tuesday, 18th, and, look—another field day has been mooted—don't miss it.

In conclusion, I would like to extend to all readers a hearty wish for the best of all good things during the coming year.

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The foregoing conditions apply to all members of the Victorian Division.

Country members may borrow Instruments by Mail under the following additional conditions:—

- (a) The intending Borrower must make written application to the Technical Development Section, Vic. Div., W.I.A., Box 2611W, Melbourne. Applications as in Sec. (b) must be signed in full.
- (b) The applicant must state the type and scale reading of the instrument desired. This information, together with one shilling (1/-) postage and threepence (3d.) Registration must be forwarded before any Instrument can be loaned.
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## Queensland Division

Niels Heyerdahl, ex-LA4C, sparks aboard the Norwegian motor ship Troja, recently paid a visit to VK4RM and contacted some of the gang on 40 metre fone. All of the Qso's bar one were three or four way. A lady passenger, Miss Steele, with personality plus, called the cq's and pulled them in.

A visit to the ship proved most interesting. We looked over the two 1 KW xmitters—the emergency rig is a simple TNT with a 1,000-watt bottle. AC is used on the plates; 600 cycle note. The direction finder and automatic SOS alarm also proved interesting. The Troja left Mackay and proceeded north around Carpentaria, en route to Capetown, first stop, where a stop is made for two hours to refuel. Thence the ship travels to Oslo, Norway, by way of London. Call letters are LDRM, and works on 25 and 36 metres.

40 mx is dead up this way. Tho only Qso's are local fones. Very little cw can be heard. The reverse is the case on 20. Very little local stuff, but

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Vic.

## Amateur Radio

plenty of DX. VK4RM going home from the pictures one night and called CQ 3 x 3, and worked three Yanks at once. Wanted to hit the key, so sent CQ three times, and signed three times, and still they came back. With one Yank, W5EOU, yarned for over an hour, and we nominated each other for the R.C.C. Finally, in desperation, sent 1 CO and signed once, tuned round, and heard nil except a Yank signing, then AR, indicating he hadn't contacted, so called him once and signed once, and said, "RU CLG ME?" He came back with "No, but you'll do!" He was calling a VK5 on my frequency, and the VK5 didn't come back! I went to bed after that.

Siberia seldom heard here, but heard five last week. One called CQ and signed VOLC. I worked him, and asked if the second figure was a 1, 9, or nought. He said nought. Until then I didn't know there was such a numerical district in call signs.

4UX continues to grind out music, and his YL announcers, Beryl and Marj., act as CQ bait. When a VK4 we hear asks if she got the cake said ham made for her—well—do your stuff, girls!

VK4RM wkd himself the other night. The pirate had a chirpy R4 note, and thought it was a great lark.

Doc Hadley, VK4AH, was busy during a Qso eating something, and fancied some icing sugar on it. The icing sugar turned out to be flour!

A seven-way qso was heard a few weeks ago on 40—all fone. We think Beryl and Marj. had a lot to do with it—wotsa, Claude?

VK4NO has had some fb fone on 40. The box underneath the rig, "High Quality Tea," explains his job T9 note.

Heard a VK2 the other day answering another VK2's query with regard to a barretter, "As far as I know it's another Bettysmith."

VK4JU has shifted his fone down to 20. This quality is not as good as his old-time loop modulated on 40. Guess those tens have "had it," Frank!

Heard VK4VH was shifting north again. He was heard on 40 metre fone in VIB at R6.

VK4FN was telling the lads he was glad to hear VK4RM was back

on 40, as the XYL had lost all interest in ham radio since 4RM went down to 20. Hi! I heard the lot, Frank, but B.C.L. QRM when on 40.

VK4EN hasn't been heard for months. He's had an open bottle in his place recently. Bought from the chemist's to excite his new addition to the family. Congrats, Eric.

We miss the rusty note of 4KR, Willis Island. They must have C.C. over there now.

4EI, QRL with Army signals. He has given up R.A.A.F.W.R. (wot a mouthful!). He's also given up RK big noises. The filaments are too fragile!

4GG hasn't been heard for a long time. Wotsup, George?

4MF shifted up north to Sarina, and threatens QRM with a 50-watt tube he has.

4RS on fone on 40. FB, Roy—thought the YL had cured you.

4AB on 20 mx CW calling CW or fone.

4AW on 40 metre fone on Sundays yarning with the boys. How's the R.A.A., etc., skeds, Arthur? Seems to be dead down there.

4BB hasn't been heard on 40 for a long time. Understand he's QRL Uncle Bob, of 4MB, etc., and spends some time on ten.

4TN, given up for good, we hear. Time will tell, OM! Cudga.

4EL is Eric Lake, of The Lake. One valver fame. Not very active just now.

4FB on 40 fone, fb R max signal. VS4OC turned out to be VK2OC on holidays.

VK4KL has a second op who's bringing in the QSL's. He's coming on fb.

4NF also on 40 fone, and his brother 4NL.

4RD has only had one qso since he got his ticket. Too QRL and no L.S.D.

VK4TY must have had another change of QRA, or else his town now has power. Missed that R.A.C.

4VZ hasn't been on at all. He's working on the new harbour at Mackay.

4ZO had a cracked scull thru an unfortunate accident some time ago. He hasn't been heard since. Hope UR OK now, OM.

VK4RM.

## South Australian Division

(By VK5KL.)

Once more a new year dawns upon us, and the council of this division wish all and everyone a prosperous New Year. The annual Christmas meeting was this year held at the Aurora Hotel, Pirie Street, Adelaide. Although not a very large number attended all had a good evening, and the "Dog" yarns by Mr. C. Searle, VK3RX, were well appreciated. The co-operation and understanding between the P.M.G. Department can be seen clearly. Mr. De Cure, representative for the P.M.G., officially and personally announced the raising of the regulation power for cw to 50 watts input. A much appreciated Christmas gift! Listening over the week-end, it seems as though us chaps have been misled. Please note, Messrs. Seuth, Manual and Galle, VK5ZX, 5RT, and 5QR respectively, spent the week-

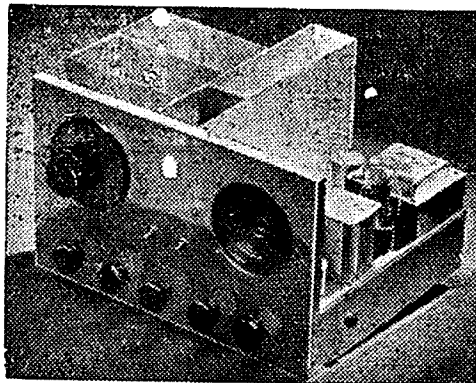
end of the national field day at Mt. Barker operating portable gear. The weather was very wet, and all the time was spent in the car. Score amounted only to 118 points, conditions being very poor. The winner of the xmitter hunt held at the recent field day was 5LC. He also was presented with the trophy for winning the Country QSO contest. Congratulations, Les, a fine piece of work. Although the 5-metre transmitter was not found, I believe that one party had the spot down to a fine art, but the car couldn't get there. Bad luck, chaps! Talking of 5 mx, VK5GF and 5BF had an r8 QSO over a distance of 60 miles on Sunday, 28th November, from Mt. Barker to Minyip. A fine performance, and has the effect of stirring up interest in this State once more.

To Mr. George Barber we extend our congratulations. George is now a very proud father. While to Joe McAllister all members sympathise

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in his recent bereavement; the loss of a son. Joe has been a willing worker in the Institute for years.

Mr. Barbier, 5MD, will again this year represent the South Australian Division at the annual convention to be held in Sydney during their 150th year celebrations, and incidentally, chaps, let VK5 be more represented in the forthcoming contests to be held at the same time. Now, chaps, let yourself go. An enthusiastic competitor is a worthy opponent.

5KL.

### VK5 COUNTRY NOTES.

(By VK5PN.)

VK5FB.—Is now in Sydney studying for his first class commercial ticket. Present QRA: Mr. E. F. Brandon, 254 Glebe Road, Glebe Point, Sydney.

5RE.—Zone officer for Wakefield zone. Hobby will be pleased to hear from all members and intending members in his zone.

5WG.—Wally paid a very hurried visit to Sydney recently. Back home again now, and settling down to serious work for his first class. Zone officer for Grey zone.

5NW.—Bob is keenly interested in 5 mx. Think he must have deserted 40 metres in favour of the higher freq., as I have not heard him for some time now.

5AT.—Bert told me recently that he intends to become active again on 40 mx very shortly.

5BK.—Haven't been able to work this station yet. How about getting busy on 40 mx, OM?

5HR.—Prominent at Manoora on field day, but at this season hasn't much time to spare for radio. Bill will make himself heard again, though, when the harvest's in.

Mr. Wally Scott.—Also put in an appearance at Manoora. Wally has his A.O.P.C., but doesn't appear to be in any great hurry to get a transmitter on the air.

Mr. Col. Bottrall.—In the city recently, and attended a meeting of the Transmitters Section. Made the acquaintance of several of the chaps. How about brightening up your code and taking the exam., Col? Would like to hear you on the air!

Mr. Eric Trebilcock.—Heard from Eric recently. Stirred us up for non-

delivery of mags. Apologies, OM. Guess you have received them now, however, and future numbers will arrive O.K.

5BF.—Good work on 5 mx! Coorang to Mt. Barker, 60 miles, 2-way QSO. Frank kept things going at Coorang whilst 5GM and 5GF operated portable 5 GY at Mt. Barker. Frank at present roaming around Murray Bridge with a gun in his pocket looking for the owner of a recently installed electric refrigerator which is causing him quite a lot of trouble.

5BG.—Bob Grundy, of Murray Bridge, a new man on the air. Give him a call, chaps. Your QSO's and reports will be appreciated. Look for him on 7275 kc.

5YL.—Another Murray Bridge ham. Betty went along to Manoora and took her 5 mx transceiver and camera. How about those snaps, Betty? Hope they turned out O.K.

5RJ.—Pleased to see Darcy and Mrs. Hancock at Manoora. Darce is transporting his transmitter from his shop to his home. Perhaps that's the reason for his recent silence.

5MP.—Len Porter, of Huddleston, puts a very good signal into the city. Len is another professional radio operator who can find enjoyment in "ham" radio. Operator at 5PI.

5LC.—"The Down-trodden Farmer." His 4½ watts telephony has been reaching the city lately with more kick than a mule. Les is very busy at present with the harvest.

### Tasmanian Division

The December meeting was held at the Y.M.C.A. Room on Tuesday, 7th, in the presence of a moderate attendance. The desire of some members to expedite proceedings was rather puzzling until it was realised that as it was the first meeting after the introduction of 10 o'clock closing of the "bowsers" in VK7 those DX yarns could be just as pleasantly exchanged over a jugful.

Federal Headquarters' report on its activities for the year was presented, a particularly praiseworthy feature being the excellent attendance recorded by members of the execu-



tive. These chaps are obviously taking things seriously, and the decision of the last Convention to retain Federal Headquarters in VK2 is certainly not to be regretted.

An invitation has been received to send a delegate to the 1938 Convention to be held during the coming New South Wales' Sesqui-Centenary Celebrations, together with a guarantee to defray the delegate's expenses. The generous action of that State's Government in allocating a substantial sum should contribute to the success of the Convention, besides relieving the financial strain usually associated with such functions. It seems fairly certain that we will have direct representation, but the actual selection of the delegate will not be made until the views of northern members have been obtained. However, should our Hon. Secretary, "Chum" Moorhouse, be available at the time he will be the most capable representative we could choose.

No results of the recent National Field Day are to hand, nobody participating in the south, but it is understood that 7AB and party had intended trying their luck with the mainland on five metres.

Inactivity seems to be the order of the day, most interstate and DX stations worked commenting on the scarcity of VK7's. However, the following jottings are tendered:—

7JB.—Convalescent after a bout of measles. Has effectively replied to last month's "bug" yarn by returning to the fold on 20 mx fone and cw, and is even threatening to shatter the quiet of 10.

7YL.—Understood to be contracting measles. Heard uttering disparaging remarks about 7JB's amateur status and the perverseness of men in general.

7CM.—Touching the DX along during week-ends. Only needs Africa for WAC, a fine performance considering his comparative low power. The end of study should indicate a prolonged attack on the old ether.

7CT.—After being QYL for many moons has an excuse for his silence at last, having shot his soie source of power, his Genemotor.

7KQ.—Disgusted with the poor

response to his 5 mx appeals, but still plugs away on 40 mx fone during off-shift periods.

7KV.—Indulges in occasional bursts in between chewing his hops. Listens to 7KQ per medium of audio amplifier with absolutely no signal input circuit.

7DH.—Just can't be kept going with dope for his traffic skeds. May lose a little of his enthusiasm for the old key when the threatened 60-watt modulator eventuates.

7LC.—Has moved even further into the bush. Believed to be somewhere Winnaleah. It is understood that there is a new ham in that area also, and any advice as to his doings will be appreciated. Doubtless the flow of inward QSL cards will soon tell the tale, though.

7AB.—Doing a little on 10, judging by the stations heard calling him. His near neighbour, 7LZ, has relinquished his 200 mx permit, so doubtless intends doing serious things on the higher frequencies.

7CL.—Been transferred to the North-West coast from Launceston, but don't know whether he has set up the gear yet.

7KV.

## TRANSMISSION SCHEDULES.

January, 1938.

VK2ME, SYDNEY.

Sydney Time.	G.M.T.
Sundays: 4 p.m.-6 p.m.	0600-0800
" 8 p.m.-midnight	1000-1400
Mondays: Midnight-2 a.m.	1400-1600

VK3ME, MELBOURNE.

Melbourne Time.	G.M.T.
Nightly	
Monday to 7 p.m.-10 p.m.	0900-1200
Saturday	
(inclusive)	

VK6ME, PERTH.

Wavelength, 31.28 metres  
(9590 K/cs.)

Perth Time.	G.M.T.
Nightly	
Monday to 7 p.m.-9 p.m.	0900-1100
Saturday	
(inclusive)	

# First International 56 MC. Transmitting Contest

Following on their successful 28 MC International Contests of 1935 and 1936, which did much to popularise operations on this band of frequencies, the Radio Society of Great Britain are pleased to announce the first 56 MC International Contest.

The rules are as follow:—

1. The Contest will commence on 1st January, 1938, and conclude on 31st December, 1938.
  2. The Contest will be open to any radio amateur who is licensed to operate his station in the 56 MC band.
  3. The winner of the Contest will be the operator of the station scoring the most points based on the following system:—
    - 1 point for each contact over a distance between 200 and 1000 miles.
    - 5 points between 1001 and 2000 miles.
    - 10 points between 2001 and 3000 miles.
    - 15 points between 3001 and 4000 miles.
    - 20 points between 4001 and 5000 miles.And so on, at the rate of 5 extra points for each additional 1000 miles or part thereof.
- All distances to be calculated by Great Circle.
- To count for points the Readability, Strength and Tone (both incoming and outgoing) must be logged, together with Date, Time and Call Sign.
4. In addition, and in order to collect current data, each contestant must send to the Radio Society of Great Britain a monthly report of stations heard and/or worked, together with notes concerning conditions, power used for contacts, etc.
  5. The Radio Society of Great Britain will present a suitable trophy to the winner of the Contest, whilst certificates of merit will be awarded to the leading station or stations in each coun-

try.

6. No entrant may employ Interrupted Continuous Waves, Modulated Continuous Waves, Telephony, or any other form of modulated carrier, for contacts claimed in this Contest.
7. At the time of a contact both stations must be operating on 56 MC from their fixed station addresses.
8. Only one contact with a specific station may count for points in any 7-day period.
9. Entrants must adhere to the terms of their licence.
10. Final entries must be received by R.S.G.B., 53 Victoria Street, S.W.1, not later than 28th February, 1939.
11. The decision of the Council of the R.S.G.B. shall be final in all matters relating to the Contest.

Note.—In the above rules the term 56 MC refers to the amateur frequency band, 56 to 60 MC.

## FIRST INTERNATIONAL 56 MC RECEPTION CONTEST.

In conjunction with the International 56 MC Transmitting Contest, and in order to encourage non-transmitting amateurs to collect and tabulate phenomena relative to the 56 MC amateur band, the Radio Society of Great Britain have decided, provided sufficient entries are received, to offer a suitable trophy to the Non-transmitter whose log covering the period 1st January to 31st December, 1938, is considered by the Council of that body to contain the most valuable information.

Certificates of merit will be awarded to those submitting the most valuable information at the conclusion of the Contest, irrespective of the number of entries received.

Logs must be received by R.S.G.B. not later than 28th February, 1939.

Note.—For the purpose of this Contest a non-transmitter shall be regarded as a person who did not hold a radiating permit on 1st January, 1938.

(Continued from Page 14)

tion. 3VH did not hear 3HZ again after 1530, but for the last two minutes before 3HZ finally closed down at 1610 his signals were heard at 3PS at R5-6. A later contact between these stations on 40 metres has confirmed the fact that the signals were definitely from 3HZ.

A summary of the results is as follows:—

3VH-3JO worked 3QJ, 3PS and 3XM at 1220-R8 over 40 miles, 3OT at 1325-R7 over 70 miles, and 3HZ at 1355-R8 over 85 miles, and heard 3OF at 1524-R5 over 105 miles, 3DH at 1600-R6 over 50 miles, and the city stations 3EM, 3OJ, 3YL, and 3HK, also a harmonic from 3NG at R8.

3HZ worked 3VH-3JO at 1352, 1454 and 1512-R6 over 85 miles, and heard 3OF at 1436-R6 over 40 miles.

3OF heard 3OT at 1434-R5 over 153 miles.

3OT worked 3QJ at 1315-R5 over 75 miles and 3VH-3JO at 1354-R6 over 70 miles, and heard 3OF at 1430-R4 over 153 miles and 3PS at 1255-R5 over 75 miles.

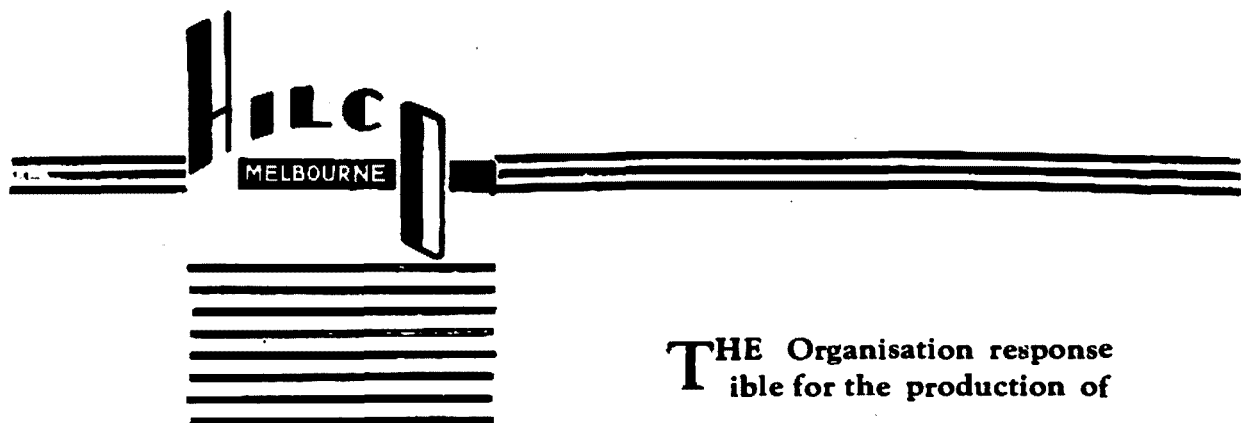
3QJ worked 3VH-3JO-R8 and 3OT-R6.

3PS worked 3VH-3JO-R8, and heard 3OT-R6, 3DH-R6 and 3HZ-R5 at 1609.

These results give us interesting data on which to work in the future, and plans are already being made for another field day in the New Year, although no date has as yet been fixed. All those taking part in this last test are planning new and better equipment, and 3VH-3JO, 3OT, and 3OF intend to take up the same positions on the next field day.

### ALL BAND C.W. TEST. Results.

1—7AB	1618	15—2AFJ	535
2—3MR	1474	16—5LD	525
3—6SA	1430	17—4CG &	
4—2RA	1318	2YC	475
5—3ZC	1252	19—4JF	470
6—2NY	1246	20—5TX	450
7—5KL	1235	21—5LL	445
8—5JT	1155	21—2ABC	445
9—3HG	975	23—2GV	372
10—4AW	880	24—3XB	310
11—2VN	740	24—3BG	310
12—3RJ	730	26—2HZ	244
13—7CM	695	27—6JE	184
14—4UR	660	28—5ZX	146
		29—8DA	78



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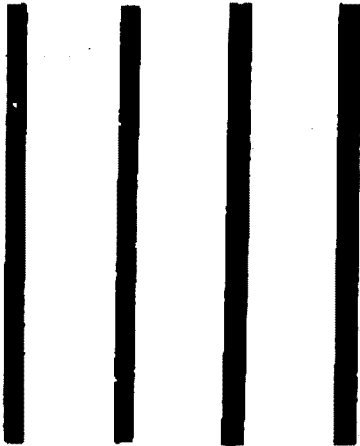
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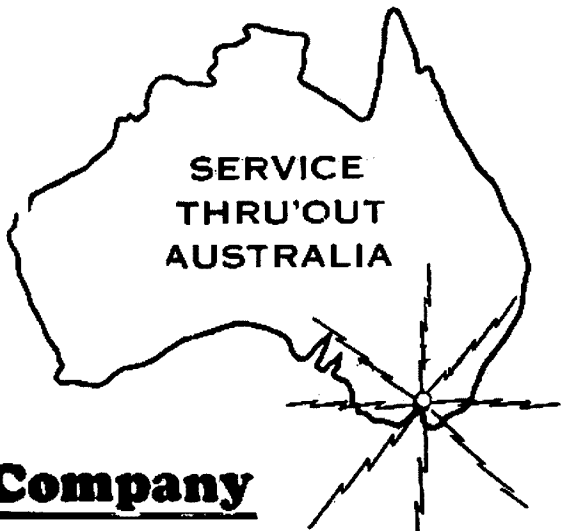
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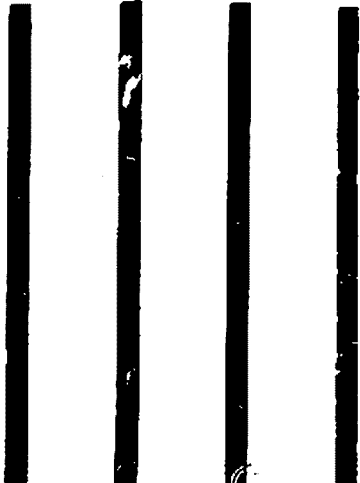
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District Commanders—

Second District, N.S.W.—A. G. Henry, Clareville Avenue, Sandringham (VK2ZK).

Third District, Victoria—Pilot Officer V. E. Marshall, 75 Argyle Road, Kew, E.4 (VK3UK).

Fourth District, Queensland—A. E. Walz, Sandgate Road, Nundah (VK4AW).

Fifth District, South Australia—F. M. Gray, 52 Ormond Grove, Toorak Gardens (VK5SU).

Sixth District, West Australia— 6ZI-VK6JE.—J. Elsbury, 24 Addis Street, Kalgoorlie.

Seventh District, Tasmania—R. Cannon, Goldie Street, Wynyard (VK7RC).

### 3rd District Notes.

(VK3UK—3Z1.)

The point of greatest interest for the month—the National Field Day Contest—is the thing we know least about. Neither 1A1 nor 3Z1 have been able to glean the slightest information about the activities or scores of any other competitor. 3B2/3B5 and 2B4/3KX were, we understood, definite starters, but nothing was heard of them during the test. 3F9 came down to be co-partner with 3Z1 and Geoff. Searle, of Regent Radio, and it would be difficult to find three fellows who could work in as well together on a stunt such as this. In all nine countries and just on 40 contacts with all continents except South America was the best 3Z1/3F9 could muster, making a points total of 230. The test provided some great sport, and the week-end proved to be one of the most enjoyable ever, but DX on QRP, when conditions are punk, is the hardest slogging imaginable. Without beam aeriels it would have been heartbreaking.

We are now eagerly awaiting the result of the questionnaire sent to all members recently. Naturally we are anxious to start the new organisa-

tion as early in the New Year as possible, and we hope to be able to take in immediately some at least of those Hams who have waited so long to join.

3Z1 hopes to try some tests down the Western District during the Christmas holidays in conjunction with 3B5 and 3D4. It will be of interest to know just how far towards Coleraine 3D4 fades out and 3B5 comes in, under average conditions, of course. 3Z1 has his automatic transmitter going now on "five," and will have it running during the four week-ends of January with the beam in a different direction each time.

3C5 is selling most of his QRO gear, and details may be had from either 3C5 or 3Z1. There are some bargains for someone.

3D2 has been away up north for a trip, and from all accounts had a grand time. 3D3 carried on the 200 mx transmissions, and also contacted Keith with his own 80 mx rig on many occasions. 3Z1 would like to take this opportunity of thanking all members for their enthusiasm and work throughout the past year, and to wish them all a very Merry Christmas and a Happy New Year.

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## 3MR's DX Notes

### Fan Mail?

The reputation of "dx" hams has been saved by a timely letter from VK4RF. After receiving so many letters from my first plea for cooperation, I increased the staff to deal with this month's mail, which I fully expected to be a very large one. The only one received was an interesting letter from VK4RF. . . Thanks, Fred. . . I have given all interested the chance to make this page what they wish, and if you cooperate, I thank you, and if you don't, well, it's OK with me—thank you very much for enquiring—as I can fill the whole book each month if necessary. The next complaint is about the editor, who is going crook about the length of these notes! Every time I meet him he throws his hands up in the air and yells, "Condenser, condenser!" So evidently there is more capacity required somewhere. If I get any more key clix from him I'll short his feeders

### What Frequency?

When the average ham decides to go "CC," he usually orders an 80mx xtal, and stipulates that the frequency be anywhere, so long as it doubles to 20mx. If only interested in getting going, that idea works out OK, and can be left in the hands of the xtal "gazer." Now, if you ask for the frequency to fall on a certain frequency on 20mx, don't be disappointed if on trying it you find it is 20 or so kc away. The fault is not with the xtal or grinder, but usually can be put down to the xtal holder more than anything else, because the xtal is guaranteed to be plus or minus 3kc at the FUNDAMENTAL frequency, which is in the 3.5mc band, that makes the error 6 kc on 7mc

and 12 kc on 14mc. The holder itself in some cases can alter the fundamental frequency as much as 10 kc. The tubes in osc and the L/C ratio have a lesser affect on the frequency. The reasons outlined above, in most cases, are the cause of so much out band working, especially at the HF end of 14mc. This is just a tip for those contemplating edge xtals, perhaps after reading these notes!

### Best Spot On Band?

There is no doubt about it, there are the best spots on the band, and hundreds do not realise it, and consequently flounder about in the darkness, as it were. To state in terms of kc, which are the best spots to use, is a simple matter, but to explain the finer points is a lengthy one, and bearing in mind the editor's indication of over modulation, I will only briefly deal with it this month, and probably deal with it more fully next issue. As a matter of fact, that's about all I will have to talk about, because I will be floating around VK7 during January, unless the boys rally round and let me have the doings, I'll be stumped for a duck! To get the best out of the game, more than one xtal is needed. One is definitely needed as a calling xtal, preferably at each end of the band, and another for calling "CQ," which should be as far away from the edge and real qrm as possible. Working at both ends of the band in that manner will widen the field of activity. To be anchored with one xtal, to me would be like being in mid-ocean in a rowing boat without any oars—you will get to the shore eventually if you're lucky! Always make it a practice to tune from the very edge of the band after calling CQ, and see

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that it is the end that your xtal is nearest to. If, for some reason or other, you have to tune other from the edge, indicate several times during the CQ and also after signing off what you intend to do. The usual HM or MH, etc., works out very well these days. . . More later.

### General Notes.

Those looking for South America for their WAC, are advised to keep an ear (or two!) on the HF end of 14mc during late afternoons and early evenings. When no yanks are heard is about the best time for some of the rarer stuff from S.A. to pop up . . CE3AT (fone) about 14290kc working lot of VK's, especially the more northern stations. YV5AK T9, 14300 coming in solid, but has a punk rx. . . The CE can be heard from 4 p.m. 4RF reports some good ones, as to be expected from aVK4! A real gem is RX1B, self-excited, who is a Russian boat off Accra gold coast, West Africa. He is looking for VK's, too. Worked at 5 p.m., EST.HF end of band. HO2U is a ship on a world cruise somewhere in the Pacific. . . Other rare ones by 4RF are TF3AZ (14100 kc), but inclined to move about a bit. These ones are easily contacted from the banana land! HB9X, FA8ZZ, LA2Q, SU1DB, YR5CF (3CX please note), UK3AH and a very old timer, CT1GU, on the job again. . . HC1PZ 40 kc out at HF end 14 mc. 1620.T6. . . ZU5L is old Jack from ZL2RY, who passed through Melbourne on way to South Africa, looking for ZL and VK qso's. 4EL works EA7AV HF end. He is an officer fighting against Franco. Qra.. Cadiz. . . Happy hunting for New Year chaps.

73 VK3MR.

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Advertising space in these columns is available to those wishing to sell, buy or exchange, at 3d. per line; approximately five words to the line. Minimum charge, 1/-. To ensure insertion enclose postal note or stamps with copy, and address to the Advertising Manager, "Amateur Radio," White Horse Road, Box Hill, E.11., Victoria.

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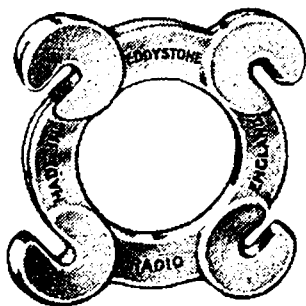
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# AMATEUR RADIO



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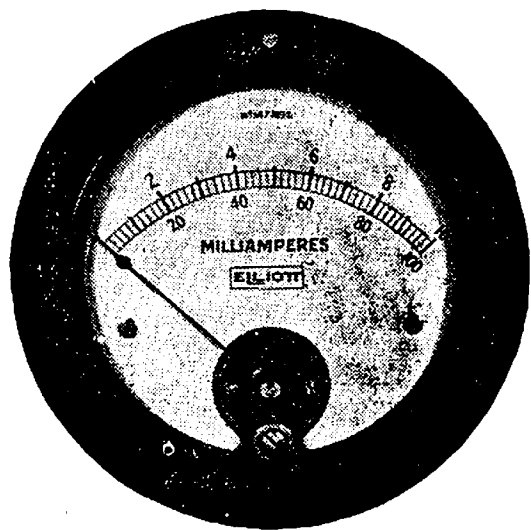


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# AMATEUR RADIO

Published by the Wireless Institute of Aust.. Victorian Division.

Vol. 6 No. 2

1st FEBRUARY, 1938

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All Communications and MSS. should be forwarded to the Editor, "Amateur Radio," BOX 2611W, G.P.O., MELBOURNE.

Subscription to "Amateur Radio" is 6/- per Annum (Post Free), paid in advance.

Should you not receive your copy of "Amateur Radio," notify your Divisional Secretary at once.

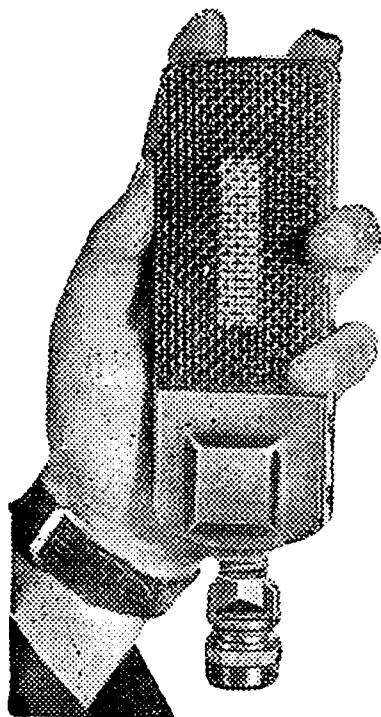
Advertising and Publishing Office: Address Publicity Manager, "Amateur Radio," Whitehorse Road, Box Hill, E.11. Phone: WX 2429.

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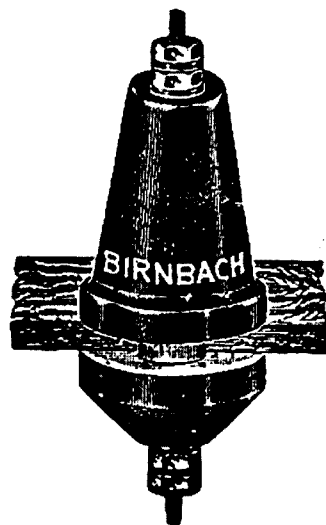
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## EDITORIAL

The Wireless Institute of Australia is lacking in its publicity. That is rather a bold statement and would probably draw blood from some of the Divisions but, nevertheless, we think it is true. The experimenter is not in the public eye today as he was some two, three and more years ago, when it was a Sunday treat to listen to "The Amateurs" on 200 metres. Commercial interests have overshadowed the vast amount of the pioneering work done by the experimenter in Australia. It is well known that the first broadcasts were carried out by amateur stations and, as has been the case right throughout the experimenters' existence, the way has been paved for a public service.

You have only to ask a ham of the 1921-1924 vintage what was thought of wavelengths below 200 metres, or, may we even say, 400 metres. This was the experimenters play ground and long distance communication on the short waves was considered a dream.

It is not so much public recognition that the experimenter deserves but at least to be classed amongst the "pioneers" of radio in Australia. It came as a shock to some of us recently at a commercial interests dinner to listen to the toast to the pioneers. Not one mention was made of the amateur. To those who have studied the history of the Institute and radio in this country this was very underserving.

We therefore repeat that the Institute lacks in its publicity. It should have on record a complete history of its activities and those of its members. It is understood that the Victorian Division is about to set its mind on the matter of an official history and the same consideration is recommended to other Divisions.

1st FEBRUARY, 1938.

We are about to be judged by radio interests at the Cairo Convention.

Were it not for the W.I.A. we certainly feel sure that the Australian experimenter would lose some his frequency assignments. The activities of the members are being brought continually before the authorities so that they will see that we are using each and every band available. We are increasing rapidly in number every year and we must preserve our already microscopical allocations out of the vast territory available much of which is taken up by the commercial banging away at its ABC.

Commercial services are naturally very essential but we wonder if some of them serve any other purpose than to clutter up the ether.

Since the depression period the W.I.A. has been very busy trying to make up for lost time and has devoted its energies in important directions, that is looking after the interests of both the members and non-members. Publicity has had to QRX for the time being.

It must be pushed along now before it is too late. In 10 years time the ham will wonder just what happened in the early days of radio in Australia. Full information must be available to him in the form of the Official History.

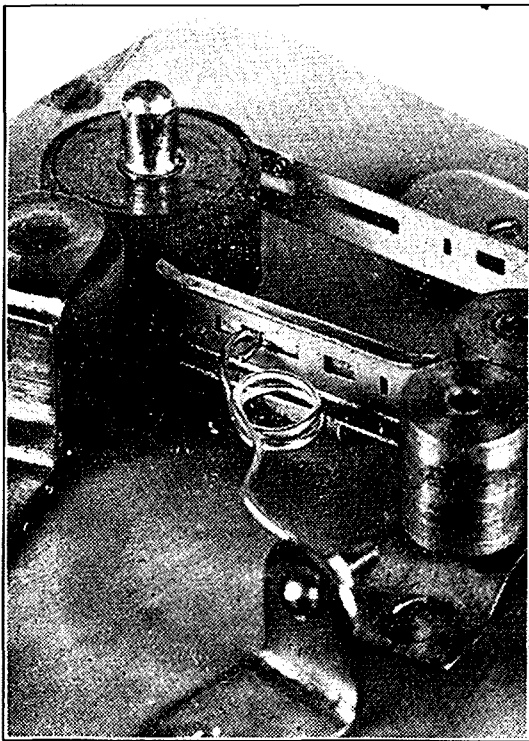
The Wireless Institute is the first and foremost radio body and started way back about 1910. In 28 years we have covered a lot of ground and if that is not pioneering we would like to know what is! It is History in the true sense of the word and the records should certainly show how we have been gradually cut down from thousands of kilocycles to mere hundreds over that period.

(Continued on page 9.)

## "CQing" a Pleasure

(By W. M. Moore, VK2HZ.)

It is quite a novel experience to write up your log whilst some gadget calls CQ and makes the next contact for you. Such has been the experience at 2HZ for some months now, and the operator is all for it. From time to time articles have been perused in overseas magazines relative to automatic senders; and with the new regulations came the demise of the gramophone, so it was decided to put the motor to some better use.



The sender to be described is the result of many ideas—those in various magazines, plus a few of the writers. The sender has been in use for over three months now, and has proved invaluable both for general CQ's and for automatic sending during test periods on 56 mc.

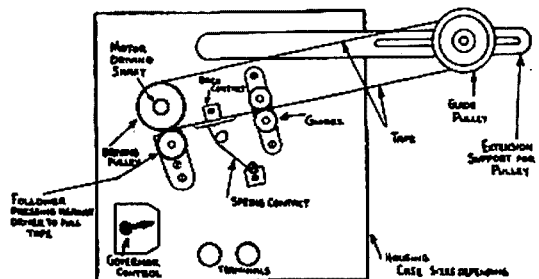
In the recent VK-ZL DX test the sender was used exclusively, and over 80 contacts were made in the senior section without calling CQ; manually, anyway.

In a test of this nature possibly 50 per cent. of the time is spent

calling CQ, and if this operating exertion can be saved the competitor will undoubtedly be fresher after 24 hours' operation. All forms of transmitter checking can naturally be done while the Xmitter is operating, and taken all round the sender is an exceptionally useful piece of station apparatus.

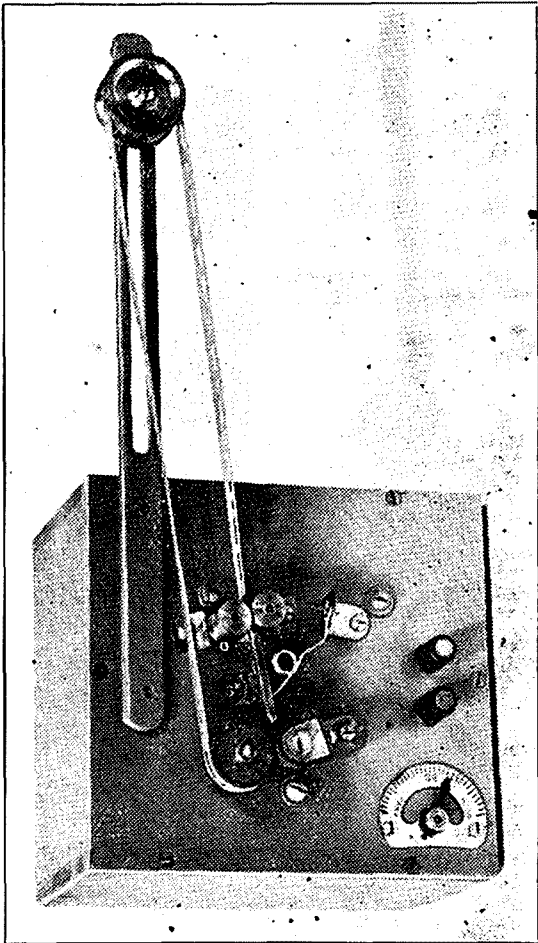
The general idea of the sender can be clearly seen from the photographs. Inside the square box is housed a gramophone motor, in this case of the single spring variety. Three portions of the motor assembly protrude from the box. Firstly, the normal driving shaft; secondly, the winding shaft; and thirdly, the governor control.

Fitted to driving shaft is a 1in. dia. pulley, and running against this, and termed the follower, is a smaller pulley  $\frac{3}{4}$ in. dia. Both these pulleys are



rubber covered, allowing a greater friction grip on the tape which runs between them. The follower must be pressed tightly against the driver to obtain sufficient grip to draw the tape. The other two pulleys, which are side by side, and to the right of the driver, are only guides. The fifth and final pulley on the extension piece takes up any slack for varying lengths of tape. The tape is cut in the centre, thus forming the Morse characteristics required. This tape is drawn through a back contact guide, and the other contact is made of wire and hits the back contact guide when the perforations come into line. This arrangement can clearly be seen from the close-up photograph of the sender. Wires from the back contact and the spring are brought out to the terminals, which are on the bottom of the photo-

graph. The following is a resume of the main features, and deals with points of constructions. No attempt is made to adhere strictly to sizes of brackets, etc. The governing sizes are mentioned, such as diameters of pulleys, the rest can be well left to the builder, who knows the limitations of the gear available.



### Gramophone Motor.

The gramophone motor can be either of the single or double spring types, the double spring variety naturally running for a much longer period.

The speed of the average gramophone motor can be varied by means of the governor, from 12-16 R.P.M. to approximately 90 R.P.M. top speed. This variation of speed will give wide variations of tape speed, and in this case a Morse speed variable from 9 to 32 words per min. by just adjusting the governor control. This variation of speed is more than enough for all practical purposes, and the motor sending at 9 W.P.M. or about 13 R.P.M. will run continu-

ously for over 15 minutes, and a correspondingly shorter period at 32 W.P.M. Electric motors, of course, could be used, but it is not possible to get such a large variation of speed in most cases, and with synchronous motors any variation is out of the question unless one has access to the local power station. Generally speaking, a single spring motor will do the job, and can be picked up these days for a few shillings. It might be wise to give the motor a trial run, and check the revolutions, and see if they approach the mentioned limits. If not, give the motor assembly a bath in kerosene, taking the cover off the spring case, and fill it with some form of grease. This should ensure smooth running on the slower speeds. The method of mounting the motor can be left to the individual; the motor in this case was mounted in a wooden box, leaving room one end to bring out the governor control. This control can be bent to suit the size of case.

### Pulleys.

It is unfortunate that a lathe is necessary to turn and bore the pulleys, as all other work can be done in the vyce. It is essential that the bore of both the driver and follower pulleys be concentric with the circumference.

The sizes of the pulleys are as follows:—

Driver, 1" dia.,  $\frac{5}{8}$ " long; Follower,  $\frac{1}{2}$ " dia. and  $\frac{5}{8}$ " long.

Guide pulleys,  $\frac{1}{2}$ " dia. and  $\frac{5}{8}$ " long, and pulley extension  $1\frac{1}{4}$ " dia. and  $\frac{3}{4}$ " long, with a groove on surface to hold the tape in position. The only pulley that needs to be exactly to above sizes is the driver, which governs the speed of the tape.

The driver and follower pulleys are both rubber covered, as mentioned previously. Red rubber gas tube of suitable size was procured, and slipped over the pulleys, affording a cheap method of covering.

The pulleys will be bored out or drilled to suit the size of the rod to be used as spindles. The driver, of course, being bored on the taper to suit the taper on the motor shaft. This taper, providing a fair fit is obtained, should provide enough friction to drive the pulley.

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# Amateur Radio

## Contact Guide.

This is shaped from a rectangular piece of sheet brass bent along the sides, just allowing sufficient clearance for the tape to slip through. A square bracket is soldered to the back for mounting. This back contact can be clearly seen in the close up photo.

## Contact Spring.

This spring should be made for preference from piano wire, or can be formed from ordinary tinned copper wire, providing two or more coils are wound in the centre. This spring can also be clearly seen in the photograph.

## Pulley Supports.

The follower pulley, which is pressed tightly against the driver, is mounted in a U-shaped piece of brass to which is soldered a square bracket for mounting. This assembly should be fairly rigid, and may have a slotted hole in the bracket to allow adjustment of pressure on the tape.

The guide pulley support consists of a piece of brass with two  $\frac{1}{8}$ " rods protruding from it. The spacing between these rods being sufficient that when the pulleys are slipped on there is enough space between the pulley surfaces to allow the tape to slide through. The pulley on the extension arm can be bolted directly to the arm and not allowed to revolve at all. The tape then slipping around the circumference of the pulley.

## Tape.

The tape is made from old 9 mm Pathe Film, and is available at a small cost from many home cine dealers. The perforations for the sprockets on this type of film are in the centre, not two rows on each side, as in the usual cases. These perforations, while not affecting the operation of the tape in any way, are very useful as a standard for the measuring of the dots and dashes. Actually the sprocket holes are not wide enough to allow the spring to hit the back plate.

If half the distance between these sprocket holes is taken as a unit (one dot) it is an easy matter to cut the tape to the required dots and dashes without any measurement by rule, etc.

The following should be observed when cutting tapes:—One dot equals 1st FEBRUARY, 1938.

1 unit (half the space between perforations) 1 dash = 3 units (3 dots), the space between a character is a letter = one unit, the space between the characters in a word = 3 units, and the space between words = 5 units. Adopting this spacing, a three times three CQ takes up 9 ft. of film. However, a call of this magnitude has to be run right through, and the AR can be cut on the end of it. A better method, and the one used at 2HZ, is to use endless tapes. A CQ, CQ, DX de VK2HZ tape can be comfortably fitted, using the 1 ft. extension arm. With an endless tape the sender is run in parallel with the normal key, and when the required number of CQ's have been sent, the governor control on the motor is turned off till it jams the motor, and with the straight key a few more call signs are sent, and then AR. After a little experience it is quite an easy matter to switch off at the right place just after the call sign.

This extension arm, by the way, was made from a 6d. rule, with a slot cut down the middle. Tapes were cut by means of a razor blade, the width of the slots being that of the original sprocket holes. A tape CQ, CQ, DX, de, VK2HZ can be cut in ten minutes, and is a much more flexible proposition than record discs or other means used in automatic senders.

The tape is joined by means of cine-cement, is cut at an angle of about  $60^\circ$  and lapped  $\frac{1}{8}$ ", making sure that the joint has been scraped clean of the shiny substance on the film. Considerable difficulty was at first experienced with the joint, but if the joint is well cleaned and left over night with a weight on it no trouble should be experienced.

The sender has been used to key various circuits, and will break 100 mills, providing the spark is not excessive. A small spark has no detrimental effect on the tape, but tends to char the end of the spring contact.

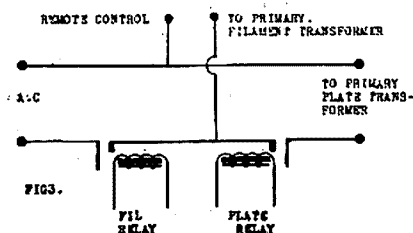
It would be preferable to key with some form of relay and minimise any wear. The rubbing of the spring on the tape has shown no appreciable wear to date, however, as the item is so quickly made, and of such

(Continued on page 9.)

**REMOTE CONTROL.**

**Fig. 3.**

Fig. 3 embodies nothing new, but it is worthy of publication if it only assists to refresh our minds that the Filaments **must** be turned on first. It will be seen from the diagram that should the filament relay become disconnected or stick the plate supply cannot be turned on, since the filament relay controls the primary

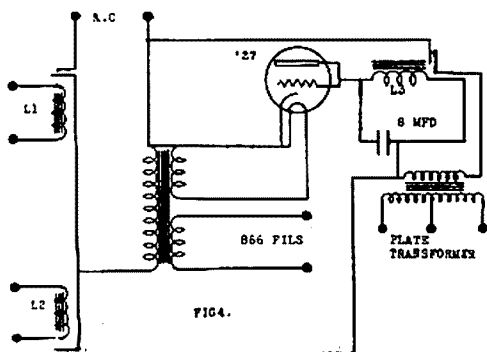


supply for the plate transformer. This little kink is well worth installing, even if you only use common switching in your "rig."

**Fig. 4.**

Fig. 4 is the circuit of a time delay for switching on Mercury Vapour type tubes. These tubes require the filament warmed up before the H.T. is applied.

To start up, turn on Relay L1. This turns on 866 filaments and the delay tube filament. When the delay tube heats up and draws current the Relay L3 closes and turns on the H.T. supply. When receiving turn on Relay L2. This opens the H.T. transformer primary, but leaves the filaments alight for immediate operation. To stop operation for some time open Relay L1. If by mistake you start keying before the 866 filaments were hot you can do no harm,



as the '27 will not have warmed up, and consequently the H.T. will be off.

The one defect of the system, which has yet to be overcome, is that the '27 takes as long to cool off as it does to warm up, and therefore if the main switch is opened and then closed again within a few seconds the plate power will come on almost

as quickly as the filaments. Once the main switch L1 has been opened it must not be closed again for a period of approximately one minute, otherwise the desired protection will be absent. It is to be remembered, however, that the only switch to touch during QSO's is L2; this switch opens the H.T. primary and permits of instant "come back," as the 866's are always warm.

The Relays L1, L2 and L3 may be our old friend the telephone relay revamped to suit the circuit in which it is being used. Relays L1 and L2 may be operated from a 6-volt battery, and may be placed at a distance of up to 50 yards or more, always provided that the resistance of the wiring in circuit is not greater than the resistance of the relay in use.

(Continued from Page 7.)

small cost, it is not worth considering.

In conclusion, one might say that once the sender has been used it will become an indispensable portion of the station equipment and a true labour saver.

The cost is reasonable, and should not exceed £1, including the cost of machining the pulleys. The film can be bought 1/- for 50 feet, a cost of ½d. per tape approximately. Finally, if anyone is in a quandary on any point, a letter to the QRA of 2HZ will be willingly answered.

(Continued from page 3)

It will be shown in the History how fairly the P.M.G. has treated the experimenter and how sympathetic an attitude has always been adopted in treating over-zealous hands. Yes, most surely we have to thank this department for a lot. We cannot go into details here and the place to find them is in the Official History of the W.I.A.

One cannot sit down with a pipe and a mill and write a history in one night. It is going to be a year's work. An appeal must be made to every old timer to lend a hand in the compilation in the supplying of details. We therefore earnestly request anyone possessing valuable information and records to send them along to the Divisional HQ pronto.

The world must remember that the Experimenter is the pioneer of radio.

# Overload Protection

(By VK4RM.)

The following gadget in use at VK4RM is, as far as I am aware, original, yet useful. I have seen ham rigs which require the oscillator, doubler, buffer, and P.A. stages all to be switched on in order and off in reverse order before keying, so that tubes won't pull excessive current without excitation. One remedy, of course, is to use a method of biasing the buffers and amplifiers to keep the plate current down to a safe value. This is an awkward way of getting over the problem, and I find the simple gadget to be discussed does the job quite well, and doesn't require any extra bias or even circuit alterations. The lamp, L1, is an ordinary 6-volt pilot lamp, and indicates when the oscillator is on. Should anything get out of adjustment with this circuit (oscillator circuit) the lamp will indicate it by glowing brightly up to about 100 mills., or burning out completely if the current is higher, thus proving an effective safety fuse to the oscillator tube and crystal.

The lamp, L2, does similar duty for the buffer, and L3 for the final. If pulling over 75 mills., or, say, 100 mills., two 6-volt lamps could be used in series.

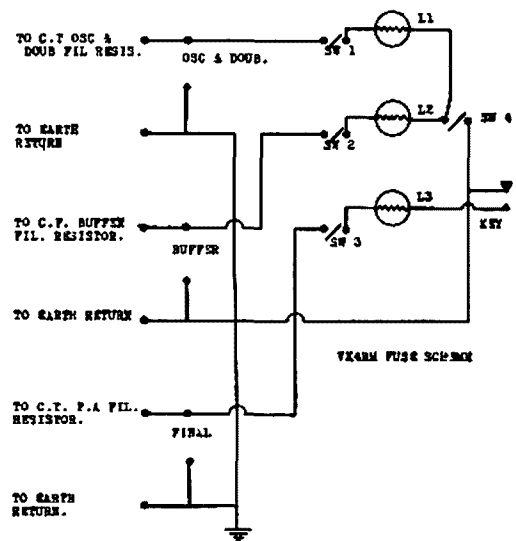
The Doubler does not require such precautions as a rule, because it is biased sufficiently to make it rich in harmonics. In VK4RM's case, the Doubler Ep is fed off from the oscillator supply, and as soon as the oscillator is on, the Doubler is on too. In this case L1 acts as a pilot indicator and fuse for both the oscillator and Doubler, and as the two together pull about 75 mills. one lamp is ample, and there is a margin of 25 mills. for tuning purposes, and should either osc. or doubler Ip rise to, say, 30 mills. above normal the fuse will blow and protect both tubes. A safe rise will be indicated by a slightly increased glow.

Say, for instance, something happened to the doubler bias and plate

current rose to a dangerous value, L1 would blow. The buffer, having no excitation, would start to pull high plate current, but L2 would blow before any damage was done. L3, indicating the plate current of the final, would also blow if the plate current rose to a value dangerous to the tube, and so all stages would be amply protected. If L2 remained alright, also L1, but L3 burned out, the operator would know that the final excitation was disconnected, bias open circuited, or L3 tank off resonance.

Usually one finds these things are happening because the plate of the tube is red hot!

Another useful feature. SW1 is a series switch for the oscillator. SW2 and SW3 perform duty for the buffer and final respectively. These switches are put in the off position when tuning up the rig. When every-



thing is OK the series switches are left on, and there is only one switch to work to put the whole of the rig on the air. One snap, and you're ready to receive. The key, of course, is used to close the final circuit for cw, but for fone work this could be done away with and the circuit hooked up to the main switch.

Where are we going on 5 Metres?

The Editor, "Amateur Radio." 2/1/38. Dear OM,

I note with interest your column for "What Do You Think" on 5 MX operations. As a result I have produced some thoughts, which you may or may not think worthy of publication:—

First Thought.—The chief object of experiments on 5 MX at the present day is to increase the range over which contact can be established. Many must get fed up of the doings on other bands, where results are more or less certain, and the opportunities for reseach have been already pretty thoroughly investigated.

The Second Thought.—The chief obstacle to progress on the band at this present time is the lack of real enthusiasm by other than a very few hams, and as a result of the few transmissions there are correspondingly fewer listeners, and so very little chance of DX signals being heard other than by definite schedule.

So what?

Most country hams I have asked about 5 metres give a shy reply, and do not commit themselves, and for several reasons.

The main reason for their non-participation is the fact that its not much fun calling CQ when there is nobody to answer.

The second reason is that most have the idea that the gear is rather difficult to construct, and also may prove expensive; actually, of course

any ham has enough gear to produce a 5 MX signal.

But in reply to the first objection was evolved the

Great Thought.—Ever heard of Hiram Percy Maxim? No, Well, turn to the forgotten chapter in the A.R.R.L. handbook, and then tell me why not a 5 MX A.R.R.L.?

If every country ham interested were to contact the nearest fellow ham, large scale skeds on 5 MX could be run between stations on Sunday mornings, or any other time that could be arranged. Distant stations could be worked by a system of relays, the idea being to stimulate interest in the band by this arrangement.

Several results would be obtained.

Country hams would work with a definite objective—to contact the nearest hams.

It is not unreasonable to suppose that we would soon find that an occasional signal from a more distant town would be heard, and the range thus gradually extended. In short, with more people on, there would be more chance of "something turning up."

So what about it, chaps? Somebody has to make a start, so I will start the ball rolling by asking anyone to write to me, and let me know if they are interested. I will then forward to you details of people interested in your vicinity, and arrange contacts.

My address—Queen's College, Carlton, N.3.

Trusting that, even if these remarks are never printed, they may bear fruit.

I remain yours sincerely,

KEN. M. KELLY, VK3LL.

Bright Star Radio, VK3UH

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Plug In Dust Proof Holders 7/6 each Satisfaction Guaranteed.

## Correspondence

Sydney, N.S.W.,  
17/1/38.

The Editor, "Amateur Radio."

Dear Sir,

VK2ABL's comments on my previous discussion on "Phone Poisonalities" are an interesting addition to the list of depredations committed by pests with the mike complex, and his reference to the North Coast VK2's method of verbal infliction, at least leaves little to the imagination! And the quotation fits so many others, too. One thing I must emphasise. VK2ABL says that it is a "pity the Vigilance Committee is not more severe in checking up on 7 and 14 mc." In this he is not quite correct. Usually, the rulings of the Vigilance Committee, headed by their respective chairmen, do not reach the ears of all and sundry. Offenders who have been censured to the effect of being rendered "hors de combat" for a few months are usually too ashamed to let it be known far and wide that they have been hauled over the coals. All that the gang notices is that so-and-so hasn't been heard for some time. When so-and-so gets back on the air he is usually sadder and wiser, and conducts his station as he could so easily have done in the first place, without calling down the wrath of the Avenging Angels. Assumption that the Vigilance men are hesitant, or show any favouritism, is entirely wrong. No action is taken against offenders who make unwitting mistakes. They are merely told about it and asked to watch the step in future. If they do it again, then the pendulum swings. Another point about these committees. Many hams who are not members of the W.I.A. have the erroneous idea that W.I.A. men are exempt from castigation. This is far from the case. It matters not whether an offender is W.I.A. or not—he is an amateur transmitter, and there is no class distinction so far as the Vigilance Committees are concerned. No amateur is reprimanded unless he thoroughly deserves it. It must be remembered that the Vigilance officers are first and foremost hams themselves, and wielders of a whip secondly. They are men

who by their experience or integrity are well suited to the job, and it is a distasteful job, but one that must be done in the interests of us all. I have recently been perusing the conditions for 14 mc phone as applied to ZL, and my conclusions, after reading that effort, are that the average VK phone exponent surely does not realise just how fortunate he is in living in this democratic country. The ZL has to go through all manner of obstacles before he gets that phone licence, and when he gets it it is "after midnight only." Included in the application for the permission is the necessity for at least three responsible sponsors who will testify in effect that the applicant can speak the King's English. The result? Listen to the few ZL's on 20-metre phone and see how properly they conduct their conversations. "Okey Dokey, Hunkey Dorey, and 'I'll bump it over to you" are definitely OUT. 'Tis said in ZL that the reason for the stringent 20-metre phone regulations is because of the bad example set for years by VK's, and there is probably something in that assertion. It is certain that the "circus speller" kind of phone ham hasn't done the cause any good at all. But this censuring business doesn't apply to phone alone in the matter of Vigilance. C.W. men can err, and frequently do. They get rapped over the knuckles just as much as the phone transgressor. But there is a big difference. One kind the public hears and understands with disgust. Therein lies the rub. Let us see to it that the wrong kind of phone merchant doesn't talk the ham off the air in the end. And now we await with bated breath the rulings of Cairo with its battle of wits, clashes of frequencies, and in it all the ham occasionally getting to the surface of the maelstrom to try and attract attention.

"OLD HOMBRE."

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1st FEBRUARY, 1938

## Beam Tubes

(By VK3XU.)

Recently we decided to make a few changes in the rig, and before doing so we had a look at some of the new tubes on the market. The types 807 and 6L6G appealed, because they were easy to drive and had good characteristics, so that the arrangement at 3XU is now a 53 tube as a Jones exciter, a 6L6G as a frequency multiplier, and push-pull 807's in the final.

The 53 and 6L6G types need no introduction, as they are well known, and much has been written about them. However, a few words on the 807 type would not be amiss.

Rated at 40 watts input—400 volts at 100 milliamperes with 2.5 milliamperes grid current, makes an attractive picture, and as all ratings are conservative, we pictured more than 80 watts input to a pair of these tubes in push-pull. Our picture was correct, and we have run them at 160 watts input without a trace of colour on the plates and with good efficiency.

If the builder of a rig of this kind is desirous of dispensing with the old neutralising arrangements it is essential that proper shielding be used with the 807 type of tube, and care should be exercised in the layout of the stage in which they are used. No difficulty is struck in preventing feedback if, at the outset, the builder bears this in mind.

Using automatic bias, either in the

grid circuit or cathode circuit, or both, is not as satisfactory as the use of fixed bias and after tests, only fixed bias is used here as it stabilises the tubes and prevents any possibility of feedback. In this rig the buffer stage is keyed, and in order to cut off the plate current when the final is not excited, 120 volts of bias is used on the grids. Now this may seem excessive to some of you who visualised a very straightforward arrangement, but, as mentioned above, the plate voltage used is in excess of the rated figure by 50%, and consequently more grid bias is necessary. However, if you are prepared to use the tubes at rated figures the grid bias can be reduced to 50 volts.

The rated grid current for a pair of 807's in push-pull is 5 milliamperes, and even at high plate voltages, 5 mills. is enough to fully excite the tubes. In fact, if more than 5 mills. is pushed into them, their grids run red hot, and output is reduced.

It is very important that the screen voltages be carefully adjusted so as to prevent the screen current creeping and making the screens run red hot. This lowers the overall efficiency, and impairs the tube as well. Our advice is to use a good make of voltmeter whose resistance is not less than 1,000 ohms per volt, when adjusting grid and screen voltages.

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1st FEBRUARY, 1938.

# Amateur Radio

As mentioned above, 100 watts input to a pair of these tubes will not cause them any inconvenience, provided all voltages are carefully adjusted, but cut and by methods should be avoided unless the builder has plenty of cash to spend on tubes.

The 6L6G provides plenty of output on all bands, and its efficiency as a frequency multiplier is excellent. Therefore there is no difficulty in getting 10 watts output from the 6L6G on 10 metres, and that is more than enough to fully drive the 807's to full output.

As an indication of the efficiency of the 807's, the plate current is 10 milliamperes with no load, and rises to 200 mills. with full load, and this with 600 volts on the plates. With 800 volts on the plates, the no load figure is 15 milliamperes, rising to 200 mills. We have not loaded them above 200 mills., although we could.

The manufacturer does not recommend that the plates show colour, and this can be avoided, even at 160 watts input, provided careful adjustment of screen volts, grid volts, and grid current is made. Too much cannot be said for this part of the adjustments if excessive voltages are to be used on the plates.

Finally, the output from the final stage is link coupled to the antenna and on 14 mc, if the builder of this type of rig can get S8 reports from Chile, Argentine and Peru with 100 watts input, then he has duplicated the performance at 3XU, and should be as happy as the author is about the performance of such a cheap type of rig.

Remember — short leads—good screening—careful adjustment of all voltages and plenty of by-pass condensers. That is the secret of success with beam tubes.

The following radiogram has been received:—

To N.Z.A.R.T., from W9FM via W2IXY G2MF, ZL4FO.

All arrangements for a five metre DX test made for period January 15th, to February 27th, 1938 weekends only. U.S.A. stations will listen for first 15 minutes in every hour and transmit for second 15 minutes. United States will listen weekends only between 15 hours and 16 hours G.M.T. for Europe and Africa and between 21 hours and

24 hours G.M.T. for Australia and South America."

## F.H.Q. NOTES.

During the period the present Federal Executive has been in office, that is, from March, 1935, 65 applications for W.A.C. Certificates and four W.A.S. Certificates have been approved.

As a matter of interest, the recipients of these awards are set out below under their respective Divisions:—

VK.2.—2NY, 2ML, 2LZ (fone), 2DA, 2OJ, 2KZ, 2MY, 2EL, 2DR, 2ZR, 2HV, 2MW, 2HP, 2IG, 2TI, 2JP, 2OW, 2EG, 2TA, 2JT, 2IP, 2JZ (fone), 2JU (fone), 2YC, 2CI, 2QL, 2VN, 2ADE. 28.

VK.3.—3ZF, 3CP, 3YO, 3KR, 3OW, 3TL, 3GC, 3KX (fone), 3HK, 3XP, 3CP (28 MC). 11.

VK.4.—4WH, 4JB, 4EL, 4YL, 4AP, 4UU, 4EI, 4WL, 4GK (28 MC), 4UR, 4HR, 4UL, 4CG, 4RT. 14.

VK.5.—5WG, 5KL, 5QR, 5LY, 5RT, 5KL, 5MD, 5MZ, 5LD, 5SU (fone), 5ZX. 11.

VK.6.—Nil.

VK.7.—7AB. 1.

## W.A.S. CERTIFICATES.

V.K.2.—Nil.

V.K.3.—3ZC.

V.K.4.—4AW.

VK.5.—5GR (No. 1).

VK.6.—6SA.

VK.7.—Nil.

## An Appreciation

Rochester, 19th Jan., 1938.

The Publicity Manager,  
"Amateur Radio."

Dear Sir,

Just a word in appreciation of "Amateur Radio" as an advertising medium.

Since inserting a small notice in the Hamads section of September issue, I have been receiving a steady flow of orders from four States of Commonwealth.

This should be gratifying to the Magazine Committee, as well as to advertisers, as shows that besides having a wide circulation, "A.R." is read from cover to cover by amateurs far and wide.

Wishing "The Mag." every success,

Yours fraternally,

EDWARD PERKIN, VK3EP.

1st FEBRUARY, 1938

## 28 and 56 M.C. Notes

### A. Pritchard VK3CP.

Conditions on 10 meters at present tend towards shorter skip distances, giving many VK2, 4 & 5 stations with exceptional strength, especially VK2UC whose phone is r9 for hours at a time. The skip lengthens at app. 10 a.m., 2.30 p.m. and 10 p.m. respectively for a short time. From the States W6QG with PP 800's (PP 807's on 5 mx) and W2CKO using WE304B with 150 watts to an 8JK flat top beam are sure cw contacts.

W6NAP, 6BJB, 6ONQ, 6NMH, 7BVO, 8JKC—W7EMP, 9BUU all r8 phones—7EMP has 2 flat top beams in series fed between the two, and 9BUU has 2, one above the other, fed at the center of the transposed line, connecting each array.

W9TTB is also r8 under all conditions and is using a diamond with 4½ waves in each leg, 425 feet around G6DH was qso'd here on 15th December at 6.30 p.m., which is the earliest Europe has been heard for several months.

XU3GN was r3 also. PK3BM is often heard about 7.30 p.m., although he is easier to qso around midnight; he has a 35T in the final with 150 watts.

3BQ is re-building his 10 mx transmitter into a 6 ft. rack. The reg. doubler stage from 20 to 10 has an 801 with 800 volts on the plate; a resonance dip from 170 to 25 mills shows wonderful efficiency, (5 mx doubling system, 3CP—A.R. Nov. '37) VK2GU has his Eimac PP 100TH on 5 mx, and an inch arc can be drawn from the feeders—what oh ! !—VK2NO has been heard again during November, at Pwllheli, North Wales, by Mr. C. Mellanby who also reported VK2UC's 4th harmonic at Q4r5 heard 4th September; Mellanby has reported many W 5mx stations and his reports are considered authentic. There are many 5 mx stabilized rigs in VK2— with 2HQ, 2ZN, 2AZ, 2EM, 2IP, 2VV, 2MQ, 2AY, 2UC—2AY has a Taylor T55 in the final. 2UC is re-building, and on 5, the transmitter has 6L6G osc.

1st FEBRUARY, 1988.

6L6G doubler, T20 buffer, T 55 final, an H type beam for 5 is under construction.

The receiver is an 8 tube super with special link coupled 5000 KC intermediates. VK3YP has improved his final with a new Eddystone 40 mmfd split stator condenser across 8 turns 2¼" diam; the 800 has a resonance dip from 300 to 15 mills, and showing excellent efficiency. VK3CZ has a new 8 tube super nearing completion; the RF and Det stages are designed with 5 mx efficiency in view—6H6 see-saw, combined 2nd det. and noise silencer, complete a super-super. VK4WH using a pair of 201 A's with 12 watts and a rotary beam, is working the dx with good results. VK4PF is heard occasionally — VK4HR has consistently good cw signals from a 210 in the final, feeding a vertical full wave current fed Zepp. The Europeans were OK on 28th Dec. 1937 at 3YP around 10—11 p.m. and many phones were good strength, PAOAZ, G6DH — modulated by 4.6L6 in PP Parallel—G2QT, R7 phones — D4VRR, G2XC, SP1DE, SP1LM, E15F, D3DSR, VU2FV, and VU2CQ, also one W station, W6BOY the long way round. ON4DM, G2PL and SU1EC were fb at 3BQ on Jan. 2nd at 11.5 p.m. Tests here with the '57 type tube as a 1st Det.—mixer in the super het on 5mx show the cathode resistance to be critical and between 1000 and 1500 ohms gave best conversion efficiency when using control grid injection, (osc. coupled through midget condenser). W4LU is one of the strongest on 10 and is situated on Signal Mountain 4000 feet up — ! — VK2NY has excellent phone and makes a good contact during the week-ends; his rig has 4 stages 53 xtal on 80—reg. to 20 mx, 6L6 doubler, 801 buffer, T55 final. The modulator has 57, 57 phase inverter, 2a5's class ab, pair of 6L6 class AB2. The Jones all band antenna, 134 feet flat top, with the feeder 11 feet off the center and link coupled to the final draws well on 10.

I would like to thank all those who have been good enough to send me information during the past year—73.



## Australian and Victorian QSL Bureau

(R. E. Jones, VK3RJ, Federal QSL  
Manager.)

OK1YW, Ing. L. Raus, Praha-Modrany 335, Czecho-Slovakia, wishes to exchange postage stamps with hams in Oceania.

Dan Wilkinson, ZL2AB, was an interesting visitor to the January meeting of the VK3 K.P. meeting, and detailed the ZL regulations regarding fone on 14 mc and other bands. Dan, whose interest in Amateur Radio has never flagged in 16 years, often visits Australia, and on this occasion was accompanied by a recently acquired better half.

Ivor Stafford, VK3XB, eagerly took advantage of school vacations to shake the dust of the Wimmera from his shoes. Ivor visited numerous Melbourne hams prior to spending the balance of his holidays at the parental home at Heathcote.

Jim Hillhouse, VK4ZO, recently spent a few weeks in Melbourne. Jim has fully recovered from his serious accident of 18 months ago, and looks in the pink. He is eagerly awaiting the promised extension of AC mains to Ccillinsville, Qld.

Another interstate visitor in the person of Ken Matthews, VK5GN, of Malvern, S.A., also made acquaintance with many Melbourne hams during his December visit to Victoria.

Stations are again reminded that owing to the action of the Postal authorities in treating QSL cards as first-class mail, it has become necessary to increase the price for handling outward cards to 9d. per dozen. Australia's postage rates are the highest in the world, and its interpretation and policing of the postal regulations are more stringent than elsewhere.

The annual clean-up (and burn-up) of unclaimed cards takes place during February. Cards for the following are in need of a reprieve:—VK3BL, IL, KA, KY, LN, OX, QM, RE, UF, VK, XG, XK, ZO.

The QSL manager and staff will be on vacation from 14th February to 14th March, and correspondence during that period will suffer a slight delay.

Qras of the following (and an  
Page 16

envelope as well) are required by the Bureau:—VK3BN, EE, IM, KU, PZ, QO, QS, TP, VR, WU, ZU.

Cards for the undermentioned will be forwarded on receipt of stamped envelope to the Bureau, 23 Landale Street, Box Hill:—VK3BJ, BS, CC, CH, CV, DJ, DS, DT, DU, ES, FA, FE, FM, FN, FT, GB, GN, HB, HE, HP, HT, HZ, KG, KO, KP, LH, LI, LS, NB, NG, NI, NP, NT, PO, PN, PH, QR, SZ, TC, TG, TQ, TY, UJ, VM, VY, WH, WR, WW, XA, XU, XZ, YG, YM, ZD, ZF, ZG, ZU, ZW. Ashman Webb.

### RADIO DIGEST.

The popularity of the Readers' Digest is well known, and is sought after because it contains a selection of the best articles from the literary world.

We now have the Radio Digest, a publication of "Radio" of California. The basic idea behind this bimonthly periodical is essentially the same as that behind the Readers' Digest—that is, to give the radio man a magazine made up with a selection of the world's most outstanding articles. Number 3 of Radio Digest has just been received by McGill's Agency, of Elizabeth Street, Melbourne, and the following titles are a few of the 25 appearing in the index:—

Sound Recording on Magnetic Tape.

Radio Control of Model Aircraft.

More on the Magic Eye.

Television Transmitters.

Why Sensitivity Testing?

Research in Static.

New Inosphere Broadcasts.

Bell System Journal.

Q.S.T.

Electronics.

R.C.A. Review.

Service.

Aero Digest.

Radio.

These articles are not merely abstracts, but are published in full. For the man who wants to keep an eye on as many developments as possible without going to the expense of purchasing all the radio publications available, the Radio Digest should appeal as an economical substitute, as it is selling at 2/- per copy. Numbers one and two will also be available shortly for anyone desiring to start a file.

1st FEBRUARY, 1938.

## Portable

(By Arthur Pearce, VK2AHB)

The Double Bay gang wanted to go portable, and DID when it was heard that a field day had been arranged for 5th December. Having a 6P6, and being rather interested to see how it would perform, an E.C. oscillator utilising it, was wired up.

The receiver built by 2AET consisted of a 6K7 det. and 89 audio, with only a small 60-v. battery as the "B" supply.

At last the fateful day came, and without much trouble—that is, not too much—and 2AET dominating the wheel, in addition to the gear in the back of the car doing acrobatic tricks as we passed over sundry large potholes, etc., our little party set out in the direction of Picton, which is about 50 miles from Sydney. It was on the way up the Razor Back Mountain that poor old "Lizzie" started to foam and froth at the mouth, and it became necessary to stop until her hot-tempered outburst had subsided. Then, to provide a little excitement, we removed the silencer from the exhaust, and, needless to say, rabbits and crows for miles around dropped dead on the spot.

Once there, 2AET spied a couple of trees just far enough apart to hitch a matched-impedance between, and with the skill of his arboreal ancestors started to climb in the darkness.

Fortunately, darkness also hides the trials and tribulations associated with the assembly of a portable station.

Next morning operations commenced, and the first station worked on 40 metres was 3UK, who was also operating portable and putting out a mighty nice signal.

Many fine signals were heard during the day, especially those of 2YY, and some good contacts entered in the log book.

Major shocks of the day were an R9 report from 3UK and when 2AEB got between the vibrator supply and earth.

The input to the little rig was 2.4 watts, and considering that such low power was being used, the results obtained were little short of amazing.

1st FEBRUARY, 1938.

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## Divisional Notes

To ensure insertion all copy must be in the hands of the Editor not later than the 18th of the month preceding publication.

### N.S.W. Division

W. G. Ryan, Secretary, VK2TI,  
Box 1734 JJ, G.P.O., Sydney.

#### Country Zone Officers.

Zone 1 (Far West).—J. Perooz,  
VK2PE, Hope Street, Bourke.

Zone 2 (North-West).—H. Hutton,  
VK2HV, Byron Street, Inverell.

Zone 3 (North Coast).—R. J.  
Berry, VK2NY, 54 Bacon Street,  
Grafton.

Zone 4 (Hunter River and Coal-  
fields).—R. W. Best, VK2TY, 57 Hunter  
Street, Newcastle.

Zone 5 (South Coast and South-  
West).—R. Ross, VK2IG, 673 David  
Street, Alhury.

### THE W.T.S. CRAWFORD TROPHY COMPETITION FOR 1938.

During 1936, the Senior Radio In-  
spector for this State, W.T.S. Craw-  
ford Esq., generously donated a Trophy  
for Competition among Amateur  
Transmitters of New South Wales.

The Senior Radio Inspector has al-  
ways held in high regard the operating  
capabilities of the Amateur in this  
State and in an endeavor to raise the  
standard of operation still higher,  
asked the co-operation of the New  
South Wales Division of the Wireless  
Institute of Australia in an effort to  
discover the Best Amateur Tele-  
graphist.

The Trophy takes the form of a  
handsome Silver Cup and three Re-  
plicas and is to be competed for over  
a period of three years—1938 being  
the second year of the Competition.  
The Amateur winning the yearly Con-  
test will hold the Trophy for twelve  
months and a Replica for all time.  
The Amateur winning the Competition

more than once will become the out-  
right winner of the Cup.

This year the Final will be held  
during the Second Section of the  
Sesqui-Centenary Celebrations and  
it is anticipated that three additional  
Prizes will be available in the form of  
Sesqui-Centenary Medallions and these  
will be presented to the winners of the  
first three places in the final.

In 1937 the Trophy was won by R. A.  
Priddle VK2RA after very keen com-  
petition and it is anticipated that  
the 1938 Contest will create even  
greater enthusiasm and competition and  
it may be safely stated that the win-  
ner of the Trophy in Sesqui-Centenary  
Year may be proud to say that he is  
the Best Amateur Telegraphist in the  
Amateur ranks for that year.

The Wireless Institute of Australia  
(New South Wales Division) has  
been again delegated the honor of  
drawing up the Rules, Organising and  
Conducting the Competition. This  
does not mean that the Contest is  
restricted to Members of the Institute.  
Every Amateur Operator in New South  
Wales is eligible, with the exception of  
those mentioned in Rule 1.

The following are the Rules and  
Mode of Competition:—

Rule 1.—The Competition is open to  
every person in New South Wales  
holding an A.O.C.P. and a current  
Experimental Licence. Any Amateur  
holding a Commercial Certificate, i.e.,  
1st or 2nd Class "Ticket" is debarred  
from competing. Any Amateur who is  
employed, or has been employed as a  
professional Telegraphist is also de-  
barred. (This includes present and ex-  
P.O., Railway, Naval, Army, Air Force,  
Mercantile, Marine and Police Oper-  
ators.

Rule 2.—Automatic Keys and "Mills"  
of any description barred.

Rule 3.—For the various Preliminary  
Heats a Judge will be selected from  
among the Professional Operators

Rule 4.—The Preliminary Heat will  
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take place on 15th February, 1938. The Final will be held on Monday 11th April, 1938. Entries will close on 31st January, 1938.

**Rule 5.**—The Radio Clubs affiliated with the Institute and the Institute itself will conduct the Preliminary Heat in City and Suburbs. The Institute will conduct two sections of the Preliminary: (a) for Members, (b) non-Members. Amateurs are asked to get in touch with the Radio Club in their District or the Institute. Any Amateur who is not a Member of the Institute or a Radio Club should communicate with Honorary Secretary, W.I.A., Box 1734 J.J. G.P.O. Sydney who will make arrangements for his test. Country Amateurs who are in Sydney at time of Final may participate without any Preliminary Test.

**Rule 6.**—First Second and Third from each Section of the Preliminary Heat will qualify for the Final. Should a very high standard of operating be demonstrated in any heat the Committee reserve the right to increase the number of entrants eligible for the Final.

Before a Radio Club is given the right to organise a Section of the Preliminary Heat it must have at least six entrants therein.

**Rule 7.**—The Senior Radio Inspector or his nominee will be the sole judge at the Final.

**Rule 8.**—The Operating and Receiving Test will take the following form:—

**RECEIVE** at the rate of 20 words per minute, two messages—each of one minutes duration—as per P.M.G.s Handbook. Press for a period of three minutes. Marks will be awarded for correctness, Legibility and Setting Out.

**TRANSMIT** at the rate of 20 words per minute two messages—each of one minutes duration—and three minutes press. Marks to be awarded for Formation, Spacing, Freedom from Errors and Breaks.

**Rule 9.**—Judges decisions in all cases to be final and binding.

### N.S.W. DIVISION NOTES.

Activity has been rather restricted of late, as a result of the holiday season, coupled with poor DX conditions. The lower frequency bands are well filled with QRN, 28 mc appears to be dead most of the time, and on 14 mc stations are trying  
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hard to land the little DX that is coming through, so it is not an easy matter to have a QSO at times. Some of the locals have been heard on 1.75 mc getting ready for the I.R.E. Trophy Contest, so it looks as if this contest is arousing more interest than in former years.

The same may be said for the W.T.S. Crawford Trophy, which is being competed for this year for the second time. Entries so far are in advance of last year, and it is known that many are taking it very seriously, and getting plenty of practice, so the competition promises to be very keen. This year's rules give the country hams an equal opportunity of participating with the city men, and in view of the announcement of the Department of Railways that it is issuing concession tickets (return journey for single fare) to all competitors and amateurs visiting the 14th Annual Convention, we should have much better representation of country hams than usual. The concessions are available to all amateurs, and may be obtained through the Hon. Secretary of the Division.

At the General Meeting held on 16th December an address was given by Mr. C. Gittoes, of Ducon Condenser Pty. Ltd., the subject being "Condensers—Paper, Mica and Electrolytic." Mr. Gittoes described their manufacture, illustrating with condenser units at various stages. He also pointed out the types of losses and their relation to working temperature, concluding with some figures showing the rapid decrease in the life of a condenser when subjected to voltages beyond its rating. The subject was very well handled by Mr. Gittoes, and those present learned much of the "how" and "why" of condenser operation.

The National Field Day was well supported, several stations being on the air. Conditions, however, seemed very dead, and few DX contacts were made. The only scores (approximate) known are:—2LR, 190; 2HZ, 2PN, 170; 2RA, 120. 2LR had contacts in Africa, Asia, Oceania and North America. The ops. at 2HZ got a thorough "ducking" in the storm on the Saturday afternoon, whilst 2RA and party, at Mt. Tomah (4,000 ft.) were in the clouds and rain all the time, and

## Amateur Radio

found that it was safer not to touch anything, even with the power off. In spite of the difficulties, all the participants enjoyed the outing, and are looking forward to next time.

Next month's All-Band CW Contest is being well supported in the Division, and on any evening the air is full of "please take test msg," etc.

**Station Report.** — 2AFJ, using break-in with fixed bias on 807, mainly interested in ragchews, but works some DX, including QA4J in the Junior VK-ZL.

### ZONE 2 NOTES.

**VK2HV.**—Built up the 6L6G amplifier, and is having great phone QSO's on 20 metres. R.F. line up is 6L6G Osc. 7 mc 46 doubler, 14 mc and single 2I0 final. Harry is still twisting the old Beam, and reports great results. Recent DX on phone includes KA, J, PK, W, OA, and VS7. The receiver is 7 valve SSS.

**VK2TV.**—Bob is certainly a great antenna experimenter, and it is his proud boast that if there is a more efficient antenna 2TV will have it, Hi, 47 co on 3.5 mc, 53 FD, 53 FD, and T20 final make a very nice sig, and 37 countries on 14 mc have been contacted using this rig. Receiver here is also 7 valves.

**VK2ZP** has been putting a big bottle to work in the old Hartley; main interest is burning up pencils with RF from the feeders at present, although he is seriously thinking of using the 4242A as a P.A. in a two-tube Crystal rig. The receiver is an E.C. two-tube, and is the goods. Arthur has given up flying after his accident, and seems to have settled down to Radio.

**VK2GM** is a great asset to Zone 2, and is responsible for the return to action in Inverell. George has the finest super seen or heard around these parts, and has no trouble in hearing everything that transmits. He has 60 countries to his credit, and all have been worked in the last six months with 12 watts input. A triode connected 2A5 is the final, and it seems plenty big enough to put 2GM's signals where he wants 'em.

**VK2ON** is QRL with Uni. studies at present, and has not been on the air since June. However, Lin. expects to be on again some time in the New Year. Reports quite favourable results from voice controlled carrier system, and finds a 45 OK to series

modulate his 12 watts input to the final, a single 46. The receiver is a four-valve superhet, antenna S.W.F. Hertz, and 80, 40 and 20 metres the main bands used.

**VK2JC** also uses series modulation, and finds a 6L6 in the final OK for 30 metres. The receiver is an eight-valve SSS. Having two 70-foot sticks of sheet iron constructed, and expects to have them erected about Xmas time. Power is at present derived from a rotary converter, although AC is expected in Narrabri early in the New Year.

**VK2AFS** has been trying 5 metres at Moree, but reports results poor, as the nearest 5-metre station is 160 miles away. Bob has been working his share of DX on 40 and 20, and finds a 45 with 18 watts input good enough to work W's, K6's, etc. The modulation is series and P1 2A3's do the trick. The antenna is a Zepp, the receiver a 7-valve doped commercial, and the hobby? Radio!

**VK2ZX** is QRL with work, and it is not likely that Ted will be on for some time. His QRA at present is quite in itself sufficient to keep him off the air, and unless he swings his antenna between a couple of pubs the chances of erecting a sky-wire seem pretty remote.

Poor conditions have prevailed during the S.A.R.R.L. Contest, and comparatively few African signals have been heard. **VK2DG** seems to have had a few QSO's, but otherwise **VK2** scores are low.

**VK2EO** is heard on the air at all hours of the day and night, and works anything he hears. When last heard of his tally was 107 countries.

**VK2WH** should be on the air before long at his new address.

**VK2FT** has been experimenting with regenerative RF in his TRF receiver with good results. Also gets good reports from ZL with indoor transmitting aerial.

**VK2QL** now in the country, and working some good DX with low power. Recently made WAC in five hours.

### ZONE 5 NOTES.

(By **VK2IG.**)

The chaps in this zone and hams generally will be very sorry to learn of the passing of 2YW's father at Wagga and extend to Doug and Jess their

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the following day bang went his pet 6L6G. Well om that's sure doing things properly !!

2AID seems to be doing nothing in fine style but has a pair of nice sticks ready for the boys to put up Hi! Hi!

2AEO. Perhaps he will put em up for AID as he says a windy day is the time to do it. He has tried it with marked success—yep for the wind !

2AFF has been conspicuous by his absence off the air but has the "get together" spirit and moved his qra to Thorne Street near 2AEO.

2AEO has rebuilt but still putting the finishing touches on it. We seem to be always doing that here Pol ob!!

2BW paid a flying visit to the old home town. Says no more radio until finished at the Uni. Waggaites to note that 20 mx will be OK for some time now Hi!

2TH also paid a short visit and said that there is at least one decent shack in Sydney. Where is it om, at a brewery? Hi!

2AP is now residing in Albury so now for some more fone qrm. Welcome Arthur Ob, anyway.

Some dope on some of our DX contacts here.

AC4YN is with the British Political Mission To Lhasa in Tibet as is operated by several operators. At first it was operated by Lieuts E. Y. Nepean and S. J. Dagg and Mr. R. N. Fox. The two former returned to India and for some time the station was operated only by Mr. Fox who is ex VU2DR. It was operating mainly from high peaks and when qsd here was at 11,000 feet. The Xmitter is a PP Colpitts with 50 watts input using a half wave zepp antenna. They have now got two more ops on hand and is again showing up here with better sigs and legibility.

VS4JS is operated by Mr. S. L. Kong at Jesselton, British Borneo. He is only using a single 6L6 with about 16 watts input. The rx being a three tube TRF job.

The Qra's of the following may be useful. 17EY is Addis Ababa to be qsl'd via IIIY. via bureau.

VQ3TOM at Moshi, Tanganyika.

### LAKEMBA RADIO CLUB—VK2LR. (By 2DL.)

The occasion of the National Field Day conducted by the W.I.A. on 4th and 5th December proved highly successful as far as Lakemba Club's

camp was concerned. The actual point score did not nearly come up to the expectations of members, but everybody present had a very enjoyable week-end. Altogether there were 22 Club members at the camping site at Macquarie Fields, which was situated in an ideal position near the river. Three transmitters and three receivers were used, with three operators each listening on a different band. Any of the transmitters could be put into operation at a moment's notice by throwing over a couple of switches. A single genemotor supplied the high tension power for the transmitters. Conditions generally did not appear to be very good, especially on the Saturday, when a heavy thunderstorm left behind a barrage of static.

Each operator was allotted a two-hour shift, after which he could enjoy himself as he wished. There were four tents altogether, with one big tent housing the radio apparatus. Those who were trying to get some sleep in the sleeping quarters were badly QRMed every time the genemotor was switched on, as it made quite a noise when starting up, not to speak of the noise created when the operator on duty hooked up with a DX station. No doubt everyone will be looking forward to the next Field Day camp.

### WAVERLEY RADIO CLUB.

The half-yearly election of officers, held in November, resulted in the following officers being elected unopposed:—

President, Mr. G. Wells; Vice-President, Mr. Lusby (2WN); Secretary, Mr. H. Garland; Treasurer, Mr. A. West; Assistant Treasurer, Mr. Johnson (2AFZ); Publicity Officer and W.I.A. Delegate, Mr. J. Howes (2ABS).

The Technical Committee, directed by our President, Mr. G. Wells, has started work on the new Club transmitter, which promises to be somewhat beyond the usual run of "Ham rigs." The crystal oscillator stage, using a type 6L6G tube, will be temperature controlled in order to maintain a very high degree of frequency stability, and a special type of crystal holder has been designed by Mr. Wells, consisting of a massive brass casting weighing about 7lb., in which a heating element will be in-

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stalled to maintain the temperature of the block at about 150° F. To further stabilise the temperature, a special type of heating element will be employed, wound with wire whose resistance varies greatly with changes in temperature, and this element will form one arm of a Wheatstone Bridge arrangement, so that any change of temperature within the crystal holder will unbalance the Bridge in such a way as to increase the current through the heating element, thus maintaining temperature equilibrium. Incidentally, the crystal oscillator stage will run continuously (until the tube needs renewing), thus ensuring freedom from temperature changes. By using a suitable crystal, it is hoped that 2BV will serve as a "marker station" to accurately indicate the edge of a band, which may prevent the automatic widening of the bands so noticeable in VK during a contest!

Incidentally, 1938 will be the 20th year of existence of Waverley Club, the oldest radio club in Australia. (The Wireless Institute in Victoria was formed in 1910.—Ed.)

2AFG should be excommunicated from the Club—is tootling about the countryside on his new motor-bike while cobwebs collect on the rig. Wait until the bike goes bung, Jack, you'll wish you had stuck to Ham Radio!

2AHJ is getting all "fone minded" now that his six months' CW penance is nearly up. Has manufactured a nifty-looking ear tickler in the shape of a Reiss microphone, and we suggest that he also manufacture a few dozen wavetraps for the local B.C. listeners—wot sa, George?

2AFZ trains the junior Ops. the right way. Young Bobby, aged 4, can call CQ with the greatest of ease, and his OM says there will be another call sign in the family before long. Has been on 5 metres lately, but thinks will have to learn the Welsh language before doing much good on that band!

2FJ still works 'em on 20 metres, and also says has received a listener's report from ZL on 5 metres—that's the stuff, Jack.

2EG inadvertently mentioned that he is building up a modulator, thus letting the feline out of the sack properly. Thus another champion  
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of the arcing key sells his birthright for a mess of sidebands—shame on you, Dev!

2AHB still bagging a quantity of DX on 20 and 10. Went with 2AET to Picton on recent Field Day, and had some fun with a 6P6 osc. and 2 watts input from vibrator power supply.

2ABS still escaping cannibals in the wilds of Artarmon, and has very nearly made up his mind to buy an xtal mike, providing the next State Lottery results are as expected.

## Victorian Division

### VICTORIAN COUNCIL NOTES.

At the Council Meeting held January 11th, 1938 the main business was the appointment of a delegate to the forthcoming Federal Convention and also a discussion of items which we wish to have placed on the agenda for this Convention. Mr. V. Marshall VK3UK was appointed as delegate

As a number of members had felt that the sectional meetings held at present did not cater for the hams interested in short wave phone, it was decided to form a new short-wave phone section. Meetings of this section will probably be held on the first Wednesday of each month.

Accounts amounting to £39/6/3 were passed for payment.

### KEY SECTION NOTES. (By VK3HK.)

The meetings of this section continue to be well attended; keep it up, gang. A new system of lectur-ettes was started, where six members are to be selected at each meeting to give short talks on radio topics to be selected. The idea was received with enthusiasm, also the auction sale of junk was very keenly contested, and is a very popular attraction of our meetings, even rivalling the much coveted QSLs. And now here's the dope from the boys.

3OC.—Ray paid 1/3 for a 53 wid 2 pins broken off the base.

3RJ.—Went home to look for a loose coupler es an old bath-heater to sell him, hi!

3IW.—Has developed a nasty habit of blowing final toobs es endeavouring to recover fm financial strain of Xmas fer a comeback (ask

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3OC to make u an offer fer toobs, hi!).

3YP.—Going to Cairns (Q.) so rig wb; be silent fer abt 2 mths.

3BQ.—Still without effective ant, says nbg, but making up fer it by remounting tx and using new freq. meter.

3WB and 3CZ.—Also rebuilding new supers based on those of 3CP and 3YP.

3TU.—Will be on 28 mc and 14 mc vy sn after sum inactivity.

3PW.—Still sqing on 14 mc, but little to show fer it.

3ZC.—Keeping a cuple of skeds es wkg a lil dx in between times.

3ZY.—On 7 mc fone, says wl wk fone or cw.

3KQ.—Keeping fb skeds wid 5JG on 7 mc fone, another gud cw man gone wrong.

3FR.—Still plugging along on 7 mc, but trying hard to get rig to go on 56 mc.

3EX.—Re-building, single 6A6 Jones link coupled to 210 P.A. on 3.5, 7 or 14 mc, wl wk anyone.

3RX.—Attended an Institute dinner in Dec. when in Adelaide, also called on 5KO (ex-3WL), and inspected the P.M.G. rxing stn at Somerton, near Glenelg. 5KO demonstrated the superiority of inverted V receiving ant. as against doublet or long inverted L. The V gave an R4 sig. where the others gave nil at all, and this was an HRO.

3ZD.—New Ham. Ron has 45W. to 245. Says fb game this, wkd K6 and K6 on 7 mc.

3UM.—New Ham, on 7 mc 15W. to 6L6 C.O., 6L6 P.A., wkd W fer 12th QSO.

3ZU.—New Ham, on 7 mc 25 wts. to 245 C.O., 2 245's P.P. dblr and 210 P.A., wkd K6 es VR.

3TF.—New Ham; has 10W. to 6A6 C.O., proposes to use 6L6g as doubler.

## UHF SECTION NOTES.

(By 3JO.)

Since the time of writing these notes for the last issue, two meetings—December and January—have been held, and, at both of these, we have been pleased to welcome some newcomers. This is a sure indication of the increasing popularity of the UHF's.

Once again we have to record a discussion about our friend the fre-

quency meter. This time we have had a suggestion from one of our technical advisers, that instead of constructing an oscillating frequency meter, with all its attendant difficulties of frequency stability, it would be preferable to construct something along the lines of a V.T. voltmeter, where only the tuned circuit is responsible for the frequency. This idea is being investigated, and the present arrangement leaves the job in the hands of those members who are also members of the T.D.S.

We have nothing further to record about the U.H.F. transmitter for 3WI beyond that various members are experimenting with 40-mtr crystals, 6L6's, etc., and results can be expected soon.

The Field Day suggested for 23rd January has been postponed till 27th February, and it is expected that the following stations will be taking part:—

3OT, Mt. Tarrangower.

3OF, Foster.

3DH, Mt. Macedon.

3VH-JO, You Yangs.

3UK, Colac.

3HZ, Warragul.

3RS, Shepparton.

3HX, Charlton.

2DN, Deniliquin.

Stations in other States are also asked to keep a look out for anything that might come through. This time we intend to try without any governing regulations, but to facilitate working, all stations are requested to be on the job as early as possible and to make all calls and contacts as brief and concise as tests, etc., will allow. Tests and experiments with various types of antennae will comprise most of the work to be attempted.

On 23rd January, 3VH-JO will take their portable gear to Mt. Macedon, and in addition to tests with city stations schedules have been arranged with 2DN.

Some time ago it was suggested that steps be taken to stabilise our transmitters, and now it seems these suggestions are materialising, as we now have 3LG, 3RK, and 3JO, with mopa and others, are threatening to use controlled transmitters shortly. The controlled transmitter is easily recognised; even with the R.C.I.F. superhet the stability of carrier and quality of modulation is readily

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apparent. With our transmitter stabilised, our receivers can be made more sensitive, and our antennae more effective.

Suggestions for the latter were discussed at the January meeting, and, as these appear to be along similar lines to those mentioned by Mr. Love in his letter of last issue, we extend an invitation to him to attend our next meeting on 15th February to discuss the matter and arrange for the co-operation we both deem so necessary.

Our Chairman, 3OH, has his portable gear installed in his car, and can now select his location at will. Of the reasons for his desiring a location other than home, we consider the menace of a certain super-regen receiver the most likely!!

## SHORT WAVE GROUP NOTES.

O. E. Davies.

The Group held two very well attended meetings during December. That held on the 22nd of the month was noted for the Xmas Spirit present, all those who were able to

attend had, I am sure, a very enjoyable evening.

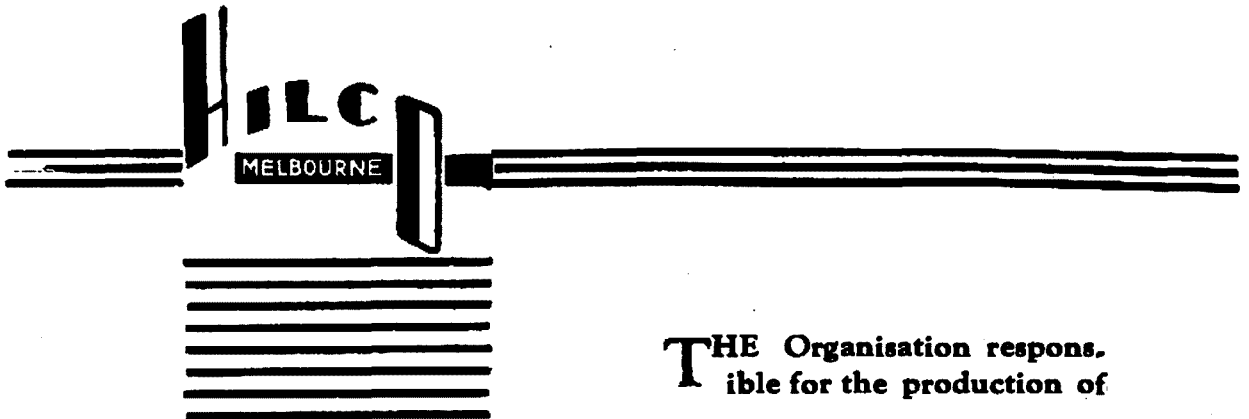
It has been decided to recommence the series of visits to places of general interest. These visits have been, as you well know, one of the very fine attractions of the Short Wave Group for many years.

In recommencing these visits we have decided to start off with the Studios and Station of 3DB. Unfortunately the visit takes place before this appears in print, but, however YOU need not miss the next fine outing. It is at present hoped that the second visit will be to the P.M.G's. Lab. on Wednesday 23rd, February. Should, for any reason, this visit have to be postponed; another place of interest will be visited in lieu of the Lab.

As these visits are listed for the fourth Wednesday in the month, the Group will now only meet on the Second Wed. The visit taking the place of the other meeting each month.

Herb. Stevens still M.O.P.A. on 5. Trying Xtal also.

Vic. Leonard, Ron Chard, Ron Higginbotham & Co. all swotting for the A.O.P.C.



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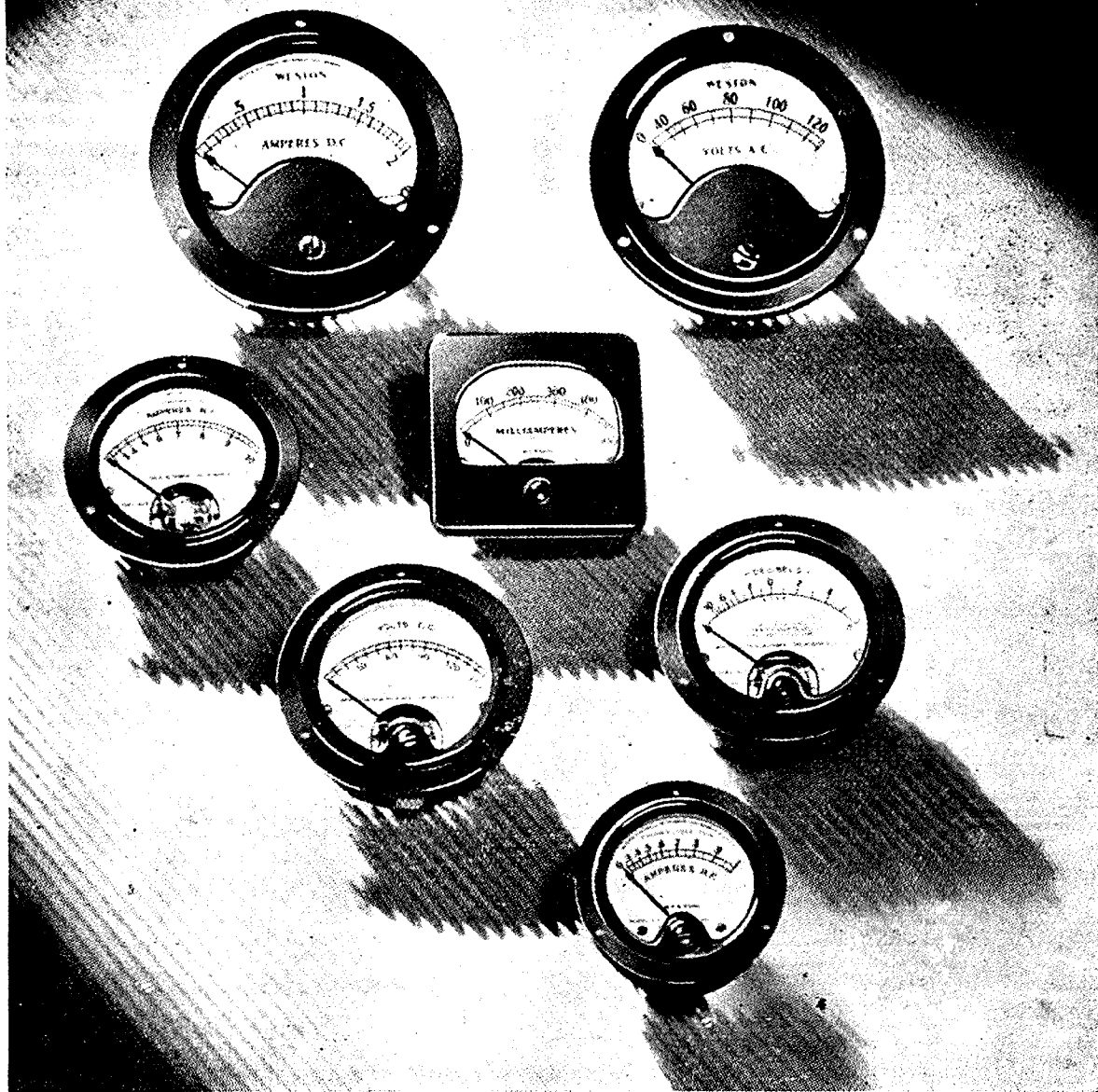
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Bertie Berdikin not seen for a month so must be trying more antennae.

George Budden also absent for some time. Wasamarrer George.

Alan Anderson now looks at the works through a 913.

## COUNTRY SECTION NOTES. (VK3UK).

We can report excellent progress for the month in the matter of placing the new section on a sound footing. The weekly Broadcast from 3WI commenced on 16/1/38 and from the reports received so far was copied from all parts of the State. It was significant that the first Broadcast should contain matter of such great importance to all members and is a perfect illustration, if one were needed of the value of this weekly News Bulletin for advising members of current doings in the Institute. For the benefit of those who did not see the details of the Broadcast times in last months Mag I will repeat them. Note the frequency alteration which will take effect from 6/2/38. 3WI will send out the B/C on 3685 KC at 0945 hours at approximately 16/18 wpm and on 7140 kc at 1030 hours at about the same speed. It will be repeated on 3685 KC at 1045 hours at 12 wpm for the benefit of the new Hams and on 3770 KC from 3EP Rochester on phone at 1100 hours. I cannot always guarantee this 'super' service but while it is possible to do so the above schedule will be maintained as the Council wants this Broadcast to be the maximum possible value to the Country members.

VK3KR has undertaken the launching of the Northern Section and I am sure you fellows must feel that no better man could have been chosen to make a really good job of the organisation. The other two sections, Eastern and Western have not yet advised me of their Representatives but I hope to have them by next issue.

## South Australian Division

(By VK5KL.)

Now the holidays are over, and those who were sensible have had a spell from ham radio are returning to the air, more activity should be noticed on most bands. Members visited the Model Aeroplane Club rooms on Wednesday, 12th January, and Mr. Sievers, VK3CB and wife were present. A new call on the air is VK5DW, operated by Frank Wretford, 34 Myall Avenue, Kensington. Rig being used is a single 6L6 as a Xtal oscillator and doubler to forty metres. The results of the all-band cw test are to hand after much waiting, the scores being in this State VK5KL 1,235, and VK5JT 1,135. The convention agenda will soon have to be drawn up, so chaps are asked to have their items ready so that on the night there will not be any delay in thinking out the next to put on the agenda paper.

This year is the peak of the 11-year sun spot cycle, and according to well-versed critics the best time for ultra high frequencies. The 5-metre band in this State is living up again, but there is plenty of room for some serious experimental work and room for hundreds of stations, yet the same few are there year after year. How about it, chaps? You never know, you may win the International 5-Metre Contest.

The writer has been absent from the air for a month on holidays to forget all radio, hence the notes are small in proportion this month.

5KL.

## VK5 COUNTRY NOTES.

(By VK5PN.)

Under the new zoning scheme the three zone officers will contribute news of activities in their respective zones for this column. The zone officers are VK5GW (Barker zone), VK5WG (Grey zone), and VK5RE

## QUARTZ CRYSTALS

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PROMPT DELIVERIES

MAXWELL HOWDEN (VK5BQ) CONS. RADIO ENGR.

13 Balwyn Road, Canterbury, E.7.

(Wakefield zone). As country members representative on Council, I shall jot down notes of general interest to country members.

Two applications for membership were received from country amateurs at the January Council meeting. They were from Mr. C. A. Ferguson (VK5CJ), of Mt. Gambler, and Mr. T. Laidler (VK5TL), of Ceduna. Mr. Ferguson is in Barker zone and Mr. Laidler is in Grey zone.

I have not yet received notes of "doings" in Barker zone from the zone officer, but George has been very busy lately settling down in a house of his own, and any of you chaps who have experienced a change of Q.R.A. will understand and make allowances. George has recently set up in business in Naracoorte, and, of course, we all wish him great success.

5PB and 5XR should soon be heard again.

I understand 5JK has found pressure of work so great that he has decided not to renew his licence at present.

5YL is re-building. The new transmitter will be on an aluminium chassis, and will be crystal-controlled. It will be noticed in the Zone Notes which follow that our Wakefield zone officer is a man of real initiative. When he is short of news from his own district he promptly goes farther afield! hi!!

## GREY ZONE. (By VK5WG.)

Conditions on all bands have been rather noisy during December, but some fine DX can be worked on 20 MX during early hours a.m.

Good hunting can be had on 10 MX, locals 2GU and 2LZ at R.MAX and W. fones at R7-8.

Now for some dope about the boys.

5FB.—Frank is now in V.I.S. studying for the medicine ops. ticket. Good luck, OM.

5LC.—Les. not so active lately; did the country contest run the batteries down, eh?

5LG.—At last Leith has A.C. laid on, but at what a price! Two pet xtals have gone west, including the Bliley!! Mine would never take more than a 1,000 volts, Leith, hi! (Free ad.!)

5WG.—Yours truly bitten by the 5 MX bug! Miracle! The transmitter worked first pop! Also have the

super working on five by using H.F. osc. on 10 MX and 1st detector on five.

5NW.—No news about you, Snow; must be very QRL work, eh?

5AT.—Inactive at present, but some pirate is working plenty of nice DX for him! Don't forget to QSL, Bert!

5BK.—Jack is at national 5CK at present. Why not take a busman's holiday and let's hear you, Jack?

5HR.—Bill of Bute on again with QRP fone. They always come back, hi!!

Mr. Col. Bottrall still hard at the code. Stick to it, Col.

In conclusion, chaps, please let me have any dope about mid-months. So cheerio, and a Happy New Year.

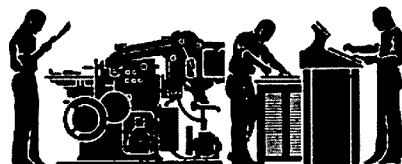
WALLY GOVAN,  
VK5WG.

The Magazine Committee have reluctantly had to accept the resignation of their Secretary Mr. Jim Marsland 3NY who has had a breakdown in health. Jim combined the jobs of Secretary and Treasurer in addition to his position as Treasurer of the Division but through his efforts to help the Magazine he has come to be regarded almost as "general helper." Every member of the Committee has had cause to thank him for unsolicited assistance and they would like to take this opportunity of thanking him for his work for "Amateur Radio."

The Committee want to welcome Mr. Thorburn Powers 3PS who is taking over the position. He is a Chartered Accountant and ideally suited to the position

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## R.A.A.F. Reserve Notes

## Hamads

### THIRD DISTRICT.

(3Z1—VK3UK.)

As the Reserve in Victoria is having a well-earned holiday, there is very little to report this month. Most of the activity of members has been directed towards Ultra High Frequency work, with some very excellent results. The reports received from the last field day, in which Reserve members took a big part, shows it to have been one of the most successful ever held, and the next one, to come off on 20th February, is being eagerly awaited.

3C4 has been down to the city twice recently, and we have had an opportunity of having a good yarn over Reserve matters.

Bill Murden, who was one of our star members a couple of years ago, was in to see 3Z1 this week, and reports that all the old Reserve members are doing very well in the Permanent Forces. VMC lost some good men in Murden, Dalziel, Amor, etc., but it must be remembered that we fulfil one of the objects of our existence when we are able to send on good men to the Permanent Air Force.

3D4 has had his big mast down recently, and availed himself of the chance to instal permanently a vertical half-wave 56 mc antenna at the top. From all reports his signals are up a couple of points as a result.

1A1 and 3Z1 are planning to go in opposite directions for the next field day on 56 mc, and to get far enough apart so that they can try to recapture the VK3 record, which was broken recently. 3Z1 has the idea tentatively in mind of going down the main Western Highway, past Colac, so that he will be in a position to try and make contact with 3B2 and 3B5, at Coleraine, as well as 3C3 and 3F9, at Callawadda/Glenorchy.

We are hoping that definite approval of the new organisation will be forthcoming by the end of the month so that a start can be made from the first week in February.

1st FEBRUARY, 1938.

Advertising space in these columns is available to those wishing to sell, buy or exchange, at 3d. per line; approximately five words to the line. Minimum charge, 1/-. To ensure insertion enclose postal note or stamps with copy, and address to the Advertising Manager, "Amateur Radio," White Horse Road, Box Hill, E.11., Victoria.

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## What do you Think?

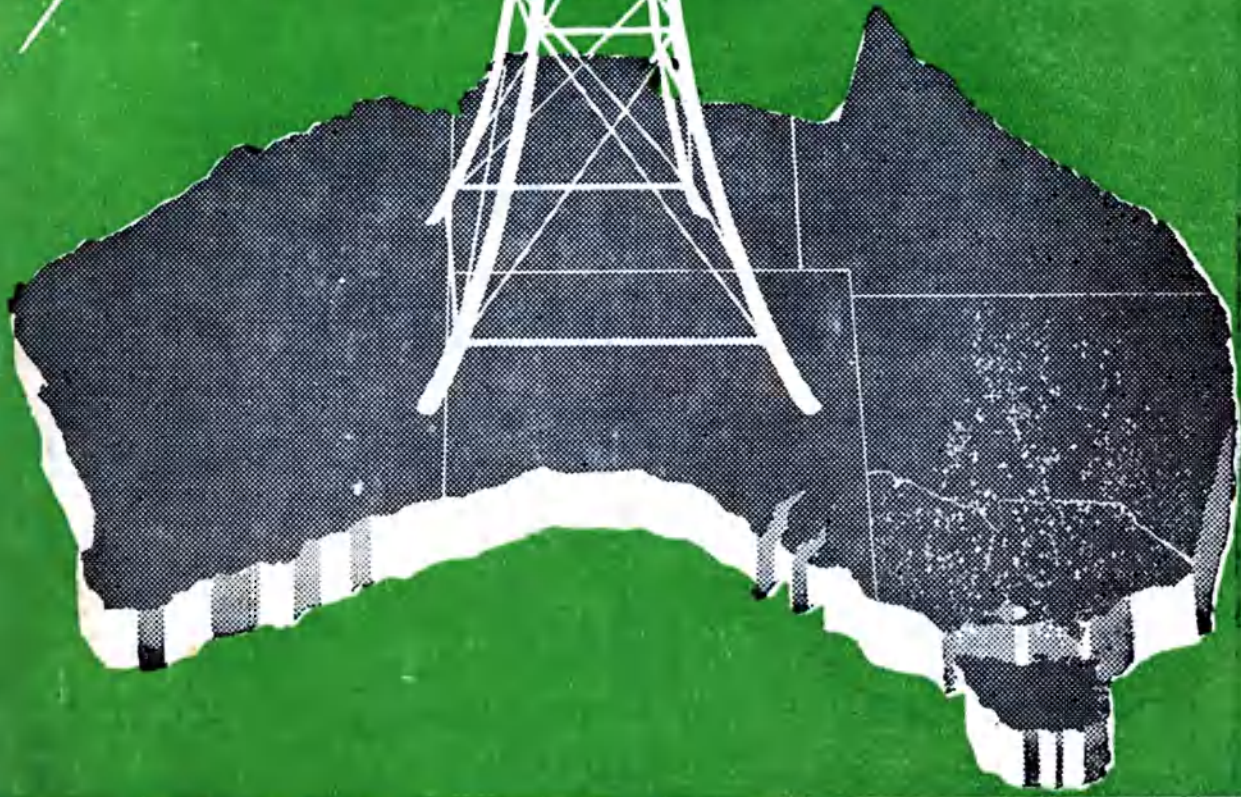
(By VK3ML.)

My personal views on the possibilities of the Ultra High Frequencies are that we shall eventually succeed in breaking down the present barriers. The secret must lie in the efficiency of the transmitting, receiving, and aerial systems. Losses, as we know them on 7 and 14 mc., are burning up a certain amount of power, but, at 56 and 112 mc., they are tenfold. Therefore, efficiency must be regarded from the insulation point of view. Bakelite, ebonite, and many other organic insulating materials are taboo at these frequencies. The order of the day is Frequentite, Steatite, DL9, and other high-grade substances employed in Eddystone precision components. Together with the silver-plated plug-in coils, efficient low-loss RF chokes and noiseless tuning condensers, the future is a rosy one. I say, yes, the U.H.F.'s will come good some day, and if there is any special component necessary to solve the problem, then EDDYSTONE will build it. Take my tip and obtain the 1938 catalogue and see for yourself the vast range of components available at very reasonable costs. Eddystone components are now available in all Capital cities, or from my address:

### R. H. CUNNINGHAM

1449 HIGH STREET, GLEN IRIS, S.E.6., Vic.

# AMATEUR RADIO



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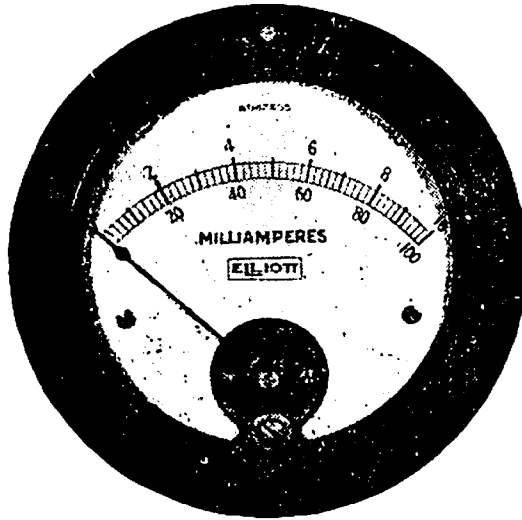


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# AMATEUR RADIO

Published by the Wireless Institute of Aust., Victorian Division.

Vol. 6 No. 3

1st MARCH, 1938.

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All Communications and MSS. should be forwarded to the Editor, "Amateur Radio," BOX 2611W, G.P.O., MELBOURNE.

Subscription to "Amateur Radio" is 6/- per Annum (Post Free), paid in advance.

Should you not receive your copy of "Amateur Radio," notify your Divisional Secretary at once.

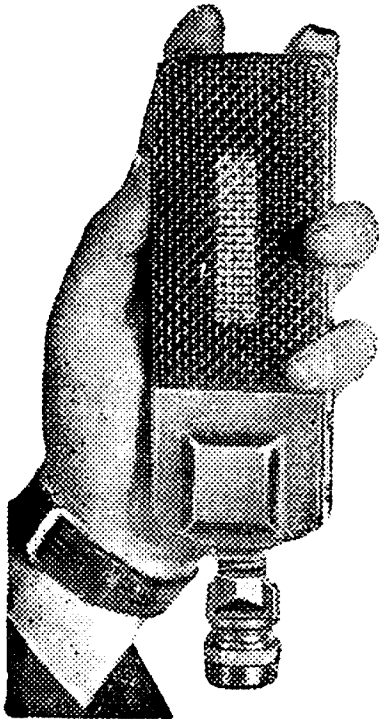
Advertising and Publishing Office: Address Publicity Manager, "Amateur Radio," Whitehorse Road, Box Hill, E.11. 'Phone: WX 2429.

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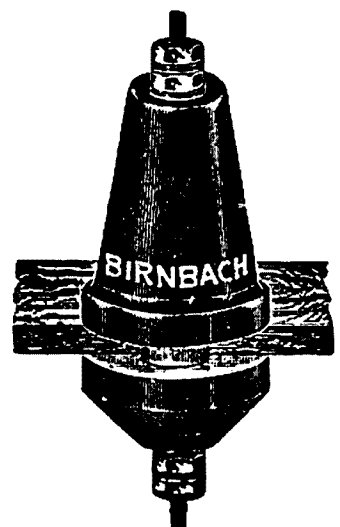


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## EDITORIAL . . .

The old, old Phone-CW controversy has broken out again with a fiery vigour intensified after a few months' respite. This time, however, it seems that the weight of opinion is sufficiently strong to assume that some action will be taken after the Federal Convention. Obviously more than one State will suggest the item for the agenda of the Convention so a survey of the position is timely.

In the first place, let it be said that we, the Editors, are not essentially 'phone men, but are definitely sympathetic towards phone, correctly operated. Not because we, in any way, condone the phone hash that exists on some of our bands, any more than the most rabid CW man, but purely because we contend that the field of legitimate experiment on phone is wider, if anything, than that of CW. (We are, of course, leaving UHF work out of the discussion.) Quite important also is the fact that the genuine phone experimenters are relatively small in number, and through that numerical weakness they may perhaps stand to lose something that is rightly theirs—the right to experiment on phone without hampering restrictions. Remember this, you CW man, the Phone man has as much right to those bands as you have, provided he observes the regulations as you yourself should. You may bring up that old, old argument about a Phone channel occupying the space of three or four CW stations. That is certainly so, but the number of genuine Phone men is far below 25 per cent., in fact, it is more like 5 per cent., of the number of active CW men. Therefore, the QRM that they cause is only a reasonable percentage of the total.

Why not listen to the hash on 20 or 40, you CW men ask? Believe us, it is quite as bad for us as for you, but not 1 per cent. of it is caused by the men we stand behind—the genuine Phone experimenter. We agree with you on the subject of pseudo B class stations, of rubbish

spoken over the "mike" by 2nd, 3rd, 4th and sometimes 5th "ops." Personally, we would penalise a man severely if he showed that he could not use his microphone in accordance with the regulations, let alone within the basic dictates of common sense. He might then come down to the level of we mere Hams, and realise, if he was not previously aware of the fact, that there is a laid down procedure governing R/T as well as W/T.

The other main complaint you CW men have is that of bad phone. We agree that this matter, coupled with the previous one, cover the best part of the trouble, and if they are cleared the residue would be at least bearable. This matter of bad phone is a strange one in this respect, that whilst the CW man curses it, the genuine Phone man affirms that he, the CW man, causes 90 per cent. of it through using improvised equipment. Our own enquiries into the matter lead us to definitely agree with the Phone men's stand.

Our considered opinion on the trouble is this—NOT ONE THOUGHT SHOULD BE GIVEN TO FURTHER RESTRICTION ON PHONE OPERATION. Our reasons? In one sentence, they are that the Phone men are already restricted and the existing regulations provide the necessary power to control the position adequately. Our State Vigilance Committees are doing wonderful work, and the mere fact that they work quietly and without an ostentatious display of power is the very reason why each and every Ham should have complete confidence in them. Their existence is to "correct" not "compel" but they can recommend the Department to compel if a warning goes unheeded. Give them a chance to work on this matter, give them your co-operation in an unenviable task, but don't, for heaven's sake, press for more restriction when the Institute sought Vigilance Committees to control the very sort of trouble that has now arisen.

Now, whilst the columns of "Amateur Radio" are available to all to express their views, at any rate to

(Continued on Page 11.)

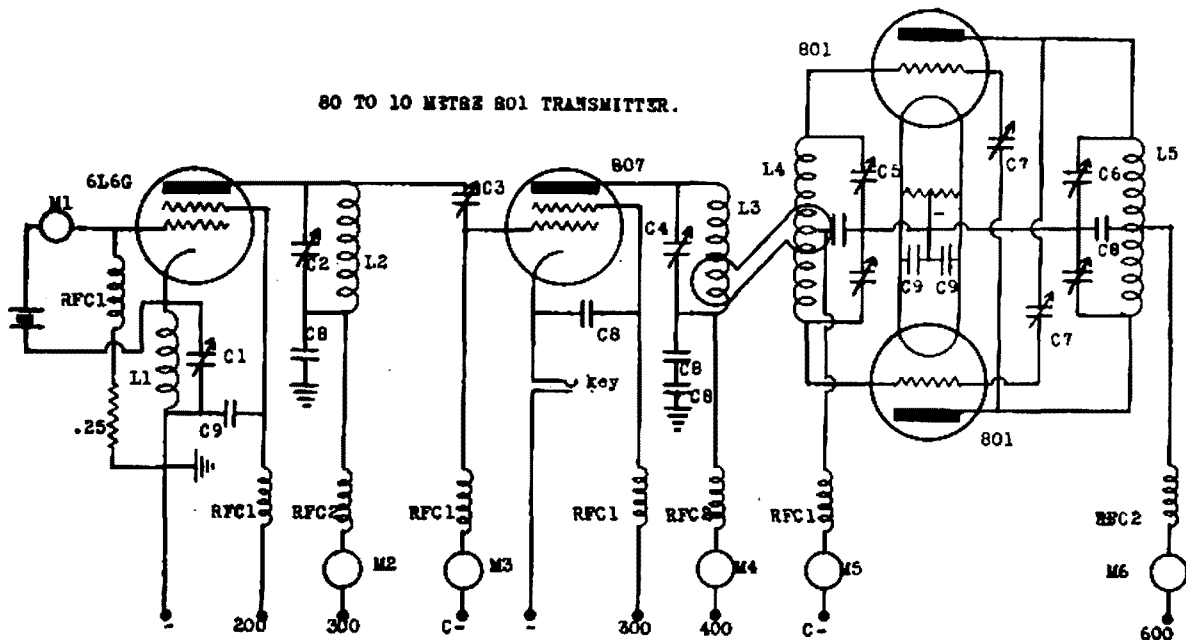
# "Haywire or Dress"

(By VK3ML, Technical Editor.)

This article does not represent an original design or one containing unique features. Standard practice has been adopted in the layout in order that it would work immediately after the soldering iron had been dismissed. Many trick circuits in receiver and transmitter design have been used by the writer at various times with just passible success. Sticking to a standard has always produced results first go and relieves one of many worries.

The main idea in presenting this contribution is then one of endeavouring to see what could be done with modern gear and circuits in order that maximum efficiency may be attained. "Dress" or finish was desired just because it was considered that a job should look as well as it works, if possible. Sufficient instruments were incorporated where necessary to check the performance of the transmitter.

The circuit as seen from Fig. 1 is just our Tri-tet C.O. 807 buffer and a pair of 801's in push pull in the



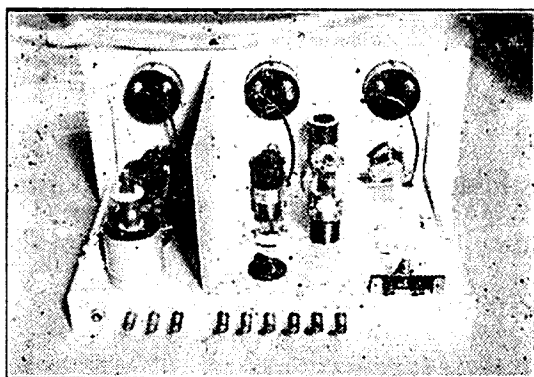
- C1. 0.00025 mfd variable.
- C2. 0.0001 mfd variable.
- C3. 0.0001 mfd variable
- C4. 0.0001 mfd. variable.
- C5. 50 x 50 mmfd split stator.
- C6. 50 x 50 mmfd split stator.
- C7. 15 mmfd spaced midgets.
- C8. 0.002 mfd mica.
- C9. 0.01 mfd mica.
- RFC 1. 1.25 millihenries.
- RFC 2. 1.5 millihenries.
- M1. 60 milliamp pea lamp fuse.
- M2. 0-100 mills
- M3. 0-25 mills.
- M4. 0-100 mills.
- M5. 0-50 mills.
- M6. 0-250 mills.

- L1. 7 turns 18 swg wound on Eddystone 935 former spaced one diam.
  - L2. 7 turns 18 swg wound on Eddystone 935 former spaced one diam.
  - L3. 6 turns 18 swg. wound on Eddystone 935 former spaced one diam.
  - L4. 10 turns 18 swg wound on Eddystone 1003 former spaced one diam.
  - L5. 7 turns 1/8th copper tube spaced half inch.
- N.B.—These specifications are for 14 mc operation with either a 7 or 3.5 mc crystal.

## Amateur Radio

P.A. Excitation control from the oscillator to the buffer stage is well in hand, per medium of the 100 m.mfd. Microdenser in the 807 grid lead. The link to the 801 grids is wound on the plug in formers for ease in band changing. Not shown in the photograph (Fig. 2) there is mounted a 10 way crystal holder behind the pea lamp fuse on the back edge of the chassis. Now that these features have been covered in a few words, let us get on with the design and construction part of the job.

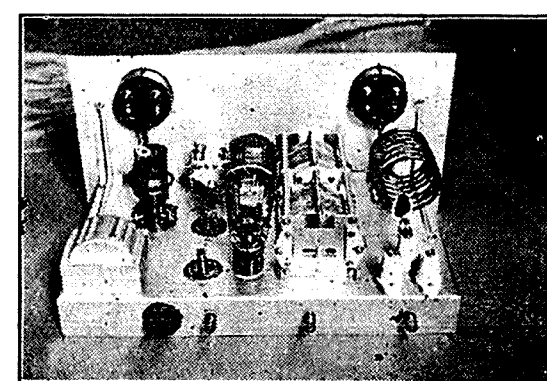
Aluminium panels and chassis are employed, and are made of 18 gauge metal. The dimensions of the panels



are 19 x 9 in. and the chassis 17 x 10, with a turnover of 2 inches. Bending of the chassis is an easy job if it has not been tackled before, and requires only the required lengths of angle iron and a strong vice. The process is as follows: Mark off with a pen knife or scribe where the bend over is to take place. One of the angle iron pieces needs to be just a  $\frac{1}{4}$  inch less in length than the distance between the scribes lines, the other may be any length as long as it is longer than the lines. Place the aluminium to be treated in the vice in between the iron pieces, with the shorter one to the front. After carefully setting the marked line parallel with the flat of the angle iron clamp the vice home. Now press the sheet over to the front with a heavy piece of board from the back so that the entire length of the chassis to be is bent over. This avoids any chance of uneven bending. When as flat as can be by the hand pressing operation the process should be finished by hammering down on the board in the customary manner. A hammer should not be used direct on the metal otherwise hammer marks will leave ugly im-

pressions. The remaining other three sides are similarly treated. It should have been mentioned that it is, of course, necessary to cut out the corners before bending. The finishing touches are put on the chassis and rear of the panel by the aluminium spray method as described in this magazine by Dick Dyer some little time ago. Scratches and other marks are well covered, giving a clean but matt appearance.

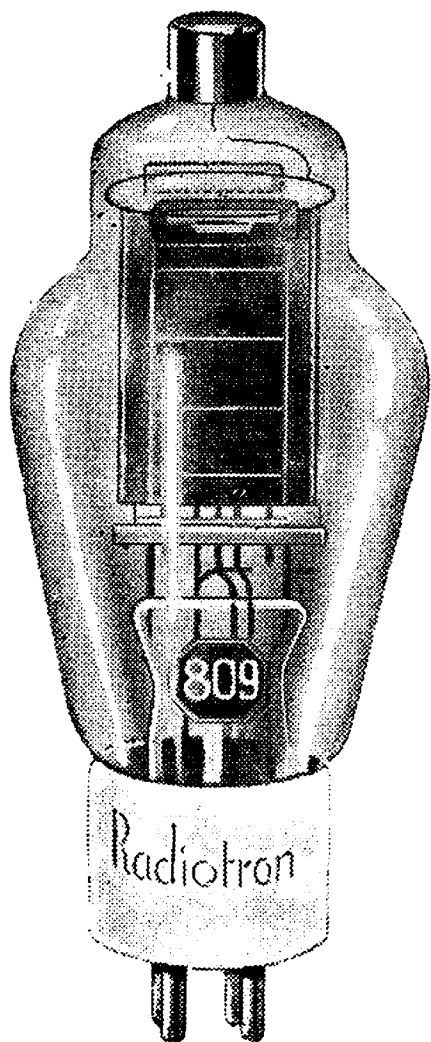
The writer is the proud possessor of a kit of socket hole punches, but in the old days a leather washer was used in the brace, and holes were dug out by brute force. The matter of meter holes is dealt with by means of a tank cutter bit, which is obtainable anywhere. Careful and accurate work in the metal section is necessary because the slightest mistake spells disaster to appearance.



Frequent sockets. This keeps the RF above the chassis and avoids the necessity of having to come up through the metal to wire to the tuning condenser. Unfortunately not very plainly seen in the picture, are mounted the variable condensers on adjustable insulated brackets. Perfect insulation of the rotor from the chassis and panel can be had by this simple component in conjunction with the flexible insulated couplers. The spacing of the components was so arranged that short and direct leads would result. The small knob and dial in front of the 6L6G plate coil is the excitation control condenser to the grid of the 807. The dials

# RADIOTRON 809

*for ultra high frequency*



## FEATURES:

Ultra High Frequency operation. Full ratings up to 60 M.C. Ceramic base for low losses. Plate brought out at top of bulb for high insulation.

High Filament emission. High Plate efficiency. High Amplification factor. Low driving power.

Suitable for Class "B" Audio Amplifier or Modulator. High "mu" and low bias.

At a price of 25/- nett Radiotron 809 gives MORE WATTS FOR YOUR MONEY.

### Ratings—Class "C" Telegraphy.

Filament (max.) .....	6.3 volts	2.5 amp.
Plate Voltage (max.) .....	750 volts	
Plate Current (max.) .....	100 mA.	
Plate Dissipation (max.) .....	25 W.	
Typical Power Output .....	55 W.	

Price **25'-** nett.

# RADIOTRONS

(Advertisement of Amalgamated Wireless Valve Co. Pty. Ltd.)

used throughout are the Eddystone slow motion type, the aluminium plates of which offset the specially treated panel.

Fig. 3 shows clearly the layout of the P.A. 801 stage. A small filament transformer is mounted on the chassis, the power outlet for which is carried at the back terminal strip

The layout provides for symmetry from the electrical point of view in that the tuning condenser, anodes of the tubes and the tank coil all lie in line. Small 15 mmfd frequentite condensers are used for the neutralising of the 801s and the dials for adjustment come up through the chassis in front of each 801. The two stand-off insulators near the tank coil are for mounting the link coupling aerial coil. A separate tuner is employed for feeding the Zepp.

The performance of this transmitter is remarkable and outputs down to 28mc exceeded the budgeted amount. It might be said that the hardest part in building a transmitter is in the design, choice of components, and layouts adopted. These steps take the most time, but one is well repaid in the long run.

## Station Description

**VK5LG,**

**IRON KNOB, CENTRAL SOUTH AUSTRALIA.**

VK5LG was officially born on 13th December, 1932, but, as the op. here was one of the first members of the S.A. Division W.I.A. in the days of 5BG, 5FT, 5AE, 5BN, 5HY, etc., and the certificate of membership is numbered "28," I think I can claim to be an old-timer at the game. It was way back in those days that 5LG, under quite another call-sign altogether — nuff sed! — successfully pushed 5-metre signals from his QRA to a distance of four miles, of course, using raw A.C. and a straight regen rx as fone and super-regen on 5 were unheard of at that time of nearly 15 years ago.

The first rig used at 5LG was a T.P.T.G. with a TBO 4/10 tube. However, this was followed by a pair of 45/s in the push-pull version of the TPTG.

With this small job four continents were quickly rattled off, only

the South American being wanted for W.A.C.; in fact, he is still hanging out on his QSL, hi!

The 45's going soft under about 50 watts, 10's were used, and before they suffered the same fate LG was able to prove that "it's all in the building" by removing all his filter condensers and chokes from the power pack and still getting PDC xtal reports. Ask old 5WP if he remembers!

The urge for modernisation and efficiency caused xtal to be thought of, so a rock was borrowed from a nearby ham. However, this particular slab evidently came from Switzerland, because it "skipped from peak to peak" quite blithely, and this was far too much for any set, so until a decent xtal was obtained the sig. became a M.O.P.A.

The op. after a while was sent to Whyalla, and from there to Iron Knob, and until his present home was built lived in a tent, plus wife and radio gear, and so learned the joys of QRP, batteries, and semi-portable operation.

Now 5LG is in its present, and we hope permanent, home. The lay-out is as follows:—27 TPTG osc., 35 buffer and f.d. linked to a pair of E406 tubes in parallel; various antennae have been tried, but always the old reliable Zepp feed has been the main standby. Separate power supplies are used to all stages, as with self-excited rigs. The op. believes this is a necessity for stability. An absorption type wavemeter acts as a rough blinker check on frequency, while for accurate work an electron-coupled freq. meter monitor is used, and as the operating table is 6 ft. from the rack and panel park it is quite reliable enough for anything. The receiver is a 3 or 4 valve TRF 6D6, 6C6, 76 and 42 occasionally, as static, etc., allows.

The input to the final stage line, voltage permitting, is about 49.5 watts!

VK5LG is a member of W.I.A., and either he or Mrs. 5LG will always chew socks with anybody at any time, provided condx allow.

Other interests consist of keeping pedigreed Collie dogs out of mischief, swimming, golf, or rifle shooting, and I am a boilermaker and electric arc welder by trade.

## Radiotron 809

**R-F Power Amplifier, Oscillator,  
Class B Modulator.**

Radiotron 809 is a three-electrode transmitting valve of the high-mu type for use as a radio-frequency amplifier, oscillator, or Class B modulator. Because of its high perveance, the 809 can be operated at high plate efficiency with low driving power. The plate connection is brought out through a separate seal at the top of the bulb to provide high insulation. The internal structure of the 809 permits operation of the maximum ratings at frequencies as high as 60 megacycles. The maximum plate dissipation is 25 watts for Class C telegraph and Class B services. Radiotron 809 is equipped with a ceramic base.

**Tentative Characteristics and Ratings.**

Filament Voltage (A.C.  
or D.C.) . . . . . 6.3 Volts  
Filament Current . . . . . 2.5 Amperes  
Amplification Factor . . . . . 50  
Direct Interelectrode Capacitances—  
Grid-Platē . . . . . 5.7 uuf  
Grid-Filament . . . . . 6.7 uuf  
Plate-Filament . . . . . 0.9 uuf  
Bulb . . . . . ST-19

Base, Medium 4-Pin Ceramic, Bayonet  
**Maximum Ratings and Typical  
Operating Conditions.**

**As A-F Power Amplifier and  
Modulator—Class B.**

D-C Plate Voltage—  
750 max. Volts  
Max.-Signal D-C Plate Current\*—  
100 max. Milliampères  
Max.-Signal Plate Input\*—  
75 max. Watts  
Plate Dissipation\*—  
25 max. Watts

**Typical Operation.**

Unless otherwise specified, values are  
for 2 valves.

D-C Plate Voltage—  
500 750 Volts  
D-C Grid Voltage†—  
0 —5 Volts  
Peak A-F Grid-to-Grid Voltage—  
135 140 Volts  
Zero-Sig. D-C Plate Current—  
40 35 Milliampères  
Max.-Sig. D-C Plate Current—  
200 200 Milliampères

Load Resistance (per tube)—  
1300 2100 Ohms  
Effective Load Resistance  
(Plate-to-Plate)—  
5200 8400 Ohms  
Max.-Sig. Driving Power (approx)—  
2.4 2.4 Watts  
Max.-Sig Power Output (approx)—  
60 100 Watts

\*Averaged over any audio-frequency cycle of sine-wave form.

†Grid voltages are given with respect to the mid-point of filament operated on A.C. If D.C. is used, each stated value of grid voltage should be decreased by 4.5 volts and the circuit returns made to the negative end of the filament.

**As R-F Power Amplifier—  
Class B Telephony.**

Carrier conditions per valve for use  
with a max. modulation factor of 1.0.

D-C Plate Voltage—  
750 max. Volts.  
D-C Plate Current—  
50 max. Milliampères  
Plate Input—  
37.5 max. Watts  
D-C Plate Voltage—  
750 max. Volts  
D-C Grid Voltage—  
—200 max. Volts  
D-C Plate Current—  
100 max. Milliampères  
D-C Grid Current—  
35 max. Milliampères  
Plate Input—  
75 max. Watts  
Plate Dissipation—  
25 max. Watts

**Typical Operation:**

D-C Plate Voltage—  
500 750 Volts  
D-C Grid Voltage—  
—50 —60 Volts  
Peak R-F Grid Voltage—  
135 140 Volts  
D-C Plate Current—  
100 100 Milliampères  
D-C Grid Current (approx.)\*—  
20 20 Milliampères  
Driving Power (approx.)—  
2.5 2.5 Watts



Power Output (approx.)—

35 55 Watts

†Grid voltages are given with respect to the mid-point of filament operated on A.C. If D.C. is used, each stated value of grid voltage should be decreased by 4.5 volts and the circuit returns made to the negative end of the filament.

\*\*At crest of audio-frequency cycle with modulation factor of 1.0.

\*Subject to wide variations depending on the impedance of the load circuit. High-impedance load circuits require more grid current and driving power to obtain the desired output. Low-impedance circuits need less grid current and driving power, but plate-circuit efficiency is sacrificed. The driving stage should be capable of delivering considerably more than the required driving power.

‡Modulation essentially negative may be used if the positive peak of the audio-frequency envelope does not exceed 115% of the carrier conditions.

Plate Dissipation—

25 max. Watts

Typical Operation:

D-C Plate Voltage—

500 750 Volts

D-C Grid Voltage†—

—5 —10 Volts

Peak R-F Grid Voltage—

35 40 Volts

D-C Plate Current—

50 50 Milliampères

D-C Grid Current (approx.)\*—

6 5 Milliampères

Driving Power (approx.)\*\*—

1.4 1.5 Watts

Power Output (approx.)—

7.5 12.5 Watts

**As Plate-Modulated R-F Power Amplifier—Class C Telephony.**

Carrier conditions per valve for use with a max. modulation factor of 1.0.

D-C Plate Voltage—

600 max. Volts

D-C Grid Voltage—

—200 max. Volts

D-C Plate Current—

83 max. Milliampères

D-C Grid Current—

35 max. Milliampères

Plate Input—

50 max. Watts

Plate Dissipation—

17.5 max. Watts

Typical Operation:

D-C Plate Voltage—

500 600 Volts

D-C Grid Voltage—

—160 —160 Volts

Peak R-F Grid Voltage—

250 250 Volts

D-C Plate Current—

83 83 Milliampères

D-C Grid Current (approx.)\*—

32 32 Milliampères

Driving Power (approx.)\*—

7.2 7.2 Watts

Power Output (approx.)—

30 38 Watts

**As R-F Power Amplifier and Oscillator—Class C Telegraphy.**

Key-down conditions per valve without modulation.‡

## CHART OF RADIOTRON "G" VALVES.

A new chart giving ready reference to the complete series of "G" valves, now obtainable in the Radiotron range, has been released by Amalgamated Wireless Valve Co. Pty. Ltd., and supplies are now available. The matter dealt with covers details of the base, socket connections, the exact equivalent type in the ordinary glass series, and in certain cases also an approximate equivalent. In cases where the types are not exact equivalents remarks are made defining the points of difference. A diagram of sockets connections is given for each type, while in addition the three standard Electron Ray Tuning Indicators—6E5, 6G5 and 6U5—which, although not octal based, are used as standard equipment, are also included. Types which are of Australian manufacture are suitably marked in the chart, which procedure will be adopted in respect of future Australian releases. This Radiotron chart measures 12½" x 10", is presented in new form, and provides a very handy reference to all these new valves. For the electrical characteristics reference may be made to the data available on the exact equivalent types. In cases where exact equivalent types are given, the characteristics may be treated for all practical purposes as being identical, although there will be slight differences, such as in interelectrode capacitances, due to the different base. The "G" type valves are 1-16" shorter

(Continued on Page 11.)

## 808 as a Doubling Final

Good Output on 56 MC.

(By E. H. Cox, VK2GU.)

A new and highly promising field for high quality stabilised transmission on the five metre band was provided about a year ago, when RCA produced the type 808 triode. The recent substantial reduction in the price of this tube has made it much more freely available in Australia than any other high efficiency high frequency tube of medium power capability has ever been before, and because of its extremely fine performance on five metres, the following notes on the results easily to be obtained from it may be of interest.

It will be recalled that some of the best of the pioneering work on the ten metre band with frequency stabilised sets was accomplished by running the final tube of the transmitter as a frequency doubler. In this regard the work of VK4BB was outstanding. In doubling from ten metres to five metres, in recent experiments, the writer has found the type 808 to be so vastly superior in performance to any other tube of which he has had experience for this purpose that it becomes easily possible to employ it as a doubling final to five metres with an efficiency factor comparable to that of many older types when run as a "straight" neutralised amplifier on the 14 MC band. As in all doubling arrangements, success depends primarily on the use of considerable drive and high negative bias. The high amplification factor of the tube, and its admirable high frequency construction provide the other factors necessary.

The five metre doubling stage at present in use by the writer employs an 808 in a perfectly conventional doubling circuit. No fixed bias is used, and the necessary grid bias is obtained by the voltage drop over a grid resistor of about 35,000 ohms. With this resistor, the tube is excited to a rectified grid current of about 20 mils., and therefore to a grid voltage of about minus 700. At

a plate pressure of 1000 volts, the resonance dip in the doubling stage is from considerably more than 100 mils (the metre is off scale off resonance) down to 13 mils when the plate circuit is tuned to twice the frequency of the grid circuit. No regeneration is necessary to produce this result. Loaded with the antenna or the grids of a following stage to 70 mils plate current, the tube remains entirely happy. A static dissipation test has revealed that the first faint traces of plate colour appear at a plate dissipation of about 20 watts in the case of the 808, and this colour just shows at 70 watts input. It is thus evident that, provided there is no loss of high frequency power into the power supply leads, the 808 run as a doubler from ten metres to five metres is easily capable of delivering about 50 watts of stabilised high frequency power to an antenna on 56 MC under operating conditions, which are nearly all well within ratings. The only rating exceeded is the grid input rating, but under the conditions described, the tube has been run for many hours without the slightest trace of trouble. In our case the five metre doubling stage is excited by another 808 operating as a doubler from 20 metres to ten metres with about 30 watts plate input. This arrangement is one of convenience, and a much smaller tube could obviously be used as the doubling exciter. Although not tested here, the new 809 appears to be an ideal tube for the role of doubling exciter.

The use of the 808 as a final for five metre operation under doubling conditions has the important advantage of dispensing with neutralising. Though a "push pull" final may be readily neutralised on five MX, it has been the writer's experience that even under the best attainable conditions, the neutralisation of a single ended stage at 56 MC is generally tricky. It readily permits of the

construction of a four stage transmitter to give good 56 MC output from a 40 metre crystal, or if one is prepared to use a "tritnet" oscillator stage the same output should be attainable with three stages by a slight sacrifice of efficiency in the doubler driver preceding the final.

The 808 when run as a doubler resonates nicely into a tank of three turns of 12 Swg wire two inches in diameter, with one-eighth inch spacing between turns, and tuned by a 35 mmfd Polar double spaced midget. Seven turns of the same wire, two inches in diameter, one and a half inches long, and tuned with almost anything that happens to be handy will look after the grid circuit of the stage.

### SOMETHING NEW IN THE EDDY-STONE RANGE.

An announcement has already been made of the new range of Eddystone transmitting condensers for the ham, and we can expect supplies almost immediately now. The new catalogue shows a new precision dial, which will solve the frequency meter problem. It is catalogued as No. 1085 at the nett price of 26/-. The dial diameter is 4 inches, and has a nickel-plated scale capable of being read to one-tenth of a division. Slow motion gearing provides a reduction of 6 to 1. It is ideal for high-class test and lab. equipment. Stocks are available immediately.

(Continued from Page 9.)

overall than the equivalent glass types. There are 49 "G" types included in this chart, from which it is evident that a complete selection may be made for the equipment of any radio receiver. Supplies of the Radiotron "G" Valve Chart are

available from the Unified Sales-Engineering Service of Amalgamated Wireless Valve Co. Pty. Ltd., or from Radiotron wholesalers.

### Editorial Continued . . .

the extent of available space, here are a few "don'ts." Don't write in and say that phone has driven you off 7mc and clamor for the American Ban on this band. With phone prohibited there they are still trying to stage a "back to 7mc drive." Don't say what is good enough for the Yanks is good enough for us, and say that 14mc phone should be restricted to the American phone limits. There are over 50,000 Hams in U.S.A., and a mere 2000 in Australia, so how can conditions be even remotely similar? Don't say that Ham phone is useless and banning it would be the best course—could you imagine anything more senseless and useless than that inspired "ur sigs RST . . . QRU pse QSL" formula so beloved of the DX CW man?

And at your Institute meetings, before you urge further restrictions, consider these points. Firstly, that your aim should be for the good of Amateur Radio as a whole. Secondly, that through the co-operation of the P.M.G's Department you have State Vigilance Committees who are in existence for the very object of cleaning up your bands without the imposition of any further restriction on you. Thirdly, remember that every Ham who is worthy of the name, be he a CW man or a genuine phone man, is as anxious to clean up the mess as you are, not only from his own angle and viewpoint, but also from the SWL angle and the damage that irresponsibles can do to the name of Amateur Radio—your Hobby.

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## VK2ABL

(By Les Tanner)

VK2ABL, of Canley Vale, has been on the air since September, 1937. Starting with the 58-58 transmitter described in "Amateur Radio," October, 1937, many local chaps were worked and wee dx, being VS7, FU8, VK6 es all ZL on 14 mc and XU7 all VK and ZL on 7 mc.

Things have altered now, however. As the receiver wouldn't work well on 28 mc it was decided to rebuild, using 34 det. and 30 audio, which is giving very fine results.

The present transmitter is 57 E.C. osc. with the grid on 1765.7 KC and plate on 3531.4 KC, followed by 58 as frequency doubler to 7062.8 KC, followed by another 58 as Power Amplifier on 7 MC and doubler to 14 MC. The power input is 4.9 watts and the aerial is 66ft. matched impedance 20ft. high one end to 25ft. at the other end.

The oscillator grid circuit is tuned by a 7 plate Isolantite base padding condenser. By doing this the advantages of xtal are almost obtained with more power output.

When using the transmitter on 3.5 MC the doubler stage is cut out of circuit, and is only used on 7 and 14 MC. The oscillator, however, is always used as a doubler as well. The output on 3.5 and 7 MC is sufficient to blow a 3.5V. pea lamp, but as the final stage is used as a doubler on 14 MC the output is only about half the amount obtainable on the lower frequencies.

The power supply is the standard B.C.L. gear, delivering 350V. 60 MC. The three stages are run off one pack here, and the backwave is exactly on the same frequency as the keyed wave.

The supply for the receiver is obtained from a Philips Eliminator, which delivers 180V nicely.

Phone experiments are conducted on a dummy aerial here, as no phone permit is held, and I hope to send results to "A.R." soon. Phone hounds, note!

In conclusion, I will say that VK2ABL is a radio mechanic of 22 years of age, and has a wife and two children, and is strictly C.W. only.

## A Farewell

On Saturday evening, 5th February, VK's 3OR, BM, TL, KI, CD, TS, FF, IH, HX and friends of Ken Rankin (VK3KR) gathered at a dinner at Kerang to wish farewell to Ken on the eve of his departure for Melbourne, where he had joined a leading Radio and Electrical House.

The outstanding feature of the gathering was the sincere regret expressed by the speakers of the loss of Ken in the district, but all were sure that he was making the right step, and before long he would rise to higher position.

Murray Orr (VK3OR) officiated very capably as chairman, and proposed the Loyal toast.

Dr. Pook proposed the toast to the Wireless Institute, which was responded to by T. D. Hogan (VK3HX).

Mr. R. E. Trebilcock (VK3TL) then proposed the toast to the P.M.G. Department Wireless Branch, remarking on the very friendly relations between the Department and the Hams. Mr. R. Locke, senior mechanic at Kerang, responded on behalf of the department.

The chairman then proposed the toast to the Guest (VK3KR), and practically everyone present supported. Mr. Vin Trebilcock then presented Ken with a small cheque.

Ken, arising amid applause to respond, in a lengthy and eloquent speech, thanked everyone for coming to the function and for the cheque, with which he would buy himself a memento of the occasion.

Ken then proposed the toast to the Chairman, Murray responding, and with the singing of Auld Lang Syne the gathering broke up.

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.....

## Correspondence

### 5LG SAYS HIS CONSCIENCE IS CLEAR.

Sir,—Having received a few complaints of no qsls, I would be obliged if you would find space in your magazine to announce the fact that VK5LG is a 100 per cent. qsl station. I invariably use the QSL Bureau of the W.I.A. as a medium of despatch of cards, occasionally reverting to direct post. If any ham who has been qso my station has not received my card I will forward another on request. However, enquiry with the local QSL Officer will probably show up the long lost article. — Yours faithfully,

LEITH S. COTTON, VK5LG.  
Iron Knob, S.A.

The Editor, Amateur Radio.

Sir,—The letter published in February issue signed by "Old Hombre" contains a deal of commonsense.

It is my personal opinion that those of us who use phone should get our house in order. This peculiar idea of using a microphone slang is one which has grown considerably of late, and unless checked will undermine the dignity of the users of Radio Telephony in general.

The use of the phone has a very large field wide open to the correct type of experimental work, and the silly stuff which is frequently put over by some does not help to raise the opinion held by a listening public of amateur activities; in fact, a number must wonder why we exist.

It is sincerely hoped that the recent formation of the Short Wave

Phone Section in Victoria will help to put a more serious vein into experimental phone activities.—Yours faithfully,

H. KINGSLEY LOVE, VK3KU.

The Editor, Amateur Radio.

Sir,—I know a fellow ham, answering to the call of VK3TS, who is unaware of this letter to you. Some little time ago he was trying a new type of crystal oscillator, and it unfortunately played up a bit, with the result that the note was not good. He happened to be heard by a member of the Victorian Vigilance Committee, and duly received a form from the member including one from the department. Tom told me of this, and he took the whole affair as a real ham would. Now I know for a fact that Tom is most careful when adjusting his rig and takes pains to avoid possible trouble to others. I can't speak too highly of Tom in this respect. To-day I heard the same Vigilance Committee member who heard Tom and his signal was RST 574 and spattering all over the band. Now I feel that this type of report does not allow any latitude for real experimentation. Furthermore, I think it was a bit tough on Tom, as he is not a persistent offender. I am not anxious to reflect on the Vigilance member concerned, as he no doubt was just as unaware of his breach of the rules as was Tom. Our experimental licences surely permit some latitude when carrying out tests of this nature—Yours faithfully,

G. DOWNING, VK3GD.

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## "Air Raider" Carries the Torch

Dear fellow hams—

Seeing that old "QRZ" has fallen down on his job, I have undertaken to continue at the risk of my good name. "QRZ" was tough on offenders with punk notes, etc., but maybe I'll be a little tougher. Those under discussion need not tear their hair, because I'll only laugh. Well here goes for the first batch.—Stand by lads!

3FS.—Has a harmonic on 14 mc. It's very nice to listen to OM, but why not confine it to 7 mc, the band you work on—or have you gone to 14 mc?

2YM.—Getting a shade excited while QSO K5AN and as a result slips a few extra dots in with the bug for good measure. Think before you send OM, your bug is too far ahead. A monitor should be O.K.

3CG.—Telling 3TI that his power is 12 watts. OK boy, but why the near DC "splash"? Sounds like a s.e. rig that is all haywire.

3JI.—Another "splasher" with a chirpy DC "bubbly" note (quite a lot of these ancient notes lately—perhaps ham radio isn't going so modern). Why not try C.C. OM, it's cheap enough and sounds a heap better.

2YY.—Thinks he's a commercial by the way he fiddles with his bug sending the V's. Why not get a "V" wheel son, it would save you a lot of energy.

2IW.—Ah, this lad must be a commercial, heard him QSO VJ? Judging by the way he's sending on that bug, he's the only one who can tell what he's sending. A rotten note too. What about a filter instead of the xtal A.C. OM? Also suggest some practice on the bug—in private.

3ZB.—Has a nice T9 note, but the sig. has a tail as big as a kangaroo. Have heard you better, OM.

3VF.—Lost his nice T9 note and replaces it with a ripply DC note that really does splash about. I notice W4EMK had a T9 sig. Take the short off the filter, OM.

2ADE.—Also has a slight buzz to his xtal sig. possibly just for the BERU contest. Whanor OM?

3OC.—Seems to be afraid to press a little harder on his key, the dots

"chip" a little instead of being clean cut. Also reminds me of a funeral while calling CQ. I suppose you must key the Xtal.

3EF.—One of those "oke-doke" fone guys who wants a "cq" record of his voice. Try some Irish Moss for the throat OM.

3NG.—Must have 2 separate rigs. One shoves out a questionable T9 note with plenty of spread, but judging by the sound of rig No. 2 its a diathermy outfit with an aerial coupled. Your fone also sounds punk and breaks badly in zero beat, sounds like suppressor modulation. Clean it up a bit OM, more filter and a small buffer stage. They tell me it is even worse locally.

3LA.—Is still modulating about 200 per cent. with poor quality fone on 14 mc., why not take a lesson from a few of those W's you work son. A monitor is also handy.

3XD.—Has a nice hefty carrier, but only modulates it about 50 per cent. Your speech leaves much to be desired OM, also your music, anyway why not pump your music into a dummy antenna? Don't leave your carrier run for an hour too often XD.

3IW.—Sounds like another "suppressor" fone station, also busts up in zero beat, but your cw is nice OM.

3LX.—Now this guy pumps out records on 14 mc during a contest. "Wake Up and Live" boy! Sounds as though you were using loop modulation, even tho you weren't. Why not an antenna, DUMMY?

3QR.—The "happy station" on 176 meters, beats all the boys. If you want to hear real broadcast mimicry, try 3QR, lads. He has a staff of engineers, a gong, swing sessions, stereoscopic sound, and "Music for the Connoisseur." All that is necessary now are the sponsors. Anyway OM, why don't you act the goat off the air and cut out the rot, and please gag a few of those engineers while the microphone is on. It's vile and disgusting.

Just reminds me, I've been chasing that ham (?) with the dirty ripply A.C. note on 14 mc. Boy, if I catch  
(Continued on Next Page.)

## Victorian Northern Zone Phone Section

(By VK3TL.)

For several years a number of hams in the north having been in the habit of having a weekly "rag-chew" on 80 mx. We discussed our difficulties and our successes, experiments we were making, alterations in our rigs, DX we had worked during the week and radio news of all kinds. As the number of stations increased difficulties arose. It was found that stations wishing to come into the qso were unable to do so, because those already in the qso did not happen to listen on their frequency. It was decided that some form of organisation was necessary if we were to get the most out of our hobby with the minimum of qrm. A set of rules were drawn up and given a trial. They have proved so satisfactory that we have been asked to give an account of our procedure for the benefit of others. Here are the rules in crystallized form.

1. The Section is controlled by a "Key Station" elected by the members.

2. At 0900 hours on Sundays, the Key Station calls "CQ Northern Zone—Phone Section." No other stations must use this call.

3. Key Station listens for replies and logs them, decides the order in which they are to transmit, and announces the order.

4. Stations transmit in that order.

5. When all have spoken, Key Station replies, and again calls "CQ Northern Zone Phone Section." or more shortly "CQ Northern—Zone," and any other members wishing to come in reply.

6. Key Station rearranges the order of transmission, giving preference to those who have just come in, and announces accordingly.

7. Stations come in in that order.

8. This procedure is repeated till the Key Station is satisfied no others wish to come in.

9. Time limit for each transmission, 3 minutes, unless a member has anything to say of interest to members generally.

10. Should any hitch occur, e.g., if a station fails to come on the air at the proper time, all stations listen on the frequency of the Key Stations for directions. This is essential.

11. Any station, once in the qso, wishing to withdraw, must wait his turn, and then advise the Key Station of his intention.

On paper this may sound complicated. In practice, it is simple and works wonderfully well. Directions issued by the Key Station are loyally followed, and these Sunday morning qso's have been really enjoyable to all taking part in them, notwithstanding the large number of stations.

Here is a list of the stations that have taken part with more or less regularity:—

3BM, 3CD, 3CE, 3DW, 3EC, 3EP, 3FF, 3FN, 3HR, 3HL, 3HK, 3HX, 3HN, 3HG, 3IH, 3KR, 3EI, 3NN, 3OR, 3TS, 3TL, 3WN and 3ZK. (Hope nobody has been overlooked.)

Of course, all of these are not in the qso every Sunday, but 7 or 8 is not at all an unusual number.

The Section is fortunate in having among its active members one (3BM) with an fb oscilloscope. By tacit consent he is not restricted to 3 minutes' transmission. He watches all transmissions and gives us frank reports of what the screen reveals—with very beneficial results so far as quality of transmissions by the Section is concerned.

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(Continued from Page 14.)

you keying I'll put you right on the front page, and I don't mean maybe. Anyway you might stay in one place instead of going up and down the band; suggest you clear out among the commercials and QSO them. Well fellows I'm off to the rx again, so look out or you'll get a write up!

73.

THE "AIR RAIDER"

Rcv's. 3 tube T.R.F.  
9 tube Super (xtal gate)  
5 tube "

("Amateur Radio" welcomes the "Air Raider" who, we hope, will take the place of old "QRZ" and amuse and instruct.—Ed.)

## 28 and 56 M.C. Notes

(By VK3CP.)

These notes deal with conditions from the 16th to the 16th of each month inclusive. Ten metres has shown considerable activity during the last three weeks, although mainly from the States. OK1FF, r6 at 10.30 p.m. on 24th Jan., and several faint Europeans at 11.30 p.m. on the 12th Feb. keep us on the look-out during the evenings.

JNJ and JNM3 have fair strength during daylight, but increase greatly at night. In all probability the Europeans will come through consistently within the next month. During the heavy sun-spot activity (20th Jan., app.) ten metres was absolutely dead for several days. At present the stations in Hawaii have great strength—K6LCV always R max. (200 V, 400 M), K6BIR, 6OQM, 6OGS, 6MVX, 6ICL, 6LNP, 6MVV, all R8 phones, heard between 8 a.m. and 6.30 p.m.; at present peaking around midday. W7EMP is the most outstanding phone, the double 8JK beam and peak audio compression control (Nov. '37 Radio) give a perfect R9 signal in VK. The 35T's PP final is fully modulated by an audio system consisting of a Shure Xtal mike, 6J7G, 6C5 phase inverter, two 6J7's as the peak audio suppressing unit, PP45's and class AB2 PP par. 6L6G's, 6H6G peak comp. voltage rectifier. 7EMP is R9 at 2 p.m. dur-

many W stations calling the following stations on ten:—TG9AA, ZT2G, TI2FG, LU3DH, LU1EA, PY1AZ, J2MI, VP6YB, VE4ZC, and by the reports given are evidently being received at good strength. The following VK's have good strength here at 3CP:—VK4HR, 4AW, 7AB, 6LW, 2TI, 2TK, 2UF. VK3EN has good quality and is just starting on ten. His rig has a 6A6 Co 40X, quad. to 10, and unity coupled to another 6A6 PP. VK3IW has excellent sup. modulated phone with the RK20 final. VK7AB is going to use power on five for the next Field Day—Xtal control, 6L6G exciter, 35T on ten, 807 doub., Taylor T55 final. The tests are being conducted from Low Head where AC is available. K6LNP has an interesting outfit,

6L6 tri-tet, 6L6 doub., HF 100 final—1500 V, 225 Watts. The mod. has class A 45's driving 6L6's class AB2. These 6L6's give 95 Watts of peak speech audio. 450V on the plate. 116M each plate, 300V on the screens, 10-20M each control grid, 45V bias. VK3CZ has his 8 tube super finished and the results are all that could be desired. VK3BQ has a rotary beam in operation—two  $\frac{1}{2}$  waves phased by a  $\frac{1}{4}$  wave section and fed by the Johnson Q system. Two ropes outside the window turn the array wherever desired. The 8JK flat top beam, Zepp fed, is in operation here at 3CP and an increase of from 3-4 R points is noticeable, this lifting the weak signals to good readability.

From the States, W1KQN, 2INX, 4EEV, 5FLZ, 6ERT, 7EMP, 9DRQ are all R8 phones during the morning. The latter has an excellent outfit and worthy of notice; 6L6G Co. 40X, 807 Push, 210 PP, 808's PP with 200W. The mod. has a 6J7, 6J7, 6C5, PP class A 42's, 211 D's class B. The antenna is a rotary beam 50 feet high having two  $\frac{1}{2}$  waves in phase with two  $\frac{1}{2}$  wave reflectors excited parasitically. The beam is turned by an electric motor—controlled by turning a dial in the shack at the operating position. It is interesting to notice the variation in signal strength as the beam is turning—10 deg. off us reducing the strength several R's. W1ICI, 2CKO, 3EVT, 6DUC, 6JN, 7DDU, 8BTI, 9ZNA CW fair strength to R8; the latter using PP 35 T's 250 W and a rotary beam, RME69 with DB20 pre-sel. complete an efficient outfit. W6KEI is another sure phone contact, the WE261A final with class B 801 mod., feeding an unterminated rhombic antenna. VK3YP is still in Queensland and hopes to look up the 10 metre gang. VK3XP and 3ZB are on 10 mx again, the latter with a rebuilt rig consisting of 6L6 Co 40X, 210 doub. 10 mx, PP T20's final, modulated by a pair of 50's. From New Zealand, ZL3KZ, 3DJ, and 4AO are the only consistent stations.



5IV has I believe just passed his commercial exam and now has that ticket. Good luck Roy ob, and drop a line and lets know all about it.

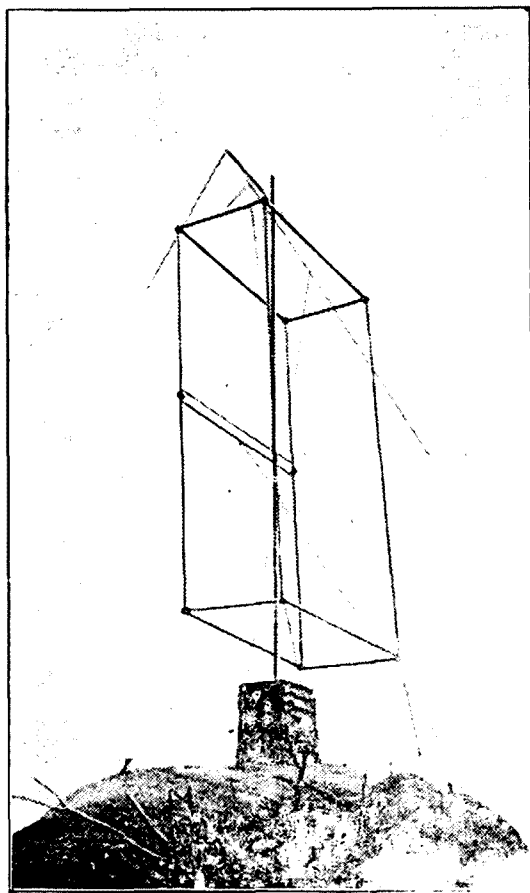
5LR.—Well haven't seen or heard Jack for weeks. How about a call some day ob.

5BF.—Still the good quality stuff one associates with Frank.

5LC.—Still pounds in. Les has been away for a much needed holiday and Les visited the tennis—now all the local Gladstone tennis players are being well and truly cleaned up by 5CL.

5RE.—Has completed the 10 and 20 metre rig and will soon be on those frequencies. In the meantime he appeals very sincerely for any notes on "the doing" of any of the gang in his zone. So please let's have them, chaps!

### Portable 56 Antenna!



The aerial erected by VK3JO on the You Yangs for the last Field Day.

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## Wireless Questions

---

### Question . .

Q.: I have been told that the Osc. of a Super Het should be tuned to a higher frequency than the 1st Det.

(a) Is this so? (b) Why? —“O.D.”

### Answer . .

A.: (a) Yes, especially when used for reception on the higher frequencies.

(b) There is a very excellent reason for the alignment of the front end of a Super Het. in the manner that you state.

First, we must consider the function of the High Frequency Oscillator (H.F.O.) operating at a signal difference of, say, 465 kc.

The H.F.O. is designed and built for the purpose of supplying a steady voltage to the mixing tube (1st Det.), of such frequency that it will be 465 kc off resonance with the mixed grid circuit (incoming signal). This results in a 465 kc beat which is the carrier frequency that is fed to the I.F. Amp. from the mixer.

We can now see that to get an even response in our I.F. Amp. at all signal frequencies we must have a moderately constant voltage available from our H.F.O.

Now, it is a characteristic of all Oscillators that their voltage output is proportionate to the amount of “C” in their oscillatory tank. Giving higher voltage output for high “L.”

From this, then, it is at once apparent that we must keep our H.F.O. tuning capacity as small as possible, consistent, of course, with band width, etc., if we are to obtain maximum efficiency from the circuit. This then, in turn, necessitates tuning the H.F.O. to the higher frequency side of the incoming signal.

N.B.—It is noticeable that tuning the H.F.O. to the low frequency side

of a signal on, say, 160 or 80 mc does not make a great deal of difference to the available output or sensitivity of the Super, but such a procedure, if adopted on frequencies of 7 mc or higher, does definitely lower the conversion gain. This at first puzzling effect is due to the inherent properties of the H.F.O. at low frequencies, the voltage output on low frequencies being of such magnitude that the High C losses are negligible. “T.D.S.”

---

### “DOPEY” COILS.

The following facts were discovered when it was decided that single band operation left much to be desired. Several methods of band switching are known, but as link coupling was used, plug-in coils seemed to meet requirements.

At that time molded “mud” formers were the only type available, and a set of 7 mc coils were space wound, the windings being held in place with duco cement.

When these coils were placed in operation it was immediately noticed that the circuit losses had increased considerably.

Investigation soon showed where the fault lay.

The following table should prove interesting:—

	Duco-Cemented.	Circuit Loss in Watts.
Former. Bakelite	Yes	12.5
Bakelite	No	9
Air Wound	No	7

Just a word in conclusion. When your transmitter does not work according to your favourite designer, QST, Mr. Jones, or “Amateur Radio,,” please don't abuse the writer, check your insulation.

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## DX Notes

(By VK3MR.)

Here we are again! Back to the grindstone! The signs of over modulation by the editor mentioned a few issues ago exceeded all bounds of oscilloscopic vision when I was unable to write any notes for February. I understand the viggee comm. has caught him at last. The other charge was obscenity. He was due for a rest.

Some good dx has been heard and worked during my absence so I will have to wake up a bit. Big mail (spelt M-A-I-L) was awaiting me on my return from VK7. Glad to get all letters. 3XQ been active and getting amongst the dx between 9 p.m. to midnight. CT2BC about 14360kc to be worked about 1 a.m., also several other CT's worth chasing. Bulldog (3XQ) also got a rare one in CN8MS, 14,300 kc., 2 a.m. 3CX now 113 countries,—any better?—the latest being 17AA (Addis Ababa). ZB, SV and SU report working 3YV's from Venezulela. Can't work a YR though. 2KZ from the coal fields reports ST6LR 14100 kc every a.m. at 6. His best work being the raising of the first Junr op on Jan. 17. 9 lbs. born too, congrats om keep it up. Another of the coal miners' gang is 2DG, who supplies dope re HO2UA, "W" on ship, will qsl ok. QRA, Box 181, El Cerrito, Calif. He points out that J8 is not an island! As well as ST6KR he worked I7EY also in Addis Ababa, 10 pm, 14400 kc or so; 3QK during the month worked about 25 countries the best being YL2BB, 14350 kc, and YL2CG, 14380 kc around midnight; also our hero OA4J now, in the band, 14340 kc. Two very interesting letters from 4RC and 4CW who both advocate the use of 7mc for dx. Their list certainly speaks for itself. How I think of the good old "daze" when the early am European dx was a pleasure to work. 4CW only a new chap on and has fine dx list on 7mc and only using 23 watts—cu on 7mc om. Dx condx seem very poor during Jan. no doubt due to the sun spots.

It is well known that dx condx are not the same in each state and I am endeavouring to get something definite about it and want a few helpers. 4RF has offered to help. What about the other states. I want all the dx heard and worked to be sent to the state representative, who will pass it on to me after examining the position and by that way we shall check up on a few points in doubt at the moment. I have already drawn a very interesting map which will explain "WHY" especially for VK6's benefit.

Contests.—BERU Sen. is been and gone. So far no results to hand—no one interested enough to let me know. I had a listen and all I heard was a lot of BERU stations calling 3EG. Hope Ivan gets the trophy for keeps this time (no opposition from 3MR, hi!). Let's hear about it. All Band CW test.—VK7AB, winner of this test last year, seems a certain winner of the IRE Trophy. His score is 1090; 2RA, 960 and 6SA 715. The time of the year was against this test owing to the static on 80 and 160 mx. 6SA had no contacts on 160 or 10 mx. To get his score, 7AB had to put a lot of work into it and showed good judgment in changing bands

A most interesting and instructive booklet has been published by the Radio Inspectors Department. This Handbook has been prepared by Mr. P. Dunne, and approved by the Department as a guide to operators of experimental wireless stations. It completely covers regulations and forms of procedure for all amateur operators. It is understood that these handbooks are procurable at a cost of 1/- each from The Radio Inspectors Department or McGill's Agency, Melbourne. Furthermore, it appears that this handbook is to be used as a textbook for A.O.P.C. examinations in the near future.

## Out of Band Operation

Quite a number of amateurs have lately been observed working in forbidden territory, that is, outside the bands which have been allotted for their exclusive use.

This practice, it will be realised without lengthy consideration, while it certainly reduces the amount of qrm which offenders have to contend with on the legitimate bands, is very detrimental to the interests of amateur radio generally.

The P.M.G.'s regulations require us to confine the frequency of our transmissions not only within the specified bands, but sufficiently remote from the edge of such bands as to ensure that no interference is caused to services operating in adjacent bands.

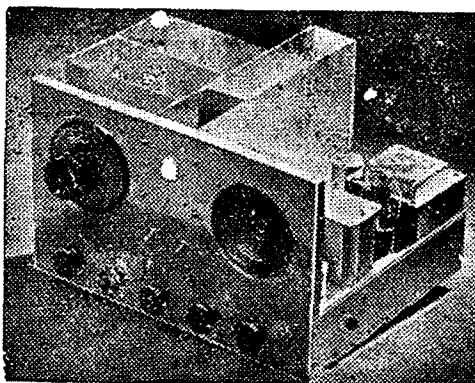
Apart from any action which we might expect to be taken by the authority concerned, and the possibility of jeopardizing our prospects of retaining any privileges extended to us, we have a moral right to establish a spirit of esprit de corps and aim to keep amateur radio in Australia on a high plane.

Now, then, fellows, it's up to you to do something about it. Those of you who are deliberately flouting the regulations and deliberately trespassing in other people's preserves, will be well advised to withdraw within territorial borders. Those who, through carelessness or lack of technical knowledge, are also offending might improve matters by seeking advice from more experienced hams. It is desirable that some efficient method of frequency control be employed and that all transmissions be correctly monitored.

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## Divisional Notes

To ensure insertion all copy must be in the hands of the Editor not later than the 18th of the month preceding publication.

### MEMO TO CORRESPONDENTS.

Due to the lack of uniformity in the amount of notes received, the Editors have drawn up the following figures as a guide to contributors:—

- N.S.W.—1600 words.
- South Australia—1000 words.
- Queensland—600 words.
- Tasmania—400 words.
- Victoria—1800 words.

Please double space all copy. This makes the work of the Editor and linotype men much easier. Write in plain language and avoid abbreviations. It would be a great help if the correspondent for each State would collate all the notes from zone officers, and submit them as a complete report from his State, keeping them within the limits shown above.

### N.S.W. Division

W. G. Ryan, Secretary, VK2TI,  
Box 1734 JJ, G.P.O., Sydney.

#### Country Zone Officers.

Zone 1 (Far West).—J. Perooz,  
VK2PE, Hope Street, Bourke.

Zone 2 (North-West).—H. Hutton,  
VK2HV, Byron Street, Inverell.

Zone 3 (North Coast).—R. J. Berry,  
VK2NY, 54 Bacon Street, Grafton.

Zone 4 (Hunter River and Coalfields).—R. W. Best, VK2TY, 57 Hunter Street, Newcastle.

Zone 5 (South Coast and South-West).—R. Ross, VK2IG, 673 David Street, Albury.

At the January meeting of the Division a lecture was given by Mr. G. V. Hume on the subject, "Modern Radio Valves." Mr. Hume described

the manufacture and testing of the various types of receiving valve made locally, and his talk was illustrated by an excellent series of photographs taken in the Phillips Valve Factory recently established in Sydney.

Some discussion took place on the subject of the ballot for election of officers, and it seems likely that this will be changed before the elections in March.

Some results are to hand for the 1937 D.S.D.C. contest, and the following scores may be of interest:—  
D4CDM, 865,878; D3DSR, 807,798;  
VK2ADE 179,758; VK3MR 118,048;  
VK2JX, 91,290; VK2TI, 82,376.

Quite a lot of interest was taken in the I.R.E. Trophy Contest, which appears to have been won by 7AB. Conditions were patchy, and, so far as is known, no interstate signals were heard in Sydney on 28 mc. Some approximate scores:—7AB, 1,090; 2RA, 960; 4AW, 900; 2VN, 2AS, 850; 2EO, 750; 2LZ, 2NY, 2YL, 2PZ, 2ADR and 2AFJ were also active.

Conditions were reported fair for the Senior BERU Contest, but some found difficulty in raising new stations the second week-end. 2TF apparently leads for N.S.W. with 604, 2EG 543, 2AS 528, 2TI 343, 2PX 296.

The preliminary heats for the W.T.S. Crawford Trophy were held on Tuesday, 15th February, twelve qualifying for the final to be held in April during the Convention week. Mr. Crawford examined 9 non-club members at his office and members of his staff conducted heats in three of the radio clubs. Those successful in qualifying for the final are:—  
VK2ABH, 2ABS, 2AEN, 2AHB, 2AHJ, 2AS, 2CE, 2NP, 2PN, 2RA, 2YY and 2ZK. With two months in which to practise there should be some first class operating in the final.

# Amateur Radio

## ZONE 4 NOTES. (By VK2TY.)

Things have been happening lately in Zone 4. Stan 2ZW decided after a holiday in VIS to open up in business selling pills to the lads out Bankstown way. Now that was the start of our worries as 2ZW was the President of the NARC, so after electing 2KB in his stead we turned to our next problem, which was the small matter of finding a place to park our clubroom. For the past 6 months we have been at 2ZW's shack, but when Stan went, the club could hardly expect the next tenant, not being a "ham," to tolerate us.

Our address now is the same as it was six months ago, c/o "Sun" Buildings. Hunter street, Newcastle.

Two new "hams" will be on the air in Newcastle shortly following upon their success in the October Exam. One is about 18 and the other not yet 17, so you see we catch 'em young in Coalopolis.

I believe that some of the Coal-fields boys have teamed together and call themselves the "Black Diamond DX Gang." The culprits are 2DG (who incidentally hopes to win the Johannesburg contest for VK2), 2YL, 2XT and 2CW (and when they use the term DX they sure mean it).

2BZ, 2AHA, 2AEZ and 2UF still smash holes in the ether with 808's, and now 2DG has been added to the list. Boy, what a racket!

2WU threatens to put his 203A back in commission any time now, so what's the good of 50 watts?

## ZONE 5 NOTES. (By VK2IG.)

There appears plenty of activity on most bands in the contest and also conditions seem to be more favourable than for some time. This applies to all bands and some good DX is to be had on forty.

2OJ is not on for the time being as his daughter has been very ill, but is now progressing satisfactorily, but Noel is barred from the shack.

2AP also not on as yet as his recvr is at OJ's and also has not decided on his qra.

2VK has xtal on forty and is hearing the DX ok but finding them hard to raise at his location. DX there, VU, J, YHO, W, VE, etc.

2EU is flat out putting his super together, but gets delayed thru not getting parts.

2QE still plenty qrl and has wrecked the rig prior to rebuilding. Seems the chaps in this zone do nothing else but. Hi!

2AFD still on holidays and making it a full time one at that and too lazy to get going we reckon!

2IG been changing things around and in consequence has not been on. Hopes to have new rig on soon. Also had some advice from the Vig. Comm. so you other VK2's in VIS who are consistently misoperating had better look out.

2FQ busy filling the log with locals and DX and sure getting out well now.

2DN hasn't conquered the five mx band yet and wants more co-operation with interstaters. VK3 hams should arranged skeds with DN as its a swell chance for that first 5mx contact as he is right in the plains.

2AF a bit quiet but believe there will be tons of qrm on forty at any time. Enuf to satisfy everybody in fact!

2UO.—They say that no news is good news, so that should mean that UO is well on the way again. Or is it?

2JA concentrating on fone DX and seems to raise 'em easy too. What is the recipe om?

2AEO wants the dope on making aerial masts behave. Says anyone wanting help with their masts to call on him when he's out!!

Say you chaps around Canberra, how about some dope from there? Surely you fellows do things occasionally, if so or if not let us have it. Just drop me a short note if any of you will co-operate with these notes each month. Who is going to be the first?

## WAVERLEY RADIO CLUB NOTES. (VK2ABS, Secretary.)

Final arrangements have been made for the Club's 19th Birthday Party, to take place in the clubrooms, 13 McPherson street, Waverley, on Tuesday, 1st March, at 8 p.m. Quite a few of the local celebrities will be present and a good time for all is assured.

2AFG has temporarily abandoned the rig and spends all his time (and £5 notes) on his beloved (?) motor bike. What a shame! Also preparing for some low-fidelity fone.

2AHJ has eventually succeeded in obtaining some R.F. output from his H6 buffer, thus narrowly averting a

severe nervous breakdown. Now that the rig is working satisfactorily, is going to tear it to pieces and rebuild. Also gargles his tonsils with nitric acid every morning in preparation for forthcoming fone permit.

2AFZ seen recently rushing around in his pal Mac's car, brandishing a large loop antenna and D.F. receiver. Explained that he hears a pirate playing records at nights on 40 mx and intends to call in person and give him a report. We can suggest a suitable report, Eric!

2EG seen recently walking around town with a dreamy far-away look in his eyes. What were you thinking of, Dev.? Was it a YL or just a choice piece of DX?

2WN is QRL Exams. Is already a B.Sc., but wants to be a B.E. as well—some chaps are never satisfied! Best of luck, Maurie.

2FJ had someone once tell him to "go to blazes" so took their advice and has been going to 'em ever since in the company of the local fire brigade.

2AHB now has to get up about 5 a.m. every morning to go to work, so can only work DX until about 3 a.m. now, as he believes in getting plenty of sleep.

## ZERO BEAT RADIO CLUB.

Well, we're now in March, and the prospects of the Club are even better than expected. Already membership has increased by 25 per cent. while the number of Hams in the Club is 50 per cent. higher than last year.

At the last general meeting held in the clubrooms, the Transmitting members decided to run a series of sessions of morse practice and club news for members, an either 20 or 40 metres, each Sunday morning from 10 till 10.30 a.m. Below are given the call signs and frequencies of participating stations for March:

VK2AEN, 7270 Kcs, March 6th.

VK2ABH, 14051 Kcs, March 13th.

VK2AFQ, 14080 Kcs, March 20th.

VK2AEE, 7030 Kcs, March 27th.

The Club members have decided to hold a Field Day on the third Sunday of every second month, commencing 17th April.

The Morse class for A.O.P.C. aspirants is progressing very favourably, and members with a little more practice will be ready to sit for their ticket.

The lectures which are run in conjunction with the Morse Class, are also proving to be of great assistance. Incidentally, a synopsis of the lectures given in the club rooms are put over the air for the benefit of country members.

Mr. A. Jocelyn and Mr. H. Cullerton, who were successful at recent examinations, should soon be on the air. Mr. Jocelyn has decided to use a 59 Tritet-Penthode Osc. with a 59 as amplifier and a Jones Multi Band Antenna.

Mr. H. Cullerton will be using a 6L6G osc., 6L6G doub., and a T20 or 809 in the Final.

Everybody is requested to look for VK2ZB on 7120 Kcs approximately, every Friday night from 6 p.m. to 6.30 p.m., 7 p.m.-7.30 p.m., 8 p.m.-8.30 p.m., when it will be on with a session of Morse practice, club news and a synopsis of the lecture given in the Club Rooms. Reports on the transmission of 2ZB, and, for that matter, any stations that mentions the fact that the session is on behalf of the club, would be very much appreciated, and all reports would and will be acknowledged with the card of the station concerned in the report or reports.

VK2KH.—Uses 6A6 Jones Exciter 6L6G doub., T20 Final with 30 watts input, has just changed over to xtai after about 3 years of operation with Electron Coupling; works KA's, K6's, XU's, J's, W's, with Jones Multi Band Antenna about 12 ft. high, running North-South.

VK2IK.—Not doing much on the air; packing up for England, expects to be away about two years, and possibly return via the "States."

VK2IQ.—Still works plenty DX, although very QRL with study; was heard using a Reinartz Beam on 28 mcs.

VK2ABH.—Has been using a '56 to modulate a '10, running at 7-12 watts input, with "Telefunken" system. Will soon have P.P. 807's in with Grid Modulation. Says he heard it mentioned that all Zu and Zt calls would be changed to Z's.

VK2AEE.—Trying to get a Portable Transmitter Receiver to operate from the one power supply, otherwise pretty QRL with study.

VK2AEN.—Uses a 2A5 Electron Coupled Osc., with a '45 as amplifier grid modulated with another

2A5 to make a noise on 40, got R5 from W2 with 7 watts input also on 40.

VK2AFQ.—Like his brother, is also pretty busy, and only managed to get on 14 and 28 about 2 nights a week.

Well, that's about the lot this month, so if anyone is interested in the above club they can communicate by letter to the Zero Beat Radio Club, Gregson's Studios, Sydney Arcade, George Street, Sydney, or call at the Club Rooms at above address on Friday nights.

## Victorian Division

### COUNCIL NOTES.

A meeting of the council was held 8/2/38. A report of the inaugural meeting of the new Short Wave Phone section was received. Matters appear to have been put on a good basis in this new section and much is expected from them.

Messrs. Ohrbom and Campbell were appointed to look into the possibility of running an exhibition of amateur gear in the Institute rooms. If you are interested, forward your ideas to these gentlemen.

The Magazine Committee was authorised to purchase a new block for the magazine cover.

Accounts amounting to £32/12/6 were passed for payment.

### UHF SECTION.

(By 3JO.)

**Big 5 Metre Field Day, February 27.**  
**Country Stations Co-operate!**

The big event of the month was "The" Field Day. Though results are not to hand in time to publish this month, it may be interesting to set out the locations from which stations were operating. In addition to the list of stations published last month the following stations participated:—3UH, Kinglake; 3XW, Arthur's Seat; 3ML, Mobile.

3DH was at Mt. Dandenong instead of Mt. Macedon. Several stations in Geelong also notified their intention of co-operation.

We have not yet had the opportunity to attempt a direct 5 mc contact from Melbourne to Geelong, but as there appears to be no reason why this could not be accomplished, the Melbourne stations will be eagerly looking forward to the 27th.

Another interesting aspect will be to see if 3HZ at Warragul can be heard in Geelong. It will be remembered that his signals were R8 at the You Yangs on the last Field Day, the only difference between these locations being that the latter has the advantage of height.

Apart from the VK3 activities there will be intense activity in Northern VK7 and several hams will be operating portable and other gear from many vantage points.

Members of this section read with interest the letter by 3LL in last month's issue and agreed that the idea is a good one and deserves all the support we can give. 3LL is assured of any co-operation he may require from this section in order to get his scheme under way.

Activity is maintained on the 56 mc band and during the month 3VH/3JO made a trip to the Camel's Hump, Mt. Macedon, and had no difficulty in working the city stations. However, no success came to our efforts to contact 2DN, 3HX or 3HZ.

The March meeting will be held on Tuesday, 15th, so come along and join in the discussion arising from results achieved on the Field Day.

### SHORT WAVE GROUP NOTES.

(By O. E. Davies.)

The group is going along in the same smooth way as usual. Meetings being well attended and the individual members carrying out experiments of a general nature.

A very interesting visit was held on January 27, when the Group was the guest of the Management of 3DB. "The "Minstrel Show" was the first "thrill," this was followed by an inspection of the control room, recording plant, new studios and the "Diamond Point" equipment. May we again thank the management for a very "fb" visit.

Our visit for February will be to Station 3UZ.

The visit to the P.M.G.'s Lab. will probably take place in the last week in March. Members desiring to make this visit can ascertain the exact date from their Section Sec. or direct from the Sec. of the S.W. Group.

### Group Activities.

3JO now trying Xtal on 5. Still a bug or two in the rig as yet. Expects to be OK soon.

3XJ still CQ 20 mx phone. Dx for pref.



## Amateur Radio

3WQ not seen for some time.

3KP will shortly be with us again after a tour of "G," "W," etc. Expect will have some fb gear when he arrives back.

Bert. Burdekin troubled with QRN and QRM, etc. Then decides to build 5mx Super regen. Oi.

Rest of the Group QRL the A.O.P.C.

### COUNTRY SECTION NOTES.

The preliminary organisation of the Section is now practically completed, as only the Executive in the Western Zone have yet to be appointed. I want to welcome our old friend VK3PR as the Zone Officer, and VK3DI as the Notes Correspondent for the Eastern Zone, and also to reaffirm VK3HX-VK3ZK as the Notes Correspondents of the Northern Zone. You Country men have got to help your Correspondents to make your Zones Notes interesting by supplying them with regular news of your activities. The weekly broadcasts from 3WI and subsequent relay by VK3EP seem to be proving satisfactory from the numerous re-

ports that have come in from all parts of the State.

### EASTERN ZONE NOTES.

3XZ.—Have not heard you lately, Mac. How come?

3HZ.—Reported to be on 5 mx.

3DI.—Now in the radio business in Leongatha. Getting out well on 40 mx fone with only 3 watts and a very poor ant. system.

3PR.—Sold 6P6 and replaced same with Philips TC 03/5-1 with improved efficiency. Also built new receiver.

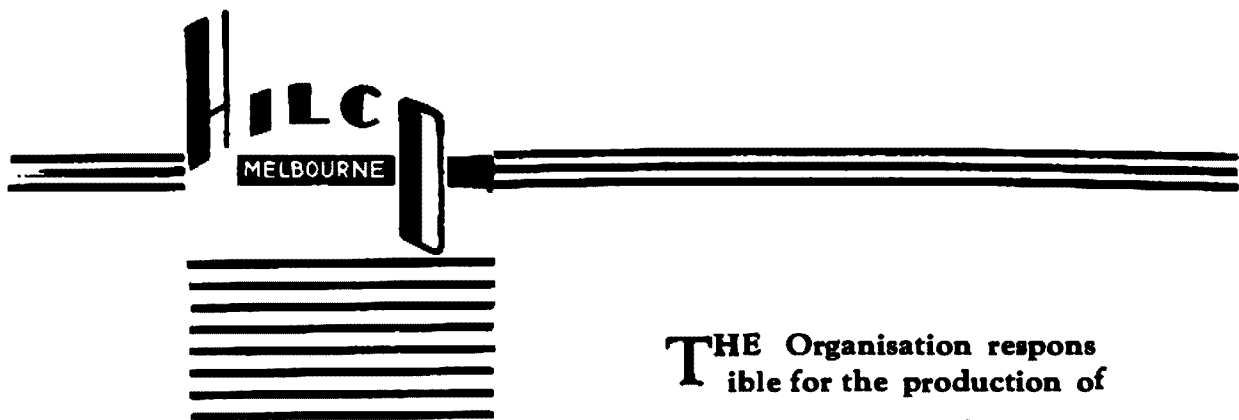
3EA.—On 40 mx fone. Sounds quite good too.

3OR and 3BM paid a visit to the Eastern Division in Jan. and it is reported that they painted Omeo red. 3WE hasn't been heard since. Anything missing Bill? Hi, hi!

3BR.—Busy fixing things up before clearing off to VK 4. Off at last Jack says.

3DG.—Not on much going to have

3GO.—Graham qrl but when on put out a nice sig on 40 with 6P6 Xtal osc es 6L6 Doubler feeding half wave Zepp as about 10 watts.



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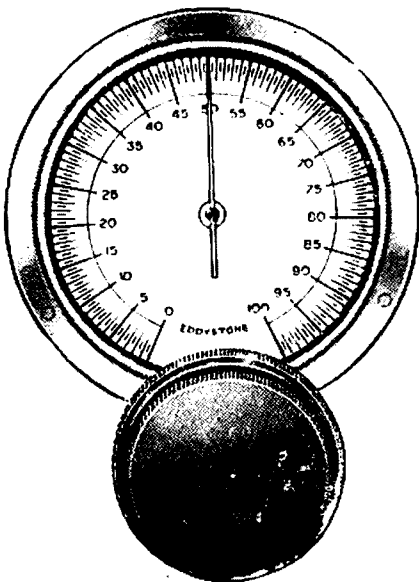
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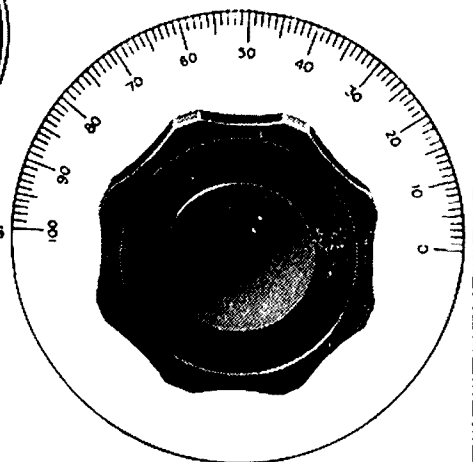
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1449 HIGH STREET, GLEN IRIS, S.E.6., Vic.

a big rebuild recr, mitter, etc. Hopes to put on fone agn. Old 6P6 given up the ghost.

3IL.—Not heard for months, Bob must surely found a new way of putting in the time on the Island Hope to hear of you staging a comeback Bob om.

3JZ.—A new arrival to Gippsland and not heard on air yet, but hope to hear from you soon om.

3LY.—Congratulations to you Rob ob upon your engagement, maybe we will hear more of you, now, what say?

3QB.—Jack trying hard for WAC on 7mc only wants Europe, Sth America doing a fb job with 28 watts input to 802.

3SS.—Keith been qrl with exams and only gets on occasionally with fone, quality could be improved, otherwise fb.

3XH.—Have not heard Stan for a while, just waiting for his fone permit to come along, I am told.

## NORTHERN ZONE. (8ZK—8HX.)

Now that the formation of the country section is well under weigh, these notes previously known as the Mallee and Northern District notes will appear under their official heading, viz., Northern Zone. This zone, fellows, we hope you know, extends from the Hume Highway in the east to the Western Highway in the west, the VK2 border in the north and as far south as the metropolitan boundaries, so you will see that the zone correspondents have a large territory to cover with probably the biggest number of Ham than either of the other two zones, so we ask you to co-operate and let us know your doings so that we can make these notes worth while. By next month we will have some scheme arranged so that we will spend some time on various bands to receive your dope if you are sufficiently interested.

The organisation of the zone is in the capable hands of Mr. R. E. Trebilcock, VK3TL, of Kerang, who will

have several schemes to put forth shortly as soon as they are completed and received approval of the WIA Representative VK3UK.

It is the intention shortly to make a drive for WIA membership in this zone, because we want this zone to be 100 per cent. members of our Institute, for it is only by this means that we can guard the interests of our hobby.

If you are not a member, join now, and have the satisfaction of saying that you helped to build up the zone. Nomination papers and information can be obtained from VK3TL, WIA headquarters, Melbourne, or either of the two stations signed above.

A convention is to be held as soon as a convenient date can be fixed suitable to everyone.

So chaps, the success or failure of this zone is in your hands, but we feel sure that there will be no failure, for it will be "United we stand."

## South Australian Division (By VK5KL.)

At the transmitters' meeting on February 2 items to comprise the agenda for the convention were fully discussed by those attending. During the year items that have appeared for years on the convention agenda have borne fruit, so it is interesting to see if the same will occur this time.

The most astounding fact this month is the increase in serious activity on the 56 mc band. Stations active at the moment are VK5's BC, GB, GF, KL, LW, JU, MK, RT, TR, WK and 5ZU. The trend is to better receivers and stable transmitters. 5BC, 5RT, 5TR and 5ZU are using dual, but the others stabilised oscillators. Everyone is building TRF receivers for reception of phone and cw and to minimise interference caused by super regeneration. Interstate chaps are asked to communicate with 5KL advising times convenient to arrange skeds.

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## Amateur Radio

In the contest held in conjunction with the Sydney celebrations, the only score to hand is VK5JT, 1120 points. Mr. Barton, VK5BN, of Mt. Gambier, has been enrolled as a new member. Many chaps are desirous of reforming the Technical Department Section, so we may see something done very soon.

The BERU contest is in progress, but as conditions are poor on 40 and 20 the best band is 10 meters and most overseas activity is centred around that band.

Country member, Mr. Graham F. Barton (VK5BN), of Mt. Gambier. Welcome into the Gang OM. You are in Barker Zone. Please keep in touch with your zone officer, VK5GW, of Naracoorte. Let him have particulars of your station, and activities.

### WAKEFIELD ZONE NOTES.

by VK5RE.

Old man static rules the air in the Wakefield area—and rules it with a rod of iron and fortunate indeed is he who can penetrate the barrier that stretches across the sky.

A few W's come whispering in but little else in the way of DX.

Of the VKs—VK3 comes thru with a fair degree of regularity.

Heard VK3FR and VK3IG on very nice Tq cw working recently.

5LR is on the air again; Jack has been off for several weeks but heard his very fine fone dominating the air recently.

5IV also on again — Roy has put out some very good stuff from the DC supply but now that he has the A.C. laid on we can expect something extra from Berri.

5BF still comes in with a wonderful punch—Frank has the goods.

5 LC "The low power king" shatters the speaker with the sigs, from his 4 watts input Xmittr. And the quality is extra.

### GREY ZONE.

(by VK5WG.)

Conditions during January and up to mid-February have been most unsatisfactory for DX. During the latter part of January a complete fade-out of signals occurred and very little DX was heard for several days.

Here is some dope on zone members:—

5FB.—Frank is still in Sydney, but should be back within a couple of weeks.

5LC.—Les, I believe, is interested in 5, trying different antennae.

5LG.—Leith wrote me saying he will be on 5 shortly and would co-operate with skeds, so drop him a line, also on 14 mc cw.

5WG.—Yours truly trying to work DX on 14 mc, but cond punk.

5AT.—Bert is still QRL work.

5BK.—Jack is still at 5CK.

5NW.—Where are you Snow? Haven't heard of you since New Year's Eve, I got over it o.k.! hi!

5HR.—Bill has closed down again, QRL studies I believe. Best of luck Bill.

5TL.—Mr. T. Laidler is a new ham at Ceduna, only on battery power as yet, so give him a shout boys. I'll look for you, om.

Mr. Col. Bottrall is still pegging away in between busy periods.

### BARKER ZONE.

(By VK5GW.)

Very few hams in this zone have been heard on 40 and 20. 5XR, after being off the air for some months, made a great comeback the other Sunday a.m. with phone on 40. The records were a good effort, but a hum was noticeable, which has been overcome. The speech being o.k. and a good job on an input of 3 watts. 5XR is getting set for A.C.

5PB still thinking about rebuilding.

5JK not at it yet. Pressure of business the cause.

5CH has changed QRA to Geelong, Vic.

5GW at last has receiver in commission and hopes to have the old xmitter on the job very shortly.

Have not heard anything of 5HK for some time.

5KH, who has been stationed at Naracoorte for 3 weeks has now returned to his home QRA.

Say chaps let me know what you are up to, and send any dope you have before the 8th or thereabouts.

Queensland and Tasmanian Notes were received too late for publication.

## R.A.A.F. Reserve Notes

### THIRD DISTRICT. (VK3UK-3ZI.)

Discussions are still under weigh at Headquarters, but it is hoped that the details of the new organisation will shortly be decided.

3B3 passed through Melbourne last week on his holidays, and he was able to spare the time for us to have a good talk over matters of interest. He will not be back in Coleraine in time for the 56 mc Field Day on the 27th February, so it is possible that 3B5 will not take part by himself. 3B3 has a Bruce erected, and has high hopes of a "DX" QSO with the Metropolitan men.

3D6 and 3D4 are very active on 56 mc, and are taking part in the Field Day. 3Z1 and 1A1 are planning to go down the Western District somewhere, although their exact plans are still uncertain.

1A1 is house-hunting, and has threatened to take a place near 3Z1. The local Hospital Diathermy racket is bad enough, and 3Z1 has told him to come close enough to be sociable, but . . . . !

## Australian and Victorian QSL Bureau

(R. E. Jones, VK3RJ, QSL Manager)  
Snowy Harrisson (VK3CN) expects to be passing through Melbourne en route to Hobart about February 17th, and on the way home about March 9th.

Cards are on hand at the Bureau for:—VK3AP, AT, BJ, BN, BS, CA, CC, CU, CV, DJ, DS, DT, DQ, DU, EL, ES, EZ, FF, FM, FN, FT, GN, GP, HE, HT, IR, JM, KP, LI, LH, LV, NA, NB, NG, NI, NT, OU, PA, PH, PN, QR, QS, SE, ST, SZ, TC, TG, TQ, TY, UJ, VB, VJ, VM, VY, WH, WR, WW, XA, XD, XE, XG, XZ, YA, YF, YG, YM, ZF, ZG, ZJ, ZU, ZZ, Ashman Webb .

A stamped envelope will secure them.

The QSL Manager will have returned from a vacation in the Warburton and Yea districts by March 9.

## Hamads

Advertising space in these columns is available to those wishing to sell, buy or exchange, at 3d. per line; approximately five words to the line. Minimum charge, 1/-. To ensure insertion enclose postal note or stamps with copy, and address to the Advertising Manager, "Amateur Radio," White Horse Road, Box Hill, E.11., Victoria.

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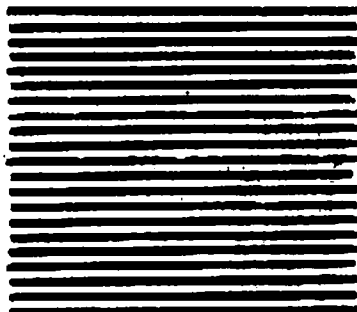
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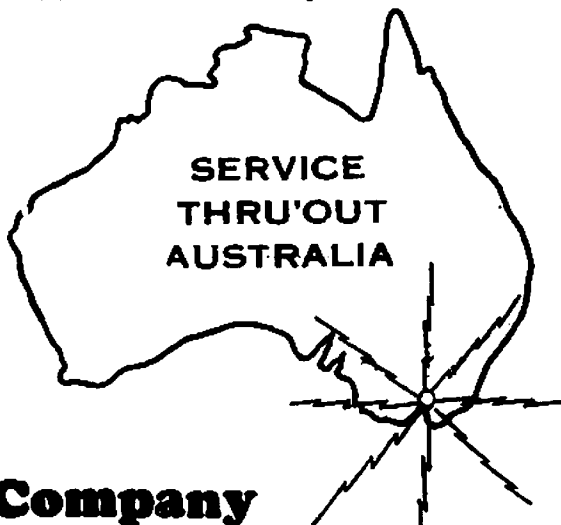
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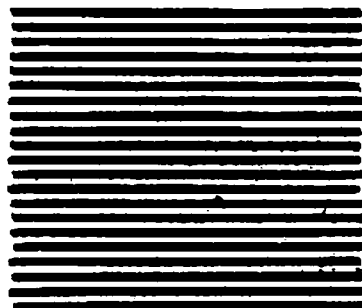
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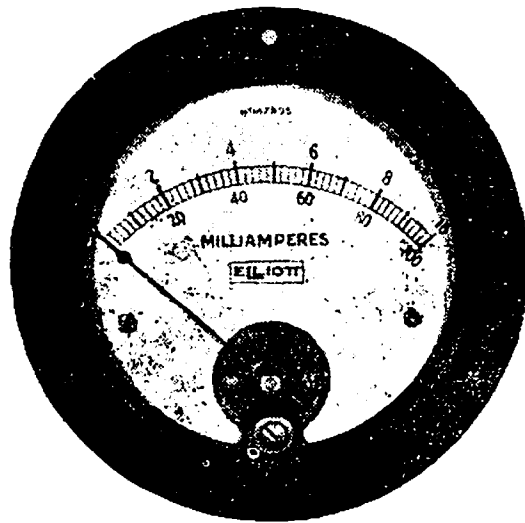
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# AMATEUR RADIO

Published by the Wireless Institute of Aust., Victorian Division.

Vol. 6 No. 4

1st APRIL, 1938.

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All Communications and MSS. should be forwarded to the Editor, "Amateur Radio," BOX 2611W, G.P.O., MELBOURNE.

Subscription to "Amateur Radio" is 6/- per Annum (Post Free), paid in advance.

Should you not receive your copy of "Amateur Radio," notify your Divisional Secretary at once.

Advertising and Publishing Office: Address Publicity Manager, "Amateur Radio," Whitehorse Road, Box Hill, E.11. 'Phone: WX 2429.

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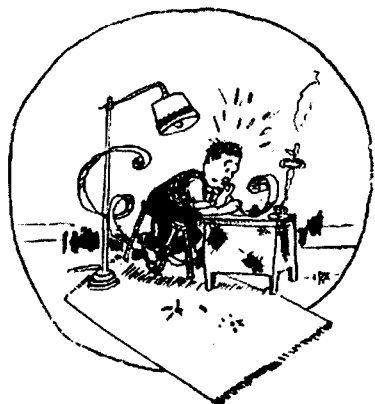
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## EDITORIAL ~

We had been turning over in our minds the possibilities that "Amateur Radio" offered to publicise the Institute and had almost decided to hold the matter over until after the Federal Convention when we came upon the following paragraph from the Editorial page of an English Aviation Monthly:—

"Here we sit looking about as ferocious as Mary's pet lamb, yet with so many teeth, claws and stings hidden under our wool that it is hard to move without showing some of them—even a rattle-wobbles its rattles before it strikes. It is time we rattled ours."

The Editor was emphasising the fact that Britain's hush-hush policy towards her rearmament programme was one of the main causes of her being under-rated in Europe. A little publicity and—

But it is not the position of Britain and Europe that concerns us now, but the parallel that can be drawn for our own particular case. If you or I have something that other people have not, or something better than what they possess we can only expect to command their respect for our wares if we advertise them. The part of the above quotation that commands our notice is the last sentence, "It is time we rattled ours." The Institute's policy is certainly not one of aggression, we have nothing to be aggressive about at the moment, but the value of institute membership can be very much under-rated unless due publicity of the right kind is forthcoming. A Ham the other day gave us what, to him, was a stern indictment of what was wrong with the Institute. "It is too darned self-complacent," he said. Because the W.I.A. did not blatantly cry aloud what it had to offer, he thought it must consider its policy and organisation perfect and its attitude one of

which a non-member could join if he wished, but if he didn't, he was the loser, not the Institute; in any case it was only his sub. they wanted. We asked him what he knew of the organisation of his Division and found it amounted to very little beyond hearsay.

You know as well as we do that his criticisms were illogical and wrong, but neither you nor we can escape the blame that is attachable to us for the lack of publicity that was responsible for this and other men's misconception. Our Ham's criticism of "self-complacency" can be turned as a direct indictment of himself as a non-member, for it is the absolute truth that the officers of the W.I.A. in the various Divisions work too hard in the interests of Ham Radio, member and non-member alike, to have either the time or, for that matter, the inclination to brag of what they have done and are continually doing. That is where "Amateur Radio" comes into the picture. The Editorial from which we have quoted has a note of challenge in its theme "It is time we rattled ours." Yes, and "Amateur Radio" is the logical medium of the W.I.A. to start the "rattling"!

We know what you members are thinking and we agree that, on the surface, any Ham who will accept the benefits that the Institute strives for and obtains, without offering to pull his weight, is a miserable sort of Ham indeed. But look at it from the other angle. Many Hams do not regard their hobby as something altogether on a different plane from their business lives. To some it is due to their native shrewdness (?) that they can obtain for themselves these benefits without paying for them in money or work. To others comes a sense of injury and insult that the Institute has dared not to

plead with them to join, "I would join if I were asked," they say. A little paltry isn't it, but it takes many types to make a world. A little understanding, a little well directed publicity and perhaps those Hams would become useful Institute members. Finally there is that other type that our critic mentioned, who says that the W.I.A. is "only after my sub." That makes one's blood boil doesn't it, and calls for the immediate retort, "We've run the Institute successfully without it in the past, my friend, and can continue to do so in the future." But before replying think if the remark is not a result of a misunderstanding of the Institute's policy—perhaps of lack of publicity of our organisation. Of course if he is the type who regards the payment of his sub. as he would regard the purchase of a sack of potatoes, as purely a commercial proposition, tell him he has knocked at the wrong door, for Ham Radio is, or should be, a haven and a relaxation from all that is commercial. The Institute is a business trading in goodwill and goodfellowship and ten times one's sub wont buy either. Above all else we must emphasise the definite honour that is attached to Institute membership. The W.I.A. has a magnificent record of achievement behind it, one of its Divisions is the second oldest in the world, its members have built and are still building up a tradition as noble as any our hobby has known. Where in the scroll of Fame can you find a record finer than that of our Hull's, our Maclurcan's, our Howden's, and others too numerous to mention? Their imperishable record provides part of our tradition, our background and our pride. To be a member as they were members, to be privileged to work for our hobby as they worked is an honour indeed.

But to return to the subject of publicity and the part that "Amateur Radio" and the W.I.A. can play. This month in Sydney will be held one of the most representative conventions in the history of the Institute inasmuch as every State Division will be represented and will officially take part in Sydney's Sesqui-Centenary Celebrations and will amplify the Institute's part in the above celebrations. The May issue will be a special Convention Number

dealing almost totally with the Federal aspect of the W.I.A..

We have a wonderful organisation in the Wireless Institute of Australia with a magnificent record of which we are justly proud, and it is our duty to publicise its activities.

## The Australian National Field Day 1937

Congratulations to 3UK on winning the 1937 N.F.D. Contest.

With 230 points 3UK was well clear from 2LR, 193, and 3ML, 184, third. 3UK's performance in contacting all continents except South America in 24 hours with a portable outfit was exceptionally good.

Conditions generally were very poor, the weather in N.S.W. being exceptionally unpleasant for camping in the countryside.

2HZ and party were practically washed out on several occasions, the antenna being put up the 90 ft. pine tree in a thunderstorm.

2RA and party at Mt. Tomah, Blue Mountains, were shrouded in a mountain mist all the time, and at times, rain during the contest.

The Lakemba Radio Club's party using call sign 2LR were the winners in N.S.W. 3ML, the other high scorer with 2BP as second op., used B batteries for power, a stack 6ft. x 3ft. x 3ft. being the source.

The number of entrants was disappointing, but as an approximate total of 80 hams participated in the field that is what really counts. We hope it is 80 portable stations next year.

The scores are as follows:—  
Australian National Field Day.  
Results:—

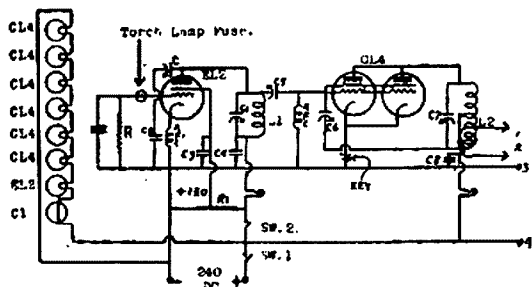
1.	VK3UK . . .	230
2.	VK2LR . . .	193
3.	VK3ML . . .	184
4.	VK2PN . . .	174
5.	VK2RA . . .	120
6.	VK5ZX . . .	118
7.	VK4HR . . .	80
8.	VK4AW . . .	53
9.	VK2AHB . . .	39
10.	VK2ZB . . .	34
*	VK2HZ . . .	172

\*Non-Competitor.

# Putting the DC Mains to Work

(By VK4LK)

The ham who has to make the best of a D.C. supply has up to this last couple of years not been so fortunate as his A.C. brothers. However, with the advent of the wonderful array of tubes on the market, the problem is not as acute as a few years ago.



The Oscillator-Buffer.

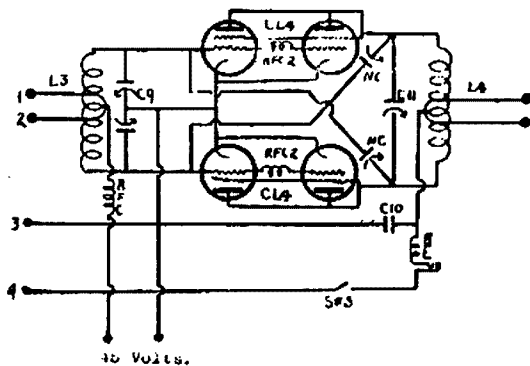
Recently I constructed the rig described here for 4DK, who has to be content with a 240 volt D.C. supply. Before commencing to build this rig, many tube combinations were tried out on paper, and after careful elimination on cost, heater current and output the Philips CL4 suits the job admirably. The CL4 has a 33 volt heater, which takes .2 of an amp. However, the CL4 is not as good an oscillator as the EL2, the six CL4's and the EL2 and a C1 Baretter all in series across the 240 volt main gets over the heater problem economically.

The oscillator is one of the cathode regenerative variety, with additional capacitive feedback from the plate to the cathode, using an 80 metre crystal, this oscillator will function on its fundamental. The second, third, fourth and fifth harmonics, the third and fifth harmonics are of no use, as far as amateur work is concerned. The output on the second and fourth harmonics is ample to drive the buffer and U.A. to 45 watts input. It will repay the builder to purchase a crystal of repute. The average crystal usually shows double spots and weakness on harmonics, and gene-

rally unsuitable for this type of circuit.

The Buffer is more or less conventional. The screen is tied to the control grid, the CL4 with this connection gives practical cut off, with a slight decrease of power as when used as an RF penthode. This is no disadvantage as there is still ample drive for the P.A.

The Power Amp makes use of 4 CL4's in cascade. Trouble was experienced from parasitic oscillation during the first try-out, but the choke RFC.2, when inserted between the control grids of each pair soon corrected this trouble. Battery bias is used on this stage to get maximum efficiency with maximum power output, though a combination of leak and cathode bias will work nearly as well. As with all push pull stages, the need of keeping things symmetrical cannot be stressed too much if troubles from feedback, etc., are to be avoided. The P.A. is link coup-



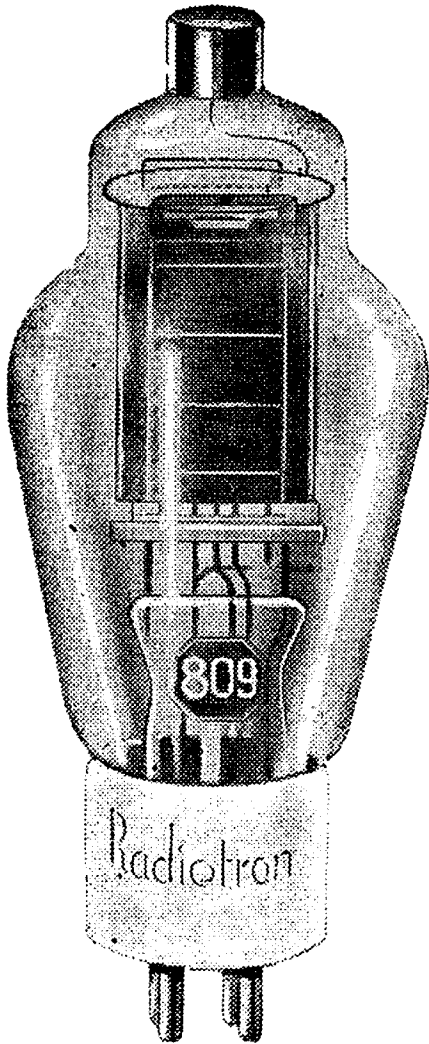
The P.A. Stage.

led both to the buffer and antenna.

The Antenna tuning unit is so arranged that the capacity can be placed in series or shunt with the coil by means of two single pole double throw aerial switches. The coil L is wound with 14 gauge tinned copper wire, 15 turns 2 inches in diameter and tapped at every third turn for three taps, and a clip to

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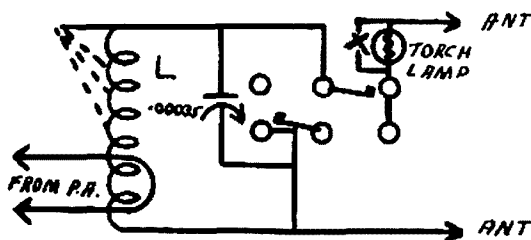
Filament (max.) .....	6.3 volts	2.5 amp.
Plate Voltage (max.) .....	750 volts	
Plate Current (max.) .....	100 mA.	
Plate Dissipation (max.) .....	25 W.	
Typical Power Output .....	55 W.	

Price **25'** - nett.

# RADIOTRONS

short out the unwanted turns. By this method it is easy to get the correct match for the P.A. depending on the frequency in use. The torch lamp in the feeder needs a short placing across it to prevent it blowing out. An 0-1 RF ammeter would do nicely here, but when costs are being considered the Torch lamp does the job as well.

Getting the oscillator started calls for a little experimenting, but once it starts off the use of same is very easy. With the 40 metre coil plugged in L1 and the condenser marked C screwed right out, switch



Antenna Tuning Unit.

on the plate supply to the oscillator, which should be around the 30 M.A. mark with the oscillator off resonance. Screw in the condenser marked C until the meter begins to show a drop in the reading, and then tune as a conventional crystal oscillator. The adjustment of the condenser C is the heart of this circuit, and if carried too far it will function self excited. This will be indicated by a continuous light in a test loop held over the coil L1 and the condenser C1 rotated. It is advisable to check each harmonic with a wave meter to see that it is the correct one, and not one that falls outside the amateur bands. The same procedure applies in getting the oscillator to function on 20, but once it is working it is an easy job to return to the original settings.

Keying is accomplished in the cathode of the buffer. By keying here all back waves, etc., are eliminated from the radiated signal, and the use of a 500,000 Ohm resistor across the key will eliminate any clicks or sparking that may originate at the key, the P.A. being biased to cut off immediately falls to zero when the key is up, a 45 volt heavy duty B

battery just cuts the power amp off nicely.

The coils L1, L2, L3 are wound on 1½ in. diameter 5 pin coil formers. the link around L2 and L3 is a single turn of number 14, soldered to the two spare connections on the socket and expanded enough to allow the coil to be slipped in and out without any loss of time when band changing. The P.A. plate coils are wound with number 14 tinned copper wire on celluloid strips. This method of coil winding is dealt with fully in the latest A.R.R.L. handbook, but a simple dope can be made from Duco thinners and small pieces of celluloid allowed dissolve in same. "Facinac" thinners seems to be the most speedy at dissolving the celluloid, much quicker than Acetone or Amyl-acetate.

No details have been given for coils for the 80-metre band, as operation on this band was not desired, but by doubling the number of turns for 40 and a little cut and try, 80 should present no difficulties.

If it is also intended to modulate this rig after the probationary period has been served, the suggested line up for a modulation unit is as follows:—CC1, Push Pull EL2's and Cascade CL4's.

The condenser marked C11 is a home-made one. It is a .0005 with alternate plates removed, and the capacity is in vicinity of 100 mmfd. after the alterations. However, there are some really good double spaced 100 mmfd. condensers on the market now which should do a 100 per cent. job in this position. It is essential that a double spaced condenser be used here as the single spaced varieties spark over between the plates on every press of the key.

	L1	L2	L3	L4
40 .....	12	16	24	14
20 .....	6	8	10	6

L1, L2, wound on 1½ in. formers with 18 DCC spaced one diameter between turns; L3 wound on 1½ in. former close wound with 18 DCC.

L4 wound with 14 tinned copper spaced one diameter, 2 in. in diameter and supported with celluloid strips.

(Continued on page 17.)

## Sunspot Phenomena

By E. H. Cox (VK2GU)

Intense eruptive activity on the sun, which accompanied the appearance of an abnormally large sunspot in the second half of January, provided an unusually complete opportunity to observe the correlation between solar phenomena and high frequency radio propagation over distances. During the period in which the sunspot was moving across the sun's disc at least two major complete fade-outs, each of more than two hours' duration, were observed in Australia, together with a number of minor fades, and a number of other interesting effects, some of which will be described. Most of these notes are based on observations on the 28MC band.

On the morning of January 13, a complete fade-out, last approximately 45 minutes, occurred on the 28MC band. Signals from the United States of America were received normally up to about 8.45 Australian eastern standard time. Within a period of about five minutes, the band became absolutely dead, and a check showed that there had been a disappearance of the harmonic radiations from Japanese stations, which are normally audible on about 28MC at that time. At 9.30 the fading period ended, and signals came through faintly, building to about an average level for the time of the year over a period of about 30 minutes. From 10.00 onwards until North American signals disappeared about 13.00, the band was normal, but with a very marked and rather sudden "peaking" of 10,000 mile skip signals about 11.00. On this date, the large sunspot was on the extreme western edge of the solar disc, and its appearance was not publicly announced by the Commonwealth solar observatory until the following day, when several excellent photographs were made.

On January 16, there was another fade-out of unusual severity and duration, which will be remembered as having disrupted communications on

all bands for more than two hours. On the 28MC band, it was immediately preceded by conditions rather better than those normal in mid-summer. Signals from all parts of the United States were being received at good strength, while those from the American east coast were considerably above normal strength. At 10.43 Australian eastern standard time, while the writer was in communication with W2KAK, near New York City, the signals from that station dropped from a level approaching a maximum for the station to complete inaudibility in less than three minutes. Within four minutes of the beginning of the fade-out all trace of signals from all sources had disappeared. It was distinctly noticeable that the signals from stations on the west coast of the United States were the first completely to disappear, while the last signals recognisable before the fade-out became complete were those on the extreme east of the continent.

At 10.55, or about ten minutes after the fade-out became complete, the writer observed the "hiss" which has frequently been described in ten metre communication. The intensity of the "hiss" on this occasion was greater than it has ever been heard before, and it would have been sufficient to drown all but the loudest signals. It developed suddenly, rising to the maximum intensity attained in a period of probably 30 seconds. It persisted at this level for about six minutes, and then disappeared almost as suddenly as it had begun. Careful checks were made to ensure that it was being picked up via the antenna. The receiver in use is particularly well shielded for use for duplex operation, and was found to be completely silent whenever the antenna was disconnected.

It has several times been suggested that this "hiss" may be cosmic in its origin. Its appearance immediately following a complete fade-out lends partial support to this view.



At such a time, the disappearance of ionisation strata in both the E and F regions should facilitate the admittance to the surface of the earth of external radiations which these strata would normally tend to exclude. On the other hand, there was no reformation of the strata in the E or F regions throughout the period of the fade-out, and it would therefore be expected that if developed in some "constant output" cosmic source, the hiss would have persisted through the whole period of the fade-out. An alternative explanation of the "ten metre hiss" which seems much more consistent with the observations on this occasion is that it is generated by some form of electrical disturbance in the extreme upper atmosphere. Such disturbances might well be expected to result from the abrupt change in the electrical conditions of the upper atmosphere at the inception of the fade-out, and it is easy to conceive the condition generating the "hiss" as a transitory one which need not persist throughout the whole of the fade-out period.

Careful checks were kept on the 14MC as well as the 28MC band throughout the fade-out, and it was noted that signals first reappeared on the higher frequencies. The first weak signals to be heard on 28MC reappeared at 12.55, and were from stations on the west coast of America and in the Hawaiian group. Harmonics from Japanese commercial stations became audible about ten minutes later. The first signals to reappear on the 14MC band were not audible to the writer until about 13.25 Australian eastern standard time, or about 30 minutes after the first reappearance of signals on 28MC.

A check with Hawaiian stations immediately after communication was restored revealed that the fade-out was markedly noticed on the islands and on the western coast of the United States, but with the important difference that, between the mainland and Hawaii, the band, though unfit for communication, was not completely "dead." At intervals throughout the fade-out period very weak signals broke through between the American mainland and the islands, but were audible for only

short periods before disappearing. No corresponding brief reappearances of signals were detected at the writer's station. It is to be observed, however, that over the American-Hawaiian signal path, the fade-out occurred in the late afternoon. At such a time the incidence of solar radiation over this segment would be oblique. In such circumstances it would be expected that the disturbing influence of abnormalities of solar radiation on the normal structure of the ionosphere would be reduced. This is consistent with the repeated brief reappearance of signals between the United States and the islands. It is consistent also with a further effected reported to the writer from Hawaii—namely the restoration of normal communication channels between America and the islands at least half an hour before communication from Australia to the islands became practicable.

On the occasion of this fade-out, it is learned, through the courtesy of the authorities of the Commonwealth Solar Observatory at Mount Stromlo, that the ionosphere record there revealed a disappearance of "echoes" over a vertical path simultaneously with the disappearance of the long distance signals. There was also a close agreement between the reappearance of "long skip" signals, and of vertical echoes, though, of course, the maximum or "critical" frequency of the echo signals was much lower than that of the first long distance signals to reappear.

Fade-outs of this character appear invariably to accompany hydrogen eruptions on the sun. On this occasion, however, the sun was heavily clouded, and it is believed that no visual observations were anywhere possible during the fade-out period.

In the week following this fade-out, an interesting effect, which, possibly, was fortitious, was noticed on the 28MC band. Throughout the period, the band was "patchy," but it was less so when the sunspot was on or near the sun's meridian than when it was near the sun's rim. There was a general improvement in conditions on the ten metre band up to about January 20, after which the band again deteriorated. During

the whole of this period, communication conditions on ten metres appeared to be fairly normal for distances up to about 7000 miles, but for greater distances the frequency was extremely unreliable. After January 20 a deterioration of conditions set in, and continued progressively until January 26. On the afternoon of January 24, there was another complete "fade-out" of even longer duration than that of January 16. It began about 14.00, and, according to information received by the writer, persisted until about 17.00 Australian eastern standard time. This fade-out definitely accompanied a large solar eruption, which was observable. No opportunity was available here to make any observations on the 10 metre band.

Another effect of considerable interest, possibly associated with the eruption on January 24, was observed on January 26. On that day, throughout the whole of the morning and early afternoon, no signals of any kind were audible on the 28MC band. This is the first occasion, to the writer's knowledge, since September, 1936, on which the band has been wholly closed to signals from America for the whole of a day. It was learned subsequently that the echo record at Mount Stromlo on this day revealed quite normal ionisation conditions in the E region, but an unusually low ionisation density throughout the day in the F region. The day's record was described as a wholly abnormal one. Throughout the day, signals were observable on frequencies up to about 17MC, apparently provided by the E region ionisation, but the non-appearance of signals on 28MC seems to suggest clearly that these are not normally propagated from the E region, but are dependent on F region ionisation.

It is interesting to observe that the complete fade-out of the ten-metre band for the whole of the morning of January 26 coincided almost exactly in time with an unusually brilliant display of the Aurora Borealis in Europe. The correspondence may have been fortuitous, but it seems probable that both were associated with the solar eruption and the "all bands" fade-out on January 24. It has already been well estab-

lished that auroral displays frequently follow intense solar eruptions, generally by a period between one and two days. The time of the auroral display referred to, and of the simultaneous failure of the 28MC band, is in good agreement with this experience.

A fade-out which occurred on the morning of February 3 simultaneously with the eruption of a minor sunspot provided still further evidence of the importance of ionisation in the F regions, rather than the much lower E regions as the mechanism of propagation of 28MC signals over long distances. The writer was not able to observe the beginning of this fade, but observations made in the middle of the fade period showed that signals from North American stations on the 28MC band were reaching Australia at just audible strength. No signals could be observed on the lower frequencies. He was informed that the echo record showed a complete disappearance of ionisation in the E region, but traces of ionisation in the F2 region with an abnormally low frequency for penetration at normal incidence persisted through the period. The fade-out began to pass about 93.0, and as in the case of that on the morning of January 13, the period between first signs of improvement and restoration of normal propagation conditions on 28MC was about 30 minutes.

American reports revealed that no signs of this fade-out were noticed in the Eastern States of America, and that normal communication was permissible throughout the period of disruption in Australia over paths within the North American continent. This result agrees generally with that in the major fade on January 16. Solar radiation over the North American continent during the fade would be oblique and therefore less disturbing in its effect on the ionosphere than over the Pacific Ocean.

Taken generally, the results seem to have a slight bearing on the possibilities of five metre communication over extra optical distances. They do not seem to disturb the

(Continued on page 17.)

# Air Raiders Column

3VB.—Say, O.M., how do you expect to raise your DX with a lousy A.C. signal like that? Besides, it's wandering all over the band; better put a weight on it, or else use an xtal.

3ZP.—It's time you got rid of that piece of rock that's about 8 KC. outside the 14 MC. band. I've yet to hear you work anything with it.

3JB.—You have a 449 harmonic on 14 MC. Thought you were a bit of DX at first, and wasted time waiting to call you.

3LX.—Not satisfied with putting out rotten fone sigs., he goes and shorts out all filters, and comes on with a note that sound like a "raspberry." I heard W8AIE give you T7X; he was generous! You must have a swag of screw drivers there, O.M.

5GM.—"The whistling baritone," you ought to hear him giving us the whistle before calling CQ, and in the background can be heard female voices. All this on 14 MC., too! Try some canary seed, O.M.!

3KC.—Wot a beautiful ripply, splashy note this guy imposes on the air. Sounds like a self excited rig used by Noah! It only takes up about 20 KC., and that's saying something. You want to modulate now, O.M! Ahem!

2AHA.—Has a O.C. xtal note, these lousy guys who think they can cut a

a few decent T9 sigs. out. These A.C. sigs. seem to be the craze for 1938; suppose these outlaws will be back to the old "spark" coils next year! Lawd help us!

4DO.—Nice T9 sig., O.M., but a bad tail on it, cut it off.

3FM.—Using fone on 7 MC., and by the sound of his speech, the mike must be an old P.M.G. job filled with coke. What a big difference in your fone and 3AS's. Next time you QSO him get the low-down on good fone!

2AGU.—Has distorted fone sigs., probably over modulated, nearly as bad as 4JU and 3LA! What say, O.M.?

I haven't been so active this month owing to pressure of business, but I have written some dope on dummy antennas, published next month, and I'd advise all you fone fellows to have a good read, and act accordingly! What the use of pumping out records. You may get a kick out of it; nobody else does! Also, if you want to talk to yourself, use the dummy, because nothing sounds worse than some guy talking to himself, 1, 2, 3, 4, etc. They say it's the first sign--of course, I could be wrong. Anyway, I'll be seein' yuh!

73.

"AIR RAIDER."

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## Arrangements for 14th Annual Convention Sydney, 1938

All Divisions of the Institute have now notified F.I.Q. of their delegates.

The following are the delegates and the approximate date of arrival.

Western Australia, VK6GM, G. Moss, 4/4/38; South Australia, VK5MD, E. Z. Barbier, 10/4/38; Victoria, VK3UK, V. Marshall, 3/4/38; Tasmania, VK7JB, J. Batchelor, 11/4/38; Queensland, VK4AW, A. Walz, 13/4/38; and from New Zealand, ZL2OV, L. G. Petrie, 8/4/38.

Other interstate visitors definitely include VK5JT, VK3WH and VK4WT, and we expect a few others.

The final programme of the convention has been arranged by the N.S.W. Division in collaboration with F.H.Q. and should provide the delegates and visitors with varied and interesting entertainment, the programme is as follows:—

**Tuesday, 12th April.—8 p.m.,** at Science House, Harrington street, Sydney, **Official Opening.** **10 p.m.** Delegates adjourn to first **Business Session.** Roll call and minutes of 13th Annual Convention to be read. **11 p.m.,** adjourn session.

**Wednesday, 13th April.—8 p.m.,** N.S.W. Division Annual Dinner.

**Thursday, 14th April.—5.30-7.30 p.m., Business Session.** **8 p.m., Final Session of World Radio Conference.**

**Friday, 15th April.—Delegates free all day.**

**Saturday, 16th April.—9.30 a.m.—**

**12.30 p.m., Business Session.** **2 p.m.—5 p.m., Business Session.** **8 p.m., Theatre Party.**

**Sunday, 17th April.—Sports day, Wyong.**

**Monday, 18th April.—9.30 a.m.—12.30 p.m., Final Business Session.**

Everyone in the Institute who has the well being of the body at heart must appreciate what this Convention will mean to the W.I.A. A delegate being present from each State provides the Convention with a power that it has not enjoyed for many years. Proxies at any time are unattended previous conventions well know the exceptional value of direct representation. The Institute has an opportunity at this Convention to consolidate its position as guardian of amateur radio in Australia. The visit of the New Zealand representative also provides an opportunity of closer co-operation between the W.I.A. and N.Z.A.R.T.

The social arrangements are being made by the N.S.W. Division and visitors upon arrival in Sydney should ring either W. J. Ryan, VK2TI, at W1263 or FX3305, or H. W.S. Caldecott, VK2DA at M.A. 6381 or Y.U.1039 and they will supply them with any information re the arrangements, etc.

The agenda items have been received from all Divisions and have been forwarded back for review to the Divisions.

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## Correspondence

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The Editor "Amateur Radio."

Dear Sir,

I am an old timer at the ham game, and still very interested—but I am sorry to say of late it is not a hobby one could be proud of. It seems to be just a habit and not to be compared with the years of 1920-1927. It is nothing unusual to read in our worthy mag, "Amateur Radio" about a new ham using a 6L6 driving a '45 or a 6P6 and a hertz antenna, works a few Yanks the first time on the air. Marvellous! Well, the whole thing is too simple, no effort to try something different on the lines of 1920 when the only valves obtainable were triodes and antenna one usually guessed and they did work. I can't understand why some of these so-called hams don't try and use such valves as '47 or '10 or '46, and, in fact, they will say they have never heard of such valves. Of course this idea will be laughed at, but are we not supposed to be experimenters? Why not get off the beaten track? In the course of some conversations with old timers this subject was mentioned and in a sort of a way their views were in accordance with the writer's and I do know that quite a few have given up ham radio because of the follow the leader style. It is pitiful at times to see some of these hams when Class "A" in a P.A. in transmitter is mentioned to them and they tell you that there is no such thing. Speaking of triodes Type '10 the writer knows of at least three broadcasting stations that still use '10 but of course not in Class "A." Another amusing subject is keenness to get to the 'phone and when on 'phone the key is hardly ever used. In fact the writer overheard a remark from a 'phone station that he had thrown his key away! Being interested in 'phone work I listen very carefully to this subject and the queer ideas of voice transmissions is certainly disgusting and in fact about 95 per cent. want to learn elocution. What about the W.I.A. forming a class for the subject? Quite a few forget to open their mouths and when they do all we hear is—my

handle is or hokey doke, come in someone and what say someone. It would do them a world of good to listen to some of the 200 metre "gang" and take a lesson from them. This idea of six months probation is too short and should be twelve months and then to be examined in the method of using fone. As for 'phone transmissions both voice and musical tests—to my mind it takes a lot to beat the "boys" on the 200 metre band.

"OLD TIMER, 1919."

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Comley Vale, N.S.W.,  
16/3/38.

The Editor "Amateur Radio."

Dear O.M.,

Once again I ask space in your f.b. mag. to say something about the growing pirate menace. These "low-heel" fellows are not satisfied to work VK, but have to go in for DX in a big way. It must be very hard for a DX man who works a pirate for his first VK. I for one am receiving QSL's from DX countries re Q.S.O.'s worked by a pirate and I am not the only one. It costs me considerable money returning these QSL's to the senders for if I don't it means discredit to my call sign. To QSL DX worked by pirates is not playing the game. I am not the only victim—many other chaps suffer also. Usually fone is used by these pests, but in my case R.A.C. CW! In my opinion the pirate who, knowingly, uses a licensed call to cover his filthy deeds is low enough to crawl under a snake with a top hat on! I recently QSO'd VK2AHC 3.5mc and VK2AIP 7mc, both of which I believe were pirates using licensed call, as, when asked simple questions for confirmation of their licence, they could not answer. I also understand VK2AHI was used by a pirate. I have also been called by 2AND, 2AZF, 2AZR, 2ALG. I returned the call and sent QRU, the usual signal pirates get from here. It is surprising how many licensed hams answer these calls; surely they speak for themselves and

(Continued on Next Page.)

## Victorian Northern Zone Phone Section

By VK3PS.

February 27th was the day appointed for a Victorian Five-Metre Field Day, and arrangements were also made for the northern VK7's to be standing by. A good muster of stations kept on the job all day, but the results could have been better.

The palm for keenness must go to 7AB-7QZ and 7BQ and his second op. Jack Hopwood. Both of these groups took up their respective positions on the Saturday, and although the former, accompanied by 7AB's YF, slept in shelter, the latter slept under the stars, and both parties were at work at 0600 preparing the gear.

7AB contacted 3PS on 40 metres, as scheduled, at 0930, and these stations maintained hourly contact on that band during the day. 7BQ did not take 40 metre equipment with him, but telepathy must be associated with radio, for during the afternoon 3PS chanced to turn on the 40 metre receiver to hear 3EN calling him. The latter had a message that 7BQ wanted to contact on 40 metres. This was done, and it was learnt that, not having success on 5 metres, 7BQ had built a 40 metre transmitter, using spare parts and VIR for coils, and was putting over quite good phone at about R5-6.

On five metres 7AB was using a 4 stage crystal job with 100 watts C.W., 80 watts tone modulated and 30 watts phone, but unfortunately his signals were not heard in VK3, nor did he hear any signals except from 7BQ.

Of the VK3 gang, the 3VH-3JO combination at Mount Donna Buang put up the best performance by working 30T at Mt. Tarrangower over 103 miles and 3BW at Portarlington. They also heard all other stations that anyone else heard.

30T again heard 3OF from Foster, 164 miles away, and on this occasion at better strength than on the previous field day. Unfortunately Frank (3OF) had a new receiver which had not been properly tested and he heard no signals at all.

3DH once more took up a position on Mt. Dandenong, and carried out

interesting antenna tests with 3UK, 3PS and 3VH-3JO.

3BW went to a high point near Portarlington, his home town, and worked 3ML, who was mobile in Queenscliff district, and 3VH-3JO over a distance of 64 miles. He was also heard in the metropolitan area by 3PS, but did not work him. We hope that we shall hear more of 3BW and that he will have regular contacts with the city on 5 metres.

3ML was trying out various locations around the Queenscliff district; very little was heard of him, and he worked only 3BW. Nothing was heard of 3XW at Arthur's Seat, 3UH at Kinglake and 3HZ at Warragul.

Of the metropolitan stations, 3UK and 3PS were on all day, and worked 3DH and 3VH-3JO only of the portable stations. 3OJ was on at times under his own call, and also from 3JO's home station, and 3XM was also about at times. Although not taking part in the field day, 3JD, 3ST, 3FB and 3ZW were also heard on the band.

As the summer is practically over, it is unlikely that more field days will be held for about six months, but the five-metre gang will be busy building and testing better equipment for future tests, and in his last contact with 3PS, 7AB said that the Launceston gang would be organising further attempts to contact VK3, and the Victorians will be only too glad to co-operate in any tests that the VK7's suggest.

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### CORRESPONDENCE (Continued)

2ALG uses fone. A simple question sent about 15 w.p.m. bowls them over. If any ham working me is asked to supply proof of his licence he will understand why. Of course we have the other sort of pirate, the legal one, the second operator without an A.O.P.C. It is about time this practice was stopped. Any fellow desiring to obtain his certificate need not have the illegal use of someone else's station to do it. If we allow any fellow on the air without an A.O.P.C. why have any exam at all? Well, what about it, chaps, you who have had your calls used by these pirates?—Yours for radio,

LES. S. C. TANNER.  
V.K.2ABL.

## 28 and 56 M.C. Notes

By A. Pritchard (VK3CP)

Conditions on ten metres indicate two rather definite skip distances, and often show a short skip for a few days, then a long skip correspondingly. These conditions give bad phase distortion on many r9 plus ZL phones—being especially pronounced on ZL4GM. Phones from the States are r8 the first over, and in many cases completely fade out by the next. The Europeans have shown up in large numbers, as we expected, and the band is very interesting at present. VU2FV, VU2AU and VU2CQ have excellent sigs.; the former has had many r9 phone qso's with 3BQ and 3YP during the evenings. The A.R.R.L. cw contest has brought many Central and South Americans to 10 metres, although unfortunately for us they are only qso W. LU9AX and LU7AZ were r9 at 3YP on 12th March at 8-9 a.m.; also HK3JA at 9.45 a.m. the following morning. At 3BQ, PY3BP was r8 at 8.30 a.m. on the 13th March. Many others qso W are OA4J, LU9BV, LU5AN, K4KD, PY2AC, PY5AZ, CO2JV, XE1A, XE1AM, HK1JB. The rotary beam at VK3BQ is giving excellent results and Max has had many fine qso's as the following list shows:—OK2OP, OK2RM, OK2PY, YM4AA, OH7NC, G6DH, G2HX, also ZH6S and ZS1AN, the former with a T20 final and the latter a T55, both using 66 foot Zepps. ZS6AJ and ZB1C are on the look-out for us between 6 and 7 p.m. each evening. At VK3YP Patto has been hearing some rare ones—LU4EL, 28150 kc, LU3AX 28180 kc, YV5AA 28250 kc., also a two-way phone contact with G5VM on the 20th February at 10.15 p.m., r7 each end. At VK3CZ Arthur has made changes, and the line up is now EL3 tri tet 40x, 807 doub, 10 mx driving the 800's. On phone the final is run class BC (cathode bias, no by-passing condenser, and external bias, giving twice theoretical cut off). The modulator has a D104 xtal mike into a 57, 56 and 2A5. An 8JK flat top beam is also in operation on the States—25 deg. N. of E. VK3NW is

also on 10 with a rotary beam similar to 3BQ's. W6NWK is an interesting phone, being a portable mobile on board a boat going to French Indo China. He was qso'd here at 3CP when 1700 miles west of Honolulu; his 16w input final, a 6L6 co, 6L6 PA combination giving r8 phone; the modulator has a 6N7 class B; antenna is a single wire to the top of the mast and his sigs. were r8 at 3.30 p.m., Sunday, 13th March. Evidently there are a few Japs left! J3FJ, J2KN, J2IM being in the cw contest; the former is r8 at 11 a.m. during the week-ends. K6LCV, our most consistently r max phone, 2000V. at 400M, finds at 1KW input his EO1 feeder cable exudes tar and molten rubber. Hi! A Johnson Q is ready for erection. W1EMP at Walla Walla has been giving 160 metres DX to VK's, re-broadcast on 10 from many up to 400 miles distant. KA1AA and KA1YL are good contacts for 10. Sunday, 13th March, G6MC, OH5NF, OE3AH, LY1J had exceptional strength at the VK3's and were easy contacts. We have heard several VE stations lately—VE4RO, VE5GQ, VE5QP, VE3HP, VE4AW, VE4GD, VE4ZC, VE1BT have good strength around 7.30 a.m. K7FNE and K7GDL are excellent phones, also a few more K6's, K6NTV, K6PLT. VK4HR was heard here at 3CP at midnight, 13th March, at good strength, which is unusual at that time. VK2TI, 2VN, 2NY, 2ADE—T5 note (?), 2UI, 2RA appear to be doing well in the contest by the number of W's calling them, as well as VK3IW. The last 5 mx field day gave some powerful sigs. from VK3UK, 3PS, 3LL and 3JO. The UHF notes will probably give all the details. Flash, Tuesday, 15th March, at 6 p.m., W6PBL, r7, W6UD r6, W6GK cw and W6CHE phone r6, 20 metre harmonics, showing very strange conditions. I would again ask all VK's in all States to send me information regarding their tests, etc., because unless the skip is very short a contact is not easy on 10.



(Continued from page 10.)

view widely held in North America, that abnormally strong ionisation in the E region may occasionally enable the transmission of signals on the ultra high frequencies over distances about 500 miles to 1000 miles. The strong evidence furnished that the existence of a refracting medium in the F regions is essential to trans-oceanic communication on 28MC, even though lower frequencies may satisfactorily be propagated over similar distances from the E region, would seem to indicate quite clearly the importance of F region ionisation in any attempts to span the oceans on five metres. The success of such attempts can apparently only be expected when the ionisation density in the F regions is great.

(Continued from page 7.)

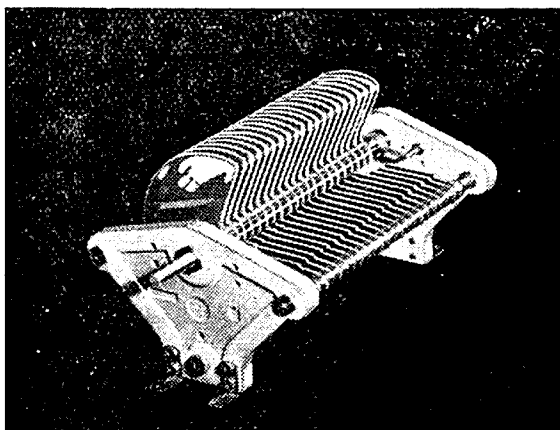
- C, C5—Radiokes MC1.
- C1, C7—23 plate Midgets.
- C2—.0001 Mica.
- C348—.01.
- C6—7 plate midget.
- C9.—2 50mmfd. Isolantite Midgets ganged.
- C10.—.002.
- C11.—100 mmfd. double spaced.  
(See text.)
- Nc.—7 plate midgets.
- R.—100,000 Ohms 1 watt.
- R1—25,000 Ohm Voltage Divider.
- RFC—Radiokes 3-21 type.
- RFC1—Midget Radiokes Choke.
- RFC2—6 turns 14 T.C., stretched out to 1½ in., 3/8th in. diameter.
- SW.1—5 amp 240 volt switch.
- SW 2, 3—1 amp 240 volt toggle switches.
- Torch lamp fuse, 6 volt 40 ma
- Cycle tail light bulb.

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 F3145 (6 lines).

## QSL Bureau

(R. E. Jones, VK3RJ, Federal QSL Manager.)

The address of the Swiss QSL Bureau has been changed to U.S.K.A., Bern, Switzerland.

Through an error in QST confusing Austria with Australia, many VK cards enjoyed a trip to Austria, adding to the work of Willie Blascheck, the Austrian QSL Manager.

Bob Winch (VK3OA, ex VK2OA) has forsaken the salt atmosphere of Flinders Naval Base for more pleasant surroundings in South Yarra.

Gordon Weynton (VK3XU), of Castlemaine, reports an average increase of two R points through the use of a flat top Beam on U.S.A.

W5FSW (Robert Beaty, of Okla. City, Okla.), is keenly desirous of receiving a VK QSL. Though he has had many VK contacts none of his cards have been acknowledged.

Despite the intense local QRM, VK3GP has increased his DX total to 117 countries. This tops off VK3CX by one country.

The VK2 division have drafted and distributed a new and complete set of rules governing the VK2 QSL Bureau. This should result in a smooth and expeditious handling of QSL traffic and lighten Jimmy Corbin's labours. Other alterations avoid the fear of further threats of "legal proceedings" for the detention of cards. Hi!

Melbourne hams look forward with pleasure to meeting Ken Ran-

kin (VK3KR) at his new post with A. G. Healing Ltd.

XU7CK, writing under an unintelligible signature, states: "It gives me great pleasure to say that I am living in a quiet and peaceful city, with no hostilities." He kindly offers to help QSL distribution in China during the troublous times, and his QRA is Tai Ping Shan, Foochow, China.

Many cards of appreciation have been received from U.S.A. during the past months. This indicates that the distribution facilities are working well in that region.

A few recent callbooks are on hand at bargain prices. Write the QSL Manager.

With the change in the season, the Jones bath heater is demanding more fuel. Failing a claim by April 20th cards for the following will supply a few thermal units:—3BL, BS, DS, DU, ES, EZ, FM, FN, GB, HT, LS, NT, OX, PA, QM, RE, TQ, UF, UJ, XG, ZO.

Cards for the undermentioned VK3 stations will find a home on receipt of a stamped envelope:—3AB, AP, AT, AX, BE, BJ, BN, CA, CC, CH, CU, CV, DJ, DQ, DT, EA, EK, FA, FT, HB, HE, HP, HZ, IL, IR, JM, KM, KP, KY, LH, LI, LV, NA, NB, NG, NF, NE, NP, OU, PN, QX, RQ, SO, ST, SZ, TB, TC, TG, TY, US, VM, VK, VQ, VY, WH, WR, XA, XD, XE, XZ, YA, YF, YG, YM, YS, ZF, ZG, ZJ, ZW, ZZ, Craven Dyson, Treloar, Silverwood.

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## DX Notes

(By VK3MR.)

All is quiet on the Southern front. The tumult and the shouting has died; in other words, the A.R.R.L. dx test is over! Our dear Editor seems content at last, although judging by the gleam in his eye and the way he grips his pipe between his strong white teeth someone is in for it, so it may turn out to be the calm before the storm. After all, I think I will put him on to some of you guys that promised to drop me a line and forgot all about it!

When an interstate visitor drops into a meeting of the W.I.A., the first question asked by some wag is, "What does he think of our beer?" The next question as a rule is, "How do conditions compare with those at his own qra?" He goes on to bemoan the fact that he can hear such and such a station working some rare dx stations, and he cannot even hear a sign of it, etc., etc., making out, of course, that conditions are different in each State. Are they? If so, when, where and why? Do certain States only hear the dx a bit sooner than the others, and these other States work the same dx a little later? Or is it so that some of these rare dx sigs. rarely wander into the rxs of hams in these States? How are you going to prove this problem without years of investigation on your own? With a little co-operation between States we can clear this matter up for once and for all time. The main two continents that cause all the trouble are S. America and S. Africa. Now the idea is this—if a careful watch is kept by several hams in each State on 14mc to start with, from about 7 p.m. E.S.T. to midnight during the week days and from 3 p.m. to midnight Saturdays or Sundays and a special watch for the South Africans after midnight at least one night a week, and all this be sent to a State representative who will analyse it and pass it on to me for final check, then we will have something to work on, and the chaps in Hobart will know that perhaps their rxs are not the best, or the S.

Africans that were reported in VK2 at such a date and time were not audible in the south of Tasmania. Also the VK6's on reading that a whole pack of LU's or PY's were heard and worked on the east coast will be able further prove that they are in a real bad spot. VK4RF will act for VK4 and VK2DG has offered to the job for the "coal lumpers" (I'm sorry om, I forgot you worked in the flour mill!). Hi! Anybody interested please drop me a line. Then there is the most interesting question—Why? That's another story.

Contests.—All band cw test just over has produced a contest winner in VK5 (nothing ever happens over there!) Joe (5JT) claims a score of 1120 points, which is a fine effort, and overshadows that of 7AB, who was considered the winner. Joe, OM, what did you work to get that score? BERU Senior: Only scores to hand are—4BB, 780; 4YL, 700; 2TF, 620. What did you get, Ivan? Out with it, so as we can congratulate you on winning the trophy for keeps. 4BB well up, as to be expected in the Junior with 700, and 2HZ and 2VN had a battle which ended in 2VN beating 2HZ by 32 points—2VN 549.

Very few scores to hand from the big battle of brass. 2ARE seems to be well in the front with some 50,000 points. 2TI has 391 contacts in 34 dists. Anybody work over 650? (3MR enquiry).

DX.—The BERU was responsible for some real rare stations such as the following reported by 2DG — VP1WB, 14400 kc. T8 chirpy, and VP1RB. Send cards to Box 80, Belize, Bri. Honduras. VP2AT 14400 T, and VP2GA 14300 kc. Here's a rare one, VO3X, 14410 kc, T9 very consistent, and VP9L 14390 kc. Makes me wish I was in the test! Is CR10ZS the correct call? Some report it as CR10WES. Three cheers, 3CX has at last landed a YR! He

told his YF to go to!!!—bed, and he stayed up after 10 p.m. and risked domestic discord to do it. All for the sake of science! The novelty of married life must be wearing off now, Alan! Once again I ask, how many can beat 3CX for number of countries? His total is now 115. 73 to all. Snow.

### New Valve Releases

Amalgamated Wireless Valve Company Pty. Ltd. have announced the following new valves and advised that stock is available of type 1612 non-microphonic all metal pentagrid amplifier.

**Radiotron 884.**—Gas triode similar in electrical characteristics to 885, but having a 6.3 volt heater and an octal base.

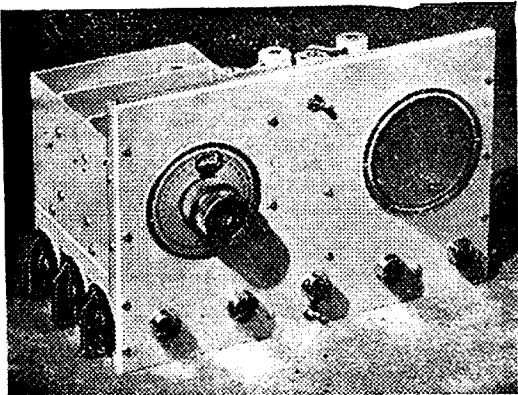
**Radiotron 1801** “Kinescope” or cathode ray tube for television. This tube has a screen diameter of 5 inches and gives a yellowish picture. Electro-magnetic deflection is employed.

**Radiotron 814.**—Beam power tetrode with 50 watt plate dissipation suitable for transmitting purposes.

**Radiotron 6ZY5G** is an indirectly heated full wave rectifier with a total heater current of .3 ampere at 6.3 volts. It is suitable for use in automobile or 6 volt battery receivers and is intended for use, particularly with non-synchronous vibrators.

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## Divisional Notes

To ensure insertion all copy must be in the hands of the Editor not later than the 18th of the month preceding publication.

### N.S.W. Division

W. G. Ryan, Secretary, VK2TI,  
Box 1734 JJ, G.P.O., Sydney.

#### Country Zone Officers.

Zone 1 (Far West).—J. Perooz,  
VK2PE, Hope Street, Bourke.

Zone 2 (North-West).—H. Hutton,  
VK2HV, Byron Street, Inverell.

Zone 3 (North Coast).—R. J.  
Berry, VK2NY, 54 Bacon Street,  
Grafton.

Zone 4 (Hunter River and Coal-  
fields).—R. W. Best, VK2TY, 57  
Hunter Street, Newcastle.

Zone 5 (South Coast and South-  
Street, Albury.  
West).—R. Ross, VK2IG, 673 David

The Division's financial year ended on February 28th, and the annual report shows a very satisfactory state of affairs. During the past two years membership of the Division has increased 75 per cent., and the finances have improved by nearly £40 since February, 1937, excluding the State Government's grant of £100 for the 1938 VK-ZL Contest.

Members of the Division have been active in all phases of amateur work, and generally the year has been most successful.

At the February general meeting, Mr. G. Beard described the transmitters and collapsible aerials designed by him for portable use in the Railway Department's service trucks patrolling H.T. transmission lines.

A member of the Divisional Council—Mr. H. Meyers, 2VN—has ac-

cepted a position on the Federal Executive, and Messrs. Corbin (2YC), Knock (2NO) and Pinnell (2ZR) were unable to accept nomination for re-election this year, so that there will be several new members in the 1938 Council. The above gentlemen have rendered splendid service to the Division in the past, and it is to be regretted that they cannot continue as Council members. The election of officers for 1938-39 will be held under the new system of ballot decided on at the last meeting.

Few of the Sydney hams took much interest in the W-VE Contest, but 2TI (41,000), 2RA (34,500), and 2ADE (score not known) have made a very good showing. 2QL and 2NY were also active.

In spite of the warning of the A.R.R.L. against off-band operation and bad notes, quite a few participants were guilty of these offences. This is particularly unfortunate in view of the imminence of Cairo.

2RA heard VK4AW, 4HR, 5KO, 6FL, 6SA on 28 mc., and wants to know why they weren't audible in the I.R.E. Contest!

Conditions generally seem to be improving, and the prospects for DX are good on all bands.

We are looking forward to meeting the interstate delegates to the W.I.A. Convention, and hope that their stay in N.S.W. will be an enjoyable one.

As Mr. H. Peterson (2HP) will be unable to attend the Convention, this Division's delegate will now be Mr. W. G. Ryan (2TI).

## Victorian Division

### COUNCIL NOTES.

Meetings of Council were held on 8/3/38 and also 16/3/38. In order to lessen the burden on the hon. treasurer's shoulders it was decided to appoint a separate treasurer for "Amateur Radio" and also an assistant treasurer for general divisional activities.

The second meeting of Council was devoted to discussion of the various items on the agenda for the Federal Convention.

### KEY SECTION NOTES.

(By VK3HK.)

Our March meeting was very well attended and ended with interesting lectures on portable 56mc gear and antennae for 14, 28 and 56mc. Well, here's some doings from the boys.

**2BQ.**—A new xtal-saw is well on the way, also new freq. meter and multi vibrator. Antenna is now two  $\frac{1}{2}$  waves in phase rotating, up 40 feet and brings R4 carriers up to R9 when swung into correct position.

**3CL.**—New recvr already has come down to 28 mc for good. Too much bedlam on 14 mc.

**3IW.**—Now finally pacifying the bcls and working a few on 28 mc.

**3UM.**—Fed up with 7 mc QRN so down on 14mc. working some dx, hi. Also rebuilding freq. meter.

**3ZU.**—Still on 7mc with qrn and keeping w's out of bed.

**3ML.**—Busy planning 56 mc xtal portable rigs.

**3KR.**—Changed gra. Active on 7 mc only.

**3UH.**—Just installed 100 kc xtal bar for frequency measurement.

**3SQ.**—Swotting for B Class ticket.

**3YG.**—Ditto.

**3UT.**—Recently returned from VK2 where he was a competitor in the British Empire Games.

**3DM.**—Been off air for a while, but shortly expects to work dx if a tube for the final can be found.

**3RX.**—Has new W8JK beam on 14mc and worked ZS, ZB, SV, I7 and Yanks. He swings it once a fortnight to get a new batch of stations!

**3CX.**—Is on 14mc working usual dx. He is teaching the new locals to build "bugs" unfortunately.

**3MR.**—Has been in Tassie. Met 7YL and thinks YL's are fb. See the nice things she sez about you in Tasmanian notes.

**3ZY.**—Lighting lamps in doublet feeder on 15 watts. "Watts" in a doublet?

### PHONE SECTION.

(By 3CB.)

Usual attendance of the 200 metre gang and no slackening of interest. In fact, since the increase of power, transmissions are getting stronger and improving generally. Lectures are freely given and also descriptions of stations and at least every member does his duty by detailing his station or some feature of it for the benefit of other members. An interesting lecture was given by 3PA on his transmitter and system of modulation (Hawkins BC system) and was enjoyed by all.

Those who have heard 3PA's mid-day session will agree that it is a jolly fine transmission. At our next meeting 3ZB will describe and illustrate his short wave transmitter and anyone who cares to come along will be welcome. 3AM, now in Caulfield, and 3BY are both up to their usual standard, the former on increased power.

3RI likewise on usual late Saturday-Sunday transmission. 3ZB active on 20, 40 and 200, and excellent transmission. 3GY quiet. 3DH and 3HK active on all bands and 200 metres on Sunday. 3CB is increasing power to a 5 stage rig, but only gradually. 3FL has a moto-bike and is only on 80 metres with excellent Sunday transmission. 3FW is on with usual quality and strength. 3GK stronger with good quality. 3LN improving in strength and transmissions excellent. 3JR recently married but does not let this interfere with his usual excellent Sunday programme.

### U.H.F. SECTION NOTES.

(By 3JO.)

#### 56 mc Field Day.

Results of the field day held on 27th Febrtary are covered in an article by 3PS in this issue. Members of the section agree that another

should be held before the winter months, but no definite arrangements have yet been made. The Northern Tasmanian hams are also enthusiastic and will be considered when arrangements are being made.

## North Suburban Hams Interested in 56 mc.

In the past, most of the active 56 mc hams have been located to the south and east of Melbourne, but this order may be changed soon if the indications of activity reported by 3OF are realised. 3OF was asked to give a talk on U.H.F. work at a gathering of the North Suburban hams; 16 turned up to hear him, and 3XJ, 3ED, 3OG have already been on the air and reported by 3OT.

### 3DH Hears Push Bike!

Operating with portable gear installed in his car, 3DH, while participating in a 4 way QSO one Sunday evening, was carefully searching the band for one of the weaker stations, when he was amazed to hear a noise in the receiver coinciding with the passing of a push bike. This was caused by the lighting generator and was found to peak just outside the band and was audible only while the cyclist was within 15 yards. What next?

The monthly meeting is normally held on the third Tuesday in every month which, in April, is the 19th and the first Tuesday after Easter. Due to the closeness of the holidays this date may be altered. If this is done, the alteration will be frequently broadcast on 56 mc.

## COUNTRY SECTION.

(VK3UK)

There are three important matters to report this month. Firstly, regarding the Country Convention. As the Northern Zone organisation is further advanced than either of the other zones, they were anxious to have the first Convention held within their own boundaries. Thus they will be able to elect their office-bearers for the year immediately. However, as the Convention will be the first since the formation of the Country Section, it will be regarded more as a general Country Convention than as a Zone Meeting. For that reason Ballarat has been selected as the venue, so that it will be reasonably central for all Zone mem-

bers. The dates are the 2nd and 3rd April; a special dinner has been arranged for the Saturday night, to be followed by the business meeting. On the Sunday morning trips to the Ballarat Power House and the Studio and Transmitters of 3BA have been arranged.

In the Western Zone, 3HG (N. M. Templeton) has taken over the organisation and the position of Zone Officer. As an old and enthusiastic W.I.A. member, Neil is an ideal man for the position, and the Western Zone are fortunate gaining such an able leader.

Finally the Northern Zone Convention will be held during the weekend of 14/15th May at Warragul. Full details will be given in the 3WI weekly broadcasts and in the next issue of "Amateur Radio."

## EASTERN ZONE NOTES.

(By 3DG-3PR)

3BR.—Last heard tuning up mo bike for VK4 hike.

3DG.—Rebuilt recr, xmitter next, getting it in trim for 80 mx when condx come good again.

3GO.—Graham busy with a pair of 45's in PP, so will make a decent noise when going o.k.

3IL.—Come on Bob, why the long silence? Writer looking for another of those fb chin wags with you.

3JZ.—A new Ham. Has not been heard as yet.

3LY.—Ron seen dusting up the rig, is that a sign of a comeback or have you lost something Ron ob?

3QB.—Has not been heard lately, Jack, must be hanging off until condx come good by the look of it.

3SS.—Keith getting rig tuned up on 80 mx when condx come good again. He is also going to VIS shortly we hear.

3DI.—Still talking of going QRO, but as yet no start has been made.

3EA.—Not heard lately.

3WE.—Bill is fed up trying to work DX on 20 so is back on 80 and 40 mx.

3HZ-3XZ.—Guess B Class station 3UL keeps these boys busy as have not been heard of late.

3PR.—Ragchewing on 40 mostly.

It is hoped to hold the Eastern Zone Convention at Warragul on 14th and 15th May. Full info. next issue.

## NORTHERN ZONE.

(3ZK-3HX.)

Conditions on all the bands during the past month have been far from good. Static is very prevalent, due, no doubt, to the change in the seasons. 20 mx displays some dx in the afternoon and in the early morning.

Zone affairs are moving slowly along but with the Convention at the end of the month, and the section firmly established, intense activity will take place in this zone.

3TL.—Acting as key station for the zone skeds on Sunday morning does an excellent job. Treb's fone has improved wonderfully of late.

3BM.—Plus CQ machine Jean has been active mostly on 40 mx skeds with KR. Bruce has a new high frequency rig which he hopes to have in operation soon.

3OR not particularly active, but is heard active on 40 mx. Murray won a bet with 3KR.

3EC has replaced his 210 final with an E406 with excellent results, and first class fone. Working on 40 and 80 mx.

3KI is still living, but activity what, John?

3CE is heard occasionally, what about that V8, Roy?

3NN.—Herb has built a 40 mx rig and is getting the Amateur Battery Super.

3DW in Shepparton is not very active at the moment, but hopes to make a comeback.

3EP has been working a few Yanks on 40 mx c.w., and has built a cw machine which works FB.

3EF in Warracknabeal is on 40 mx fone with a strong signal.

2AHY in Balranald does an excellent job with 1½ watts on 80 mx. Formerly 3HP.

3DU better known as 3TC, is on the job with his portable outfit.

3XB heard on 40 mx with a very nice t9x note.

3TI of Mildura has a very FB signal.

3IH still with the same outfit but not very active.

3ZK has rebuilt his speech equipment, putting the resistors and condensers on strips. Jim reckons that he will find a new noise.

3HX has lots of ideas for convenience, but they don't always pan out.

Well gang, those listed above are only a few of the Hams in this zone, and we can't write about you if we don't know what you are doing, so let's know.

## Queensland Division

(By 4UX.)

4NO has joined the ranks of the record grinders. Quite a surprise, o.m. Good stuff too.

4AB still manages to keep going on 40, very keen on jazz, hi hi. Wat'sa Ramsay.

4TY is back on 40 with tons of DX to yarn abt. Makes me feel very envious.

4RX es 4FE trying to convince present scribe that they have two quarter waves in phase. Still unconvinced, Arthur and Ron, hi! Said scribe promised to buy FE a much needed top set of teeth if he convinces me re his antenna.

4CD very inactive. Wat's wrong, Colin? Better buy a bomb and look for that ice factory.

4EC on 20 mx, still on wid 200 mx I believe. Rest of Rocky gang down on 20. 4PF very keen on W8JK beam. Writer thought it was a ship in port when seeing it first, hi!

4CL promises to make a noise in the near future on 40 with a pair of T20's modulated by 6L6G's. Don't be long, Joe.

4DO on 20 wen not QRL wid talkies. Has a vy fb rx. Yankee job.

4UX still going strong. Recently put a 38 volt battery on the rig and wid input of .19 watt got R 5/6 on CW from 4NO. Some QRP, hi. Rig refused to go when only 12 volts was applied to it, hi. Otherwise better QRP. Rig here, 41/41/6L6G. Modulation 76/76/6A6. Reiss mike.

Hrd the U gang on 40 a few nites ago during W/VE contest. Otherwise they are QRT as far as 40 is concerned.

4CW wrks DX galore on 40. Looking forward to being on fone. Vy fb fist to copy.

4RM. No news, but is mostly on 20. Watch up remarks chaps wen he's listening as he is a scribe also, hi. No YL's at my station now Bob, strictly a stag show, hi.



## South Australian Division

(By 5KL)

Members visited the Osbourne Electric Supply Works on Wednesday, March 2nd. Owing to the fact that the train left Adelaide on time, the attendance was small!

Mr. Pearn (5PN), who conducts the Countryman's Session on Sunday mornings, reports that 5BU is co-operating by relaying the programme on 80 metres. This will be for about three weeks only, due to lack of favourable reports on Sunday morning relays.

The same programme will be transmitted from 5BU on Monday nights at 8 p.m. Reports would be appreciated by 5PN.

At present 80 metres seems good, contacts with New Zealand are plentiful, with no static, or very little, for so early in the season.

You may be surprised to hear that 8TJ, who operates on 34.7 metres, is not an experimental station, and

anyone working him is infringing the regulations. In a recent chat with the R.I. we were also reminded that rebroadcasting of any type of broadcast station programme is prohibited. The P.M.G. Department will take action against any offenders, and views such infringements seriously.

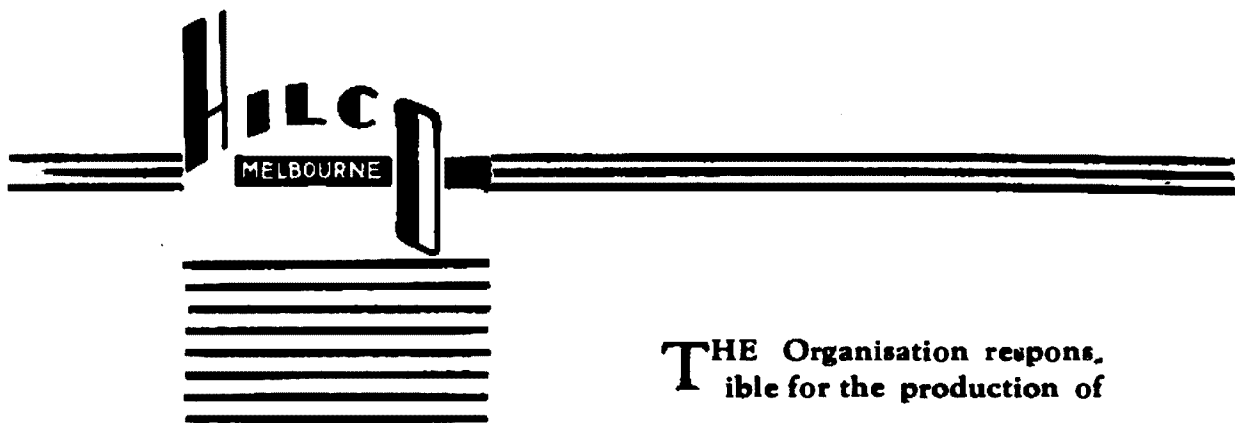
Now for some news that is news to all. Pitcairn Island is on the air! VR6AA, on approximately 14360 kc., makes an easy contact, as well as a new country (if you can get it!)

5FM is going to put up a Rhombic beam. Pete, seemingly determined to get out.

At Murray Bridge, Betty 5YL has now changed to crystal control with 10 watts input to a 38 oscillator and 42 p.a.

Stand by, boys, she will be on fone soon! VK5BF would give his bottom dollar, whatever that may be, to push a 5 metre sig. into Adelaide. (Why not put the rig on a push bike and keep pushing till they hear you, om? —3RX). Good luck, anyway.

Well, chaps, the end of the financial year is drawing nigh, and



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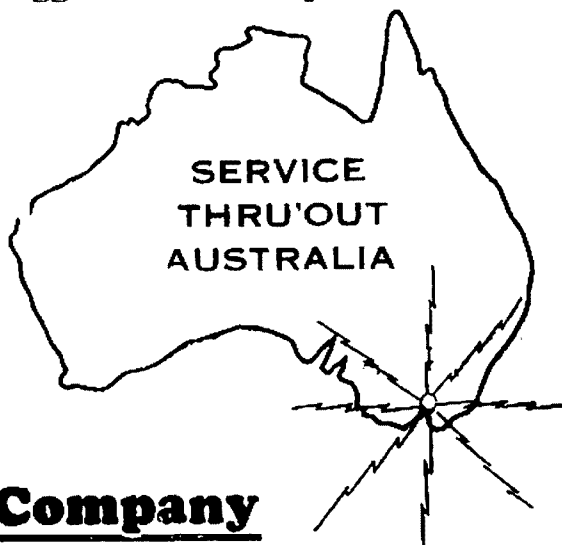
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## Amateur Radio

thoughts again turn to who will constitute the new Council and fill the padded presiding chairs at our meetings during the ensuing year. It is the duty of everyone to become financial, to nominate the best men for the positions, and to take part in the elections, with the fixed determination that whoever is elected will have your full co-operation and support.

See you all at the meeting.

### WAKEFIELD ZONE.

(By VK5RE).

5IV.—Roy has recently gained his commercial licence, and has been appointed radio postmaster in Northern Queensland. Congrats., and we hope that the change will be to your advantage—though we regret to see you go.

5LR.—Haven't heard a word from Jack for ages—let's have the doings, Jack.

5RE.—Very busy on the fruit and very little time for QSOing.

5BF.—Frank had some bad luck. First O.M. lightning visited him, at the expense of a valve or two in the receiver, and then 8 valves in the transmitter "blew up." Bad luck. But we are glad to see that you are still on with a 2-stager, and you're still grinning. That's the real "ham" spirit, Frank!

### BARKER ZONE.

(By VK5GW.)

5CJ.—Colin is rebuilding, and is waiting for the installation of 460 volts D.C. mains. The new rig is S9 E.C. oscillator, capacity coupled to a 6P6 P.A. The old rig was a 19 in a T.N.T., with about 6 watts input.

5BN.—Graham has 9 countries to his credit with about 15 watts input. Rig is E.C. 43 oscillator, capacity-coupled to a pair of 43's in parallel. Works from 200 volts D.C. mains on 40 and 20. RX is 6-tube superhet.

5TW.—Operator at 5SE. Tom uses a 45 in a Miessner circuit with 400 volts on the plate, from a rotary converter. Rx is 7-tube super.

5XR.—Heard with very F.B. fone calling CQ. Must have a punk Rx, Cam, hi! VK 4, 5 and 3 heard calling him, but Cam couldn't hear them.

5GW.—Building again. Is now trying to put three 6L6's together in an exciter unit while waiting for 5GR to build a 800-800 power tranny for final amplifier.

Glad to see Col. Bottrall, of Grey Zone, sticking at it. Hope to QSO soon, Col.

### GREY ZONE.

(By VK5WG).

5FB.—Frank is back from V.I.S., and active again. Glad to hear you, O.M.

5LC.—Les has been on holidays, and on return installed 8JK beam with excellent results on fone DX. Received a report on reception of his 4 watts, 40 fx fone from New York. With same power he worked KA7AP on 20 mx fone, using a full wave Zepp antenna.

5LG.—Leith getting out on 14 mc and nearly WAC in 4 hours.

5TL.—Our new member, from Ceduna, is getting out very well, too. If you want a good rag-chew, call Tom.

Mr. Col. Bottrall still busy with amplifiers.

From Country Members' Representative on Council.

Well, chaps, no change of Zone Officers to report. The same three good men and true will carry on for a further twelve months. Please help them all you can with news of your activities.

Will those country members who cannot receive the Country Session on 40 mx Sunday mornings, please listen for it from VK5BV on 80 mx Mondays at 8 p.m.

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## Tasmanian Division

(By 7YL)

The March meeting of this division was held on the 1st inst. "Pop" (7AH) presided, and the hon. secretary propounded the business for general discussion. It has been decided to hold a 5MX Field Day soon in the vicinity of Howden. I guess it will be 5MX History (?) by the time these notes appear in print. Anyhow, we intend to have a good time.

Later in the week the members of the council met at 7AH's residence to discuss the pros and cons for the agenda paper.

VK7LZ.—Doing a spot of dx in spite of recent sun spots judging by arrival of inward QSL.

VK7AB.—Congrats. on winning the I.R.E. Trophy, Doug; nice score. Guess you used up some aspros.

VK7RK and 7 KR.—Attempting to persuade Henry, 7HY, to instal a new "inspiration" in the shop.

VK7RC.—Recently visited VK3, and had a good time. Replaced the RK-20, Ron?

VK7DH.—Doing a good job as traffic manager. Beware of Snowy's (3MR) stories, Dave!

VK7JB.—"Buck" is greatly anticipating trip to Sydney as VK7 representative. Intends coming back via VIM. At present mourning the loss of a 50 tube. No flowers requested.

VK7KV.—Going musical—believe it or not. Wanders from bar to bar. Literary effort every month took a back seat.

VK7CM.—Now W.A.C. on grp. having raised long-awaited African during S.A.A.R.L. Contest.

VK7PA and 7AL — Gave QST Manager some work recently with big batch of brand new cards. 7PA temporarily absent from 200mx band.

VK7JH.—Nothing heard of Jack at Waddamana. What say?

VK7CL.—Now located at Devonport. On High School staff. Hear lots of dx calling you, Merv.

VK7QZ.—Working some choice dx with pair of Taylor tubes and numerous watts.

Nothing heard of 7LC. Probably new qra is affected by skip with VIH.

VK7YL.—Last heard calling 40 mx fone or cw on 20 mx. Any offers of a frequency meter?

Condolences to our Secretary, "Chum" Moorhouse, who is so busy he doesn't know which way to turn. Poor fellow.

VK7 was happy to welcome two VK3 hams in the persons of 3MR and 3CN (ex-7CH), the two "Snowy's." 3MR did quite a bit of constructive work and left many lasting impressions, including one dozen pea lamps at 7YL'S. Come again, Snow!

5mx transceivers operated by "Buck" (7JB) and Neville (7NC) considerably assisted the starter and judges in the aquatic events at the Royal Hobart Centenary Regatta.

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### TRANSMISSION SCHEDULES.

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APRIL, 1938.

#### VK2ME, SYDNEY.

Sundays.

Sydney Time.	G.M.T.
4 p.m.-6 p.m. ....	0600-0800
8 p.m.-midnight .....	1000-1400

Mondays.

12.30 a.m.-2.30 p.m. ....	1430-1630
---------------------------	-----------

#### VK2ME, MELBOURNE.

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Melbourne Time.	G.M.T.
7 p.m.-10 p.m. ....	0900-1200

#### VK6ME, PERTH.

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Nightly, Monday to Saturday (inc.)

Perth Time.	G.M.T.
7 p.m.-9 p.m. ....	1100-1300

---

### Radio Operator's Death — — —

WELLINGTON (N.Z.)

Known to many New Zealand and Australian radio amateurs as "Cousin Jimmy," who operated station ZL2JO at Ormond, Jimmy Parsons, died recently after having been crippled for fifteen years and blind for ten years. Though completely paralysed and without the use of his limbs, Parson devoted his life to radio. He was encouraged by his mother who turned the dials when required. Radio amateurs over a wide area donated money for parts for assembling a modern station which was operated under a licence specially issued by the Government.

---

### R.A.A.F. Reserve Notes

#### THIRD DISTRICT. (VK3UK-3ZI.)

During the vacation that V.M.C. is having, members have been spending more time on experimental work. The main feature of interest during the month was the 56 mc Field Day, in which 3D4, 3Z1, and 1A1 took part. 1A1 was the only one of the three who was able to get away for the day, and he, accompanied by 3WG, went down to Pt. Lonsdale. However, the other two were able to make some excellent contacts from their home locations.

The matter of forgetting Procedure easily came up a few weeks ago, when three members were discussing the Reserve in general. Hearing another member calling CQ on 80, they gave him a call to try and settle the argument. After sending him two messages and supplying "fills" in one of them all without an error in Procedure on either side the point seemed fairly proved, especially as the present vacation has been in force since before Christmas. Although some of the finer points may slip one's mind, Procedure, once learned properly, is not easily forgotten, and even over quite a considerable period of time, only a few hours' consistent work is necessary to restore full efficiency again.

During the month quite a number of country members have been down or passed through the city, including 3B3, 3C4, and 3F9. The Ballarat Convention early next month will provide an excellent opportunity for a discussion on Reserve matters, as so many town and country members will be attending.

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FEDERAL CONVENTION ISSUE

# AMATEUR RADIO



Published in the interests of the Wireless Institute of Australia, Official Organ of all divisions of the W.I.A. and R.A.A.F.W.R.

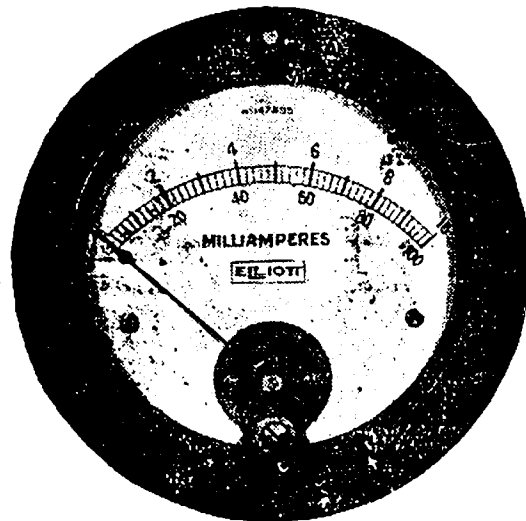


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# AMATEUR RADIO

Published by the Wireless Institute of Aust., Victorian Division.

Vol. 6 No. 5

1st MAY, 1938.

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All Communications and MSS. should be forwarded to the Editor, "Amateur Radio," BOX 2611W, G.P.O., MELBOURNE.

Subscription to "Amateur Radio" is 6/- per Annum (Post Free), paid in advance.

Should you not receive your copy of "Amateur Radio," notify your Divisional Secretary at once.

Advertising and Publishing Office: Address Publicity Manager, "Amateur Radio," Whitehorse Road, Box Hill, E.11. Phone: WX 2429.

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## EDITORIAL

Every member of our Institute is undoubtedly aware that the Federal Convention is being held in Sydney this month, but everyone does not know the special circumstances under which it will be held.

Some months ago the Institution of Radio Engineers (Aust.) approached F.H.Q. and mentioned that £200 was available to hold a Federal Convention during the 150th Anniversary celebrations, concurrent with the World Radio Convention organised by the I.R.E. This fine gesture of the I.R.E. was accepted and it was decided to finance the travelling expenses of a delegate from each state, plus a representative of the N.Z. A.R.T.

It is many years since we have had full representation from all divisions at a Federal Convention. Properly instructed proxies have been available, but to those who know conventions a visiting delegate is the only satisfactory medium for the transacting of business. With direct representatives attending this year from all States a unique opportunity is afforded the W.I.A. to consolidate its general organisation.

The personnel of the delegates also plays a big part in a successful convention; this year we are happy in our choice, a leading amateur from each State being available.

The N.S.W. secretary, VK2TI W. J. Ryan represents VK2; Vaughan Marshall VK3UK Victorian chairman of Council and Magazine Committeeman from VK3; the President of the Queensland Division from VK4, Arthur Walz, VK4AW; E. Barber VK5MD, late Federal Secretary, from VK5, while Western Australian and Tasmanian representatives respectively are G. Moss VK6GM, W.A. President, and J. Batchelor VK7JB, Tasmanian Q.S.L. Officer and Councillor. The New Zealand delegate is G. Petrie ZL2OV, late General Secretary and now President of the N.Z. A.R.T. The above gentlemen are named as official delegates and the Divisions can rest assured that their deliberations will be for the well-

being of the institute in general. They are all well-known amateurs and W.I.A. members and are competent to debate on matters pertaining to the game.

With 58 items listed for discussion, the most of their stay in Sydney will be taken up with business sessions, but besides that a suitable amount of time has been set aside to view Sydney during the celebrations.

The results and deliberations of the convention will be watched with interest by amateurs of the Commonwealth and we feel sure that with direct representation, with the personnel attending, and with the co-operation available, that the 14th Annual Federal Convention will be an outstanding milestone in the history of the Institute.

—The Federal Executive.

## The Men behind F.H.Q.

The Editor has, in view of the forthcoming Federal Convention, asked for a few pertinent remarks regarding the personnel of the retiring Federal Executive.

Since 1935 F.H.Q. has been located in Sydney and seven members have been co-opted on the Federal Executive.

These comprise Messrs. E. Colyer, 2EL; C. Bischoff, 2LZ; H. Caldecott, 2DA; R. Cohen, 2TF; P. Adams, VK2JX; M. Meyers, 2VN, and W. M. Moore, VK2HZ. The two first-named have since resigned, both having left Sydney. Neither one needs any introduction, both are renowned, 2EL for the speed of his dots, and 2LZ for the speed of his H.F. DX contacts. Both served in a number of positions on the F.H.Q.

The retiring personnel comprises 2HZ, President; 2JX, Vice-President; 2DA, Secretary; 2TF, Treasurer, and 2VN, Traffic and Publicity Officer.

Meeting every Tuesday and oftener when the occasion demands, business generally takes the last two hours, the first half hour being a free for

all regarding conditions or what have you.

The Federal President, W. M. Moore, 2RZ, endeavours to keep order, he has a slight advantage insofar that he weighs as much as any other two members put together. An 830B or 210 p.a. is his method of disturbing the ether and at the moment he has a flair for rotating beams. When not worrying about the W.I.A., he worries about concrete for the local Water Board.

The Federal Vice-President, P. Adams, is chiefly known as an astute technical man and assumes the role of technical adviser to F.H.Q. A 35T not less than cherry red is his contribution to the din. His flair is his ability to hang flat top beams on chimneys that are just hanging themselves. His spare time is taken up delving in radio problems for a well known Sydney firm.

The one who does most of the work is the Federal Secretary, H. W. S. Caldecott, VK2DA, who writes those letters to all and sundry. Two separate 852's comprise his worm-warming device, and his flair is for stranded wire for zepp antennae. His radio problems also continue for 24 hours a day for a Sydney firm.

The Federal Treasurer, R. Cohen, 2TK, looks after the money and is general director of contests when not operating his 50T in the P.A. His specialty is to burn up porcelain standoffs with R.F. The daylight hours are spent as an analytical chemist making hard soap, not the stuff passed round at council meetings.

The last member is one M. Meyers, VK2VN, Traffic Manager, who generally keeps all skeds, and 802's in push pull are the tubes that make them. A liking for fast driving plus a desire to work many countries are his two main weaknesses. In his spare time he sells the cement that makes the concrete that the President worries about.

At the convention this month the personnel of F.H.Q. may vary from a concrete expert, a chemist, two radio experts, and a cement bargainer to the proverbial baker and candlestick maker; a typical cross section of the Ham game.

## Flash!! Federal Convention Results

Following is a synopsis of the decisions made at the Federal Convention that are of general interest to members of the W.I.A. It will, of course, be appreciated that the items mentioned are only a few of the total number discussed, many for obvious reasons cannot be published until after the appropriate action has been taken.

1.—That the matter of pedal transmitters causing interference in the amateur bands be taken up with the Department.

2.—That an interpretation be obtained from the Department regarding inductive interference with telephone systems.

3.—That Divisional Councils take steps to educate their members towards a reduction of interference, improvement of quality and announcing in phone transmissions.

4.—That investigations be made and appropriate steps taken to suppress the operation of commercial stations in the amateur bands.

5.—That harmonics of broadcast stations be logged and details forwarded to F.H.Q. for appropriate steps to be taken for their suppression.

6.—That the Department be asked to approve of the recommendation of the W.I.A. as sufficient in the application of a member for a 100 watt permit.

7.—That the Department be approached with a view to obtaining definite bands at 112 mc and 224 mc.

8.—In a discussion on the inclusion of Amateur Radio in the subscription of members, it was decided that the matter be left to the individual Divisions.

9.—That a reduction in the operating hours in contests be thought desirable.

10.—That Federal Headquarters organize an annual contest on the lines of the Fisk Contest.

(Continued on page 10.)

## The Diary of a Delegate

(By Vaughan Marshall, VK3UK.)

Before leaving for Sydney to attend the World Radio Convention and W.I.A. Federal Convention I decided that the only possible way to give a readable account of what took place was to write the highlights, day by day, in diary form. Hence the reason for presenting the following somewhat unconventional narrative.

**6th April.**—After a hot drive over from Melbourne with the thermometer around the 97 degrees mark, Sydney seemed to give little relief and rain seemed to be needed quite as badly as in Melbourne. A ring through to 2DA and 2HZ, the Federal Secretary and President, brought a "where have you been" from each. It was explained that the Victorian Country Convention took place at Bailarat on the 2nd and 3rd and pressure of work precluded the possibility of leaving before the 5th. None the less it was unfortunate to miss the IRE Convention Banquet on the 4th and the official opening by the Duke of Gloucester, by radio-telephone, on the 5th. However, the intensely interesting address by Mr. J. L. Baird, "the father of television," on a general survey of television and the equally interesting discussion led by the chairman, Sir Ernest Fisk and others, was a good recompense. But first I should explain how the business sessions of the IRE World Convention are conducted. They are held in the Great Hall at the University of Sydney and on entering the hall it is possible to buy copies of the papers to be read during the session. The papers and ensuing discussion are put through the PA system and at the same time recorded, and most lectures are illustrated with slides thrown on a screen at the back of the platform. From a glance through the programme of sessions it seems that the whole gamut of radio and allied subjects will be traversed.

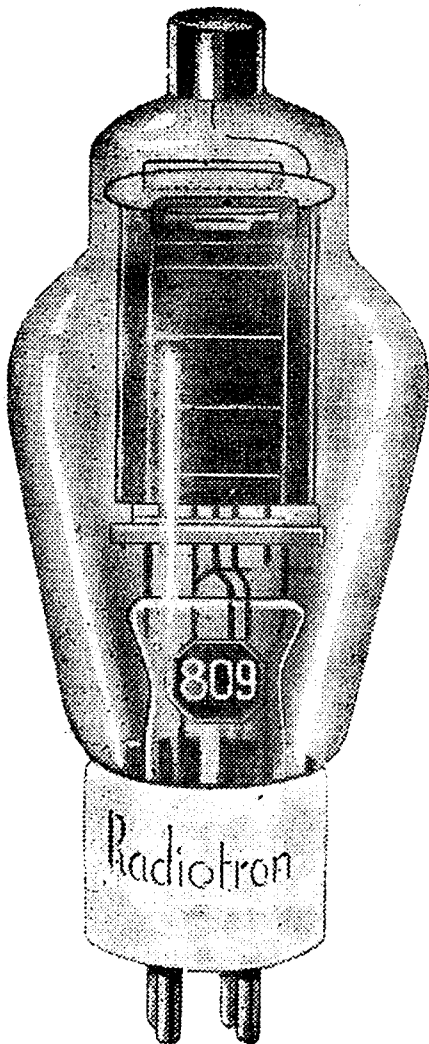
**7th April.**—At 9.30 a.m. I called at the Grand Central to pick up VK6GM, the only other delegate so

far in Sydney and we went out to the University together. VK6SA and VK6BB, who are also over for the Convention, were met for the first time. Our old friend, Mr. S. H. Witt, gave a very interesting paper on the PMG Research Laboratory. This was followed by a paper on UHF Telephone and Television equipment in which a description of the 30 KW UHF Television station at the Eiffel Tower was given. The coaxial cable up the Tower alone weighs twelve tons in this amazing piece of equipment. Whilst on the subject of high power also it is of interest to know that the Americans built a Poulson Arc transmitter at Bordeaux in 1917 of 1,000 KW input! This fact was mentioned in a historical account of the last twenty-five years in radio by Mr. A. S. McDonald, of A.W.A. The IRE Convention Ball was held in the evening at the Trocadero and from the glowing accounts given by VK2JX, VK2DA and VK6GM, it was a great success. Unfortunately I had another engagement.

**8th April.**—The "Awatea" with ZL2OV aboard was scheduled to berth at 8 a.m. and there was a big rush to get down in time. There is a regulation here which prohibits people from going on to the wharf until the ship is alongside and the gangways are down so a great deal of pleasure in having a "preview" of the passengers before the ship ties up is lost. VK2HZ, VK2DA, VK2RA, VK2VN, VK2JX and myself were on the spot and as the ship had a record passenger list and none of us knew ZL2OV we could only watch for a passenger coming down the gangway with that "vacant look" supposedly common to all Hams. However, "Pete" believed his Ham origin for we missed him and only met him finally at the alphabetically arranged luggage posts. Many and varied must have been the excuses offered to impatient bosses by the Sydney boys because none of them arrived at work before 9.45 a.m.

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# RADIOTRONS

## Amateur Radio

A harbor cruise followed by a visit to Taronga Park Zoo was on the programme for the day, but as I am a frequent visitor to Sydney golf was a greater lure for me. The long spell of dry weather finally broke and most of us got a wetting. It rains in Sydney in a different manner to Melbourne. In the latter city it seems as if old Pluvius uses a watering can, but becomes impatient when he gets up here and just upturns a bucket. VK2HZ and VK2DA had arranged a small "get-together" in the city for 5.30 and about fourteen Hams toasted the W.I.A. in the old traditional way. I went back home with VK2HZ for tea and spent a most enjoyable evening in his shack. It is one of the neatest I have seen and from the careful design of his equipment I am sure was not specially tidied for the occasion like so many of us have to. His main transmitter, with a line-up of 6A6, 6L6G, 830, has a front panel of Tilux and with its chromium plated fittings presents a very fine appearance. His stand-by transmitter has a 6L6 feeding a '10 and his receiver has a 6C6 feeding a 76. Both exhibit the same care of design and his 56mc equipment is a model of neatness. Of course the most novel feature of the shack is his automatic CQ machine which was described by him two months ago in "Amateur Radio."

9th April.—I again excused myself from the lectures because the great pageant and procession was to take place in the morning. I at least could get copies of the lectures that I missed. The procession, consisting of over one hundred beautifully designed floats costing over £30,000, was a truly magnificent spectacle and lived up to its description of the greatest procession of its kind ever held in Australia. The afternoon and evening were left free so I took the opportunity of running out to North Head to see the eight vessels, scheduled to leave that afternoon, pass through the Heads and buck into the big sea that was running. A road runs around the harbour side of the Head from Manly and is so situated that ships can be seen coming right up the Harbour and can be followed through the Heads and on, almost to the horizon. All one's baser instincts were brought out by the feelings of glee as one thought of the

unhappy passenger's feelings as their ship turned into the Heads and bucked into the first big rollers.

10th April.—VK5MD, the South Australian delegate arrived by the Express in the morning and VK4AW and VK4WT in the evening by boat, the former being the Queensland representative. The boat trip had been a wild one indeed and they had rolled in a sea, such as I had seen from North Head yesterday, all the way from Brisbane. In the evening the IRE had arranged a demonstration of "Dimensional sound," using the new Raycophone equipment. It took place at the Plaza Theatre and a special double channel land line had been laid across to the Regent and the Regent Theatre orchestra provided the music for the demonstration. The addition of the "dimensional" effect was remarkable and gave a natural quality the equal of which we had not previously heard in a theatre. A preview of "A Nation is Built," a picture depicting the growth of Australia in the last 150 years, completed a most interesting evening.

11th April.—A paper delivered by Mr. T. S. Skillmau, of Holland, on Telephony and Programme Distribution by Carrier Current gave a picture of the progress made in Europe of Programme Distribution over "wires" as distinct from the "ether." In England alone over 250,000 people receive their programmes in this manner. Depending, of course, on the frequency either a loudspeaker or a radio set could be plugged into the telephone wires terminal to receive the programme. It was equally practicable to utilise the power wires for this purpose. I deserted the lectures in the afternoon in favour of the Agricultural Show and it was really worth missing a great deal to see. It is without a doubt the finest in Australia and the exhibits are quite unique, both from an artistic as well as a size standpoint. The two new buildings just recently completed, costing £137,000, are magnificent and have a larger floor area unbroken by any roof supports far greater than any I have ever seen. In the evening Dr. van de Pol, of Philips Gloelampenfabrieken, Holland, delivered a paper on "Beyond Radio." Dr. van de Pol dis-

cussed some outcomes and results of pure radio research which effectively reach beyond direct radio applications and therefore often belong to the borderland of different sciences. He discussed first the subject of diathermy and then the measurement of Time and in this latter subject it is intensely interesting to note that recent experiments in comparing quartz oscillators and the revolutions of the earth show that Mother Earth is not as regular as has always been imagined, but "shows a frequency modulation with a period of one year and it is especially to be noted that both in June 1935, and June, 1936, the speed of revolution of the earth changed rather rapidly so that in about a month's time the length of the day varied by 0.004 seconds, this change of rate disappearing more or less regularly in the remaining part of the year." His next subject was headed Relaxation Oscillators, of which he says, "The general behaviour of systems performing relaxation oscillations can be described as being a periodic systems which, by their own movement, become periodically unstable." An example of explanation is a simple Neon tube circuit in which the tube is shunted by a condenser which is periodically charged by a battery through a resistance. The voltage across the neon tube builds up until the flashing potential is reached, the tube flashes over and then the cycle is repeated. But it is in the wide field that this principle can be applied that makes it of such interest, examples of relaxation oscillations including motorboating in audio amplifiers, whistling of telephone wires, the pneumatic hammer, the squeaking of a door, the reoccurrence of economic crises and epidemics, geysers and the beating of the heart, to name only a few. I am only sorry that space will not permit of giving far more than a rough sketch of a very outstanding and intensely informative paper.

## Opening of the Federal Convention

12th April.—As the lectures for the day concerned the broadcast engineer mostly I again deserted and spent the day golfing at Palm Beach. The evening brought our first official Institute function, the opening of the Convention. The opening ceremony took place at Science House and was performed by Mr. J. L. Baird, who was accompanied by Mrs. Baird, the other guests including Sir Ernest Fisk and General J. G. Harbord, who is the chairman of the Radio Corporation of America. After the Federal President of the Institute had introduced the visitors, Mr. Baird officially opened the convention and emphasised the value of amateurs in the field of research as they were actuated by no motive of gain. Sir Ernest Fisk thanked Mr. Baird for his remarks and said that, as a past president of the Institute, he was delighted to have the opportunity of speaking at the 14th Federal Convention. He gave details of the IRE award for the recent contest and congratulated VK7AB on winning. He asked the Tasmanian delegate to convey to 7AB the congratulations of the Convention. He suggested that amateurs could well experiment in the transmission of still pictures overseas as a stepping stone towards television experiments later. Mr. H. Peterson, VK2HP, the NSW Divisional President, welcomed the delegates and visitors and hoped that all would enjoy themselves in particular as the Convention coincided with the 150th Anniversary Celebrations.

General Harbord replied on behalf of the overseas visitors and said that he brought greetings from the 50,000 amateurs of the United States. He affirmed the value of amateur radio in the progress of the science of radio and expressed the hope that some who were now only sailing the inlets would sail out on to the broad sea of research later. Mr. L. G. Petrie, ZL2OV, replied on behalf of the NZART and said how he and they appreciated the opportunity offered to enable him to attend the Convention. He pointed out how interlocked were the problems that

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## Amateur Radio

confronted Australian and New Zealand amateurs and the value of a discussion of mutual difficulties. I was asked to reply on behalf of the Australian delegates and expressed the appreciation of all divisions on the generous action of the IRE in enabling a delegate to be present from every State, and hoped that the Convention would be a memorable one in the history of the WIA. Mr. H. Peterson, VK2HP, then thanked VK2HF for his co-operation in making available his station to broadcast the proceedings on both 20 and 40 meters. The delegates then adjourned for the first session at which the minutes of the last Convention were read and adopted.

**13th April.**—The only Ham out at the lectures in the morning were 6BB and myself and on returning to the city at lunch time a search for ZL2OV, 6GM and 7JB proved fruitless. I was going to suggest a drive down the coast in the afternoon, but as 6BB wanted to go back to the University and the others could not be found I took my "mill" down to Dee Why and spent the afternoon on the beach with the roar of the surf in my ears typing these notes. The NSW annual dinner was arranged for the evening and over eighty Hams were present. Full details will be found in the NSW Division Notes.

**14th April.**—The IRE World Convention concluded to-day and some of the overseas visitors sailed for America on the Niagara. It is of interest to note that a bound volume of all the papers and ensuing discussion on each will be available shortly at the price of one guinea. So concludes an event that one cannot but feel has been a great privilege to have attended. This Convention, the only World Radio Convention ever held in the British Empire, has not only been of interest, but an education and an inspiration to all of us fortunate enough to have been present.

—The second business session of the WIA Convention was held to-night and as the total number of items on the agenda is 58, it was decided to have an additional session to-morrow. As a representative from every Division is present it is felt that this unique opportunity should be taken full advantage of

and that the discussion of every subject should be of the fullest.

**15th April.**—As no plans had been made for the morning and no delegate had been in bed before midnight since his arrival, I think all took the opportunity as I did and slept in! The hospitality of the N.S.W. Division and r'.H.Q. has to be experienced to be believed. We made good progress with the agenda items this afternoon. There is no doubt that the value to the WIA of an actual delegate from each Division in the discussion of problems of vital interest to us all, is incalculable. The misunderstandings that may have arisen through the medium of correspondence are replaced by a mutual understanding each of the other's viewpoint. After the session most of the delegates went home with VK2VN for tea and then over to 2HF and 2HZ afterwards for an inspection of shacks. I have described the latter's and the former's will be fully described in the next issue.

**16th April.**—Whew! What a strenuous day. From 9 a.m. until 10.20 p.m. with just a break for lunch and tea we have sat around the council table disposing of the balance of the agenda items and general business. The one great consolation is that the results will far outweigh the effort expended, in particular as I mentioned yesterday in attaining a clear understanding of each other's problems and endeavouring to solve them for the good of us all. Tonight a theatre night had been planned, but as "Doc" Barbier, VK5MD, has to catch to-morrow night's train, a further session on Monday was out of the question. However, some of the wives went to the theatre together, so all the visitors did not miss the function.

It is with great regret that we learned that the Federal President could not stand for re-election to the position this year. Bill Moore has given of his best for three years and has ably filled the position he has held. However, his business must come first and I know every member of the WIA wishes him the best of luck in his studies.

**17th April.**—To-day was the last function of the Convention, a sports day arranged by the N.S.W. Division

at Wyong. This spot is seventy miles from Sydney and forms an excellent "half-way house" to which both Sydney and Newcastle hams can go without having to travel too great a distance. It is an ideal spot with excellent sporting facilities, a cricket ground, tennis courts, golf links and river all being very handy. About thirty-five hams, many with their wives, were there, and in addition to the delegates the visitors included VK4WT, VK3WH, and VK3UH. I spent the day on the golf links with 2HZ, 2JX, 2VN, 3WH, 2OC and ZL2OV. We formed a band of good golfers, fair golfers and—well—golfers. Dinner and tea were provided at the club house at which one of the star attractions was a "fruit machine" on which "Doc" Barbier was singularly successful. It was a thoroughly enjoyable day, but our return was tinged with genuine regret that the 1938 Federal Convention festivities were over when we arrived home. VK5MD caught the evening express, VK4AW and VK7AB leave on Wednesday next and VK6GM and myself have until next week-end for a real rest before going home.

One feels it has been a real privilege to have taken part in this Convention, especially as it was part of the Sydney Sesqui-Centenary Celebration. The members of Federal Headquarters and the N.S.W. Division who were responsible for the organisation, are to be congratulated on the success of their efforts and to them all, we delegates extend our sincerest thanks.

(Continued from page 4.)

11.—That Federal Headquarters organise a 160 meter contest and New Zealand be asked to co-operate.

12. That each Division agree to a "gentleman's agreement" in contests in which phone stations remain off during cw contests and vice versa.

13.—That Federal Headquarters co-ordinate the experimentation of the divisions on the ultra-high frequencies.

14.—That a trophy be awarded to the two members who first record a

56 mc two-way interstate qso over a distance of more than 200 miles.

15.—That the Federal Constitution be revised.

16.—That Federal Headquarters remain in Sydney for a further term of one year.

17.—That Federal Headquarters make an award in each state for outstanding operating procedure.

18.—That the 1939 Convention be held in Melbourne over the Easter holiday period.

19.—That the history of the W.I.A. federally be written.

It is of interest to note that the W.I.A. paid £16 as the Australian amateurs' contribution towards the expenses of the IARU delegates to the Bucharest Conference. This is yet another example of what the Wireless Institute of Australia does for member and non-member alike.

## WISECRACK.

First Phone Man: Say, ol' chap, would you like to hear my new variable gap crystal which will allow me to go from one end of the 40 metre band to the other?

Second Phone Man: That sure must be swell and very handy to dodge the QRM, and especially using crystal. Let's hear it.

(The first phone man then starts at 7000 kc's and tunes through to 7300 kc's, with the second phone man following him on his receiver. He then comes back to 7000 kc's.)

First Phone Man: Well, what do you think of my variable crystal, O.M.?

Second Phone Man: Real swell, but I have electron coupling here too if I want it.

(Heard at the Ballarat Convention by Roth Jones, VK3BG.)

## QSL Bureau

R. E. Jones (VK3RJ) Qsl Manager.

Dick Huey, ex VK2HU, now rejoices in the call sign of VK3UE. Only a brick wall separates him from the QRM foundry of VK3CX.

VK3DZ, late of Portland, Vic., after a 20 months' spell off the air, is now active from a Northcote QRA.

VK3HG bemoans the fact that his big genny has gone haywire. His signs down here are as usual despite the QRP.

Glad to hear from Mac, of VK3XZ/3UL, who says that 3UL's increased session limits the time available for ham radio. Murray Clyne, VK3HZ, of the same location, spent his leave in Warrnambool and Sydney, his relief being Harry Fuller, VK3HF of 3SR.

VK3KP, Randall Eyre, has returned after almost a year's sojourn in Europe. Someone kept your call sign evergreen during your absence, O.M.

The secretary of "Radio Liberte," a new French Amateur Association, requests Qsl Managers to send all cards endorsed "Via E.R.L.," to 5 Avenue de la Republique, Paris XI.

VK2AGZ, ex VK5RY, was due to pass through Melbourne en route to VK5 during April. Spare time at his disposal was to be sent on a run to Yallourn.

Roth Jones, VK3BG, with a WSJK beam on the U.S.A. and a new rig under way desires speed contacts when DX is off.

Old friend Erich Kohout, HB9AT (ex UO—well, never mind) pops

up from a new Qra at Zurich. Erich smelt trouble in Austria, and over 6 years ago prophesied the present events when departing for Switzerland.

Jack Morris, VK3DQ, has forsaken 175 mx fone for 20 mx C.W. Jack is tickled at receiving a Qsl from VK3OA, ex VK2OA, just 4 years 2 weeks 20 minutes after the QSO took place.

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### TRANSMISSION SCHEDULES.

**MAY, 1938.**

#### VK2ME SYDNEY.

Sydney Time.	G.M.T.
<b>Sundays.</b>	
4 p.m.-6 p.m. ....	0600-0800
8 p.m.-midnight .....	1000-1400

#### Mondays.

1.30 a.m.-3.30 a.m. ....	1530-1730
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#### VK3ME MELBOURNE.

Melbourne Time.	G.M.T.
Nightly, Monday to Saturday (inclusive)	

7 p.m.-10 p.m. ....	0900-1200
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#### VK6ME PERTH.

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Perth Time.	G.M.T.
Nightly Monday to Saturday (inclusive)	

7 p.m.-9 p.m. ....	1100-1300
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## Correspondence

### "PHONETICITIS."

The Editor "Amateur Radio."

Dear Sir,

This "B Boston-D Denmark-M Montana" business that has crept invidiously into the ranks of amateur radio. (phone) during the last year or so, is being carried to extreme and utterly ridiculous limits. The use of phonetics dates from the earliest days of speech transmission and perhaps the most useful form of application is the phonetic code used in military practice. Who, for instance, is not familiar with the fact that "Ack Emma" means "A.M." or morning? A famous war-time institution is known to all and sundry as "Toc H," standing as it does for the letters T.H. signifying "Talbot House." The military system of phonetics used in speech is the most suitable ever devised, being short and straight to the point. During military operations, for example, no telephonist, especially in a tight corner, would appreciate having to draw out lengthily an urgent message by using phonetics such as A for Alabama, B for Buenos Aires, C for California, when in a swiftly understood flow of speech he would merely say "Ack, Beer, Cork" and the fellow at the other end would know beyond doubt that what was communicated was 'A, B, C'. Admittedly there is not the urgency of military tactics about amateur radiophone, but there is a state of affairs in amateur procedure

which, being patently ridiculous, needs correction. The station doing the initial calling is reasonably right to adopt phonetics when announcing his call sign. For instance, W6ITH may call "CQ DX, W6ITH calling—I India, T Turkey, H. Hungary." All well and good; he intends that the DX will make no mistake about his call letters. But where is the sense, once he is QSO with a VK, for that VK on each and every over to reply to W Six I India, T Turkey, H. Hungary? Surely the plain W6ITH is good enough—with the two stations in established contact? Why not "VK so and so over to W6ITH" in plain letters? W6ITH doesn't need to be reminded of his phonetics when he knows full well that the VK is replying to him and nobody else. So many VK's persist in doing this kind of thing, and the inference drawn is the logical one that those VK's who indulge thus have obviously no confidence in their own speech systems or microphones! Apart from which it wastes a lot of useful time on the air. Much of the present day phone QSO's are nine-tenths occupied by the phonetic introduction and the actual text of conversation is so much hurried that it amounts to little or nothing of value. Then again, there is another evil in the use of phonetics in the form of names of countries. If a station in some part of the world stresses that he is—Honolulu—England where his last two letters are HE and signal strength is down, plus QRM, the odds are that a DX man catching the latter part imagines that that was a station in England. It all adds to the confusion and amateur radio is confusing

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enough since this DX phone turmoil was let loose on the world. Anyway, it will probably remain as it is until amateur radio hangs itself from the highest tree, for even the B.B.C. says "B for broadcasting and Q for Ocean." Even so, once the programme is under way, it becomes plain "London Calling"!

"OLD HOMBRE."

(While we agree with the opinion expressed by the writer we would remind our readers of the phonetics prescribed by the P.M.G.'s Department for phone use.—Ed.)

40 Grant Street,  
East Malvern, S.E.5,  
13/3/38.

The Editor "Amateur Radio."

Dear Sir,

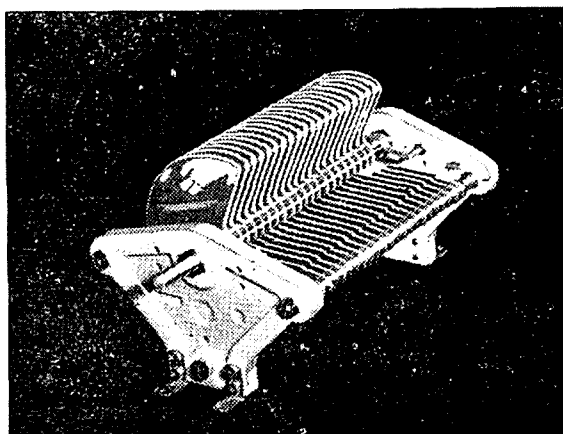
May I make a plea for frank reports. I have recently been "having trouble with the Vigilance Committee" in regard to my 40m. phone. During the time I was unknowingly causing this QRM, I worked numerous stations both interstate and within half a mile of my shack, yet it was from only one station that I had a report that indicated in any way that my signals were not FB. After getting the said report I sat up and took notice, but in a few days I received a report from the V.C. to say my sigs had been poor for three weeks, and I contend that during this period the reports I received were inaccurate and misleading. When one is not in a position to adequately criticise any point in a signal may I suggest that he should say so. And further, that if operators can't criticise each other's signals in a frank and, if necessary, destructive manner without fear of offence, then the whole enormous value of reporting is lost.

J. P. BOYD, VK3PB.

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## 28 and 56 M.C. Notes

A. Pritchard, VK3CP.

The W phone contest is over and many VK's had excellent phone qso's with the lads in the States; VK3XP one afternoon had 5, r8, VE5 phone qso's in a run; also VK2IQ, 2UD, 2ADT, 2NY, 3ZZ, 3IW, 3NP, 3ZB, 3EN, 4HR, 4VJ, 4RY, 5FM, 5LD, 5LJ, 6AF, 6SA, have good quality phone and are doing well with the W's. The skip has shortened making a qso possible with the majority of VK's and ZL stations. At the time of writing, 13th April, the Europeans have faded out, giving us only an occasional qso from that part of the globe. April, ten years ago, 3YP (then 3CP between 1926-29) had an exciting time by working the first DX qso to the States. April, 1938, more excitement! Patta celebrated the above by getting married. 73 from the gang!!! Sunday, 20th March, T1FG, T12RC, VP3VN, LU7AZ, LU1DJ, XE2BJ, PY3BP (qso VK2NY?), KK7PQ, J2MI had exceptional strength during the morning—OK1BC, ZS1AN were qso'd here at 3CP at 6.30 p.m., r7 both ends. The New Zealand stations have been very active of late—ZL1BT, 2AU, 2BI, 3DJ, 3KZ, 4FK, 4GM being consistently active. ZL's 4FK, 4GM, and 3KZ are r maximum whenever heard. VK3BQ has the largest swag of Europeans and Max has been kept busy. His most outstanding qso was on Saturday morning, 29th March, at 8.45 a.m., with G6GO on fone 28040KC, r6 each end; G2VG was heard earlier and was using only 35 watts input; at 9 a.m. G2MB, also VP3NV—Europeans have never been heard before at this time. Sunday, 20th March, LU5AN was r9 plus at 8.45 a.m.; the same evening OK1BC using a single 35T final and 50 w input, was heard, together with D3DSR, OH5NF, YU7MM at 8 p.m. G2DH reported hearing many VK's who are on at 7 a.m. our time. F8LX and SV1CE phones r6 were heard between 8 and 9.30 p.m., and G2VG, G2YP, GM8MJ, GM8FR were on cw. Monday, 21st

March, LU5AN, LU7AG, LU1DJ had good strength around 9 a.m.; the same evening PAOFB r5 phone, ON4ZA r6 phone, F8ZF r6 phone, and ON4PA r6 phone were heard until 10 p.m.: at 3BQ. W7EMP at Walla Walla made WAC twice between 19th and 20th March with a new set of stations each time, VK3XP supplying one Oceania qso. The KA's have good strength on phone and KA1ZL, KA1ME and KA1AP have been interesting 10 mx qso's, together with K4SA, rV5AK, PK1JB (20 mx harm?), K6BAZ, which are heard occasionally. VK3XP has made extensive improvements all round, especially the antenna which has 8 half waves in phase (2, 8JK's in series) and mounted on a lattice mast, the antenna proper being strung between a gondola system which is rotatable (Radio 8JK's system). The modulator has been rebuilt, a Rola permanent mike giving excellent quality into a 57, 53 elements connected in parallel, 42 driving a pair of 6L6G's in class ab. VU7AR was qso'd here at 3CP and VU2FV was heard on Sunday, 10th April, at 7.30 p.m., the former has a T7 signal and is on the look-out for VK's. ZS1AN, ZE1JJ, ZS5U, ZS6A, ZS6TG are usually on each Sunday evening between 6 and 7.30 p.m. VK3ZX has been heard on 10; he has a very nice 20 mx rotary 8JK in operation and any lads wanting a few ideas, they are there. W5GAE and W5EIS portable have punch at 7.30 a.m., the former with PPT200 mod by class B 204A's! and the latter portable!! with PP250TH and mod by similar tubes—what a waste—but what a portable! There are many Japs still on the air—J2KM, J3FJ, J2MI, J2JJ, J2KN being often heard over the week-ends. W6HUM is one of the few using a class A mod., i.e., a single 845 Sylvania modulating a PP 801 final. No 56 mc information has been sent to me, any CC on the way?—73.

## Divisional Notes

To ensure insertion all copy must be in the hands of the Editor not later than the 18th of the month preceding publication.

### N.S.W. Division

D. Reed, Secretary, VK2DR, Box 1734 JJ, G.P.O. Sydney.

#### Country Zone Officers.

Zone 1 (Far West).—J. Perooz, VK2PE, Hope Street, Bourke.

Zone 2 (North-West).—H. Hutton, VK2HV, Byron Street, Inverell.

Zone 3 (North Coast).—R. J. Berry, VK2NY, 54 Bacon Street, Grafton.

Zone 4 (Hunter River and Coalfields).—R. W. Best, VK2TY, 57 Hunter Street, Newcastle.

Zone 5 (South Coast and South-West).—R. Ross, VK2IG, 673 David Street, Albury.

#### ELECTION OF OFFICERS.

The annual election of officers resulted as follows:—President, H. Peterson, VK2HP (re-elected unopposed); vice-presidents, F. Goyen, VK2UX, W. G. Ryan, VK2TI; hon. secretary, D. Reed, VK2DR; hon. treasurer, F. P. Carruthers, VK2PF; hon. solicitor, C. d'A. Roberts, VK2JV; country representative, O. G. Chapman, VK2OC; council, H. Ackling, VK2PX, M. Lusby, VK2WN, R. A. Priddle, VK2RA; QSL officer, J. Corbin, VK2YC.

#### W. T. S. CRAWFORD TROPHY.

The final heat of the W. T. S. Crawford Trophy for 1938 was held at the Radio Inspectors' Office on Monday, 11th April, and was won this year by Mr. A. Henry, VK2ZK, well known as the head of the R.A.A.F.W.R. in this State. It will be remembered that Mr. Crawford,

the senior radio inspector, presented this handsome trophy last year for competition amongst the amateurs of N.S.W., the object being to improve the general standard of operating. That this is being achieved is quite noticeable if one listens to the operating heard on our bands, and we are indebted to Mr. Crawford for this practical evidence of the keen interest he takes in the welfare of the amateur. Mr. Crawford has worked hard to make the competition a success, and he personally conducted the preliminary and final heats, as well as a practice for the finalists at which he gave much valuable advice on operating procedure.

There were twelve participants in the final, including one country ham (VK2PN), who travelled over 250 miles to participate, last year's winner (VK2RA) and quite a number who participated in last year's final. Mr. Henry is to be congratulated on a very fine performance, as the general standard was high, whilst his was outstanding in both sending and receiving. A pleasing feature of the contest was the presence in the final of several of the newer hams as represented by those with 3-letter calls. This should be an incentive to the newer men for next year's competition.

#### ANNUAL N.S.W. DINNER.

The Annual Dinner has been and gone, leaving behind it one or two sore heads and many happy memories. Never before have we been honoured with the presence of so many visiting hams and distinguished guests. The usual friendly ham spirit prevailed and city members intermingled with country, interstate and overseas men, swapping yarns, describing the favourite beam, and mak-



## Amateur Radio

ing new friendships. As a result contacts over the air with our newly made friends will have greater significance for us in the future. The more formal parts of the evening could not entirely suppress the general feeling of good-fellowship, and we might sum up by saying that a good time was had by all.

We were greatly honoured by the presence in the chair of the Rt. Hon. J. M. Dunningham, M.L.A., minister-in-charge of the 150th Anniversary Celebrations—practical evidence of his and the State Government's interest in our convention. Mr. Dunningham in welcoming the delegates and visitors, eulogised the work being done by the amateur and stressed the value of the amateur training as a national asset.

The divisional president, Mr. H. Peterson, proposed the toast of the P.M.G.'s Department, stressing the thoroughness with which the Department's motto of "speed, efficiency and courtesy" is carried out. Mr. V. Butler, Deputy Postmaster General, responded and in doing so mentioned the willingness of his Department to help the amateur in any way possible. Mr. W. G. Ryan then proposed the toast of the Senior Radio Inspector, Mr. W. T. S. Crawford. During his term of office as secretary, Mr. Ryan met Mr. Crawford on many occasions and always found him sympathetic and eager to help the amateur movement. In replying, Mr. W. T. S. Crawford emphasised what a year of progress last year had been and quoted some interesting figures on amateur matters. On 1st February, 1938, 1859 amateurs had been licensed in Australia, the total for N.S.W. being 711. During the year ending 31st March in N.S.W. 91 breaches of the regulations had been examined, 10 per cent. had definitely proved that they were not on the air at the time of the breach and during that period three unlicensed stations were apprehended, the maximum fine imposed being £20. 177 people had sat for the A.O.C.P. examination in the same period and 85 had passed. In conclusion, Mr. Crawford said he hoped that the W.I.A. Convention would be the most successful yet held.

Mr. Crawford then presented his trophy for the best amateur tele-

graphist in N.S.W. to Mr. A. Henry, VK2ZK, who also receives a replica of the trophy. In making the presentation, Mr. Crawford referred to the particularly high standard of operating shown by Mr. Henry. Mr. Henry responded, and in doing so congratulated the Institute on the efficient manner in which the competition was conducted.

Mr. L. G. Petrie, ZL2OV, in proposing the toast of the Wireless Institute of Australia, referred to the early origin of the Institute—one of the oldest amateur organisations in the world—and also to the high esteem in which the W.I.A. is held both in New Zealand and in other parts of the world. Mr. W. M. Moore, Federal President, and Mr. H. Peterson, Divisional President, responded.

Mr. Peterson then made a presentation to Mr. W. G. Ryan, the retiring secretary. Mr. Peterson explained that owing to the pressure of private business Mr. Ryan was reluctantly compelled to relinquish the post of secretary, which had on many occasions interfered with his own work. Mr. Peterson gave a resume of the advances the Division had made during Mr. Ryan's term of office. The finances have improved to the extent of approximately £100, two successful Amateur Radio Exhibitions have been held, the monthly Divisional Bulletin instituted by the retiring secretary has kept members, and especially country members, in much closer touch with events. Prior to this the country members knew very little of what was being done in the Division. There have been many other examples of the untiring energy shown by Mr. Ryan, and much of the 75 per cent. increase in membership may be attributed to his work. To show his versatility, VK2TI has participated in all the major contests during the past year, and in that time has been successful in coming within the first three places in the BERU, DJDC and ARRL Contests—a very fine record.

Mr. Peterson then referred to the part that Mrs. Ryan has played, by taking a great interest in the activities of the Division, and also by assisting on very many occasions with the preparation and mailing of circulars, bulletins, etc. In view of this constant encouragement it was

## Amateur Radio

particularly fitting that the presentation made by Mr. Peterson on behalf of the Division should be suitable for Mr. Ryan's home—a silver coffee service. The applause which followed the presentation was sufficient proof of the popularity of Mr. Ryan with the members.

Mr. Ryan thanked the Division for himself and for Mrs. Ryan, and expressed regret that he was unable to continue as secretary.

The toast of Kindred Societies and Affiliated Radio Clubs was proposed by Mr. F. M. Goyen, vice-president, and Mr. M. Lusby proposed the toast of the Press.

The evening concluded with a vote of thanks to the chairman, and all voted the 1938 dinner a great success.

### WAVERLEY RADIO CLUB NOTES.

Our 19th Annual Reunion took place on Tuesday, 29th March, and was attended by 50 visitors, the majority of whom were hams, so that the local QRM should have been absent on the bands on that particular evening. A feature of the evening was the presentation to the Club by Mr. J. Moyle (2JU), on behalf of "Wireless Weekly," of two replicas of the Wireless Weekly Cup, won by Waverley in 1933 and 1937.

"Old-timers" present included Mr. Peterson (2HP), Mr. Luckman (2JT), and Mr. Malcolm Perry (a former President and foundation member of the Club), and several

cerning the early days of amateur radio.

### NORTHERN ZONE NOTES.

VK2KK.—Where are you these days, Matt? As we don't hear much of you. Get that rig going and let's hear you on 80 metres.

VK2KE.—We hear you now and again, Bill, but that's not good enough. Keep the tubes warm this winter, and be amongst the boys.

VK2KZ.—On regularly nearly every night on 20 metres, trying Jones regenerative oscillator, getting ready to go to 10 metres, using 6L6G and 807. Has anyone built the Jones Super-Gainer Two? If so, drop 2KZ a line.

VK2YO.—You're fairly consistent on 40 metres, George. We'll be interested to see you get your 6L6G tritet going with the 807 buffer-doubler on 20 metres. W.A.C. will become easy on 20 metres, O.M.

VK2XT.—Very sorry to lose you from this zone, Bill, as your qra is now in Newcastle, but we hope you will be as active in Newcastle as you were in this zone.

VK2DG.—The most active man in the north is Keith of 2DG, and uses 10, 20, 40 metre band, but is a DX crank on 20 metres, and if you want to know anything about 20 metre DX, just give him a call; he also supplies DX notes to VK3MR, so if you have any DX notes send them to 2DG.

VK2YL.—Another DX crank who does not know when to say bedtime is Harry; uses all bands, but likes

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20 metres, on regularly like 2DG. All the boys from Kurri will be visiting you shortly O.M.

VK2PZ.—Do not hear so much of you, Chris. We will be visiting you also after Easter.

VK2CW.—Here is a trier, Bill of 2CW, unfortunately out of work, but always trying to do some good for radio, on regularly on 40, 80 metres, good ragchewer.

VK2CX.—Where are you these days, Jack? We never hear you. I guess it's YL's, but you will be in our visit, so look out. Paxton is a long way from here, but will get to see all right on trip.

## ZONE 5 NOTES. (By VK2IG)

We are indeed pleased to note that the proposed reformation of 2UO, the Wagga Club, is an established fact, and the committee is as follows:—President, 2MP; Vice-President, 2AFF; Secretary, 2AEO; Treasurer, 2AIB; and committee man, 2AID. We all wish the Club the success it deserves, and are sure that it won't be for lack of energy or co-operation if this success is not achieved.

2YW had a pleasant thought, and put it to the club as follows:—Ex-treasurer of old 2UO, Bob Smith, is unfortunately permanently disabled as the result of an accident to his spine, and an endeavour is to be made to obtain a ticket for him to make his lot brighter. This is surely a commendable object, so what say, you H.Q. chaps? Bob's address is Seaview Street, Dulwich Hill.

Dry and fine conditions are helping to keep the hams out of doors and away from their rigs in this zone though with the W's coming through in good style the fone lads are getting busy.

VK2OJ has resumed his W skeds and trying to line up his antennas on U.S.A. A card received this week from Portugal dated early in '36 offers to swap a bottle of Old Porto wine for a bottle of good Australian plonk!! That IS the ham spirit!!

VK2AP.—Has his rig gg now, but is not too good yet, as only gets R8 on fone from W. We hope he soon locates the bother. Hi! Hi! Using two halves in phase.

VK2QE.—Pretty busy, but gets on to the W's ok. Little other DX on. Got a couple of nice cards in K6TE from Wake IS.CT1 in Portugal. YM4AA and CX. Fb. Alan.

VK2EU.—Troubled with bad motor boating. Not in his rig, but on the Hume Weir, in fact, it appears the boat doesn't like the water as it tried to get to land by the shortest way, i.e., straight down!!

VK2VK.—Works the locals and gets R8, etc., on a couple of watts. Seems Hughie is the only contact Albury has with VK hams, hi!

VK2AFD.—Wants someone to build him a rig as too QRL. Of course, they must supply the parts. Oh yeah!

VK2IG.—Still rebuilding and waiting on an xtal that seems to be roaming around VK. Cards to hand from U9 and ST.

## Victorian Division

### PHONE SECTION NOTES. (By 3CB and 3FL)

There was a good attendance at the March meeting of this section, but unfortunately some of the members had to adjourn before the lecture which is now given on some item of interest at each meeting.

3FW made his first appearance for some months, as Bill is not often able to attend in person owing to night work. Owing to 3JB having to attend his staff ball the lecture he was to have given on short wave work was postponed until the next month, so we shall be looking forward to some interesting information at the April meeting.

Ivor 3DH filled the breach, and delivered an interesting lecture and a demonstration with the aid of lantern slides. Quite a few of the boys are going to holidays at the Easter week-end, so that there will be a chance for a few extra sessions for the ones who are staying in Melbourne.

Chas. 3BH at Mornington has been making a noise on 236 mx the last few week-ends, and been calling for ZL reports. Well, if his signal at Canterbury is anything of an example of the ZL strength he'll need

a secretary to handle the mail. In fact, he's been seriously heterodyning 3FL in the suburbs although supposed to be 20 kc. away so somebody's crystal has walked. However, there is to be a check on the frequencies to clear that bother. There does seem quite an improvement in all signals on the 200 mx band since the increase to 50 watts in quality as well as strength.

## KEY SECTION NOTES. (By VK3HK)

At the meeting this month we had interesting lectures by 3MR and 3YK on their recent visits to Tasmania, and the epidiascope proved its stuff with the photographs. We hope to have plenty more of these lectures at our meetings in the future so that they will provide even more interest than they have done in the past. Anyhow, here's the news of the month.

3KR.—Ken enjoyed the fb weekend at Ballarat convention. Very

impressed with 3AL's rig. Reckons "Snow" is a cow pulling respectable hams out of bed at 5 Ack-emma. Furthermore, Ballarat YL's not so hot!! Had fb qso with W6BKY from 3XD the eve he returned from convention.

3LX.—Teaching YL's to use the mike.

3LA.—Building new rx fitted with pair of magic eyes so that he can really "look" over band.

3ZY.—Still chasing that elusive DX, viz., an 809.

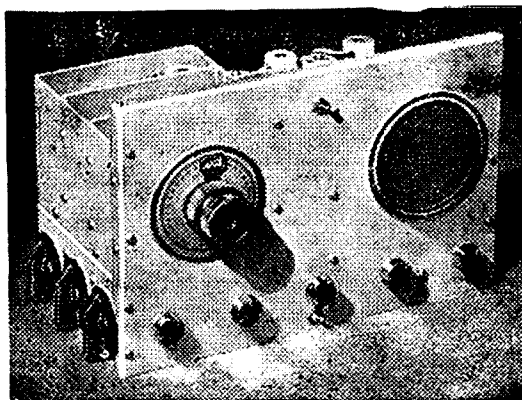
3ML.—Having moved to 94 Robinson's road, Hawthorn, is completely rebuilding, incorporating motor tuning in all stages.

3DF and 3TU.—Inactive temporarily following change of QRA.

3ET.—Glad to report satisfactory progress of present code class.

3EH.—Trying 14 mc fone.

3DP.—Having a go at 56 mc, but his rx won't perk.



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## PRICE'S RADIO SERVICE

(D. G. McINTYRE)

5 and 6 ANGEL PLACE, SYDNEY.

3AH.—Fracturing xtals and looking forward to work on 14 and 28 mc.

3OM.—Been trying an 8JK beam vertical rotary, but not so good on dx. FB on local sigs though, cuts down QRM from S9 to S5. Gone back to center fed Zepp for DX, however.

3KQ.—Waiting for a bottle to go to 14 and 28 mc.

3IG.—Busy getting down to explore 14 mc. with T20.

3ZU.—Rebuilt for 14 mc, but also waiting for bottle.

3DM.—Finding DX good on 14 mc with a Jones super-het that is perking FB.

3IW.—What with contest QRM, etc., finding it hard to scratch a few Kc on DX bands.

3ZC.—Rather inactive on radio site. Needs a new receiver.

3ZD.—Got T20 final. Now FB 50 watts on 14 and 7 mc. Working usual W's and few other DX. Also quarter wave matching stub on 14 mc.

3QB.—Up in city and came to KP meeting. What about WAC on 7 mc, Jack?

3XJ.—56 mc. or thereabouts has been disturbed once again.

3WQ.—Thinking seriously about coming back again after trouble with bcls, or is it QYL as well, O.M.?

3YP.—Has taken on double harness. Believe one who knows, "she is a peach." Good luck to you, Patto!

## U.H.F. SECTION NOTES.

(By 3JO.)

### Big 56 Mc DX Effort.

Sections Co-operate for Tests on May 21-22.

An ambitious scheme to put 56 mc signals across to Europe and North America has been suggested by 3KU. Briefly, it is intended to run a continuous 24-hour session on 56 mc and to rebroadcast this on 28 and 14 mcs, using beam antennae in all cases.

The two 56 mc stations will be located at Arthur's Seat and near Geelong, and will be using stable transmitters with about 30 or 40 watts input and beam antennae of various

types. It is intended to modulate these transmitters with recordings of suitable matter specially made for the occasion.

Present indications are that the transmitters will be, in one case, a push-pull resonant line oscillator and a three stage M.O.P.A. in the other, while in both cases the modulators will be class A.B. 42's. All this gear indicates a large consumption of power, but it is expected that this difficulty will be overcome by the members pooling their resources.

There will be plenty of operators available, and, to keep up some local interest, it is proposed to work some local 56 mc. DX with the normal low power portable gear, while the main transmissions are in progress. This should help to relieve the monotony and provide a useful link with the control stations in the city. The actual times of transmission will be from 1600 May 21 to 1600 May 22 Eastern Australian time, and, in addition, 3CZ will be using 100 watts and a W8JK beam to push some 56 mc C.W. across to the other side of the globe during the same period.

Further discussions of the details and arrangements of these tests were held at the last U.H.F. meeting, April 19, and at a special meeting of all interested at 3CZ's place on April 22, the details of which were received too late for publication in this month's notes.

Sunday evenings are still the most popular nights of the month for the 56 mc transmissions, and the multi-way contacts established bring to light many interesting items during the discussions.

3RI has been the most consistent station lately with canned music and duplex.

3XW has at last appeared after threatening to do so for some time, but is troubled with feedback.

3EM has reappeared after a silence of some weeks.

3VH tried to reappear after a much longer silence.

3PS experimenting with c.c. for 56 mc use.

3ED contacted here at last though only R 2/3.

3OT gives 3ED much better report.

3UX calling 3RI, but they just don't hear him.

Don't forget the May meeting, chaps; it's on the third Tuesday as usual—the 17th.

## S. W. PHONE SECTION (VK3ZX)

The newly formed short wave phone section held its second meeting on the 2nd March, 1938. Mr. H. K. Love, the sectional Chairman, gave a very interesting talk and discussion on the conducting of a modern phone station. The discussion after the talk proved very interesting, as many points of general interest were raised, and suggestions were put forward from all angles.

Several of the Victorian 20-metre phone station operators are trying to stations and the stations within the British Isles, other than the old method of continual working with American stations. Sunday morning round table conversations have been heard over the last two or three weeks, with more and more stations on each side going into the arrangement. The best times for working with Great Britain should be found out and the contacts maintained over a long period.

The stations active in Victoria so far are 3NP, 3ZB, 3XD, 3KU, 3ZX, and 3BN.

3ZB has been quite active on 10-metre phone during the last couple of weeks, and we understand that he has worked over 20 American stations in the daytime with this wave length.

3KU is in the midst of general constructional programme, and is going to use three final amplifiers, which can be switched for use on 10, 20 or 40 metres. This will be driven by a pair of 807's as push-pull frequency doubler. 3KU is still very enthusiastic about results he is getting from his  $2\frac{1}{2}$  waves in phase aerial.

3XD has a novel way of overcoming an echo effect when he is using his condenser microphone, and was heard to state that he had his overcoat strung up behind the microphone to produce the required damping effect. As the weather has been rather wet in Melbourne lately, the idea seems quite appropriate.

3TC was seen recently in a large radio establishment buying up a kit of tubes for an eight tube super.

3QD is getting Q.R.O. with a 807 on 20 metre phone.

3NP has spent the last few days in trying to take the hum out of the TRF 10 metre receiver. He has also had a lot of B.C.L. from a D.O.L. who even at the R.I.'s request would not adhere to wave traps in our aerial. However, after much ado, everything is now in order.

3ZX is very pleased with the new rotatable beam aerial and reports that all continents were working on the first two weeks of operation.

## COUNTRY SECTION NOTES. (By VK3UK.)

The Country Section Convention held at Ballarat on the 2nd and 3rd proved very successful. Forty-two country and city hams attended and everyone seemed to thoroughly enjoy themselves. We were fortunate in having the zone officers of all three zones present so that the discussion was able to embrace all parts of the country. After the dinner on the Saturday evening and the toasts of the WIA and the Country Section, the office-bearers for the Northern Zone were elected. VK3TL was elected president and VK3HX secretary. An appreciation of the work of VK3EP for his work in acting as the relay station for the weekly broadcasts was made and also VK3HX was thanked for his kindness in donating the menu cards. Many suggestions and ideas were put forward by members in connection with the Country Section, as a result of which we hope to improve its value to country members considerably.

On the Sunday morning VK3AL had arranged trips to the Ballarat Power Station and also to the studios and station of 3BA.

## WESTERN ZONE. (VK3HG.)

Since the Ballarat convention last month interest in this district has grown appreciably, and all are looking forward to our own convention to be held later in the year. Several new members have swelled our numbers, and, although our zone is geographically the smallest of the coun-

try sections, we hope, by keen interest and co-operation to at least bold our own. In this respect we want the fullest co-operation of all members in running schedules, enrolling new members, and helping in any other way possible. Until our convention, when we will officially appoint our president and secretary, I have been entrusted with the job of Zone Officer, and schedules with or letters from stations in the zone would be appreciated to pass on W.I.A. traffic and to collect news of your doings to help make these notes readable.

3FA.—Installing vibrator type power supply, which will be a big improvement on the old B batteries.

3TW.—Active on 40, 20 and 5 mx. Haven't heard if any results on 5 yet.

3JA.—Back on air using 500 volt genemotor on 6L6G. Has WAC from new QRA.

3PE.—Recently WAC phone. Reported to be leaving for England shortly.

3OW.—Still QRL selling BCL receivers.

3HG.—Waiting on new genemotor, the old one having given up the ghost. Getting good reports locally, using little BCL genemotor as power supply.

As for the rest of the gang very little is known, so let's have some dope, boys; always glad to schedule on 80 or 40.

## GIPPSLAND NOTES.

(By 3PR-3DG.)

3BR.—Has not been sighted or heard of, on way to VK4 this month, so progress reports are awaited.

3DG.—Arrived back from holidays with a host of ideas, but does not know just where to start putting some of them to work.

3EG.—Has not been heard of late, but presume working a little DX.

3GO.—Hope you have those bugs out of the 45's by this, Graham; have not heard you lately.

3IL.—Bob is on the job sure enough, and heard working a little 7rp fone on 40 mx lately. Pleased to hear you again, O.M.

3JZ, 3JE.—Neither heard of late, but we are looking for sigs from down there, O.M.

3QB.—Jack rebuilding rx and going to try a pair of PP 809's in PA of rig.

3SS.—Keith active on 80 mx fone, vy fb quality since xtal mike installed.

3DI.—Jim vy YRL, but hopes to make time when 80 mx sparks again.

3EA.—By the silence the fish must be biting, O.M. If not, why?

3WE.—Up to usual standard on 80 mx, and can still get across to ZL.

3PR.—Not heard since trip to Ballarat. Was it too much for you, Ron. O.M.?

3XH.—Sorry we missed you last month, Stan. You will have to make more noise when on the air to attract attention.

3HZ-3XZ.—Must be looking for 5 mx sigs as not heard on other bands lately.

3LY.—Ron going on leave shortly, so we will have to wait until he returns before we hear anything from him.

## Queensland Division

Whoever has attended Institute Annual Meetings during the last few years, and was present at the eleventh annual meeting and dinner held at Griffith's Cafe on Friday, 1st April, must have been agreeably surprised at the excellent attendance. The function was the best attended and most enthusiastic of its kind yet held.

To the "old timers" who regularly pay their subs and manage to get along once a year, highlights of the meeting must have been the number of new and young faces in evidence; the three trophies annexed by 4HR; the assurance that the Radio Inspectors' Department is out to help rather than hinder the amateur; and the fact that evergreen 4AW secured more points than any other station in the transmitting competitions held during the 1937-38 season.

Mr. P. Kelly, in proposing the toast of the "Wireless Branch of the P.M.G.'s Department," caused much

amusement by pointing out that there were still many pirates about, and possibly ex-pirates, present at the meeting.

"We have eyes and ears open for pirates," said Mr. G. Strohfeldt, who responded to the toast on behalf of the department. He stated that the policy of the Wireless Branch was not to hinder or harass the radio amateur but to help him.

The president (Mr. A. E. Walz) said the increase in the power limit to 50 watts and the formation of a vigilance committee to police amateur bands had been progressive steps during the year. Objections had been raised in some quarters regarding the committee's activities, but the purpose was to improve general operation; and it was for all to help. Country members had found the zone system throughout the State satisfactory and were eager for its revival. It was hoped that close contests with the respective zones would be regularly maintained in the near future.

The office-bearers for the year were elected as follow:—President, Mr. A. E. Walz (4AW); treasurer, Mr. W. Chitham (4UU); secretary, Mr. R. Thorley (4RT); council, Messrs: G. Bates (4UR), F. Luback (4RF), C. Sharland (4SD), P. Hubsher (4UL), A. Guildford (4AP).

## GENERAL NOTES.

A two half waves in phase antenna system is radiating very effectively for 4UR. An R9 report from Africa and over 350 W stations in the recent tests give some idea of what Jack's rig is doing these days.

4HR is inclined to be secretive about 10 mx. What times are the Europeans coming through Tibby? Come on, give the boys some news.

Well, its happened at last, 4GK will be in a city QRA by the time these notes are in print. An excellent TX and RX, a sound knowledge of conditions, and what to most of us is a dream location, made Mac the toughest VK4 to beat in DX competitions. It will be interesting to see how 4GK fares at 9th aca, his new Q.R.A.

Here's a tip for country visitors. If you want to see a really neat looking rig, pay a visit to 4UL's shack. Paul is in the engineering

business and certainly knows how to build.

4EL, 4RF and 4SD seem to have a happy time with the 20 mx dx.

4rB's phone, like a well known brand of whisky, seems to improve with age. What has happened to 4GU, Fred? Can't you get him on again?

Here's a chance to work VK9. VK9VG and 9DN are new members of the Institute and on the lookout for contacts. Hook for both on 20mx.

4DN is a "medico" operator and is stationed at Tara. Give him a shout, boys.

Welcome to the ranks 4XO. Hope the 42's perk o.k.

4RT's objective is dx on 2vnx. He hopes to have a 809 in operation soon.

VR4HR, a visitor from British Solomon Islands, was kept busy answering questions at the annual dinner.

Another newcomer on the air is 4QK, Reg Kerr. If you operate as well as brother 4LK you'll do o.m.

4ER, Eric Riley, now stationed at Laidley, would like any of the gang to look him up when passing.

Five metre enthusiasts note! Cliff Gold, 4CG, of Toowoomba, is anxious for more five metre skeds. What about it?

4PL is putting out some good phone.

4PH, Australia's oldest ham, turned up for the annual dinner. If you are not sure about a VK QRA, 4PH is the person to see.

4JX can't have much time to himself these days. Understand 4KH has kidded him into building a big "super." If it's as good as 4UL's Bill should be a happy ham.

4XY.—Using 4.8 watts. Hopes to be on wid 30 watts shortly es using new modulator. 1st op is named Lloyd es 2nd op is called George. Good combination — Lloyd George. Hi!

4HA.—Has some vy fb dope on a trannie to suit any bottle. Lets hr all abt it, Harry.

4RS.—Staged a comeback on 40 using suppressor modulation.

4LC.—Has QSL'ed from Bundaberg to Proserpine. Hoping to be on fone in the near future.

4UX.—Has been named "Aluminium Claude" for obvious reasons.



## Amateur Radio

(That's not fair, Bob, but I'll put it in, hi!) Also proposed as a member of the Ragchewers Club.

4RP. — Strong hr on CW, but u hve rather ruff note, O.M.

4AB.—Is very active on 40 wid nice fone and R9 sig. QSYing to Cunnamulla shortly for holidays.

4RM, 4PC, 4WB and 4CY had an fb YSO recently. At the same time 4UX was hooked up wid another line-up. One way of getting rid of QRM. Call em in, hi!

Stan Wright, Harry Bearness and Less Mallinson, Mackay members of the DX Club, intend reporting to all fone stations they hr and sending crds. FB indeed, chaps.

VK2 hams advice condx on 10 mx vy fb. 2NY worked 12 stations in 10 minutes, European stations rocking in on 20. G2NA has a reg sked wid 7 a.m. every morning. Hrd hr at R8.

In a recent QSO (round table), 4WG was awarded the "Grand Order" of the Annanias Club, hi; He has two pet crocs called Claude es Mary (hope thats no reflection on the scribe, O.M.) and we couldn't compete against him, hi!

4PC.—Also an authority on crocodiles. Believe ur thinking of following 4WG's example and loaning ur crocs to farmers, hi! Wally states that Claude es Mary wud be fb pulling a plow, but they tend to be out of phase, hi! hi!

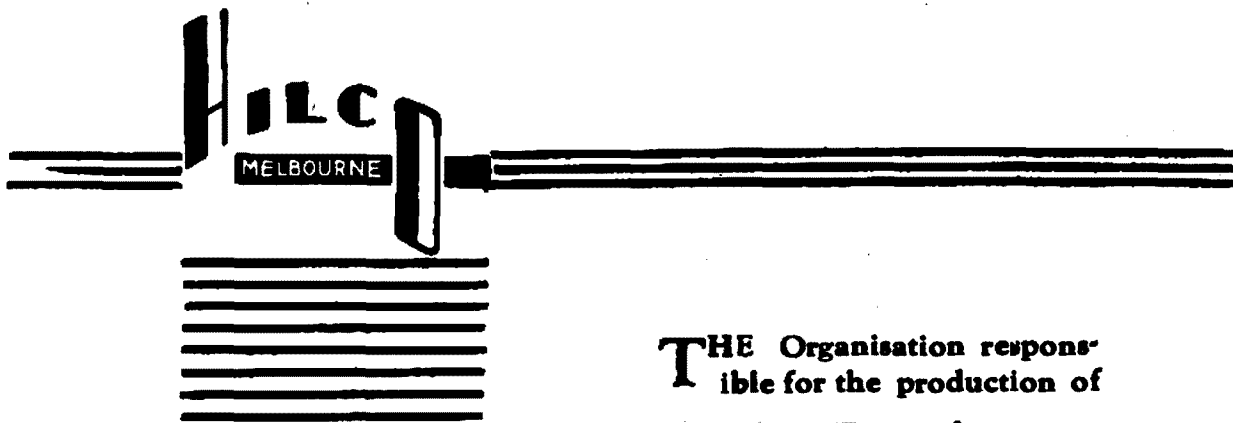
4EA.—Is the proud owner of a big blue (very dark blue) sedan, and from what our receiver tells us it is called "the hearse." You want to keep things like that under ur hat, hi!

4LK.—Back on 40, as is also brother Roy. Both wid fb sigs.

4RX.—Very sad bereavement at this station recently. We believe you eventually sold "the battleship." Never mind, Ron, think of the new owner having to hold the wheels on and drive at the same time.

Bundaberg hams appear nw and then on 40. 4SH and 4JJ both R8 hr at 4UX. Rigs are identical as well.

Scribe (4UX) recently had the rig on 40, and hoping it was on 80 and the rx on 80, calling CQ ZL.



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## Station Description

(By VK5YL)

The original rig at 5YL was a single stage E.C. 42, later enlarged to two stages with a 6L6 as P.A. These were of breadboard construction and gave reasonably good results on the low power used. Only 200 volts D.C. is available, so power is limited. Heaters presented quite a problem, as with more than one tube 6-volt accumulators are impracticable, so in the present rig and future ones it has been overcome by wiring all heaters and a dropping resistor in series, and using the mains with a voltmeter to keep a check on the voltage fluctuations.

The latest transmitter consists of a 38 osc., either e.c. or c.c. as desired at will, capacity coupled to a 42, constructed on aluminium, with all plug-in coils and interchangeable final tank coil. A pair of 42's will eventually be used in the final, these

tubes being proved excellent on low voltage.

The antenna, formerly a half-wave Zepp, has been replaced by a doublet, which is used for both transmitter and receiver.

Activities are always on 40 metres though an occasional QSY has been made to 5 metres.

D.X. holds little attraction for the fair op., who likes a pleasant rag-chew with a VK or ZL in preference to hooking some far distant station, exchanging reports and signing off immediately.

Qra here—Betty Geisel, Charles street, Murray Bridge, S.A.

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## South Australian Division

(By VK5KL)

These notes are written at Murray Bridge, where 5BU, 5WW, Joe McAllister and myself are to operate portable 5 metre gear to time the Outboard Motor Boat speed trials during the Easter holidays.

The main item of interest this month is the achievement of Mr. Maurice Phillips (VK5BU) being heard in New Zealand on 5-metre C.W.

At a time when 10 metre skip was short, Maurice was advised by 5RT to try on five, and during this time he was heard by ZL4DQ on a 7 tube S.S. super at RST 458. The rig used is a 6A6 osc. 6L6 doubler to ten and a 807 doubler to five, with 18 watts input. This is a wonderful effort and certainly will boost 5 metre activity.

On 20 metre the band has been a bedlam, what with the Yank test on and all the VK stations striving to pile up a score, the QRM has been terrific at the peak periods. Ten metres also was good, and those stations that used this band were able to add more to their tally. The number of R6 stations on this band is on the increase, and two stations from India are VU2FV and VU7AR.

New members to the Institute include many country chaps, and it is pleasing to note the steady increase in the country membership during the last year.

The following are the calls of the new country members:—VK5's BF, BG, KJ, MP and YL.

Reg Anthony (VK5CM) is now residing amongst the northern gang in Prospect. Two stations heard on 40 metres Sunday mornings on the high freq. and of band using push to talk and mumbling weird and wonderful

words were 5RT and 5QR playing chess, so don't be alarmed next time you hear them. No trouble to some of the boys!

They tell me 5TR was so intent looking at his rig squatting down on his haunches, that he overbalanced and put his hands across 3000. You'll have to be more careful, Ralph.

Next month we will have a new council to rule us, so until then cheerio!

### GREY ZONE.

(By VK5WG)

Well, here we are right upon Easter, and winter conditions will soon be with us. DX is improving rapidly, and good contacts may be had on 7, 14 and 28 mc.

The 3.5 mc band has opened up early this year, and ZL's are easily contacted.

5FB.—Frank is back from Sydney, and is working ZL's on fone and C.W. on 80, sometimes with 1½ watts from a genemotor, and at other times 8-10 watts from a petrol engine driven D.C. generator.

5LC.—Les is not so active just now. Busy on the farm.

5LG.—Leith is stilling working DX, but is handicapped through lack of A.C. on Sundays.

5KJ.—Working ZL's and VK's on 80 mx with 10 watts of power. George is a new member of the W.I.A. Welcome to the Gang, O.M.!

5WG.—Also has the 80 mx complex.

5NW.—Ditto, but very busy.

5AT.—Gone into retirement?

5BK.—Jack is heard occasionally

5HR.—Bill busy with studies.

Best of luck, O.M.

5TL.—Tom can be heard working 5JT regularly on sked.

5MP and 5YM—Two more new members. Very pleased to have you with us, O.M's.

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## Amateur Radio

Mr. F. Trembath, of Port Augusta, has also joined up, and is pegging away for his ticket. Likewise, Mr. Col. Bottrall, of Port Pirie. Stick to it, chaps.

It has been suggested that in view of the amount of time he spends in a certain northern town, VK2DG should join up as a South Australian country member!

That's the lot for this month, chaps, so cheerio and 73.

Wally Govan, VK5WG.

### WAKEFIELD ZONE.

VK5HS.—Is the call sign of Mr. Wally Scott, of Clare. How about letting me know something of your rig and activities, Wally, O.B.?

5LR.—Jack heard again recently putting out A1 quality fone on 40 mx.

Mr. Lance Catford.—Hope to be able to announce your call-sign soon, O.M. Stick to it! The boys want to hear you.

BERS195.—Yes, that's right, Eric Trebilcock. Now located at Powell Creek, Northern Territory, and is going to concentrate on reception of U.H.F. sigs. Will be pleased to report on your 5 and 10 mx efforts. Eric pounds the brass all day in the telegraph station, and by way of relaxation listens to other fellows' ether-busting all through the night.

5RE.—Yours truly is the busiest man in the world at present. Believe me, the life of a fruitgrower is not all beer and skittles. Radio has to be neglected, and each little bunch of grapes nursed with loving care. However, I guess I'll find my way into the shack again before long. Cheerio till next month.

Hobby.

### BARKER ZONE.

(By VK5GW.)

Three new members to introduce this month, and to each we extend a very hearty welcome. They are:—

5YL.—Betty Geisel, of Charles street, Murray Bridge, the only YL licence holder in South Australia. Not a mere "fone merchant," but enjoys a C.W. QSO at any time.

5BF.—Frank Miller, Eleanor Ter., Murray Bridge. Operator at a "B" class station there. Frank is always to be heard with good telephony on 40 mx on Sundays. Also very successful on 20 mx.

5BG.—Bob Grundy, Edward street, Murray Bridge. Bob has not had his ticket very long, but is making himself known on the air. Will be applying for a "fone" permit before long.

5XR.—Active again. Good fone reported from the city.

5CJ, 5BN and 5TW.—Still figure in the call book, but I believe have not been busy lately.

Cheerio and good DX.

George.

## Tasmanian Division

(By 7YL.)

The monthly meeting of this division of the Institute was held in the Y.M.C.A. rooms on the 29th March. The meeting was held somewhat earlier than usual in order that VK7JH, who was in Hobart for a few days, could give a lecture on our power station at Waddamana. This talk was exceptionally interesting, and enjoyed by all present. Hams visiting Tasmania should call on 7JH, who would be only too pleased to show them over the works. On the same evening we were extremely sorry to farewell Mr. E. J. G. Bowden, who for many years has been deputy R.I. All members felt the loss deeply, and our president thanked Mr. Bowden on behalf of all for his untiring interest and service. We also met our new R.I., Mr. Conry, for the first time. He hails from VK3, and we believe is quite an active ham. Mr. Conry spoke only for a few minutes, but his few words left a deep impression, and we are looking forward to many pleasant contacts in the future.

### Scandal.

Most of the Southern gang have been very lazy the last month or so, and little has been heard of them on either 20 or 40 mx. The excuses are numerous.

7KV.—Too busy collecting Easter poultry at local cricket matches. The Australian team went away too soon, Keith.

7CT.—Did someone hear Terry talking about diamonds? I thought so. Evidently 7CT is very QYL.

7JB.—Too busy preparing to visit Sydney. Heard muttering dark things about dress suits and elusive studs.

7YL.—Very much overworked. (Here the excuses end).

7DH.—At least on once a week to keep traffic skeds. 3MR says you are very punctual, Dave.

7CM.—Most active ham down South. Can be heard almost any night DXing. Wait till the German listeners' cards begin rolling in, Charlie, then you will have to engage a secretary to answer the qsl's.

7LH.—Simply bursting with enthusiasm and badly wanted something to do for the Institute, so was made Social Organiser, and intends to have some picture shows with the aid of 7AL and a projector. We were very happy to see 3TL and 2AT who were over here on brief visits during last month. Owing to other engagements were unable to see all the shacks. I believe Treb (3TL) has acquired a liking for night hiking.

Our Secretary is now as "happy as Larry," having finalised all matters dealing with the Convention and having safely despatched Buck per s.s. Zealandia.

7RK has kindly supplied the news from the North. Many thanks, Ray.

7KR.—Rebuilding with 809 in final, driven by 53 and 6L6. Super going very nice.

7LZ.—Also rebuilding to 53, 6L6 and an T20.

7QZ.—Working lots of DX with numerous watts; one (or two?) T55's in final. Has worked over 50 countries.

7BQ.—Still grinding out records to an appreciative public on the Sabbath.

7HY.—Seems to have forsaken ham radio of late, and can be found doing big business in radio shop in George street.

7AB.—Recuperating after I.R.E. test; not been heard for quite a while. (Found part of stop press news in "Mercury" filled with the recent doings of 7AB). Did you see it, Doug?

7CJ.—Not on at all these days. QYL, I suppose.

Well, that is about all this month. Would vy much appreciate news from N.W. coast members.

73's. Joy.

## Hamads

Advertising space in these columns is available to those wishing to sell, buy or exchange, at 3d. per line; approximately five words to the line. Minimum charge, 1/-. To ensure insertion enclose postal note or stamps with copy, and address to the Advertising Manager, "Amateur Radio," White Horse Road, Box Hill, E.11., Victoria.

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N.S.W. DIVISION ISSUE

# AMATEUR RADIO



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# AMATEUR RADIO

Published by the Wireless Institute of Aust., Victorian Division.

Vol. 6 No. 6

1st JUNE, 1938.

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Subscription to "Amateur Radio" is 6/- per Annum (Post Free), paid in advance.

Should you not receive your copy of "Amateur Radio," notify your Divisional Secretary at once.

Advertising and Publishing Office: Address Publicity Manager, "Amateur Radio," Whitehorse Road, Box Hill, E.11. 'Phone: WX 2429.

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## Editorial . .

### THE NEW SOUTH WALES DIVISION

It has been suggested that a resume of the organisation of this Division, because of some of its unusual features, would be of interest to members of the Institute in the other Divisions.

The internal organisation, such as membership, meetings, voting, committees, their power and control, is very much the same as that of the other Divisions. The interest lies in the arrangements made for giving service to members.

The State of N.S.W. is divided territorially into six zones outside the metropolitan area, in each of which is appointed an officer, whose duties comprise the distribution of information forwarded through the Council, the collection of news and material for the notes published in this and other magazines. His special duty is to look after the welfare of the members residing within his territory. He enjoys the privileges of a Council member and receives each month a copy of the minutes of meetings. He is expected to preserve the same attitude as a member of the Council and generally to administer his Zone.

Country members have various benefits to compensate them for the lack of opportunity of association and attendance at monthly meetings enjoyed by the metropolitan members. A country member pays only half the subscription of a full city member, and is forwarded a copy of "Amateur Radio" each month, together with a Bulletin issued by the Publicity Officer under direction of the Council.

The QSL service in N.S.W. is open to both members and non-members, the only distinction being that a non-member is asked to forward a stamped addressed envelope each month for the return of his cards. All outwards cards are handled at one half-

penny each, the service for inwards cards being free to all. During the year ended February, the QSL Officer (VK2YC) handled over eleven thousand cards for the hams of N.S.W.

Another feature of the distribution of membership of the N.S.W. Division is the affiliation of Radio Clubs. In the principal cities of the State public spirited hams have banded together for the instruction of those striving to obtain their A.O.C.P. This movement has developed to such an extent that in the metropolitan area of Sydney there are no less than eight clubs whose aggregate membership exceeds 250. The constitution of the Division provides for the affiliation of these clubs as single members. All rights and privileges attendant on membership of the Division are extended to the members of affiliated Clubs except that only one representative of each club has a vote at meetings. The QSL service is at the disposal of each member of the club, the same as if he were a member of the Institute.

It is at all times the earnest endeavour of the Institute in this State to work in harmony with organisations having similar objects, with public bodies and the Government.

As evidence of the friendly relations existing between the Crown and Institute, the N.S.W. 150th Anniversary Celebrations Committee accepted as part of its official programme the 14th Annual Convention of the Institute held in Sydney during Easter of this year, and further showed its appreciation of the work of the Amateurs by making a contribution of £100 towards the running of the VK-ZL DX Contest in October of this year. This event is also one of the official functions of the celebrations in connection with the 150th anniversary of the founding of Australia.

## Thyratons at Work

By M. M. Lusby, B.Sc., B.E. (VK2WN).

What is a "Thyratron"? Well, maybe it's only a name, but to you and I it's just a plain old triode into which some chap has introduced some mercury vapour. The presence of this vapour has enabled it do do new things and the purpose of this article is to suggest a few things which the up-to-date experimenter may like to dabble with. Strictly speaking, we should refer to this tube as a Gas-Filed Relay Tube, or, more briefly, as a gas triode, since the name "Thyratron" is a registered name of the General Electric Co.

"How exactly does the presence of mercury vapour affect the operation of the triode?" you may ask. Well, looking for the moment at the inside of a normal triode, we see that there is a large voltage drop between plate and cathode; this means a large resistance somehow, but how can just so much vacuum have a resistance?

The answer is simply that there is not a complete vacuum, but actually, negatively charged electrons are present, flowing to the anode from the cathode, under the electrostatic attraction of the former. All electrons are negative, therefore they repel each other individually. This means that there is resistance to free flow by virtue of the opposing forces due to this repulsion. The result is a space cloud of electrons accumulating at the region where the repulsion of the cathode equals the resultant repulsion of the combined effects of the electrons on their way to the plate, the grid and the anode.

It is this resistance which constitutes the triode's internal resistance and has the effect of limiting the anode current and setting up a fairly large potential difference between anode and cathode.

Now let us introduce some mercury vapour into the envelope and observe the effect. Electrons are still emitted freely from the cathode, and

proceed towards the anode in the normal way, picking up speed as they go. They now have to thread their way through the gas molecules and numerous collisions are sure to take place. When the electrons have acquired a certain critical speed, they split up the gas molecules into positive parts (protons) and negative parts (electrons).

The protons thus released move towards the cathode and have the effect of neutralising the negative space cloud, thus removing the chief obstacle in the path of the electrons.

The critical speed referred to above is equal to the speed acquired by an electron in traversing a voltage difference of 15 volts. Once its speed has passed this value it has sufficient energy to dissociate a molecule of gas and in so doing it loses this energy and starts off from rest practically. While the whole process is too complex to be stated in simple language, the result is that the potential drop over the whole distance from cathode to plate cannot exceed this critical 15 volts.

In the above description, no account has been given of the part played by the grid; in fact it was tacitly assumed that it had no effect during the discharge. That this statement is indeed true, will now be shown.

Consider a tube which has its grid biased highly negative before the plate volts are switched on. The repulsion, by the negative charge on the grid, acting on the electrons emitted from the cathode, will be too great to permit them to make the journey to the plate. As the negative bias is lowered, a critical value is reached at which the attraction of the plate overcomes the repulsion of the grid and discharge follows. Once the discharge has started, the only way to stop it is to reduce the anode volts to below 15 volts. It follows, therefore, that after discharge, the

grid exerts no further control until discharge has ceased, when it determines the plate potential at which discharge will again commence.

The ratio of the positive anode volts to negative grid volts at which discharge will just commence, is a constant for a particular tube and is generally called the "Grid Control Ratio." The value of this ratio in the case of the R.C.A. 885 is ten, an easy figure to remember.

All very interesting, maybe, but you want to know where it gets us? Well, let's consider what special features are provided by the inclusion of gas in a triode.

To sum up, we have a tube which, when in use, has an internal voltage drop of only 15 volts, we have, in the control grid, a very flexible adjustment of striking voltage and moreover, we have a small tube which is capable of passing a phenomenally high peak current, and also a high mean continuous current.

Thyratrons have found their way into many corners of industry; they are used for anything from the control of electrical power stations, to the counting of beans—because they provide for split hair accuracy and consistency in processes which were formerly at the mercy of the "Human Element."

In a general discussion such as this, it is impractical to consider in any detail many of the industrial applications of this remarkable little tube. Instead, we will look at one or two developments which may well be used to improve the performance of any Ham station.

For our purposes we may consider the applications of the tube under two headings:—

(a) Voltage and current supply and control.

(b) C.W. keying control.

Under the first heading we must consider such devices as saw tooth wave generators (time-bases), voltage and current protection circuits, and power rectifiers.

The majority of experimenters are already familiar with the application of these tubes to time-bases, as used with cathode-ray oscillographs and since these circuits cover a large field, much of which has been treated

by literature made available to them, it is not considered justifiable to dwell on them here. We will merely note in passing, that the saw-tooth wave is built up by the combined effects of the steady charging of a condenser, and the rapid discharge by the gas relay tube, when the common voltage on the condenser and anode causes the tube to strike up.

Voltage protection is a precaution which we often overlook—much to our annoyance when the new bottle goes into a power dive or the pet filter condenser starts to bake! The Gas-Relay tube offers a simple solution to this problem as instanced by the circuit shown in fig. 1. This arrangement suggests a method of using a gas-triode for protecting a high-voltage power pack.

The tube is shown with a relay, R, in the plate circuit, which is supplied with A.C. from the transformer T. An indicating lamp is included in the plate circuit also to show when the tube is discharging. The

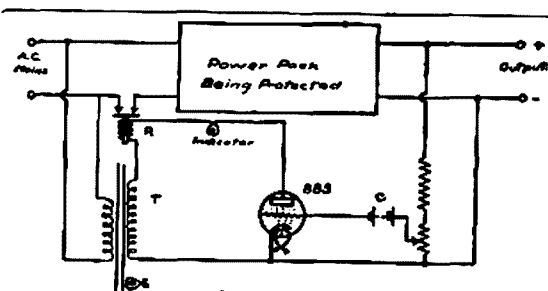


Fig. 1. Protection.

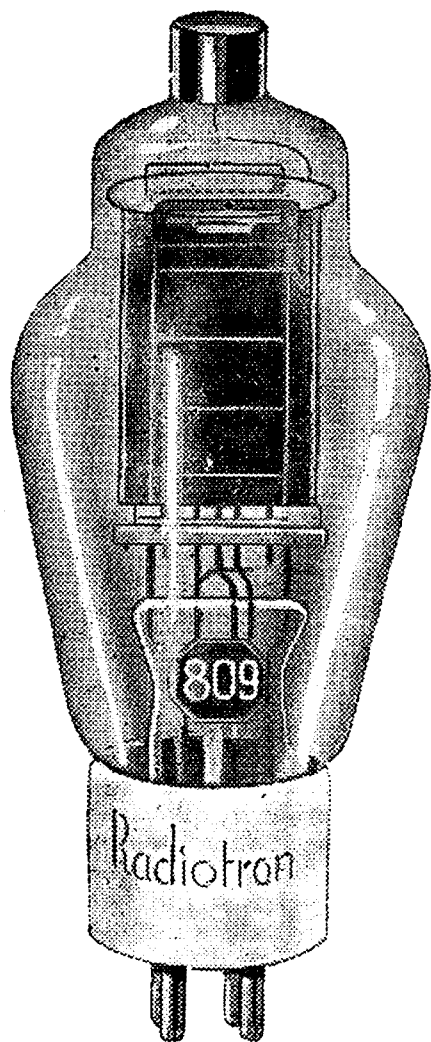
grid bias is supplied from two sources acting in opposition. The battery C supplies a steady D.C. negative bias while a small positive voltage is obtained by tapping the output of the pack being protected.

Output surges may be due to either of two sources; firstly, due to internal causes such as shorting of turns on the choke coil or transformer primary; secondly, due to line voltage surges. We will see how our device can take care of each of these emergencies.

A few figures will help; suppose the r.m.s. volts on the plate to be 60, this corresponds to a peak voltage of 85. Hence the tube will strike up on the peak of the cycle, if the bias is -8.5 volts or less. We therefore bias it, say, -9 volts and the tube will not normally strike up, even on peaks of plate voltage. However, if the output voltage of

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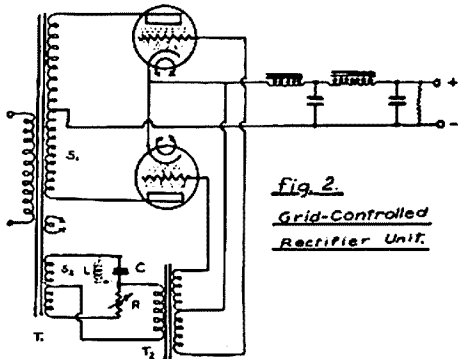
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# RADIOTRONS

the power pack rises, due to the first cause mentioned above, the net voltage on the grid will become more positive, causing the tube to strike up, and the current so produced will pull the relay R out and cause the indicating lamp to flash on. Again, if the mains voltage surges, due to the second cause, the peak voltage on the tube will rise proportionately and cause the tube to strike up and isolate the power pack. At the end



of the positive half-cycle, the anode voltage drops below the minimum of 15 and the tube extinguishes itself. The relay R may, or may not, close again, depending upon whether or not it has a spring-loaded armature. If protection against momentary surges only is necessary, a spring loaded relay could be used as it would continue to open and close until the fault had cleared, after which normal operation would take place. However, as we are more generally concerned about sustained voltage surges it would be preferable to have a relay which would come out and stay out.

Passing to a further aspect of voltage control, there is a very useful application of these tubes as full-wave grid controlled rectifiers. It is possible to construct a power pack using two tubes which can be provided with a very sensitive control on output voltage. The circuit is that shown in fig. 2. You will notice that the anode circuit is that of the conventional full-wave rectifier.

However, the introduction of control grids has led to the development of the arrangement shown. This provides for the supply of two 50 cycle signals on the grids, equal in magnitude, but opposite in phase. These signals come from the transformer T2, whose primary is supplied

from an auxiliary secondary winding S2 of the power transformer T1. This secondary, together with the resistance and condenser shown (R & C), connected in the manner shown, constitutes a phase-shifting device whereby variation of R causes the voltage on the primary of T2 to be shifted in phase with respect to those voltages across the various windings of T1. Since the primary voltage may have its phase shifted thus, it follows that the secondary voltage, and therefore the voltages on the grids of the rectifiers, are shifted with respect to the voltages across the windings of T1. One of these windings supplies the plates of the rectifiers; therefore, variation of R causes the grid voltages to vary in phase with respect to the plate voltages. With the arrangement shown, the maximum variation is 90 degrees, i.e., one-quarter of a cycle.

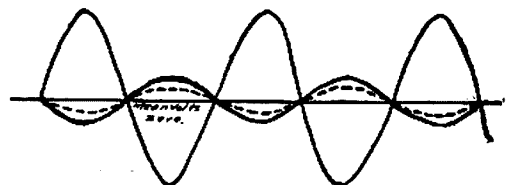
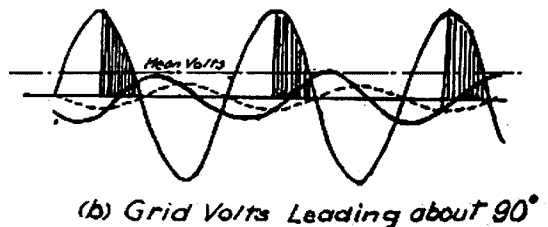
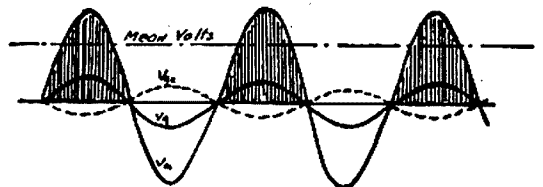


Fig. 3.

It is possible to obtain 180 degrees if necessary, by the use of an inductance in place of the condenser C.

The manner in which this resistance is effective is best seen by reference to the curves of fig. 3. Here we see conditions applying to one of

the tubes when the resistance is a) Zero, b) At an intermediate value and c) At a value equal to zero, and with an inductance in place of the condenser C. These produce, respectively, an in-phase voltage, a voltage of intermediate phase displacement and a voltage which leads 180 degrees.

When the voltage is in phase with the anode voltage, the grid bias is positive and therefore the tube strikes up as soon as the anode voltage exceeds 15 volts. The rectifier is conducting for almost the entire positive portion of the cycle and we get the full voltage output.

When the grid is made to lead an intermediate distance, the tube will not conduct until the grid voltage rises above the critical range, shown dotted. As soon as this happens, discharge commences and continues until the anode voltage drops below the critical 15 volts. Due to the fact that the tube works for less time than in (a), the average output voltage is reduced.

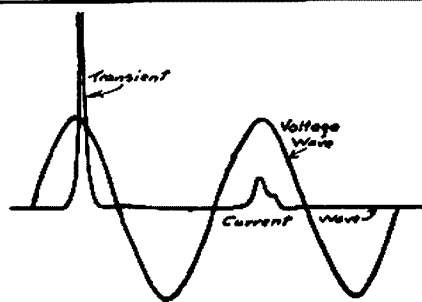
When the grid voltage leads 180 degrees or one-half cycle, the grid voltage never rises above the critical value and therefore in (c) the tube does not discharge at all and we have zero volts output.

This variation of R enables us to vary our voltage between zero and a maximum; moreover, it effects this without any waste of power—the rectifiers only supply what power is needed and have a spell for the rest of the time.

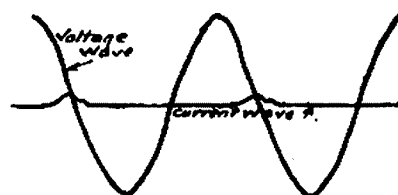
Before leaving this, it is interesting to note that it should be possible to replace the resistance R by a valve whose internal resistance is made to decrease as the power pack output voltage tends to drop. This would enable a power pack to be constructed with almost perfect regulation. We hand it over to you to nut out a suitable bias arrangement for the regulator tube; if this bias is linked with the output voltage, the internal resistance will certainly vary with the load.

A well regulated power pack would solve many difficulties of the phone man and also it would remove the last chirp or surge from the C.W. transmitter.

The greatest difficulty of the C.W. man, however, is that of correcting for key-clicks. We are more directly concerned with our immediate neighbours than with the fellow say, ten miles away. We may well turn to the gas-triode for assistance, not just for correction but for elimination right at the source. Key filters are suitable for damping the clicks out of the transmitted signal and therefore take care of the fellow ten miles away, but they are not always effective in eliminating the QRM which flies back along the mains to neighbouring receivers.



(a) Circuit Closed at Maximum of Current cycle. Bad Transient



(b) Circuit Closed at Minimum of Current Cycle. No Transient

Figure 4.

Key clicks are transient in character, i.e., they are composed of a very wide range of frequencies from low to very high. When we close the key, there is a transition from no current to a considerable current and this produces a steep fronted wave which travels unhindered through normal filter chokes and transformers, the capacity of the windings offering a short-circuit path to the high-frequency components. It is this wave which causes the trouble with the neighbours and to which we have devoted some considerable thought.



Some research work done recently at Sydney University by I. D. Cuffe (VK2XC), J. Knight (VK2TB) and W. K. Clothier in connection with transient effects on transformer primaries suggested to us the possibility of keying a transmitter in such a way that the key always closes as the A.C. current cycle passes through zero.

The diagrams of fig. 4 are taken off photographs by 2TB, who used two R.C.A. 885's to close the circuit at any part of the cycle desired, and photographed the current and voltage waves simultaneously off the screen of a cathode-ray oscillograph, using Mr. Clothier's High-Frequency Electron Switch to superimpose the two curves.

In (a) we see the circuit closed as the voltage wave passes through zero. Since the current lags a quarter cycle behind the voltage, in the case of an inductive load, it must be at its maximum as the circuit closes; this produces the transient seen shooting out of the picture.

In (b) the circuit is closed as the voltage passes through a maximum and the current is then momentarily zero. No transient is produced, and we have the ideal condition.

We have developed one or two circuits from Mr. Knight's system, which we think will be suitable for the keying of a radio transmitter. As some practical tests still remain to be carried out it is not considered opportune to publish the circuits at present, but if the result turns out as we hope, you will hear more about it.

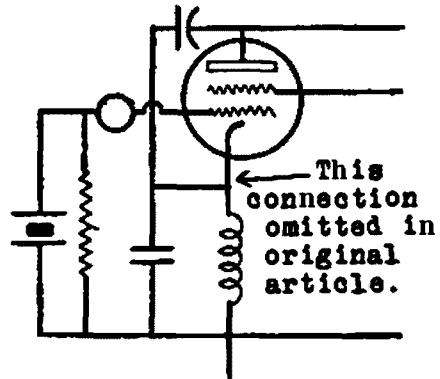
Well, that's the story of the Thyatron as far as we can go at present and the writer trusts that he has been successful in stimulating some interest in the new field of gas-relay control. Here's hoping that this interest will turn into activity in the near future, so trot out your bright ideas!

## Harmonics

VK5YL, in a recent QSO with VK2DQ had her pencil run hot and burn her fingers! If you don't believe it ask Betty to post you the pencil.

VK4WX's name is T. E. Ham!

## Putting the DC Mains to Work



-Putting the D.C mains to work-  
Correction by VK4LK.

VK4LK has pointed out an omission in the circuit diagram of his DC Mains transmitter published in the April issue. A correction is shown above.—Tech Ed.

## Field Day at Wyong N.S.W.



A snap of some of the VK2's and Convention Delegates taken at the N.S.W. Division Field Day at Wyong.

## SPECIAL NOTIFICATION.

The publishers wish to notify readers and advertisers that the July issue of "Amateur Radio" is to be in the form of a SPECIAL VICTORIAN DIVISION ISSUE. Considerably enlarged and containing many new features of interest, it should commend itself to all those desirous of assisting by advertising and other support.

# The W8JK Beam — and Variations

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(By Peter H. Adams, VK2JX.)

The W8JK or "Flat Top" beam has been covered rather fully in articles by Johnny Kraus himself, and probably most readers are familiar with this type of antenna. However, it is the purpose of this article to deal with some aspects of this aerial which may not be common knowledge and also to describe a variation of the W8JK beam which has four or more lobes instead of the usual two. This latter type cannot strictly be called a beam but it is an antenna which is especially suitable for use in Australia. The reason for this will be obvious later.

First let us discuss the W8JK beam in its original form. This consists of four half wave doublets arranged as shown in Fig. 1. The feeders are attached at points xx and it will be seen that the currents flowing in the antenna at a given instant will be as shown by the arrows in the diagram; that is, there are two half waves in phase along one side, and along the other side there are two half waves, 180 degrees out of phase with the first two, but in phase with each other. Expressed in another way, the Kraus beam consists of two half waves in phase spaced one eighth wavelength from two half waves in phase acting as a driven reflector. Now since each side acts as a driven reflector for the other the array is bi-directional.

M. A. Brown, in a paper read before the I.R.E. of America, showed that a reflector placed behind a radiator increased the field strength in the desired direction more than the spacing between it and the radiator was reduced from the spacing which earlier theoretical considerations would indicate as being optimum. In fact, he found that spacings as close as one eighth wavelength gave maximum results. This value is not critical, however. It was this paper that led Kraus to investigate the possibilities of close spaced arrays for amateur use and the "Flat Top" was the result.

## Earth Losses.

The closer spacing is actually more effective in producing a greater field strength in the desired direction (broadside) because it reduces the radiation in the direction at right angles to this (vertically up and down). Now, for amateur work, this is of great importance, because no amateur aerial is erected over a perfect earth and it is usually difficult to erect the aerial sufficiently high above the ground as to make the earth losses negligible. With the winter now with us, the worms in the ground under our antenna would doubtless be grateful for a little extra warmth, but it is felt that the average amateur is callous enough to prefer to put a couple of S points on to his signal in some DX country, than to bring warmth and comfort to our fine featherless friends.

Now with the W8JK beam the field immediately under the aerial is zero and no R.F. currents are induced in the earth. The reason for this will be obvious from Fig. 1. This represents a bird's or worm's eye view of the aerial. Provided the aerial is a reasonable height above the ground it will be seen that whilst two of the half wave sections will produce a field tending to cause a current to flow in one direction, the other two will produce an equal and opposite field. For the same reason there is no radiation vertically upward; and therefore no power is wasted in this direction as is the case with most other types of antenna.

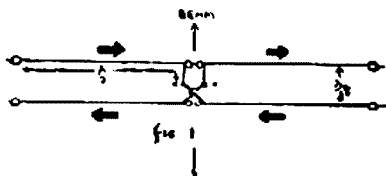
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## Radiation Resistance.

A characteristic of the W8JK beam is that it has a low radiation resistance. Reference to Fig. 1 will show that each end of the aerial is virtually an open wire line with wide spacing. Hence the radiation resistance is low and the currents in the aerial and feeders are high. In the flat top each of the four half waves

takes on quarter of the total power and so the losses are not likely to be high there, but as the feeders carry all the power the current in them (particularly at a voltage node if the feeders are tuned) is likely to be very high, and so, heavy wire should be used.

The low radiation resistance also causes the aerial to tune sharply and therefore if operation is desired at two or more widely differing frequencies in the band, it is preferable to use tuned feeders rather than a quarter wave stub and non-resonant line. With tuned feeders the whole antenna system can be tuned from the station, and provided the line is not over a wavelength or so in



length, the losses in it should be quite small. When tuned for one end of the 14 mc band, the antenna will hardly draw any power at the opposite end of the band until it is retuned. This is with link coupling between the plate tank and feeder terminating tank as shown in Fig. 2. For either series or parallel tuning of the feeders, the split stator condenser may have its moving plates earthed without any effect on the antenna's performance when using this circuit. Furthermore, even if it is not earthed, hand capacity is entirely absent.

## Practical Results.

The W8JK beam was tested against a standard "two-half-waves-in-phase" aerial during the last D.J.D.C. Contest. Both aerials were directed on Central Europe and had the same position and height. It was found that approximately the same reports were received from both aerials when the W8JK beam was fed with only one quarter the power used with the "two half-waves in phase" and that when the same power was used with both aerials the beam resulted in the signal being reported on average of two S points louder. It should be mentioned parenthetically that it was not possible to test these two aerials side by side as one was used one week and was then pulled down and the other then put up the following week-end. Conditions over the two week-ends may have played some part, but judged by other participants in the contest the difference was not great.

Another important point is that it was practically impossible to raise American stations (which were off the end of the beam) and even when a few were contacted the best report received was S4.

## Harmonic Operation.

The W8JK beam may be operated on harmonics if tuned feeders are used, but the radiation pattern will not then be the same as for the fundamental. Kraus states that when operated on the second harmonic the radiation pattern has four lobes each at approximately 50 degrees to the wire, that is, a similar pattern to the ordinary full wave zepp. except that the radiation is confined

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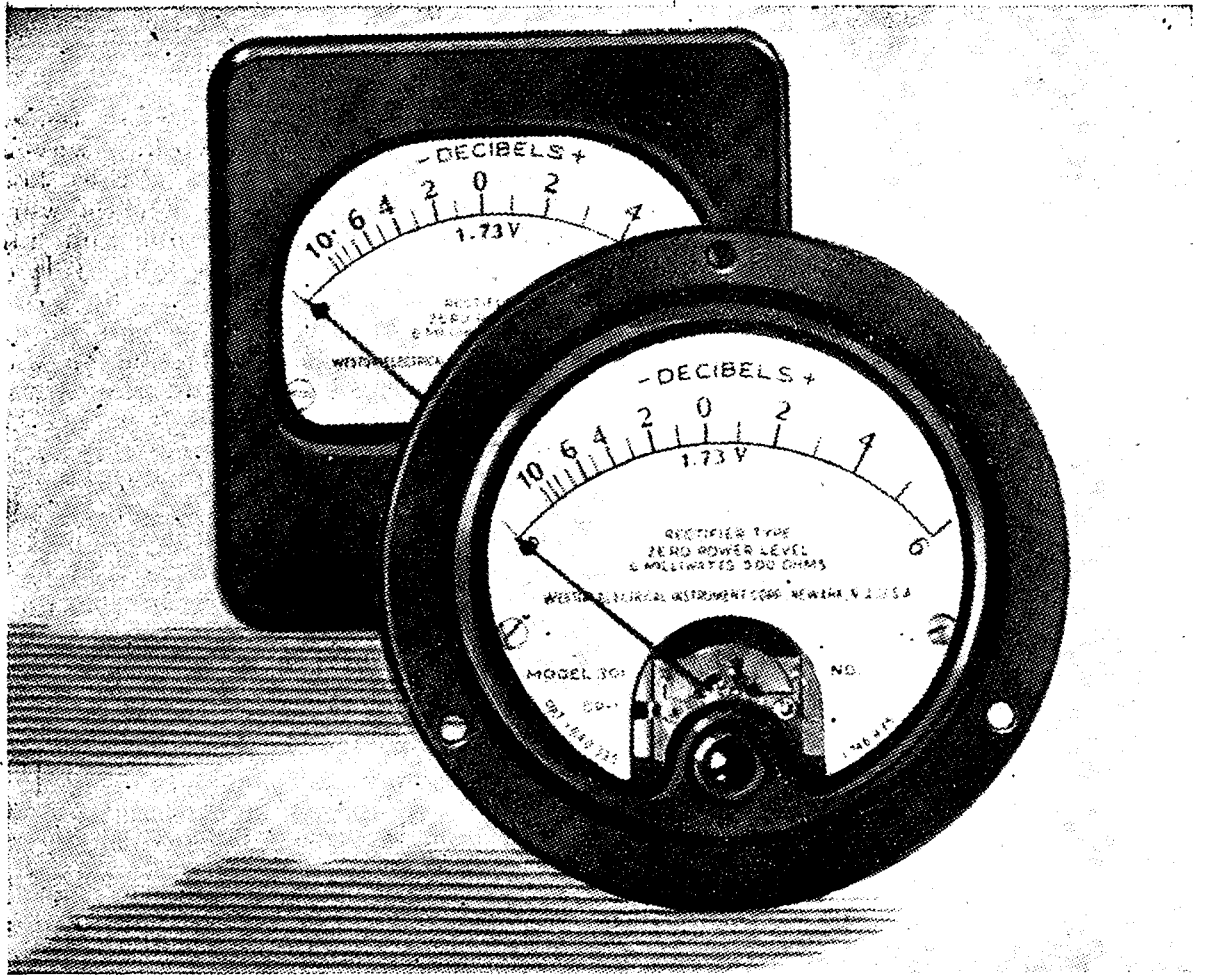
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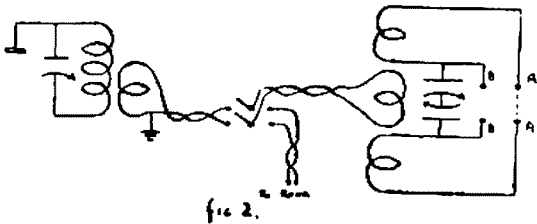
## Weston Instruments

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to low angles. The writer disagrees with this. Firstly, from theoretical consideration, it would appear to be incorrect because the aerial operated on its second harmonic consists of what might be termed "two full waves in phase" with a driven reflector. This being the case it will be seen that there are two half waves in phase in the centre of the array with two half waves at the ends which are out of phase. Considering the lines of force around the antenna leads to the conclusion that there would be six lobes in all, two (and possibly the strongest) broadside to the array (same direction as for fundamental operation) and four lobes at between 20 and 50 degrees with the wires.

The writer has not been able to check this with a field strength meter as it is very difficult to measure the field strength from a horizontally



For series tuning feeders connect to AA; for parallel tuning feeder, connect to BB and points AA are jumpered. The feeder terminating tank coil consists of from 6 to 8 turns with 2 turn link coil in centre. Condenser is 25 mmfd. per section.

polarised array with the meter at ground level. Possibly if the meter could be placed, say, one half wavelength above the ground this could be done, but with a vertically polarised array it is a simple matter.

However practical results have shown that the radiation pattern takes the form suggested. It was found that quite good signals could be put into Europe on 28 mc. when the beam was lined up on Europe for 14 mc. operation. This could hardly be expected if the radiation pattern suggested by Kraus, with a null broadside to the array, were correct. Also it was found that good signals could be put down in directions making small angles with the wires in the array. This would make it appear that there are six lobes. It is

just possible, however, that the two lobes broadside to the array may actually each be two lobes close together with a very sharp null in the centre, but practical results have not confirmed this, although if the central null were very sharp, it would not be noticeable. In this event, of course, there would be eight lobes.

## Receiving.

The directional characteristics both on the fundamental and second harmonic are just as effective when used for receiving. Actually the same aerial was used for transmitting and receiving, the switching being done by means of a double pole double throw switch connected in the link. By thus switching at a low voltage point it is possible to use a bakelite based switch without introducing losses.

Used for receiving on 14 m.c. with the beam directed on Europe, it was impossible to hear more than a very occasional W signal, and even these were weak.

It is rather interesting to note that both for transmitting and for receiving the effectiveness of the beam for working Europe was more apparent in the early mornings than in the afternoons. This would seem to indicate that when travelling over the shorter route (north-west) the signals follow the great circle route, more or less exactly, but when coming "the long way round" they evidently travel by a number of paths only one of which may follow the great circle. This is also borne out by the fact that it was often possible to hear signals from W 1's and 2's at about 8 a.m. These were evidently travelling "the long way round" over some path that went across Europe, and therefore did not follow the great circle route.

## The Four-Lobe Antenna.

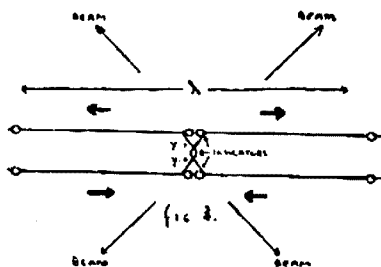
Whilst a beam antenna of this type is ideal for working in two opposite directions, it naturally follows that if it is desired to lay down a good fat signal in any particular part of the globe at will, the array must either be made rotatable or else several fixed arrays must be erected. The first method is expensive and involves mechanical problems which are far from simple and the second requires a large amount of space.

Now the study of a great circle map centred on Sydney will show that if a reasonably broad beam could be radiated in a north-west south-east direction and another one in a north-east south-west direction very little of the globe in which amateurs are located in any numbers would be missed. It occurred to the writer that if the W8JK beam were reconnected as shown in Fig. 3 and its directions were changed to run north and south or east and west, this result might be obtained with the added advantage that the radiation would be confined to low angles. The feeders attach to points YY. It will be seen that the wires are not crossed in the centre, but are brought in to an insulator in two v's and one side of the aerial instead of having two half waves in phase now has one full wave. The radiation could be expected to be similar to that of a full wave Zepp, with the exception that the driven reflector which is 180 degrees out of phase would eliminate any radiation vertically upward or downward and confine the radiation to the useful low angles. Also earth losses would be eliminated as before.

### Practical Results.

This aerial was tried and gave very good results. Good signals could be transmitted to, and received from, of two the gain due to the directivity is not as high as with a normal W8JK beam directed on any particular country, but this difference was found to average one one S point, and of course one has the advantage of virtual all-round coverage from Europe, North and South America and South Africa. Of course, since

the radiator is in four lobes instead the one aerial. Compared with "two-half-waves-in-phase" the "four lobe" aerial put out a better signal in four directions than the former did in two directions.



Roughly, the results may be summarised as follows: At a given distance the normal W8JK beam put down an S7 signal in two directions, the "two-half-waves-in-phase" put down an S5 signal in two directions and the "four-lobe" aerial put down an S6 signal in four directions.

### Harmonic Operation.

The "four-lobe" aerial may be satisfactorily operated on harmonics provided tuned feeders are used. When used on its second harmonic it becomes an "eight-lober" due to the fact that it is virtually a two-wave aerial with a driven two-wave reflector space, in the case, one quarter wave length. The nulls would be quite sharp, and therefore it could be regarded almost as radiating equally in all directions. In spite of this, very good results have been obtained on 28 mc. Probably this is due to the radiation being confined to low angles and the elimination of earth losses. The antenna has not been tried on 56 mc., but there

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would seem to be no reason why it should not operate satisfactorily. However, the radiation would be equal in all directions although confined to low angles.

### Mechanical Details.

As with the normal W8JK beam, the "four lobe" aerial requires three spreaders each about one-eighth wavelength long (nine feet is satisfactory for 14 m.c.) These can conveniently consist of bamboo fishing poles. These can be obtained for about ninepence each in the fishing tackle department of some of the larger stores. They come in lengths of up to sixteen feet, but only the thick ends should be used. The centre insulator where the feeders are attached should be supported from the centre bamboo spreader by two more insulators, as otherwise the strain of the feeders will pull the antenna out of shape. There would seem to be no reason, however, why the aerial should not be made as two straight wires one wavelength long, spaced one-eighth wave, and having the feeders attached one in the centre of each wire, after being fanned out in a Y shape. That is, the V pieces could be straightened out and the spacing of the feeders increased over the last few feet, from, say, six inches to the eight or nine feet necessary to attach to the aerial wires.

In any case, the two end spreaders should have rope guys attached to each end so that the whole array can be made horizontal.

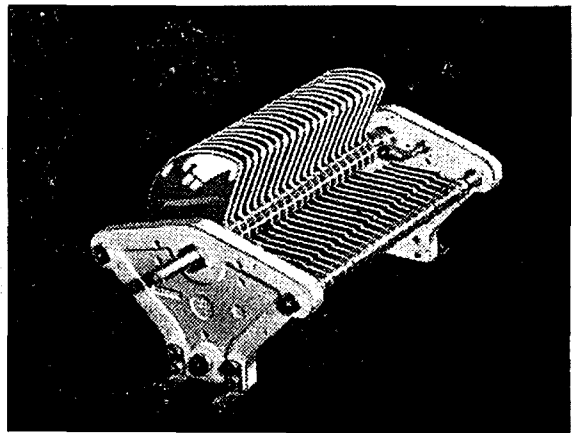
As with the normal W8JK beam the aerial may be fed from either end instead of at the centre. A convenient length for the feeder is about 40 feet. This allows series tuning on 28 mc. and parallel tuning on 14 mc.

A possibility that seems to have been overlooked is the use of vertical Kraus beams for 28 and 56 mc. These could be fed from the bottom end instead of the centre, although the wires would still have to be crossed over in the centre. They could easily be hung by a single piece of rope from the top end from, say, another aerial, and could then be easily rotated from the ground. The writer has not yet tried this idea, but it seems to offer an interesting field for experiment.

## TRANSMITTING CONDENSERS

These Condensers will be on display at the Institute on the **First Tuesday in April.** Just arrived—a new shipment — **Frequentor Transmitting Condensers** with  $\frac{1}{2}$  in. diameter removable shafts. Silver plated plates, double spaced. Frequentor non-hydroscopic end plates.

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N.S.W. PERSONALITIES



- 1.—VK2RA.
- 2.—VK2UX.
- 3.—VK2HP.
- 4.—VK2DR.

- 5.—VK2PX.
- 6.—VK2PF.
- 7.—VK2TI.
- 8.—VK2WN.



## Amateur Radio

Ray, 2RA (1), is a real old-timer, having obtained his ticket in 1929 when still a schoolboy. Was recently Publicity Officer of the Division, but now looks after the distribution of the Magazine. Has taken his Degree in Engineering and is recognised as one of the coming men in his profession. Spent his early days on the air as Bathurst (ask 2NS). After Wal, 2TI, gave him some advice he began to work. DX hand over fist (?). Considers that he takes an interest in stamp collecting, especially Australian imprint, but 2TI has his doubts. Has great faith in a single 808, but not much faith in 10 mx! Won the Crawford Trophy in 1937 and is now practising for 1939. Look out 2ZK!

Frank, 2UX (2), is the Senior Vice-President, and practically from the time that the A.R.A. was formed in 1932 was its President, and at various times has held every position on the council of the Institute, and Amateur Radio in New South Wales owes quite a lot to him for the manner in which it was reorganised after certain happenings in March, 1932. Is a qualified accountant and company secretary by occupation and in addition to his call, attaches the following hieroglyphics after his name:—A.C.I.A., A.A.I.S., and A.A.A.A. Has been on the air since 1932 and has great faith in a 212D and an antenna of his own design. Frank asks that anyone hearing him recently on 40 mx not to take his frequency as being the high frequency end of the band. Wonder why?

Harold, 2HP (3), is the newly elected Federal President of the Institute and, obtaining his licence in 1929, can be almost called an "old timer." Prior to his election as Federal President, he was for two years President of the New South Wales Division. Under his able guidance the Division has progressed by leaps and bounds and it was through his efforts that the Division was recognised by the State Government during the Sesqui-Centenary Celebrations just concluded, and he was instrumental in obtaining a grant of £100 towards the 1938 VK-ZL Dx Contest. Harold in his own quiet way has helped many a lame dog over a stile and quite a

large number of "hams" are grateful to "Honolulu Portugal" for many a friendly tip. At the Annual Dinner of the Institute the title of "Honest Harold" was bestowed upon him—rather facetiously—but to those who know him, no man is more worthy of having that title than 2HP. Spends most of his time knocking over the dx on 20 mx with an 803. "Well, so much for that."

Don, 2DR (4), is our new Secretary and the manner in which he is delving into his work augurs well for the success of the Division in ensuing years. Don has been on the air since 1931 and is proud of the fact that he has had 225 skeds with 5 FM. The line-up at present is a dark secret, but believe the xyl is very keen, so very soon 2DR will be a very consistent station on all bands. Perhaps you remember "Floggo" on 80 mx some time ago.

Harry, 2PX (5), is the Divisional Treasurer and is a real old timer. Despite this fact, still rises about 4.30 a.m. (yes, winter or summer) to work the elusive Europeans. Is a keen Dx man and has worked about 85 countries and 34 zones with QRP. Is reputed to have the ability to obtain blood from stone.

Fred, 2PF (6), our second Vice-President, is almost a newcomer to the locals as prior to 1937 he was located at Cowra and should be quite well known to the country boys. Has been on the air since 1933 and has great faith in a 210. Fred is in the Department of Justice and would like to state that he is not that symbolic, white robed figure that we often see holding a pair of scales in its hand.

Wal, 2TI (7), was secretary of the Division from 1936 till 1938, but was then forced to retire due to pressure of business. Was elected vice-president at General Election in March, and, upon 2HP's election to the Federal Presidency, was elected President of the Division. Spends most of his time on the air with an 804 on 20 mx and a couple of 808's on 10 and 5mx. Is quite well known for his retiring and unassuming disposition and his horror of anything approaching an argument. Oh yeah.

Morris Lusby, 2WN (8), is the new Technical Officer of the Division and is a recent graduate and Honors man of the University of Sydney and VK2 is proud of its B.E. and B.Sc., Member of the Divisional Council. Morry has great faith in a couple of 809's. When the boys see the caricatures on the opposite page possibly they may have something to say to 2WN.

Jim, 2YC, has been QSL Officer for the Division from time immemorial and considers that it is the worst job in the world but despite this fact you could not get him to give it up for all the watts in Bunnerong. Has been one of the Division's most willing workers and staunchest supporters and the country hams' greatest friend. The chemist's shop at Millers Point was always a meeting place for the country ham and many an argument has taken place behind the dispensary at the "Point." Jim handles more QSL cards in N.S.W. than anyone else, but unfortunately many hundreds of South Americans passed through his hands before his came along. Perhaps we should mention the QSL officers' assistant. She is now carrying on whilst Jim is temporarily located at Taree. Hats off to the XYL.

## QSL? —————

From QST we glean the interesting information that qsl cards were originated by D. A. Hoffman, W8FRY.

## QSL Bureau

(Ray Jones, VK3RJ, QSL Manager.)

Snowy Harrisson, VK3CN, deploras the use of his call by a pirate. On personal application by the pirate, Snow will have over cards, a vigilance blister, and . . . !

The new QSL Bureau for Hungary has the following QRA:—Kalman Szentpetery, Hazn, Budapest I. Varosmajor-U 23. III., Hungary.

Bill Williams (VK3WE) used his eloquence to such good effect that he persuaded Snow Campbell, VK3MR, to continue on from the Eastern Zone convention at Warragul to Bill's home at Omeo for a few days. When not imitating the mountain goat renowned in fable, Snow was to be heard rolling his R's at Bill's shack.

Cards for the following VK3 stations may be had on demand (accompanied by 2d.) at the Bureau, 23 Landale street, Box Hill:—AP, BE, BJ, BN, CC, CU, CV, DJ, EA, EC, EI, ES, EW, FK, FM, FT, GB, GJ, GM, GN, GP, GV, HB, HP, IL, IR, JA, JD, KC, KG, KM, KO, KU, KY, LI, MH, NA, NB, NC, NF, OF, OU, PA, PB, PC, PH, PN, PS, QO, QR, SD, SM, SO, ST, TB, TG, TY, TV, UC, UN, US, VB, VK, VM, VX, VY, WH, WP, WR, WW, XA, XE, XD, XR, XU, YA, YG, YR, YS, YT, ZG, ZL, ZX, ZZ, Webb Jones.

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## VK2HF

(By VK2VN)

Owned and operated by J. Alan Furze, of Seaforth, a suburb of Sydney, 2HF presents probably the most outstanding station in Australia, and definitely in New South Wales, at the present time.

Seaforth is situated about four miles from the heart of Sydney's noise and bustle, overlooking Middle Harbour, and Alan possesses probably the best location in that district, being approximately 250 feet above sea level with an unobstructed vision in all directions.

Operations were commenced in 1928, and since then every effort has been made by the operator to be the proud but modest possessor of the perfect station.

On approaching the district, one can easily distinguish the two 90-foot masts towering over all and sundry, and to the uninitiated they would appear to be the sky wire supports of a commercial station!

At present there are three separate transmitters complete with their own power supplies built in three standard steel racks. The panels, crackle finished, present a pleasant sight with their rows of meters, knobs and indicator lights (from memory, there are 52 meters in use in the shack). Space will not permit a complete description of the transmitters, but it will suffice to say that for 40 metres, P.P. 830's are used, for 20 metres P.P. 801's, and for 10 and 5 metres, P.P. 35T's. At the time the accompanying photograph was taken, only two transmitters were completed, but since then the 5 and 10 metre rig has been completed, and a fourth is well under way.

All three are equipped for both telegraphy and telephony, the change being made by the mere throwing of a switch.

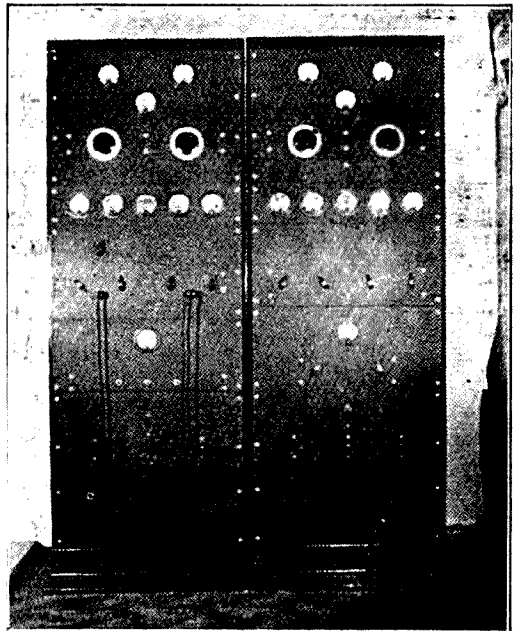
Several frequencies are available for each band, selection being made by means of a switch on the panel

and retuning of circuits is unnecessary.

Excellent quality speech is obtained from a crystal microphone with conventional amplifier stages, and it is with ease that we recognise the CW sign of VK2HF, a second class commercial operator's certificate being the responsible element.

Whilst speaking of telephony, it might be as well to mention that all transmissions are checked with a Cathode Ray Oscilloscope.

Altogether, there are 85 tubes in use in the shack, of which 65 are in



the transmitters and 22 in the receivers. The 10 metre receiver employs 9 tubes and is fitted with AVC and noise suppression, likewise the 40 and 20 receiver which has the remaining 13 tubes to do the job.

Not satisfied with the array of tubes, transmitters and meters, we strain our necks looking into the sky at the huge black spider web. It would be impossible to describe each antenna as changes are made from day to day, but it is not exaggerating

## Amateur Radio

to say that beams are available for all directions on most bands and they vary from twelve half waves in phase to a single vertical half wave. All manner of feeders find their winding way into the wonder wireless room and terminate in a multiplicity of double pole double throw switches.

As regards performances, 2HF always appears well to the fore in contests, and was it not for the fact of pressure of work some of the major contests of the world would have no doubt had a different recorded as their winner. However, Alan is eagerly awaiting this year's VK-ZL contest. The DX tally for CW is 98 countries and no less than 68 have been contacted on telephony. Duplex contacts have been made with four continents, and it will not be long before we can talk of a truly remarkable performance, Duplex Telephony WAC.

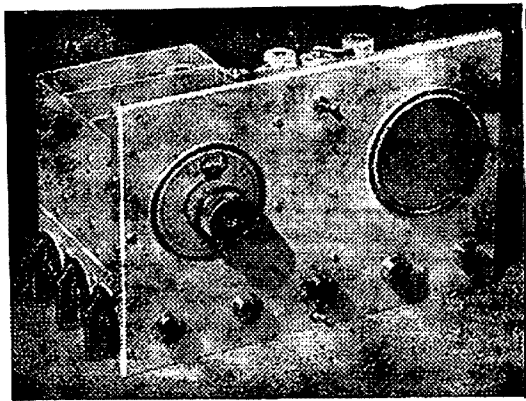
Another rather unusual performance was the broadcasting simulta-

neously on 40 and 20 metres of the opening of the 14th Annual Convention by John Logie Baird. A land line from the hall was used, which necessitated special speech equipment and judging by reports the broadcast was well received in all parts.

Congratulations and hats off to VK2HF, New South Wales' premier station.

### SILENT KEY.

It is with deep regret that we learn of the death of Mr. Douglas Buchanan, VK2ABT. This is a real loss to Amateur Radio, as he was a fine "ham" imbued with the true Amateur spirit. We take this opportunity to extend our heartfelt sympathy to his relatives.



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## Air Raider's Column

Ah, been on the job this time, with the result that I have had to hold back on a few for the celebrities column. Anyway I'll let fly, and trust to luck.

4TY.—Gets the gold medal for the best performance this issue. You see he only called CQ 47 times, (No Bull) before signing. Gosh, I nearly fell to sleep, and you should have heard the language. To cap this off, he ended up raising W2HHF after calling him twenty times—just woke up to the reason for all the CQ's. 4TY is out of the band, get it? Howzat umpire? (Suggest you install a "2HZ CQ machine.")

3XG.—Sounds as though he has got a frog in his throat, or is it the pipes of his Xmtr want cleaning?

3KU.—Showing the fone lads that an old timer can keep pace with the best of them, nice sig, OM, and welcome back. 3KU is ex-3BM of the dark ages.

5RW.—Must feed his rig on canary seed, judging by the chirps it emits.

3DE.—is a mystery, one minute he is shoving out a chirpy d.c. note with wobulation, next minute he is calling his chirpy pal 5RW with a nice T9 sig. (I think you ought to study the code, 0M, 5 is 5 dots, not 4.)

2RQ and 2RH.—Are among the ripples, still holding up the fort for the punk sigs.

5WD.—Keeps some fb fone down in his cellar, and he knows how to use it. Yes, "Old Boy," 4JU does over modulate a wee bit???

3CU.—Say OM, I'd hate to have been 3ZP trying to copy that bug of yours, you're nearly as bad at 3BG when he tries to send fast. A bit more private practice, OM.

3MR.—Going crook about the way I slate the boys, don't worry OM, I'm not a wowser. Anyway your mike sounds as though it wants a box on the "buttons" to shift some of the coke.

6WS.—Has fine fone, but he reminds me of the fellow who went to U.S.A. for a week, and when he came back he could speak the well known nasal twang. Quite a lot of the boys are trying to imitate the W's, better cut it lads, the W's will think you are only another W, then look at the qso's you'll miss.

5BF.—Is another station that pushes out a hefty fone sig. with good quality, a lot of good fone from VK5.

3VY.—Adds a little feedback, and some hum when he comes on fone. Try a little "Lifebuoy Soap" for the hum OM, and for the feedback, turn the receive off before you open the mike. Your speech is as good as any OM.

3EH.—Has a nice hefty hum on his sigs. Shift the mike tranny at a different angle.

4SD.—Has a xtal a.c. note, and is trying to raise dx with some rotten slow sending, guess he must be getting jealous of the VK2's.

2AGU.—Is one of the canaries who whistles into the mike, and watches the pea lamp at the same time. Your fone is a bit on the rough side OM.

3VJ, 3CT, 4GE.—All out of the band on 14 mc, must have been granted commercial station licences, or perhaps they are after U2NE. It looks as though these rubber xtals stretch a long way, except that 3CT has a punk chirpy sig.

4HC.—Has a bubbly xtal note, sounds like a loose wire in the rig, OM.

Well, time marches on. so 73 till next issue,

"AIR RAIDER."

In future all mss. and letters must be signed with the writer's name and address, not necessarily for publication, but as an evidence of good faith.—Ed.

## 28 and 56 M.C. Notes

(By A. Pritchard, VK3CP.)

Ten meters has been very active with all continents except Europe. It is a few months now since sigs. have been heard from there. Five meters is getting a helping hand with the coming tests. Sunday, 15th May, VK3DH on 5 meters was re-ayed at 9.45 p.m. through 3ZX on 10 meters and rebroadcast to the States on 20 meters. 3DH used a portable mobile rig 2 tubes osc and mod. with 4 watts input— $\frac{1}{2}$  wave antenna fixed to the car. VK3CZ has his pair of 800's on 5 meters, using the 3rd harmonic tank circuit with good efficiency. A  $\frac{3}{4}$  inch arc from the plate tapping! The antenna has  $2\frac{1}{2}$  waves in phase and this xtal controlled outfit should have an excellent chance to get through to the States in the coming 5 mx tests.

VK3JO has completely rebuilt his fb rig for the tests, and will operate from the roof of the Institute. 3JO has included 50 KC tuned IF's in his receiver, the added selectivity showing up the hopelessly unstable modulated oscillators. The 5 mx regenerative doub. will be in operation here at 3CP. The super het has efficiency on 5mx comparable with 10 meters and should receive any weak carriers. Several 20 mx harmonics have been received here on 5 mx, VK3VB being consistently r9 plus. VK3YP is rebuilding his rig into a new 6 ft. rack, all self contained! The 10 mx sigs have been improved as several have efficient rotary beams in operation. 3BQ lost his in the Easter gales and is now using a 3- $\frac{1}{2}$  waves zepp. 3XP gets tremendous gain and his sigs rise easily 7r points, from the right-angle position to full on. 3NP has an H type array and evidently the power is going to the States, as locally he has greatly dropped in strength.

The 8JK beam is being tested here at 3CP—mounted vertically from a 50 ft. high cross rope—added height being obtained by folding back 2 feet at the top and bottom. This beam is easily turned and tests with ZL4FK show an increase from point 2 on the RME 69 to point 6 when the beam is correctly aimed. ZL1MQ

has excellent quality phone on 10 and has good output on 5. His multi stage transmitter has a 6L6G ECO on 160 mx fed from a separate power supply (appears as steady as xtal) 2,6L6G doub. stages, '210 final on 10 mx or doub. to 5 feeding PP 6L6G on 5. The antenna on 5 has a  $\frac{1}{2}$  wave with 2 reflectors and a director. The modulator has a speaker-mike into 3-56's—the latter is a cathode type phase inverter, driving a 53, into 6L6G class ab. He is ready for schedules with VK's.

VK'S 3NW and 3ZD are comparatively new on 10, the latter using a T20 final doubler—a long wire ant. puts out good sigs. From French Indo-China FI8AC has been qso'd here on cw several times and is a new country from 10 meters; his signals peak around 6.30 p.m. during the weekends. W6PDB is often heard R9 when the band is apparently dead. He is using a new type of beam (described in April Radio) having 4 vertical wires on a single pole and pulled out at the centre, giving the shape of a diamond; by the strength of his signals, this beam is evidently something out of the box. VK3XP has had some fb phone qso's with South Africa, the best being with ZE1JR and ZS2AF at 6.30 p.m. Sunday, 8th May; the latter is using 50 watts into a pair of 35 T's and using a diamond with a span of 360 ft. long by 230 ft. wide, need the big open spaces for that job, hi!

There are several 20 mx harmonics on 10—VK6ZO has good strength. On Sunday, 15th May, W6SG was heard at 4.45 p.m., 20 mx harm., changing down to 5 several surging T9 carriers. were heard—where from? On Wednesday, 27th April at 5 p.m., SU2TW on cw-rac was heard calling Oceania; his sigs were in the W phone band, so evidently he is new to 10 meters. VK4VJ and 4HR are keeping Queensland on the map. From Sydney 2ADT, 2GU and 2UD supply the States with VK2's. 2GU worker W2INX at midday, 1st May. They were both R9 plus at each end.

## DX Notes

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(By VK3MR.)

Nothing much doing this month owing to the fact that I have been absent from the state. Say gang, when sending in all the juicy dx, please add the frequency and the time, etc., it will interest others. Interstate representatives also check carefully on the South American and South African stations heard in your states, and let me have them no later than 16th of each month.

Who said qsl? You chaps who are still waiting for a few spare minutes between dx qso's to fill in the W cards that are owing, can well be advised to enter for the matrimonial stakes, as this seems to be the only way out of the hard work keeping check on them. This was very forcibly brought under my eyes while staying at 7AB's during a contest. His wife, apart from feeding him during the long hours, also fills in the log as well as the copy for HQ and also keeps all qsl cards up to date in a very business like style and during the lull between qso's, subconsciously drums "Q" on the table in true ham-like fashion. Who owes the most qsl's?

DX.—The most sought after station on 14mc seems to be our old pal W1BES, who is operating at Pitcairn Island under the call of VR6AY. Full details of this interesting station recently appeared in QST. VK2KX has now reached 117 countries. Has degenerated to fone in real earnest now and has worked only 12 S. American fones the last week. Using a he man rig, 6L6, 6P6, 807, 808. One unusual qso being TG9AA in Guatemala. VK4RF supplies a long list of stations worked on 14mc which indicates his 45's are doing their stuff. Swears by and at the good old full wave zepp for general dx. So do I Fred. VK3XQ reports that YV5AR has the same punk rx! 2DG reports some rare ones like VG CX. YT7MT. 14410 kc. VP7NT. 14400 kc. TF3C. 14390 kc. at 6 a.m. Lotsa good European dx at 5.30 a.m. on. VO6D is active

on fone and worked by DG, 14280 kc. Heard here at 6.15 p.m. on 7mc. YV1AD. R5. 4HR, 4EL and 4SD are working all the rare stuff in VK4. Look out for something bigger and brighter next month and get the rig ready for the big contest in October.

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### All-Amateur Exhibition

The Council of the wireless Institute of Australia (Victorian Division) has decided to hold an Exhibition of Amateur apparatus in the Institute Rooms, Queen street, Melbourne, on Friday and Saturday, 5th and 6th August. The Exhibition will be open from 8 p.m. to 10.30 p.m. on Saturday. A nominal admission fee will be charged, proceeds of which will go towards providing prizes for the winning exhibits in each of the following sections:—

- 1.—High Frequency Transmitters.
- 2.—High Frequency Receivers.
- 3.—Ultra High Frequency Transmitters.
- 4.—Ultra High Frequency Receivers.
- 5.—Monitors, Frequency Meters and similar devices.
- 6.—Other Home Built Amateur Gear.

Practical demonstrations of all types of apparatus are being arranged, together with suitable lectures.

As the success of an exhibition of this nature depends entirely on the efforts of individual members, the Council would like to see a large number of entries in each section. Those desirous of entering gear are advised to get in touch with either VK3MR or VK3OC as soon as possible. Further details will be given in "Amateur Radio" next month.

---

The organisers of the All-Amateur Exhibition would like to show a selection of really old qsls; prior to 1924 for preference. All care will be taken of the cards and they will be shown where they cannot be "souvenired."

## Divisional Notes

To ensure insertion all copy must be in the hands of the Editor not later than the 18th of the month preceding publication.

### N.S.W. Division

D. Reed, Secretary, VK2DR, Box 1734 JJ, G.P.O. Sydney.

#### Country Zone Officers.

Zone 1 (Far West).—J. Perooz, VK2PE, Hope Street, Bourke.

Zone 2 (North-West).—H. Hutton, VK2HV, Byron Street, Inverell.

Zone 3 (North Coast).—R. J. Berry, VK2NY, 54 Bacon Street, Grafton.

Zone 4 (Hunter River and Coalfields).—R. W. Best, VK2TY, 57 Hunter Street, Newcastle.

Zone 5 (South Coast and South-West).—R. Ross, VK2IG, 673 David Street, Albury.

#### (N.S.W. Divisional Council).

Our last month's notes went to press whilst the 14th Federal Convention was still in progress, but as this has already been covered fully there is no need for a further report. The functions in which this Division was concerned were highly successful, and we all enjoyed meeting the delegates and visitors — a fine lot of chaps.

Since the Convention activity seems to have waned a little, a rather natural reaction after all the excitement, but occasionally rumours of new rigs, half-waves in phase, separate transmitters for different bands, etc., seem to indicate that the lads are getting ready for the bigDX Contest in October. It is expected that the rules for this will be available before long.

At the April general meeting, Mr. L. G. Petrie (ZL2OV) described the organisation and work of the Radio

Emergency Corps in New Zealand. This body is an offshoot of the N.Z.A.R.T., and has done some very fine work in national emergencies.

Another visitor, Mr. Lowry, ex-VE9AV, also spoke about his experiences in ham radio over the past 25 years, and this proved very interesting.

VK3UH was also present at the meeting.

The Division has been represented at the annual re-union functions of Manly, Waverley and Lakemba Radio Clubs, and also at the 200th general meeting of the latter club. These clubs are doing good work in creating and maintaining interest in amateur radio, and in training prospective applicants for the A.O.C.P. All are staunch supporters of the Institute.

The Division has received four very fine commemorative medallions from the Sesqui-Centenary Celebrations Council. They have been allotted as follows:—W. M. Moore (VK2HZ), Retiring Federal President; H. Peterson (2HP), Retiring State President; W. G. Ryan (2TI), Retiring State Secretary; J. B. Corbin (2YC), QSL Officer.

#### ZONE 5 NOTES. (VK2IG)

Wagga hams have the sad duty of recording the passing of 2AEI, Md. Collins, and keen regret is felt all round, as he was very popular. He used to take a special morse lesson at the club 2UO during the week, and was to have been married in about a month's time. A close friend of his is 2AEO, and to Pol and 2AEI'S folk we all extend our sincere sympathy.

20J—Is talking of wrecking his antennas again. We guess this will



## Amateur Radio

annoy the neighbours, as they all have a bit of Noel's aerials in their back yards!

2AP—Has located the bother in his outfit and gets R9 from everywhere now. Especially at the locals!

2QE.—Too qrl to be on much, but is hoping.

2EU—Has his super supering O.K. now, and toast crumpets on his speaker fields hi!

2VK—Has proof someone is pirating his call. While out touring he found it chalked across the road. Well! Well!

2IG—Still wasting hours taming his Xmitter, but not too successfully. Has tried every type of osc. known and a lot unknown and none of 'em are any good hi!

2AFD—No news from Angus, so guess he's busy on that rig.

2MP—Is touring VK3 and expects to be about 3 weeks in VIM.

2UO—Going strong again, but AEI is missed.

2YW—Has been heard, but not very often.

2AID—Been working a lot on 40, but is only idling till he gets the 809 perking.

2AEO—Has completed his rig, and by now must be somewhere tween 19 and 85 mx.

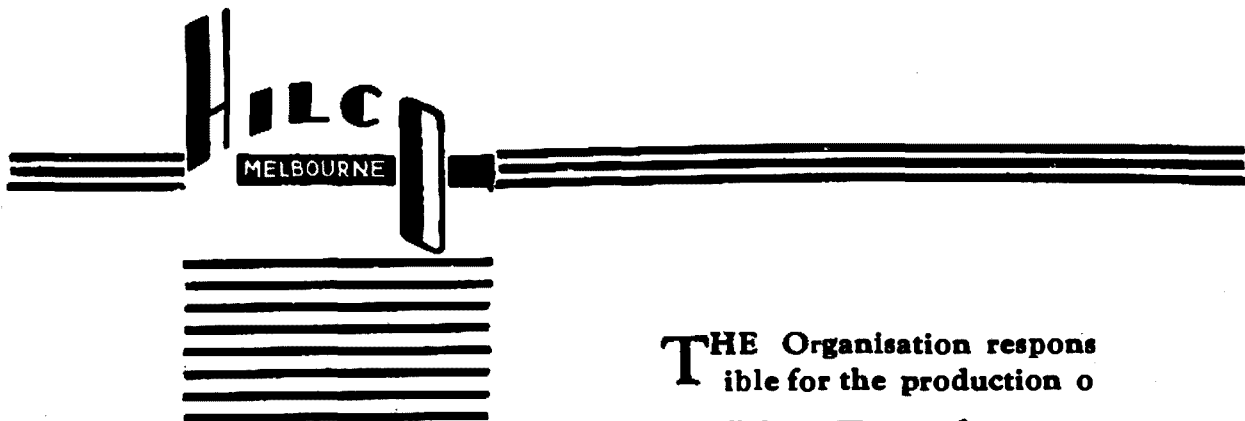
2AHO—Is the Narrandera press artist. Asked to cut it up (abbreviate it) and does he? Not bringing his rig down because expects to be back in VIS any day. (Ted is the handle.)

2TQ—Is very quiet lately; what's up, Doc?

2AIB—B for beam is working on 20 and 40 with a beam arrangement for 20, which is very effective. Complains that 20 is not any good any more.

### LAKEMBA RADIO CLUB—VK2LR. (By 2DL)

The 8th annual reunion of the above club held on Tuesday, May 3, at the "Sunrise Hall," Canterbury. The Radio Inspector's Department was represented by Mr. H. K. Burbury, while representatives were present from the W.I.A., both State and Federal, together with representatives from various radio clubs and radio trade. In responding to the



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toast to the Radio Inspector, Mr. Burbury mentioned that the Federal Government was anxious to extend privileges to amateurs, as was indicated by the recent increase in power. He recommended, however, that amateurs should not abuse their privileges, and should treat the bands with the respect to which they were due. Commercial interests were constantly calling for new frequencies, and, furthermore, when television arrives, an even greater pressure will be applied. In conclusion, he stated that he did not think that there existed any deliberate lack of co-operation between amateurs and the department, but advised that money should be spent on improving the quality of signals rather than increasing the power.

Other speakers included Mr. W. Ryan, VK2TI (W.I.M.), Mr. D. G. McIntyre (Prices Radio Service), Mr. C. Hume (Philips Radio), Md. Howarth (A.W. Valve Co.), Mr. R. Priddle, VK2RA (N.S.W. representative of "Amateur Radio") and the various representatives from suburban radio clubs.

The evening was voted by all as a huge success, and the ladies were highly commended on their catering arrangements.

The meeting of May 10th was the 200th general fortnightly meeting of the club, and coincided with the annual election of officers. On this occasion a special representative of the W.I.A., in the person of Mr. Priddle, attended the meeting for the purpose of conveying appropriate congratulations. The following were elected to hold office for the ensuing year:— President, Mr. E. Hodgkins, VK2EH; Vice-President, Mr. J. Warren, VK2QX! Hon. Secretary, Mr. V. Bennett, VK2VA; Treasurer, Mr. H. Ackling, VK2PX; Publicity Manager, Mr. W. Phelps, VK2DL; QSL Manager, Mr. L. Hughes, VK2QP; also a

committee of management, technical committee and social committee.

### HURSTVILLE AMATEUR RADIO CLUB—VK2MZ.

(Affiliated with W.I.A., N.S.W. Div.)

The club is now in its sixth year, and is progressing favourably, membership being on the increase. It is situated opposite the Hurstville Post Office at 316b Forest Road, which is convenient for those travelling by bus or train. Meetings are held each Thursday night, when lectures are given by Mr. W. Laing (who has a broadcast engineer's certificate). Morse class is in the capable hands of Gib. Calvert. These lectures are being given so as to enable members to reach the standard required for the A.O.C.P.

The club transmitter is at present on 20 mx fone, and consists of a 46 xtal osc., 46 doubler, 46 buffer and a 210 in the final. Speech equipment is a 57 as a triode, resistance coupled to a 56, transformer coupled to a 211. Separate power supplies for each stage. Mike is a Neophone carbon type. Antenna is a  $\frac{1}{2}$  wave Zepp. 2VT is at present rebuilding his rig??? 2AHF is QRL at a regional station in the West, but hopes to be back soon. A QSL service is given to transmitting members. A visitor who has joined the club during her stay in Australia is Mrs. Chaik, wife of G3IC.

Requests for information of the club's activities or reports on transmissions may be sent to the Secretary, 34 Park Road, Carlton.

### ZERO BEAT RADIO CLUB.

(By VK2ABH)

On the last Friday in May, the club will hold its sixth annual general meeting. This meeting will mark the close of the sixth year of the club's existence. During that time

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the club has had many ups and downs, but we are pleased to say that things have improved considerably this year and look like remaining so.

The country members are well provided for now, as we have the club's transmitter working, and with it supply members with morse practice. This, coupled with the textbook issued free and explanatory notes for same, should go a long way towards making "Every Member a Ham."

Listeners are requested to look for VK2ZB on 7120 Kc's, which is about the middle of the 40 mx band, and report on the transmission to The Chief of Transmitters, care of the club.

## Club Gossip.

VK2IQ—Is very busy at present with University studies.

VK2KH—Has taken up fishing and it's not for dx either.

VK2ABH—Building a new receiver, and later intends to construct a 6L6G modulator.

VK2AEE—Uses a grid modulated '46 with 18 watts input to raise Yanks on 20 mx.

VK2AFQ—Informs us that he is about to instal "Beam" tubes for greater signal directivity. He is also doing a lot of portable work, and asks stations to look out for him on 40.

VK2AIY—Is very QRL, but hopes to be on the air soon with a 2A5 E.C. 6L6G and P.P. 10's.

VK2AJO—Had the misfortune to have all the tubes in his transmitter blow out.

VK2AJS—Another new Ham is on the air with a 6L6G Tri-tet, 6L6G doubler and parallel 10's on 40 and 20 mx.

That's the lot for the time being, so, in conclusion, we would like to state that anyone interested in the club can call, write or phone the Secretary, Zero Beat Radio Club. 38 Sydney Arcade (telephone MA2669).

## Waverley Radio Club Notes — —

Preparations are well in hand for the club's Field Day to be held in National Park on Sunday, 5th June. Parties equipped with portable D.F. Receivers will set out on foot to locate a hidden transmitter, and will also carry with them portable transmitters so that communication can

be maintained with the hidden station. There exists at present a large famine of battery valves amongst the Waverley gang.

On Tuesday, 10th May, members witnessed a very interesting demonstration of 16 mm sound film gear, through the courtesy of A.W.A. Ltd., who supplied all the apparatus, even including the projectionist. One of the films shown was "Spanning Space," which illustrated various phases of radio communication, and proved of great interest to all. The evening concluded with the screening of several travelogues.

The club's new transmitter is slowly taking shape due to the efforts of Mr. Wells and Mr. Halley, and will soon be on the air—more QRM.

2AFZ all thrilled to bits with a new Superhet receiver, but when tunes in to Daventry all the neighbours complain of the deafening din—that's how we like 'em, Eric!

2AFG on fone at last and has even gone to the trouble of building up a MONITOR! What next?

2AHJ now risks his life with a 600 volt supply on the final and uses PP 2A5's as modulators, the shack now looking like WLW! Also working some dx on 20 meters between times.

2WN staging a comeback, so BCL's beware!

2FG still disturbing the ionosphere, around Randwick way, but haven't heard that fone yet—what about it Dev?

## Victorian Division

### H.F. PHONE SECTION NOTES

(VK3ZX)

All the activity for the last few weeks in the H.F. Phone section has been in the preparatory work necessary to run the 5 meter relay tests for May 21st-22nd.

3DH and 3JO and their gang of U.H.F. men have installed special "H" directive arrays on top of W.I.A. rooms in Queen street, the height being well over 100 feet above the street level—the location in Queen street is the highest spot in Melbourne, which should be a good spot for 5 metre DX.

There are 2 50 watt stations supplied by 3DH and 3JO for the test and their installation has kept the boys busy up till 2 a.m. some mornings.

The 10 and 20 metre relay stations have had their share of worries, too—3NP and 3ZX are taking the 5 metre signals and relaying on 10 with 3ZB, 3XD and 3GP taking the 10 metre stations and relaying on 20.

3EN is doing a relay also, on 40 metres.

All other members of the section are helping to put over the test by remaining on the air as much as possible, and asking all DX stations worked to report on the reception of as many relay stations as they can hear, and, if possible, on the 5 metre channel.

3KU has made the job for the key stations easy; that is, 3DH-3JO who will use the call sign—3WI.

3KU has had a record made, which tells the whole story, and also supplies a good deal of ICW on the disk to allow for easy identification.

We have great hopes for the test, and in the near future a repetition

will be made with some alterations, which will show up no doubt in our first attempt.

KEY SECTION NOTES.

(By VK3HK)

The May meeting was the best attended yet, and the main attraction of the evening was an illustrated lecture by 3ET on his tours of China. And now some notes from the boys.

3DP-OG-BJ-EB.—Playing around on 56 mc.

3VG.—Just installed an 807 in the final.

3SG.—Trying to make time to rebuild. Three stage exciter almost ready—6L6, 807, 807.

3UM.—Still trying to get Jones gainer to "gain," not good enough on local QRM. Will need to instal several xtal gates!!

3QK-VQ-UM-XN-ZX. — Burning midnight oil in 5-way "Around the Suburbs."

3KQ—Entertaining 5JG, QRL!

3ZU—T20 arrived, and now on 14 mc and building 56 mc rig.

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VK3KU SAYS:

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3ZD—Playing around on 14 mc with occasional skeds on 7 mc. Hooked LU7AZ for W.A.C.

3ZY—Asks, do VK6's QSL?

3QS—Pirate using this call, please call around for some QSL cards.

3CN—Call sign being used by a pirate.

3RJ—Active on 14 mc when phone permits.

3DM—Hoping that a few more key click filters will be used by hams around Malvern.

3KI—Last seen on eve of this meeting with heavy YL sked at City Hall. Happy hunting, Johnny.

3YK—Still alive, but like little children is seen but not heard.

## U.H.F. SECTION NOTES.

(By 3JO)

### 56 Mc DX TESTS.

#### Arrangements Modified.

Results of these tests were received too late for publication in this issue. However, in view of the widespread interest created by them it will be interesting to outline the modified arrangements. After the first flurry of excitement over the original scheme had died down, it was soon apparent that this arrangement presented too many difficulties to be overcome in the time allowed, and it was therefore decided to operate both 56 mc transmitters from the W.I.A. rooms, and the co-operating stations on 28 and 14 mcs to operate at their home locations.

Saturday afternoon, 14th May, saw a buzz of activity on the roof of the W.I.A. rooms, where the various beams were erected. Our meeting of 17th May presented a unique episode in the history of the section, for here were to be found the various members struggling with wires and other pieces or junk or equipment in an effort to have a full dress rehearsal of the tests of the following weekend.

Some difficulties were experienced during these tests, but by sticking to the job everything was in order for zero hour on Saturday, May 21st. 3DH, 3ZX and 3ZP carried out a successful test on Sunday, 15th May, when the rebroadcast of 3DH by 3ZX and 3ZP was well received in U.S.A.

Owing to the work necessary to have the gear in operation on time, these notes have been curtailed, but don't forget this month's meeting on Tuesday, 21st.

## COUNTRY SECTION.

(VK3UK)

The Warragul Convention reported under the Eastern Zone Notes was a great success, and has given a grand start to the zone. With two such active and enthusiastic members as 3WE and 3PR, the new president and secretary, the zone should look forward a most successful year.

In addition to the Western Zone Convention yet to be held, it is possible that a convention will be held at some northern town such as Shepparton for the benefit of men who have not been able to attend any to date. Probably it will be held fairly late in the year so that the country functions may be evenly spread out.

## NORTHERN ZONE.

(By 3HX)

Conditions on all bands show improvement. Dx is coming through on 20 Mx, while on 40 the skip is lengthening; on 80 the usual summer static is clearing up and the ZL's and an occasional W can be heard.

3OR is active on 40 and 80 mx, and has tried doubling in the final to 20 mx; recently had a YL jnr. op. presented to him. Congrats Murray.

3EP—Active on 20, 40 and 80; works a few Yanks on 20 Cw now and again.

3TL—Also active on all bands. Treb contacted the Pitcairn Island station VR6AY.

3ZK—Seems more interested in the new gear at 3SH, or at least so he tells us. However, Jim is active mostly on 80 mx.

3IH—Does a little on 40 and 80. The YL cp. May is becoming widely known by her activity.

3WN—Puts in an appearance occasionally on Sunday morning skeds.

3HR—Heard on 40 bx.

3CE—Is having trouble with his house lighting batteries, but is on 80 mx now and again. Roy is waiting for the rain.

3NN—Is another who is not very active; evidently Herb is rather QRL.

3DW—Is heard occasionally on Sunday skeds. Believe Doug is active on 20 mx.

3DU-TC—Mostly on 80 mx with QRP rig, and puts out a decent sig from low power.

3EC—Ern is active on 40 and 80 mx.

7RC—Is one of the ops at 3CV Charlton and is kept busy.

3BM—Is a very busy little boy. Has the sole management of half a dozen farms, and besides spends a fair amount of time in Kerang. Has put up a 95-foot stick.

3EF.—Is still on 40 mx; has the misfortune to have trouble with his modulators, but Bert soon fixed that.

3HX—Has been very QRL; sorry QRL for some time, so has not been very active.

## WESTERN ZONE.

(By VK3HG)

Stations in this zone interested in forming a weekly district hook-up similar to that of the Northern Zone please advise their zone officer. Some such system is necessary so that we can co-operate more readily and exchange news of the new's activities. 7mc. seems to be the more popular band in this locality, although 3.5mc. is more suitable for such a hook-up.

3TW—Still very active on 40 and 20. Reported to be importing a National receiver.

3NQ—Heard CQing one evening on 80. Why not keep it up, Jim?

3PE—Has excellent phone on 20.

3OW—A little more active lately, mostly on 20.

3HG—On higher power again with new genemotor and doing quite well in spite of being handicapped with an inefficient antenna.

## EASTERN ZONE CONVENTION.

The Eastern Zone Convention held at Warragul on 14th-15th May was a great success. About 30 city and country Hams attended, and from the reports everybody thoroughly enjoyed themselves. After an excellent dinner and toasts of the W.I.A. and Eastern Zone, the office-bearers were elected. VK3WE was elected president, VK3PR secretary, and 3DG-3PR notes correspondents.

The following items were listed for discussion:—U.H.F. work, B.C. station harmonics, recordings on amateur bands, duty on experimental radio gear not made in Australia, an all-V.K. fone contest, and the Vigilance Committee. With all those items to discuss the evening went very quickly, and at 11.30 p.m. when we had to QRT there was still plenty

to talk about.

On the Sunday morning a visit of inspection to the local "B" class station, 3UL, was made. This station impressed all the visitors for its neatness and efficiency, and for the fact that it was designed and built by Hams.

So ended a most enjoyable weekend, and everybody is looking forward to the one next year.

## Members' Doings.

3BR—Jack is missing, boys; reports of whereabouts required.

3DG—On 80 mx fone and putting out a hefty sig. QRO?

3IL—Heard occasionally on 40 mx fone.

3GO—On 40 mx fone. We are looking for you on 80 mx. How about it, Graham?

3EG—Very QRL, so we hear from our despatch rider, Mac.

3LY-3EA—Ron and Eric have both been on holidays. Hope to hear you chaps soon.

3SS—Keith going into the Radio Service game. Hope it doesn't keep you off the air.

3QB—Jack is in the midst of shifting shack, but finds time to QSO W's.

3XH—Stan rebuilding modulator and will be on again very soon.

3JE—Bill has taken to fishing.

3DI—Rebuilding rig for A.C. Hurry up, Jim.

3WE—Bill rebuilding, using 809's in P.P. It's going to look like a real commercial job.

3PR—Hoping to make some alterations to rig and building better modulator.

3MR—Snow wants to see his call in these notes as he is staying with 3WE, and reckons he is in the zone. Hi, hi!

73. 3DG-3PR.

## CONVENTION QUERY.

Somebody wants to know why Bob 3ML, when asked at the convention to get hold of half a dozen glasses (empty) came back with half a dozen live marines. Hi, hi!

## Queensland Division

### GENERAL MEETING.

The last general meeting of the Institute was held on Friday, 5th May, at Celtic Chambers, George street, and was fairly well attended.

4MA brought up the subject of the re-establishment of 4WI and the advisability of an Institute headquarters' station for the dissemination of news to city members and morse code instruction to students studying for the Amateur Transmitter's Ticket. After much discussion it was decided that the Institute Council submit proposals at the next General Meeting for reopening 4WI and running a weekly service from the station.

4RT outlined the extensive arrangements and new methods of instruction which had been adopted for coaching students desirous of obtaining the Amateur Operator's Proficiency certificate. It was pointed out that a new class had just started and those anxious to take the course would be well advised to enrol within the next week or so. Full particulars of this were obtainable at the Wireless Institute Rooms, Celtic Chambers, George street, between 1 p.m. and 2 p.m. on Mondays, Wednesdays and Fridays.

## COUNTRY MEMBERS ACTIVE.

4CG, Cliff Gold, of Toowoomba, seems to be very active. His last batch of QSL cards included acknowledgements to stations in no less than 20 different countries.

A newcomer to the game is 4ZP of Yarra, via Maryborough. The transmitter consists of 6p6 tritet with 6p6 amplifier and the input is 18 watts, power being obtained from a generator. An Ultra Gainer with separate beat oscillator takes care of reception. A 132 Zepp aerial with 45 foot feeder is in use at present.

4HD, E.S.&A. Bank, Nambour, has just completed an 89 E.C. oscillator and 6p6 amplifier. The input power used is 20 watts.

Warwick has a new amateur in 4CW. The signals emanate from a 47 oscillator, 46 doubler and a push pull 46 final which runs around 22 watts input, power being derived from D.C. mains.

The station of 4XO, Bundaberg, is in the evolutionary stage as yet. A 42 Hartley oscillator with a ten watt 46 push pull final is at present being used. However, building operations are well under way and a ten valve superhet receiver and a three stage crystal rig should be the result.

4DK, a new Institute member located at Winton, is looking for

contacts with Brisbane amateurs.

4DU, Crawford, Kingaroy Line, is another newcomer. The rig consists of 89 electron coupled oscillator link coupled to an end fed Zepp aerial. 40 meters is the band used and input power is only 2 watts. Don't overlook his CQ's, members.

## GOOD DX BY LOCAL AMATEURS.

At 4 p.m. on Thursday, 5th May, 4RY contacted African ZEIJJ on ten meters. This outstanding contact made Bill, W.B.E. on the 28 m.c. band.

4SD reports good conditions on 20 meters. Two new countries worked are VO and VP7.

4LP hopes to be on the air shortly at a new Q.R.A. The final will feature an 807 valve.

The line up at 4HU's is 53 oscillator, doubler, 2A3 and 210 final. The band favoured at the moment is 40 meters.

Since his return from VIS, 4RT has been active almost nightly on 20 meters.

4XW is fairly active on 40 meters with both C.W. and fone. What about trying the DX on the higher frequencies?

4PX is inactive due to blown filter condensers. The rig uses 6L6, 6L6 and 210 final.

4CX is contemplating the addition of an 807 to his present rig which consists of 53 oscillator-doubler followed by a 6L6.

The institute's enthusiastic morse code instructor, 4MA, is in the process of rebuilding the new transmitter. It promises to be 6A6, 59 and 809. 4MA is eagerly awaiting a new 20 meter crystal.

4WX has only been on the air a few weeks. He has made a good start using an 89 E.C. oscillator, but this will soon be replaced with a crystal rig using 89's in a push pull final.

4AN who has been QRL for some months hopes to be active again in 6 or 7 weeks.

## South Australian Division

(By VK5KL)

The following comprise the council for the next 12 months and officers of the various sections:—Mr. J. Kilgariff, president; Mr. A. Relman, secretary; Mr. L. Pearn, vice-president;

assistant secretary and country members' representative, Mr. W. Walker; vice-president; Mr. E. Barbier treasurer, Mr. F. Bourne QSL officer; Mr. C. Castle publicity and traffic manager, Mr. C. Cheel, Mr. Luxton and Mr. McAllister complete the council.

#### Transmitters Section.

At the last meeting Mr. W. Walker (5WW) was elected chairman, Mr. F. Bourne secretary, and Mr. W. Lloyd assistant secretary. During the evening Mr. O'Grady delivered an excellent talk on "Recent Development in Communication Engineering." This was intensely interesting and was well applauded when concluded.

#### QSL Bureau.

Special note should be taken that all QSL matter should now be addressed to QSL Officer, Box 284D, G.P.O., Adelaide.

#### General.

On June 13th (a public holiday) the institute has been asked to again co-operate with the Outboard Motorboat Club at Mannam for further timing of the speed trials.

Two new members admitted to the Institute are Mr. Patterson, 5XR, of Narracoorte, and Mr. Leister, 5LR, of Berri.

#### BARKER ZONE.

Conditions have been slowly improving on the 40 mx and 20 mx bands. Several good DX stations have been heard on 20 mx about 4 p.m. at week-ends, and on 40 mx in the evenings. Fone on 40 mx, however, is very erratic.

VK5BF.—Fone very consistent on 40 mx. Hopes to do big things on 5 mx with a pair of 807's in the final stage.

5XR.—Now a member of the W.I.A. Has been rebuilding lately in anticipation of A.C. mains power.

5BG.—Puts out a very R9 fone signal, clear and well modulated.

5GW.—Getting near the mark now, only one more stick to put up, and then we should hear something.

5CJ.—Now on fone and looking forward to some interesting QSO's.

#### WAKEFIELD ZONE.

(By VK5RE.)

VK5LR.—Had fb QSO with Jack a few days ago and a very fine sig. Jack puts out too. He advises that the directional antenna urge is be-

ginning to make itself felt. So it looks like a beam for 5LR. Jack is now a member of the W.I.A.

VK5IV.—Roy has now gone to VK4 and is operating under the call VK4IV.

VK5BF.—Frank still tickles the ears with a splendid fone rig, and he is anxiously awaiting the big 5 meters' field day, when he hopes to make 5 meter history. Good luck, old boy, and hope you get through to England.

Wakefield Zone welcomes two new W.I.A. members in Mr. Ron Green and Mr. Harold Fisher, two good scouts and a definite acquisition to Amateur Radio.

VK5RE.—Breathes a sigh of relief. The fruit season is through at last; a visit to the city is contemplated. Then back to Renmark with pockets full of new tubes, meters, etc., to settle down to some real radio activity. Will tell you more about it next month.

#### GREY ZONE.

(By VK5WG.)

Conditions in this zone are fairly good on all bands; static has deserted 80 meters and quite a number of zone members are up there. Some dope on zone members:—

5FB.—Frank was successful in obtaining his first class commercial ticket recently. Congrats, OM.!

5LG.—Leith is still among the DX on 20 mx and is contemplating 80 mx.

5WG.—Experimenting on 5 mx.

5AT.—Bert is nibbling at 5 mx.

5BK.—Jack is active again and will soon be on 80 mx.

5TL.—Tom is getting out well with battery power.

5YM.—Norm. is now at B Class Station 5PI.

5KJ.—George Connor, Booleroo Centre. One of the regulars on 80 mx, with a very good signal.

Our student members, Mr. Col. Bottrall and Mr. Frank Trembath report good progress; we wish you luck, OM's.

#### Tasmanian Division

(VK7ZL.)

The last monthly meeting, held on 3rd May, went with a swing. President 7AH, better known as "Pop," shamed the younged members of this  
(Continued on Cover 3.)



## Hamads

Advertising space in these columns is available to those wishing to sell, buy or exchange, at 3d. per line; approximately five words to the line. Minimum charge, 1/-. To ensure insertion enclose postal note or stamps with copy, and address to the Advertising Manager, "Amateur Radio," White Horse Road, Box Hill, E.11., Victoria.

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**W**ILL buy DC milli-amp meters—0-15; 0-20, 0-25, 0-200 in A.1 condition, at 20/-25/- each. First-grade instruments only. Write VK3AH, Camberwell. Phone W2138.

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(Continued from page 32.)

division in the matter of punctuality. Methinks it would be a good idea to make the meeting time 7.30 p.m., then maybe those red souls may arrive by the scheduled hour of 8 p.m. (Incidentally, 4UX made a statement to the effect that 4PH was the oldest member of the W.I.A., but I think we can claim that honour as 'Pop,' 7AH, has been dabbling in ham radio since 1901 and is 71 years of age.)

To conclude the meeting 7JB gave an account of his doings in VK2 at the recent convention and also a brief review of the items of the agenda as accepted.

7KV.—With the hon. secretary visited the northern end of the island to discuss certain matters concerning the institute in the North.

7CT.—Very much overworked. Unable to attend last meeting as had to work back at office. What a feeble excuse Terry.

7JB.—Suggests that 3MR approach local council with view to running a trolley bus to his QRA for the benefit of visiting hams.

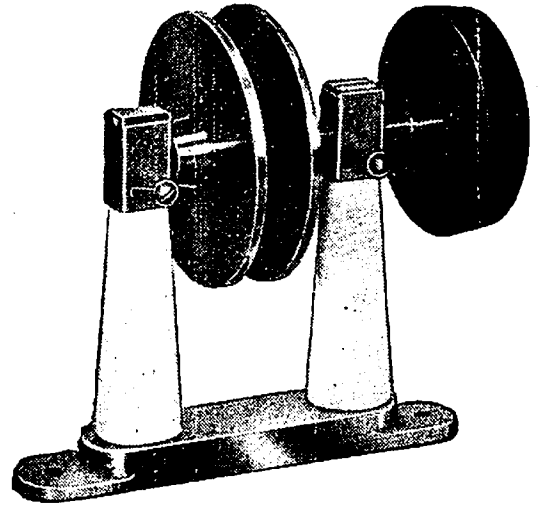
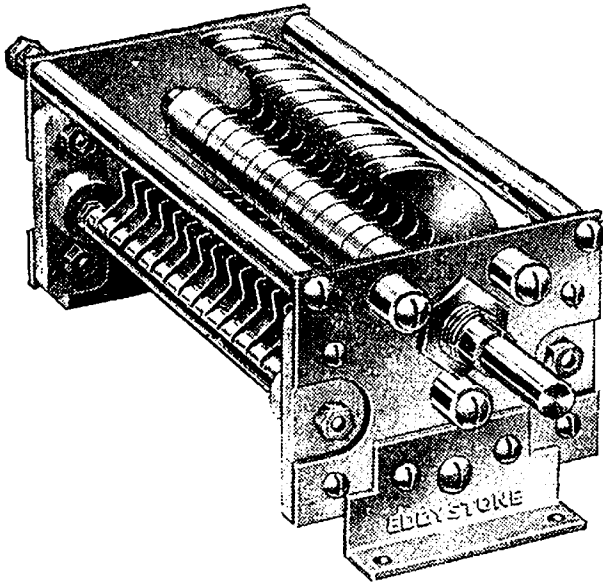
7RK.—Too busy rebuilding to remember to scratch a few lines about doings of the northern gang.

7AB.—Surprised and no doubt gratified to find himself the possessor of a cup for winning the limited section of the VK/ZL fone contest. Beware of Southern members in the next contest, Doug!

7BQ.—To be made chairman of the North Zone we believe—a most popular decision.

7QZ, 7LZ, and 7LG.—No news, but we hope to see you all at the dinner.

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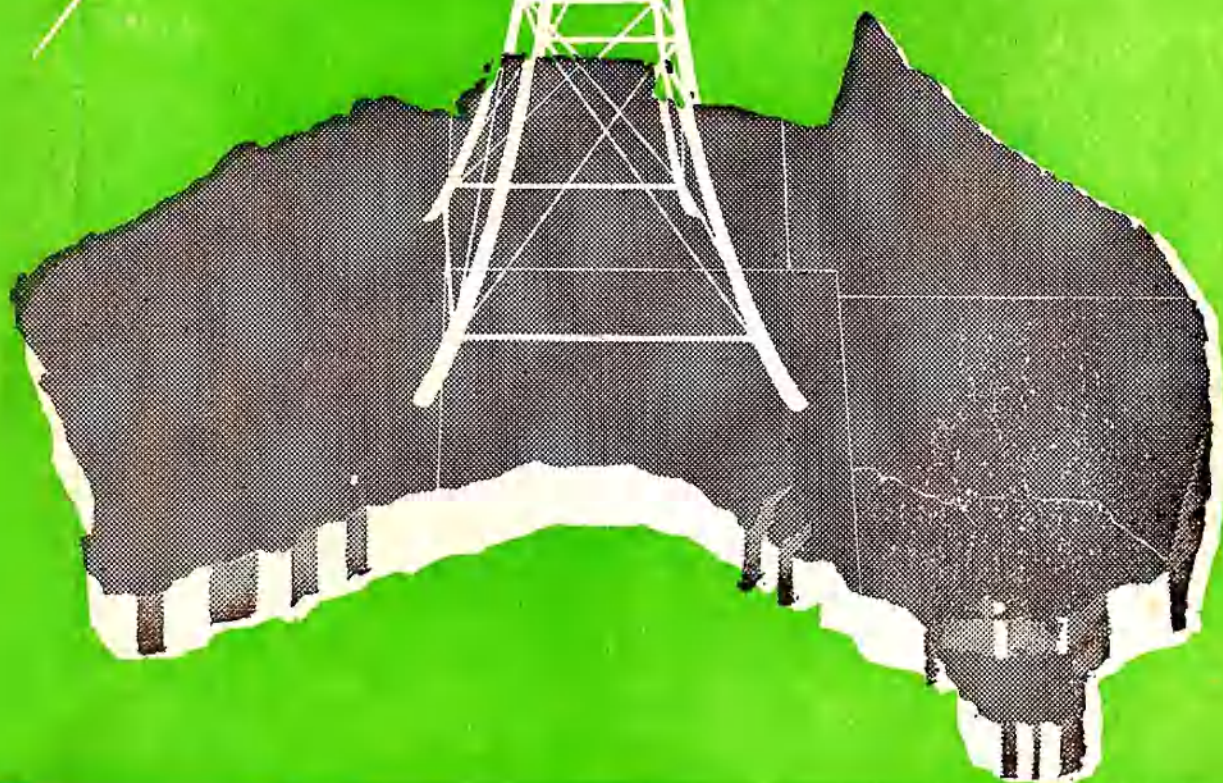
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# AMATEUR RADIO



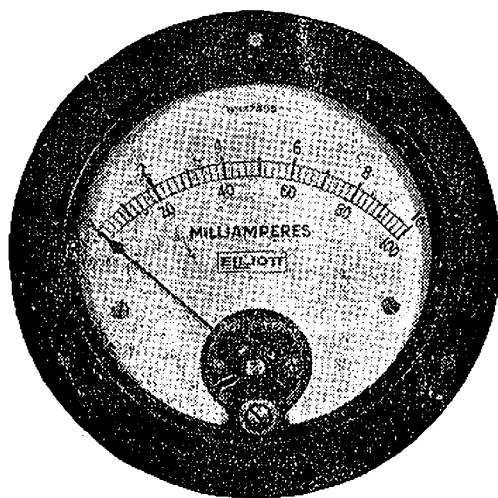
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# AMATEUR RADIO

Published by the Wireless Institute of Aust., Victorian Division.

Vol. 6 No. 7

1st JULY, 1938.

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All Communications and MSS. should be forwarded to the Editor, "Amateur Radio," BOX 2611W, G.P.O., MELBOURNE.

Subscription to "Amateur Radio" is 6/- per Annum (Post Free), paid in advance.

Should you not receive your copy of "Amateur Radio," notify your Divisional Secretary at once.

Advertising and Publishing Office: Address Publicity Manager, "Amateur Radio," Whitehorse Road, Box Hill, E.11. 'Phone: WX 2429.

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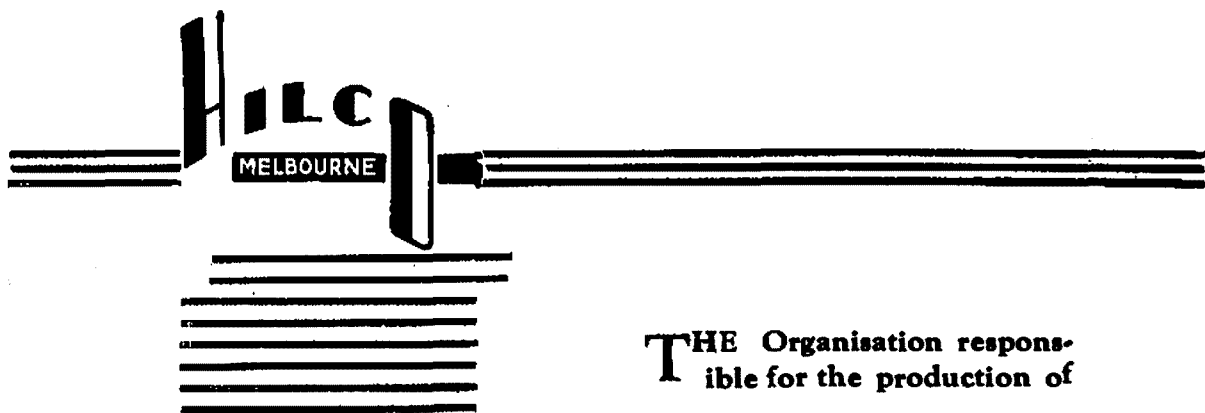
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## Editorial . .

The news from Cairo of the loss of 100KC of our 'Forty Metre' band, as our exclusive property is disquietening in the extreme. It is the first loss we have ever experienced and the pill is no sweeter for that fact. However one reviews the outcome of Cairo the position is serious for our crying need is for more territory. Each year the amateur ranks are swelling to larger and yet larger proportions, each year the revenue derived by the various Governments from Amateurs becomes larger in proportion and finally each year the debt owed to the Amateur by Radio itself for co-operation in the advancement of the Science and by the civil populace for services rendered in emergency communications, becomes greater. On our existing bands numerous commercials have operated for years in defiance of the Berne Convention, despite the repeated protests of the IARU. On frequencies adjacent to the band in question the "V Machines" turn for hours on end cluttering up the ether for no other reason than to maintain a legal right to the channel.

Amateur Radio has kept pace with the increasingly difficult problem of preventing chaotic conditions on our already overcrowded bands by designing special receivers of controllable selectivity, by the education of Amateurs to ensure clean cut, sharp signals, by the development of directional antennae and the voluntary self-imposition of regulations. It is a triumph of co-operation and applied knowledge that Amateurs have been able to maintain some semblance of order and practical long distance communication despite our ever increasing numbers.

Obviously a partial loss is better than a total one, but that is no reason why the Amateur should accept the position with complacency. We in Australia are fortunate that there exists a sympathetic understanding and co-operation between the P.M.G. Department and the Wireless Institute, and we can rest assured that the Australian Government, like the

American and, we hope, many others, will not place any SW broadcast stations within that 100 KC of Amateur territory. However, the additional QRM during DX periods will be severe from even a few foreign B/C stations and our only consolation is that the interference to them will be many times worse than to ourselves. Maybe the Governments who put stations in that sector will realise the futility of operating where stations are already many deep and certainly they will press for "Forty Metres" as an exclusive B/C band at the next International Convention. Therefore, there is a job for every single individual Ham throughout the world during these next four years to seize every available opportunity of publicising Amateur Radio in the right quarters, clearing misconceptions and doubts as to the rightness of our cause and eliciting every possible form of assistance for the next "Battle for Frequencies."

Returning to Cairo may we, on behalf of the Amateurs of Australia, convey our sincerest thanks and our sense of gratitude to the IARU and through them to the ARRL for the magnificent fight that they put up for Amateur Radio at Cairo. Spontaneous expressions of admiration of their efforts have reached us from many who were there and in every case the praise for the Amateur Contingent was unstinted. We leave Cairo behind knowing that everything possible was done.

Amateur Radio has passed the stage of being a schoolboy's hobby. It is regarded as a serious exacting Science drawing some of the finest minds of the day to its ranks. It can truly be said to represent, in each country, a true cross section of all that is best in the community. Admittedly we have many who are not experimenters within the fold, but at least it can be said that they possess a potential value far greater than a commercial's "V machine." If only 5 per cent. of the total number

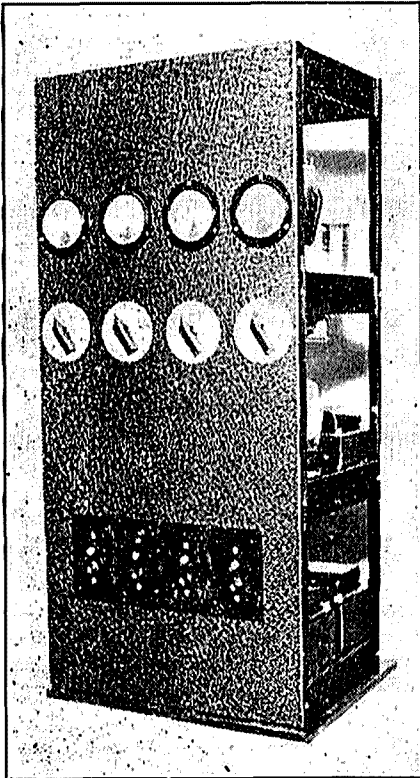
(Continued on Page 13.)

# The All Australian 50 Watt Transmitter

(By VK3ML, Technical Editor.)

How many times have we heard the complaint that a really high efficiency transmitter cannot be built up unless we use the components specified in say an American technical article? It is agreed that results

cannot always be duplicated unless the details are closely followed and, in many cases, owing to the fact that the parts are not obtainable locally. The primary object, therefore, in describing this 50 watt transmitter was to illustrate that a high efficiency unit can be built up and the components for it are obtainable locally. It was the magazine committee who suggested that a typical circuit be evolved, built up, thoroughly tried out, and finally written up in this magazine for the benefit of those who are about to rebuilt or to commence their ham radio life.

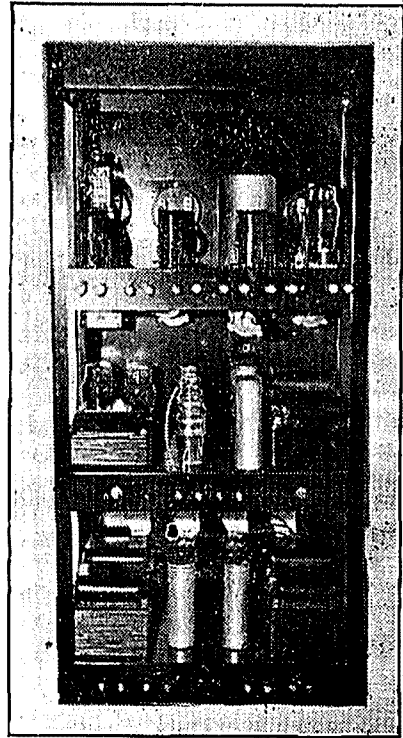


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We did not have to look far in this field for the circuit, as the Amalga-

mated Wireless Valve Co. Ltd. in their excellent journal, "Radiotronics," recently published the very one we were after. Consequently we took the liberty of duplicating wire for wire, the circuit employing a 6V6G 6P6 809 combination. As a matter of fact, we were delighted to no end with the support given by various manufacturers who offered assistance by way of contributing components for the transmitter con-



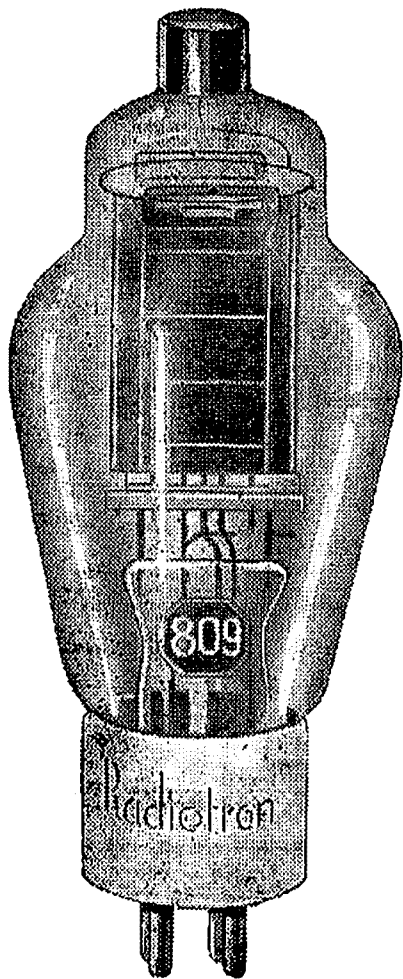
struction. In this respect we desire to publicly thank the following donors of accessories:—For the R.C.A. valves, Messrs. Amalgamated Wireless Valve Co. Ltd.; for the transformers, Messrs. Hilco Transformers Pty. Ltd.; for the rack in which the set is housed and the other Eddystone equipment employed, Messrs. Stratton Ltd., Birmingham; all the T.C.C. fixed and electrolytic condensers were contributed by The Australasian Engineering Equipment Co. Pty. Ltd.; and the very many odd parts, including wire, ter-





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for ultra high frequency



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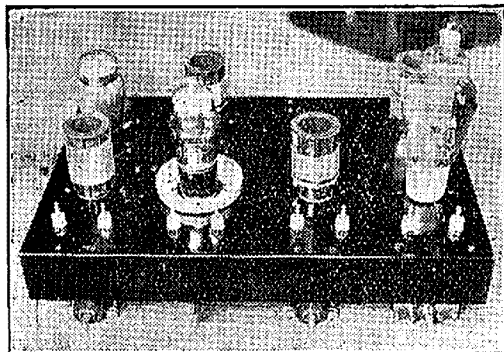
### Ratings—Class "C" Telegraphy.

Filament (max.) .....	6.3 volts	2.5 amp.
Plate Voltage (max.) .....	750 volts	
Plate Current (max.) .....	100 mA.	
Plate Dissipation (max.) .....	25 W.	
Typical Power Output .....	55 W.	

Price **25/-** nett.

# RADIOTRONS

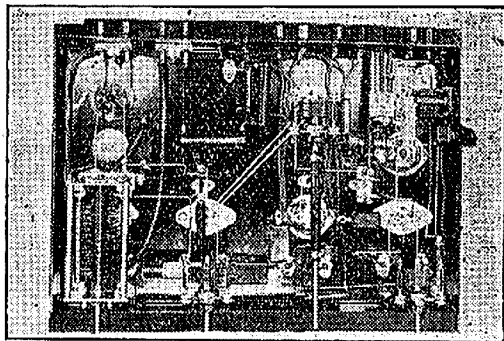
minals, Steatite valve sockets and power appointments were donated by Messrs. P & L Wireless Pty. Ltd. Thus, in every section of the unit, only the highest grades of components are employed. At the same time such an action on the part of the firms above mentioned surely indicates the support they are willing to give the amateur of Australia, and in return we repeat our strong recommendation made in the past of supporting your advertisers.



Glancing over the circuit of this transmitter it will be noticed that the power supply is an economical one. Standard 83 type rectifiers are used with the new 5V4G especially used in the modulator stage. In order to keep the cost of transformers down use has been made of seriesing two low voltage supplies to obtain the 600 volts for the 809 stage. The 6V6G receives a little over 300 volts from this well regulated power stage. Another problem is solved in this handy method of connection and that is of overcoming the necessity for high rating filter condensers. The standard TCC electrolytics handle the voltage output with ease. It must be pointed out that it is highly desirable to employ filter chokes made to give the required inductance at the maximum current rating. Checks made on several standard products have indicated that they are certainly 30 henries under test, but under LOAD test they seldom show readings anywhere near the rating. It is obvious from the photographs in this article that very thick cores of the transformers and chokes indicate they are built to stand the duty demanded of them. Then again, it is false economy to install cheap chokes as the DC resistance plays a very important part in the burning up of power. The

writer has one or two types in the junk box whose resistances are between 1,000 and 2,500 ohms. What a difference when compared with these Hilco jobs at only a hundred or so ohms! One might say that we have at least started with the right sort of power supply.

Briefly describing the layout from the photos Fig. 1 shows the front appearance of the unit; the meters being from left to right, the 6V6G plate, 6P6 plate, 809 grid and 809 plate respectively. The tuning dials situated immediately under the meters are for the same circuits. From Fig. 2 it will be seen that the two series power units occupy the lowest deck and are complete with their chokes and electrolytics. The next deck holds the modulator complete with its power supply. All the RF stages are mounted on the third chassis and the top deck is unused and keeps the dust off the RF shelf.



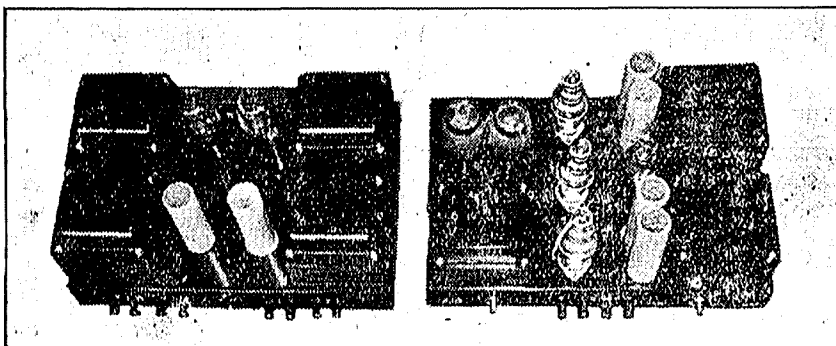
All the individual decks are depicted in Figs. 3, 4 and 5. On the left of Fig. 3 we have the power supply, and on the right the modulator unit. Fig. 4 shows the RF end of the works less the shields, whilst Fig. 5 is a bottom view of this unit. The cathode coil for the 6V6G is mounted under the chassis and is tuned by an air dielectric trimmer which can be shorted out by the switch on the side for straight penthode operation. In front of the 6V6G is the plate coil for that stage. On the right of this coil can be seen the plate coil and the 6P6 stage. Between the 6P6 and the 809 is the grid coil of the P.A. and of course the 809 is very obvious on the right with its anode coil at the rear. All the tuning condensers are mounted in an inverted condition under the chassis for dust prevention and the meter leads are brought out through midget stand.

off insulators on the chassis. Eddy-stone adjustable brackets and pillar insulators were used to mount the condensers on as the rotors are "hot" with DC and required insulating from the chassis. The plate lead for the 809 is brought through the chassis by the lead through cone insulator in front of the high voltage tuning condenser.

Running through the actual circuit we have the 6V6G acting as either a Tri-tet or straight penthode oscillator according to the position of the cathode coil shorting switch. An 80 meter crystal serves the 80, 40, and 20 meter bands and a 40 meter controller can be employed for the 10 meter section. The output of the 6V6G gives ample drive for the 6P6 buffer which operates under

driving the 809 as well as connecting the plate output to a separately tuned aerial coil. On all bands the final amplifier functions as a straight amplifier although there should be no reason why it should not be used to double down to five meters when driven on 28 mc. Keying is accomplished in the cathode of the 6P6 and a small key impact filter ensures freedom from clicks.

In order to modulate an input to the P.A. of about 50 watts, it is necessary to have available at least 25 watts of audio power. A suitable modulator is shown in the circuit diagram and will be seen to consist of two Radiatron 6L6G valves in push pull class AB1, giving an output of slightly over 25 watts. The earlier stages in the modulator con-



maximum class C conditions to deliver a power output of approximately 12 watts. This stage is shown with a neutralising condenser in order that maximum stability may be obtained even with the somewhat limited screening. The grid plate capacity of the 6P6 is about 0.7 mmfd and should be neutralised for good results. The P.A. is a Radiatron 809 which promises to be the most popular tube marketed by the AWA Co. so far. It is a High Mu triode operating on both phone and CW under its maximum Class C conditions which are:—

Plate volts 600 volts. Plate current 83 ma. Power input 49.8 watts, typical power output 38 watts.

When operated on CW the valve, the valve has ample reserve of power handling ability, although this cannot be used owing to the limitation of power input. The adoption of constant supply voltage on both CW and phone simplifies the circuit arrangement. Link coupling is favoured for

driving the 809 as well as connecting the plate output to a separately tuned aerial coil. On all bands the final amplifier functions as a straight amplifier although there should be no reason why it should not be used to double down to five meters when driven on 28 mc. Keying is accomplished in the cathode of the 6P6 and a small key impact filter ensures freedom from clicks.

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sist of a 6J7G pre-amplifier, 6J7G voltage amplifier and a 6J7G phase splitter. This latter operates under conditions of low gain and is used merely in order to avoid the use of a transformer. The overall fidelity of this arrangement is excellent and since the 6L6G valves operate into a nearly constant load and harmonic distortion is low. Provision for a pickup is shown on the input to the second stage of the modulator. If a sensitive microphone is used with an output of over 0.2 volt R.M.S., the pre-amplifier stage may be omitted and the input taken to the pickup terminals. In this transmitter a crystal microphone is used and the gain from the amplifier is rather more than ample.

With regard to the finish of the outfit, all the chassis and supports are glossy black sprayed and the front panel is coated with a large black crystal enamel, which sets the controls off to a nicety. The actual height of the rack is 32 inches with

four trays 15 in. x 10 in. x 2 in. In order to ensure protection from HV short circuits from the terminals to the chassis all terminals carrying high power are mounted on Eddy-Frequentite and can stand the pressure.

Very little trouble indeed was encountered in getting the whole transmitter going. This may be put down to the care taken in the original laying out of parts so that leads may be short within reason and interaction avoided between stages. Actually two whole nights were taken up in simply playing with the components and a stretch of imagination to visualise where they would eventually be mounted. It proved worth while and one cannot be sorry for mistakes at a later date. Heavy ground leads in both the RF and AF sections were put in as the first wiring job as many troubles have arisen from this neglect in the

past. A cable of wires connects all the terminals at the rear of the chassis, making quite a neat looking power wire connection. This is not shown in the photos for reasons of better visibility of the other parts.

Right throughout the transmitter special attention was given to insulation for RF. Eddystone plug-in coil formers made of LD9 dielectric are excellent in this respect and the frequentite coil sockets go to make for high efficiency. Actually the coil diameters are about right for the spacing of the components as the fields are not strong to permit the wandering of stray RF. The only remaining section to be mentioned is the switching. As the high voltage is in excess of the rating for toggle type switches the push button variety are used on the front panel and control the DC to the C.O., buffer and P.A. as well as on the primaries of the RF and AF power transformers.

## INVENTORY OF COMPONENTS.

(Other than those specified in the circuit)

### Tuning Condensers—

Cathode 6V6G Eddystone, Cat. No. 978.

Plate 6V6G Eddystone, No. 900/100 microdenser.

Plate 6P6 Eddystone, No. 900/100 microdenser.

Grid 809 Eddystone, No. 900/100 microdenser.

Plate 809 Eddystone No. 1083 single ended, 3500 v. type.

Neutralizing condensers, Eddystone, No. 1088 variable 1-8 mmfd., 2500 v.

Tuning dials, Eddystone, No. 1027.

Low power resistors are all IRC brand Both the paper and mica fixed condensers are TCC for safety and efficiency.

The coil data for the various bands are as follows:—

Cathode	6V6G	—23 turns 22 DSC wound on Eddystone 1039 1in. former
Plate	6V6G	—80 meters, 46 turns 22 enamel, centre tapped, 935 former
		40 meters, 22 turns 16 enamel, centre tapped, 935 former
Plate	6P6	—80 meters, 26 turns 22 enamel, No. 935 former.
		40 meters, 12 turns 16 enamel, No. 935 former.
		20 metres, 8 turns 16 enamel, No. 935 former. —
Grid	809	—80 meters )
		40 meters ) as for 6P6 plate.
		20 meters )
Plate	809	—80 meters, 46 turns 16 enamel, centre tapped 1002 former
		40 meters, 22 turns 16 enamel, centre tapped 1002 former
		20 meters, 16 turns 16 enamel, centre tapped 1002 former

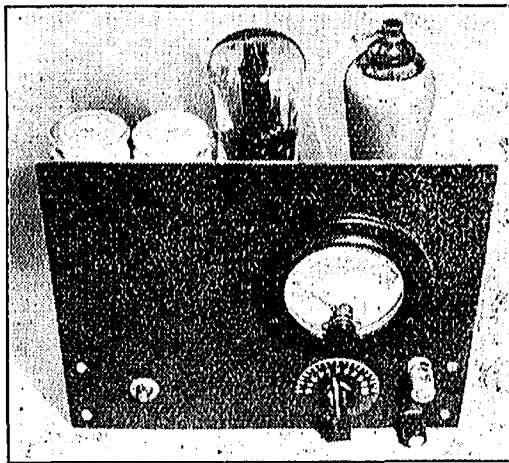
All link coils are 2 turns on the coil formers.

Design and entire construction was carried out in the workshop of VK3ML.

# A Valve Voltmeter for the Measurement of 5, 15 and 50 Volts

This instrument has been designed with the intention of producing a measuring apparatus which, whilst it is simple and cheap to construct, provides sufficient precision for most practical purposes.

An 0-2 milliammeter is usually available and this was adopted as a convenient indicating instrument for the voltmeter. To be effective the voltmeter must therefore meet with the following specifications:—



1. It must have three ranges, viz., 0-5, 0-15 and 0-50 volts.

2. The maximum milliammeter current for the maximum measured voltage in each range is to be approximately 2 mA.

3. The minimum milliammeter current for zero measured voltage in each range is 0 mA. (Note: The milliammeter current should not cut-off before zero measured voltage is reached.)

4. The input circuit of the voltmeter should not damp the circuit on which the measurement is made. In other words, grid current is not permissible in the voltmeter valve.

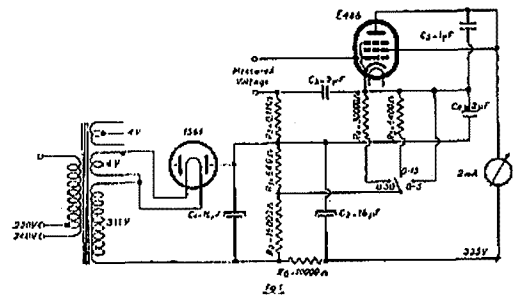
Fig. 1 shows the circuit which was finally adopted.

The instrument is A.C. operated and an E446 R.F. Penthode is employed as an anode bend detector.

A fixed negative bias of 13 volts is developed across the resistance R1 which forms part of a voltage divider connected across the high voltage supply. The voltage divider has a comparatively low resistance so that the bias remains substantially constant when the plate current of the valve increases.

For this particular circuit a negative bias of 13 volts is just sufficient to cut off the plate current and for the 0-5 range the valve is thus adjusted to the most favourable part of its characteristic curve (see Fig. 2). If 5 volts is measured the milliammeter current will be 2mA.

For the measurement of higher potentials, however, the range of the milliammeter would be exceeded and grid current would occur. Thus, to permit the measurement of 50 volts and still maintain the milliammeter current at 2mA, we require to in-



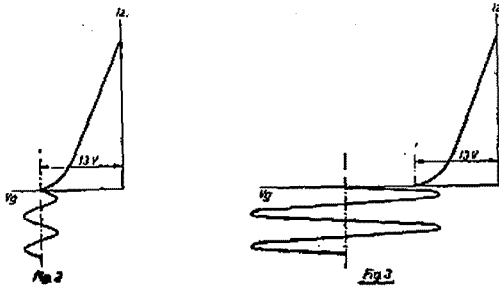
crease the bias to at least 50 multiplied by the square root of 2 equals 70 volts.

If this were accomplished by fixed bias methods we would obtain a result something akin to Fig. 3 wherein only the higher voltages are measurable.

As a solution to the problem, additional automatic bias is derived from resistances switched into the cathode circuit. Resistance R5 is used for the 0-15 volt range and R4 for the 0-50 volt range. For a no signal condition the fixed bias of 13 volts across R1 just cuts off the plate current and no potential drop occurs across the cathode resistor.

As the measured voltage increases, however, the grid is driven less negative and cathode current occurs. As the cathode current increases so does the bias developed across the cathode resistor and a measure of compensation is effected. Thus, for the 0-15 and 0-50 ranges sufficient extra bias is developed to limit the milliammeter current to 2 mA for maximum measured voltages.

To obtain a suitable operating characteristic it became necessary to join the plate and screen grid to-



gether and also to operate these elements at a potential in excess of the normal rating for the valve. Since the plate current will not exceed 2 mA the use of a high plate voltage is permissible and as the valve is a penthode, no secondary emission will result from joining the plate and screen.

Smoothing of the high voltage supply is effected by means of two 16 uF condensers in association with a 10,000 ohm Resistor (R6). In addition to obviating the need for a choke, this resistance serves as a protection for the milliammeter.

For example, if the input terminals to the voltmeter are open there is no bias applied to the valve. Un-

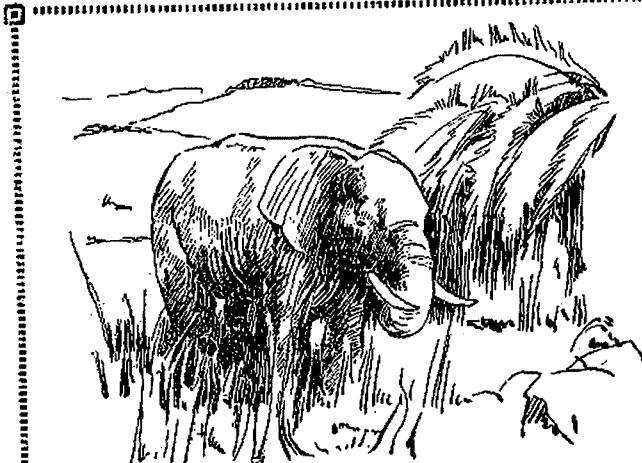
der these circumstances, the milliammeter current is limited by the resistance R6 and the milliammeter will not be damaged. Moreover, the use of the resistance R6 permits the employment of any 0-2 milliammeter for the internal resistance of the instrument is very small compared with 10,000 ohms.

The milliammeter is bypassed to cathode by a 1uF condenser (C5) so that when measuring high frequencies the impedance in the instrument will not cause a voltage drop. This condenser should be non-inductive and offer a very small series resistance to A.C.

In the measuring ranges of 0-15 and 0-50 volts this valve voltmeter is practically independent of mains voltage fluctuations. If the mains voltage increases the plate voltage will rise accordingly and hence also the plate current will tend to increase. The higher plate current will give a greater drop across the cathode biasing resistor and the plate current will return to its original value.

This is not the case, however, for the 0-5 range, for this range is not provided with a cathode resistor. Thus a variation of 10 per cent. in the mains voltage corresponds to an error of 8 per cent. in the reading of the milliammeter. It will, therefore, be necessary to adhere to the original mains voltage on the 0-5 range for accurate results.

When using this voltmeter care should be taken that there is always a conductive connection between the input terminals as otherwise the



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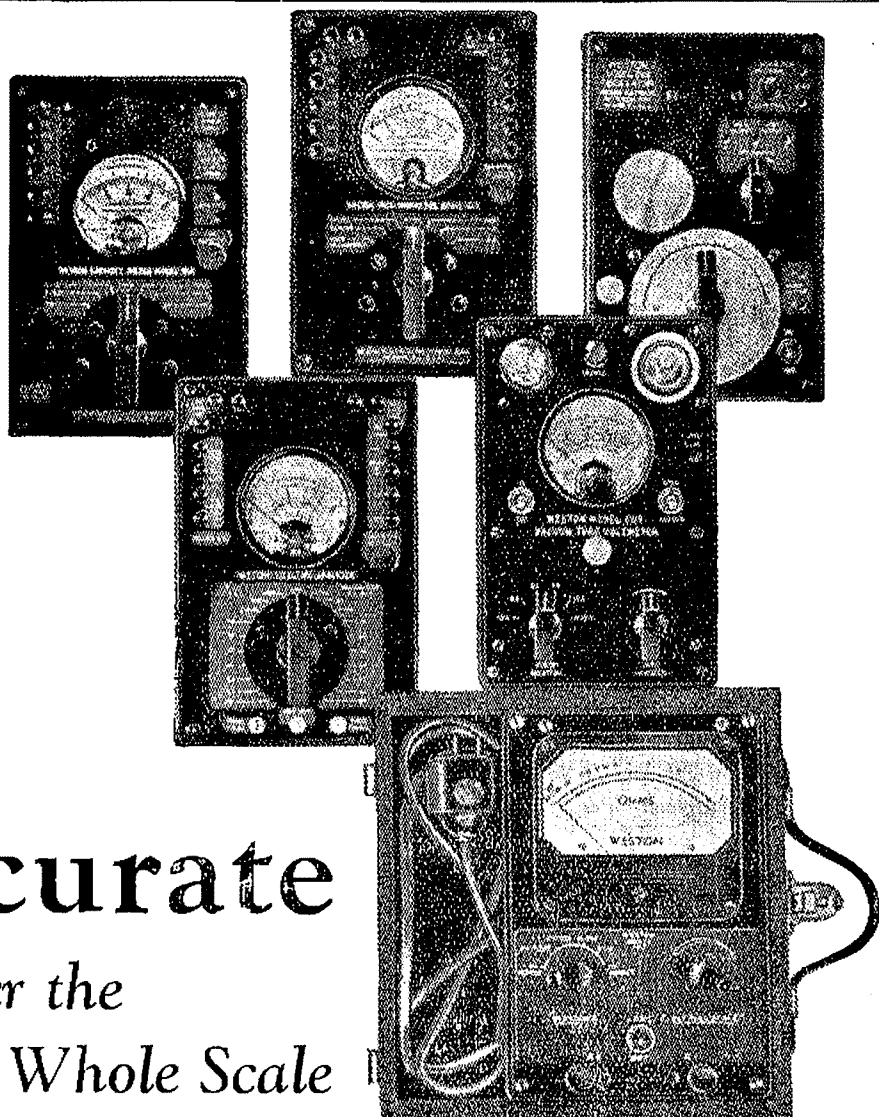
**3.5 M.C., 20/-; 7 M.C., 30/-;**

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**CONS. RADIO ENGR.**

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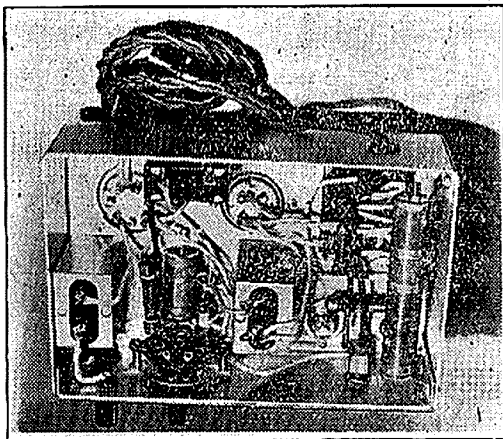
valve will not receive negative bias.

If, for example, we wish to measure a voltage via a condenser, the terminals of the voltmeter must be shunted by a grid leak resistance of from 1 to 2 megohm.

### CALIBRATION.

Although this voltmeter is not an instrument of great precision it has considerable practical value, particularly as the majority of measurements made are only for comparison.

Each voltmeter must, of course, be separately calibrated. The curves of the original experimental instrument are shown in Fig. 4. 50 cycle A.C. mains will usually be employed



for the calibration and for extreme accuracy it would normally be necessary to determine whether the supply is reasonably free from harmonics. Suitable filtering could be employed to eliminate such harmonics.

For the most practical purposes, however, it will be sufficient to calibrate the vacuum tube voltmeter directly from the supply using a step-down transformer or other means of reducing the mains voltage to suitable values.

Actual calibration is carried out by comparing the V.T. voltmeter readings with those of a moving iron or current operated type of A.C. meter.

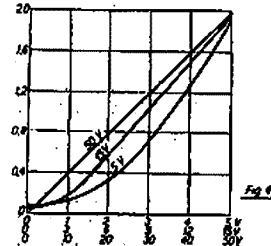
### MEASUREMENT OF STANDARD OUTPUT IN RADIO RECEIVERS.

The instrument under discussion may be employed as an output meter for the testing or servicing of radio sets, a suitable hook-up being shown in Fig. 5.

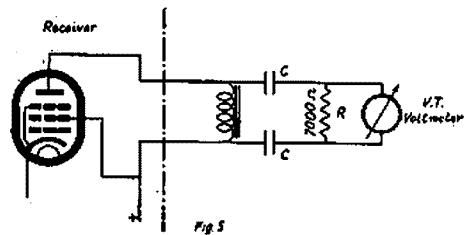
The resistance "R" would have a value equal to that quoted by the tube manufacturer as optimum load

for the power valve. For power pentodes this would normally be 7,000 ohms.

The condensers "C" should be at least 4 $\mu$ F thus having a small impedance in comparison with 7,000



ohms at audio frequencies. The inductance of the audio choke should be as high as practicable, as the A.C. output of the valve is divided between the choke and the resistor. The standard output of .05 watts corresponds to 18.7 volts measured across the 7,000 ohm resistor.



### D.C. MEASUREMENTS.

The voltmeter may also be used for the measurement of D.C. voltages such as, for example, the effect of A.V.C. on the bias of the controlled valves. The instrument should be separately calibrated for D.C. measurements and the positive side of the voltage to be measured is connected to the grid of the E446.

of Amateurs are regarded as serious experimenters, a conservative estimate surely, this represents over

.....  
(Continued from Page 3.)

6,000 men who are actually paying their Governments for the right to advance the Science of Radio grants. Commercial Radio is becoming a bigger battle yearly and less and less money is available for research unless the results will directly enhance the balance sheets, thus Radio itself will be the more grateful to experimenters for research free of all cost to the community. From a National standpoint—but need we go further? We know how righteous is our cause. There are four years ahead, fellows, go to it!

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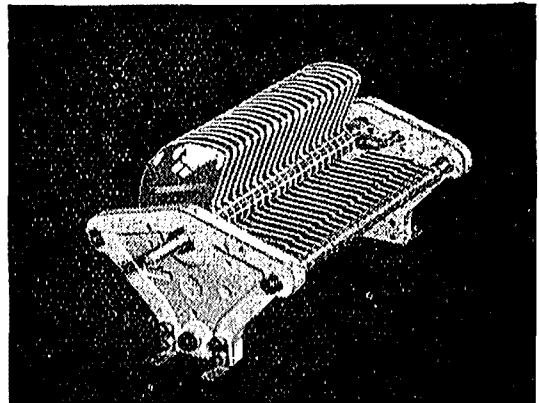
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# Contests Section

## VK-ZL 80 MX Phone Contest 1938

The following are the rules:—

1. All entrants to win prizes must be financial members of the W.I.A. if residing in Australia and of the N.Z.A.R.T. (Inc.) if residing in New Zealand. Any station operated by non-members may enter the contest, but will not be eligible for awards or prizes.
2. The contest shall be by means of amateur radio telephony transmissions on the 80 metre band only.
3. There shall be three sections of the contest, namely:—
  1. Transmitting. Unlimited Hours.
  2. Transmitting. Limited Hours.
  3. Receiving.
4. The contest will commence at midnight, Saturday, July 16th (New Zealand Standard Time), and finish at midnight Sunday, July 31st, 1938 (New Zealand Standard Time).
5. Seven days operation only will be allowed, the days of operation not necessarily to be on consecutive days. To come on the air calling for the contest or to send a letter combination as provided in Rule 6 is sufficient in either case to establish for that day.

### TRANSMITTING SECTION, UNLIMITED HOURS.

6. During the course of each two way communication (QSO), each station will exchange QSA, R, reports and exchange a six letter combination. Every log submitted shall contain the following details concerning each QSO: (a) Time. (b) Correct call sign of station worked. (c) QSA, R, reports given and received. (d) Six letter combination given and received. (e) Points claimed. (f) At end of log total points claimed. The six letter combinations shall be arrived at as follows:—

Every station shall select three letters of the alphabet whose combination shall not be in alphabetical order or form a three letter

word, viz., YOU, TOO, BIT, CAT, etc, and these three letters will form the latter half of every combination sent out by the station. The first three letters will be taken from the last three letters of the immediately preceding QSO.

Example:—At the beginning of the contest ZL4XX selects the letters ASD and VK2AA the letters TWE. They contact both for their first contacts. ZL4XX sends his three letters only, not having worked a station before, and VK2AA does the same. On ZL4XX's second QSO his letters will become TWEASD and VK2AA's will be ASDTWE.

7. No time limit to be imposed on any QSO.
8. No schedules permitted.
9. No station to be worked more than once.
10. Only one operator permitted per station.
11. All transmissions to be in accordance with the Radio Regulations.
12. Points for each QSO will be claimed as detailed in the following table, which is based on the Great Circle distances to the nearest 500 miles:—

15	35	20	15	15	15	5	ZL 1 & 2
15	35	20	15	15	15		ZL 3 & 4
5	20	5	5	5			VK 2
5	15	5	5				VK 3
						4	
10	20	10					VK 4
5	15						VK 5
20							VK 6
							VK 7

### LIMITED HOURS.

13. Competitors desiring to enter for this section will be governed by all the preceding rules, but must not commence operation in the contest before 11.15 p.m. (New Zealand Standard Time) if residing in New Zealand, and if residing in Australia before 11.15 p.m. local standard time of the State in which the competitor is located, on any date,

operation is to cease at 7.15 a.m. on the following morning, 7.15 a.m. being N.Z. or local standard time as the case may be. Stations contacted need not necessarily be in the limited section of the contest. For the purpose of this section only a day's operation as specified in Rule 5 will be computed as being between the hours limiting operation.

14. In submitting their entries for this section, in accordance with the detail required in Rule 6, entrants shall state on the top of the log sheets the section entered for.

## RECEIVING SECTION.

15. Rules 1 to 12 inclusive, of the preceding rules shall apply to the receiving section substitution as applicable "listening" and "heard" for the words "calling," "worked" and "contacting."
16. A log submitted for this section shall be in the same form as required by Rule 6, with the addition of details as to what licensing district the entrant is residing in. Points shall be claimed as set out in Rule 12.

## AWARDS.

17. A trophy will be awarded to the winner of each section (ZL and VK combined). In addition prizes will be awarded to the winning two stations in New Zealand by the N.Z.A.R.T. (Inc.) and the W.I.A. will award two prizes in Australia.
18. Logs from Australian entrants shall be forwarded to the W.I.A., Box 2127L, G.P.O., Sydney, and must reach there not later than August 24th, 1938. Logs from New Zealand entrants shall be forwarded to the N.Z.A.R.T. (Inc.), Box 489, Wellington, C.1, and reach there not later than August 31st, 1938.
19. To each log shall be attached a declaration that the entrant is a financial member of his national society (if such is the case), that he is the only one to operate the station, that he only operated his station for seven days for the purposes of the test.

## VK 160 MX Contest 1938

In accordance with the unanimous wishes expressed at the 1938 Federal Convention, the Federal Executive now presents a new contest.

Although the number of contests is increasing each year, activity on the 160 metre band is decreasing, and in promoting this contest we feel sure that all entrants will obtain a better conception of the usefulness of this band for interstate communication.

The representative of the N.Z.A.R.T. at the Federal Convention expressed a wish that his organisation be allowed to co-operate and assured us of their support.

The contest will take place on Saturday, 10th September, 1938, commencing at 1200 G.M.T. and continuing until 2000 G.M.T.

Rules are as follows:—

1.—The contest is open to all licensed amateurs, but only members of the W.I.A. or N.Z.A.R.T. are eligible for awards.

2.—The test is of a contact nature, and with each contact a six-letter cypher must be exchanged before a point is scored.

3.—The cypher to be exchanged will consist of six letters, the first three being chosen by the entrant to be used as his identifying letters throughout the contest and the remaining three are to be the first three letters of the last station contacted. The initial cypher will consist of three letters of the originating station, followed by AAA, e.g., XYZAAA.

4. Stations with which an entrant can work are those beyond a radius of 200 miles, but within Australia, New Zealand and New Guinea.

5. Each station can be connected once only during the contest.

6. Districts are as follows: VK2, VK3, VK4, VK5, VK6, VK7, VK8 and VK9, ZL1, ZL2, ZL3, ZL4.

7. All transmissions to be in accordance with the Radio Regulations.

# Amateur Radio

8. SCORING.—One point will be scored for each 200 miles covered in the contact.

9. The total number of points so obtained will be multiplied by the number of districts worked.

10. All logs must reach THE CONTEST COMMITTEE, W.I.A. FEDERAL EXECUTIVE, Box 2127L, G.P.O., SYDNEY, by 10th October, 1938. The log must contain:—

- (a) Time.
- (b) Call sign of station contacted.
- (c) Cypher sent and received.
- (d) Contact points claimed, number of districts worked and total score.

11. Certificates will be awarded to the leading station in each district, and a special certificate will be awarded to the outright winner.

7YL	14937	2VU	1968
5RX	13800	2PX	1320
2HV	12165	2RA	585
5QR	10368	3XB	567
5LL	7410	2AFJ	345
7AB	6972	5CP	142
3HG	5196	5TX	94

## NEW ZEALAND SCORES.

<b>Senior.</b>		1CV	2334
ZL1DV	71335	1BR	2005
2CI	52435	3GR	1134
2GN	44736		
1GX	25984	<b>Junior.</b>	
1LM	25100	ZL2QA	72192
3AX	13104	1MR	29348
3AB	11951	4GA	25425
1MR	5832	1JI	14340
4GM	5823		
1LZ	3176	<b>Receiving.</b>	
1JI	2513	ZL166	44032
		ZL419	766

## VK-ZL 80 Metre Telephony Contest, 1937 Scores

VK Unlimited Section.—VK2ADT, 750; VK2NY, 740; VK3WE, 640; VK3EP, 605; VK3HX, 180; VK3PW, 115.

VK Limited Section. — VK7AB, 380; VK3TL, 350; VK3KT, 110; VK7LZ, 75; VK4AW, 65.

Receiving.—R. E. Trebilcock, 770.

## VK-ZL 1937 DX Contest Results

### AUSTRALIAN SCORES.

<b>Senior.</b>		2UD	7020
VK2ADE	83430	2VN	5410
4UR	20438	2DA	5387
2HI	20100	2RB	5280
2PX	15780	4RF	6564
7AB	15776	3HG	3420
2EG	13460	3WY	3400
7YL	13460	3CX	2790
2QL	12924	5CR	1932
7LZ	10980	3BG	1920
3QK	9375	5JT	1614
3IW	8088	5HG	918
5RX	7712	6CP	615
4BB	51455	2AVJ	185
2HF	41312	5TX	72
3KX	34020	3XB	30
2TF	33675		
		<b>Junior.</b>	
2DG	33170	VK2DG	32800
2ZC	31512	3MR	31434
2RA	30618	2ADE	28106
2NY	29862	2QE	21000
4HJ	27270	2X	17644
5FM	26864	4JX	17085
2XT	26100	2NY	16720
2QE	21091	4BB	15373

## HIGHEST SCORES IN DIFFERENT COUNTRIES.

<b>Senior.</b>		LY1J	396
ZL1DV	71235	VQ3KAR	1284
VK2ADE	83430	HB9J	2344
W6CXW	11460	VR4OC	1736
PAOUN	5030	ZS5U	605
OELER	2183	D4SNP	3040
SUIM	3370	OH5NR	231
SPILN	108		
LU9BV	2376	<b>Junior.</b>	
HAIP	4030	W6MVK	9782
YR5AA	3051	ZS5U	2241
F8YZ	2940	SU2TW	108
OK2OP	4620	SPIMX	12
ON4MD	1554	YM4AA	630
G6WY	4590	HA8C	303
K6JPD	2043	ILIT	819
XE1CM	2160	FA3JY	66
VE3AU	3530	F3LE	432
VQ8AF	263	HA7N	612
CX1CG	1752	PAOUN	3210
ES5D	12	VS7RP	952
PK1BX	546	OE7JH	1845
SM6WL	744	OEIER	1744
YM4AD	650	G6XL	3168
OA4J	1920	YR5CF	2304
VS7MB	2656	D4CDM	1944
LA2Q	465	VK2DG	32800
NY1AE	2925	ZL2QA	72192
J2MI	2880	GI6TK	236

## HIGHEST SCORES IN W, VE & G DISTRICTS.

<b>Senior.</b>		W8ZY	5930
W1GCW	3800	W9ARL	6680
W2BHW	5790	VE5BI	2232
W3EVT	7150	VE4GD	564
W4DCZ	5150	G2IO	2530
W5QL	6340	G5YU	1449
W6CXW	11460	G6WY	4590
W7DVY	505	G8PF	1512

GM5YG	2349	W6MVK	9782
GM6RV	3152	W9UOX	564
		VE5AAD	168
		G6XL	3168
<b>Junior.</b>		G8HA	690
W2CJM	3820	GM2JF	1498
W3CSY	1160		

## N.S.W. Field Day at Wyong



### RECEIVING CONTEST.

Z1I66	44032	India BRS311	
OEI5I	2528		6820
BRS1535	7280	HB9RKY	1592
HB9RNV	5940	DE3727/P	8380

## Amongst our Advertisers

Our advertisers, new and old, present some particularly interesting features to hams in this issue. Their presence in these pages imposes a definite responsibility on members to accord them preference when buying.

### WIDDIS DIAMOND DRY CELLS.

The famous P5 Diamond Battery and Dry Cells ensure a high percentage of current efficiency. They can deliver current down to the lowest voltage stage, and give ample warning for replenishment by a gradual and not a sudden decline. Increased service, dependability and unvarying consistency are claimed as prime factors.

### TRIMAX TRANSFORMERS.

A Melbourne firm of manufacturers have announced a new release of great interest to all amateurs. This is a Universal modulation transformer to match all types of modulation tubes to Class C stages of any impedance. Their advertisement appears elsewhere in this issue.

### THE T.C.C. CONDENSERS.

One of the most interesting pronouncements in the issue is that of the Australian Equipment Engineering Co. Pty. Ltd., manufacturers of the dependable T.C.C. Condensers. Quite a number of other products are offered to hams, including the usual types of electrolytics, Ken-

Rad valves, pick-ups, Birnbach insulators and Velocity mikes. Make a note of a few shop-soiled specials quoted in this issue.

### A. G. HEALING LTD.

Members and readers generally are particularly asked to note an interesting new departure by this old firm. "More watts per dollar," is the proud slogan that features the Taylor transmitting tubes, which are becoming increasingly popular with amateurs. Other offerings by this firm are the D7T dynamic microphone, of compact design and remarkably inexpensive, and the Pailard grammo motors, Swiss made and "built like a watch."

### HARTLEY'S.

One of the most comprehensive announcements is the full page display of the Hartleys goods, featuring the best of equipment for all amateur requirements—Astatic crystal pick-ups, battery electric clocks, morse keys, switches, power chokes, headphones, and other adjuncts to up-to-date transmitting and receiving equipments. This firm with its two big Melbourne stores, has a very special claim on the attention of hams, so let them see your faces as often as possible.

(Continued on cover 3.)

## “More Watts per Dollar” with Taylor Transmitting Tubes

By virtue of their superior qualities, Taylor Tubes are becoming more popular every day with Amateurs, who can appreciate quality in output. Call or write for full particulars of all types.

### TAYLOR TUBES. (Nett Trade.)

T20 . . . . . 25/-	TZ40 . . . . . 40/-	866 . . . . . 17/6
TZ20 . . . . . 25/-	T55 . . . . . 70/-	866JR . . . . . 14/-
T40 . . . . . 40/-	T125 . . . . . £6/5/-	



## The New ‘Clipper’ Dynamic

The D7T “American” Dynamic Microphone features high output, small size, ruggedness, fidelity, efficient design with long life and stability. Measures only 2½ in. x 1½ in., and has an impedance of 10,000 ohms. Excellent for amateur communication, public address indoor and outdoor. Retail only at £5/5/-.



## Paillard Gramo Motors

Paillard Gramo Motors are unexcelled for quality Swiss-made, they incorporate the precision and workmanship of a fine watch. For long life and freedom from trouble, instal a Paillard motor, available in A.C. at £4/10/-, and A.C.-D.C. at £5/10/- retail.

Direct your enquiries to A. G. Healing Ltd., attention K. R. Rankin (VK3KR), who will be pleased to discuss your requirements with you.



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## VK3WI on Five Meters

During the week preceeding the week-end 21st and 22nd May, much work was done at the rooms of the W.I.A., Vic. Division, at Queen street, Melbourne. On Saturday, 14th May, a working bee, consisting of Messrs. O. Davies, J. Kerley, G. Searle, B. Hanson, VK's 3JO, 3OT, 3VEI and 3DH, spent a busy time erecting a thirty foot cross beam to the forty foot mast at the top of the roof of W.I.A. To either end of this horizontal bar, 5 meter beams were attached, with that result that we had two "H" type arrays, suspended clear of all metal guy wires and with a height of 26 feet above the roof.

This job was just completed by the time the light failed and so having attached a pair of feeders to each antenna, we "called it a day." At the north end of the horizontal member we had a simple "H" array cut for the low frequency end of the band and at the south end an "H" array with reflector cut for the high frequency end of the band. The "north end" antenna was the property of VK3OT and at the opposite end, 3JO, with the former directed generally towards Europe and the British Isles and the latter towards North America.

On the following Tuesday evening the two transmitters were installed. VK3JO supplied the gear for the high frequency end job and the writer produced part of the low frequency band end transmitter. It was decided to operate these two stations from a common pickup, with separate microphones and to be known as VK3WI on 59.5 megacycles, and VK3WI on 56.5 megacycles. The VK3WI (59.5 mc.) was entirely the property of VK3JO and consisted of a 6P6 ECO, 6L6 doubler and 6L6G final, modulated by class AB 2A5's—power input, 40 watts. VK3WI (56.5 mc.) consisted of P.P.-10's in a species of copper tube "long line" stabilised oscillator, modulated by class AB-2A5's—the oscillator 3DH (yours truly) and the modulator was kindly loaned by Mr. Geoff. Searle of Regent Radio Pty. Ltd. Input to this transmitter, 36

watts. Both the aforementioned transmitters were "excited" by one Piezo pickup (by 3KU).

During Wednesday and Friday evenings very thorough tests were conducted both on the two 3WI transmitters and through the 10 and 20 meter relay stations. The outside "doings," that is, the 10, 20 and 40 meter relay systems are suitably discussed in another contribution to this write-up of the "test."

The arrangement for the 24 hour test was to commence at 4 p.m. on Saturday, 21st May and keep both stations on the air continuously until 4 p.m. on Sunday afternoon. The relay stations would, of course, do likewise. The subject matter of the transmission, to be frequent phone announcements from each station, regarding its own frequency, also an identification announcement from the relaying stations to avoid harmonic reception (if any) from causing a misunderstanding. Naturally, it was realised that continuous phone would be just about impossible, so VK3KU generously donated six copies of a record covering the necessary general information with tone modulation interspersed.

Well, Saturday afternoon came around and since we at 3WI were all ready in plenty of time we actually started up at 3.30 p.m. All went well and at 4 p.m. we commenced receiving reports from "locals" and some of the many helpers at the Institute rooms made arrangements to have the W.I.A. S.W. receiver operating on the 40 metre band in order to have a communication link with any of the relaying stations, the control station (3KU-14mc) and to receive any reports that may come through via radio.

Time marched on fairly rapidly thereafter and there is very little to recorded, however, towards the small be said that has not already been hours of the morning, our interest, at least, was kept up by the sterling work of the relay stations, the control station and the 7 mc. reporting stations.

(Continued on Cover 3.)



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- 8 mf. Type 606 Electrolytics, 460v. . . . . 4/6 (N)
- TRANSMITTING CONDENSERS . . . . . (D)
- KEN-RAD VALVES . . . . . (O)
- Polished Carbon Granules . . . . . 14/- oz. (O)
- Webster Pickups . . . . . £4/10/- (U)
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- .1 mf. Stedipower Moulded Cond. . . . . 1/- (N)
- Bruno Velocity Mikes . . . . . £10/10/- (O)

### SHOP SOILED SPECIALS:

- 1 Only—T.B. 1/50 Philips Tube . . . . . £4
- 4 only—Acme, .0005 mf. Var. Cond., counter balanced. 6/-
- 1 G.R. .0005 Var. . . . . 6/-

SAME DAY MAIL ORDER SERVICE.

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370 LITTLE COLLINS STREET - - - - MELBOURNE  
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## 28 and 56 M.C. Notes

(A. Pritchard, VK3CP:)

Conditions at present on ten metres seem to indicate a rather short skip for most of the mornings. Up till this month, we have been hearing the phones from the States with such excellent strength, but they are now conspicuous by their absence. New Zealand's stations have shown up in considerable numbers with plenty of punch. As far as we know the last five metre tests have not been heard in other parts of the world. VK3WI at the Institute had an excellently stable well modulated sig on the air for the 24 hour period, and Herb's (VK3JO) 3 stage rig did a fine job (all through the night, hi!). VK3CZ, using the 3rd harmonic tank circuit, had plenty of xtal controlled power on 5 during the morning, but did not hear any DX on the super (465 K.C., IF's). Other VK3's had plenty of punch here, but these modulated oscillators are absolutely unintelligible on the super (using 465 KC, IF's) and the carriers are broad ac. VK3NP relayed the 3WI transmission, and was heard at good strength by K6's, who changed down to 5 with no results. Ten seems rather quiet now, as only the usual VK's are on. Many VK2's have good strength, and VK2GU and YQ seem the most consistent. The latter is using a pair of Eimac 35T's in his final, and may W6's say his phone compares very favourably with 2GU. VK2AD also has good sigs and was heard qso J2TG, which has been the only Jap heard or qso'd in VK. ZL4DQ has been on the lookout for 5 mx DX. He has plenty of output from an Eimac 100 TH on both 5 and 10 metres, and the preceding stages run a pair of 53's, 6L6 doub. 5 mx. 807 buff on 5 and 10 mx driving the final. He has 2 ants—a vertical  $\frac{1}{2}$  wave and vertical 8JK beam. On Sunday, 5th June, his sigs were R8 on one of the doub. sections of the 53 linked to the vert.  $\frac{1}{2}$  wave; so he changed his 100 TH to 5 mx, but we later qso'd on the 10 metre overtones only. ZL4DQ wants schedules with VK's and has heard VK5ZU calling "cq test 5

metres" on 13th March at 6 p.m., so evidently his super has efficiency there. VK6MW has excellent quality and punch, and is using a new rotary 8JK beam which is 30 feet over all and 8 feet across. He qso'd VK5IT and 2YQ with good strength, but they were not audible here. W9BCX was R8 phone here at 1.45 p.m., Sunday, 5th June, and was only using a pair of 6L6 tubes in his final. The antenna is the interesting part, being a  $\frac{1}{2}$  wave dipole with a director a 1/10th wave in front and reflector  $\frac{1}{4}$  wave back. ZL3DJ also uses a similar idea, and the actual measurements are as follows:—The elements are also horizontal and all cut to resonate on 28200KC., 17ft. 5in. long refl., 16ft. 11in. dipole, 16ft. 3in. director, with the following spacings: 10% of a wavelength between refl. and dipole, giving 3ft. 6in., and 15% of a wavelength between dipole and director, giving 5ft. 3in. This antenna was only one "R" point down on the States, compared with an elaborate H type, having 6 half waves in phase, arranged 3 above and 3 below, so evidently the combination with the above dimensions halved would be very attractive on 5 metres. One of the few powerful phones heard and easy to work at present is W3CBT; his antenna is an H type beam 80 feet high and the outfit has a 6L6 co 40 xtal, RK20 doub., RK47 buff and PP RK38's final with 700 watts input and modulated by Class B 203A! We are hearing many commercial harmonics, also K6LCV and K6MVB when the band appears dead, JNM3 and PLJ being the loudest harmonics. The band seems to open out for an hour around 11.30 a.m. and later at 3 p.m., but the majority of W's have closed down. No VK4's have been heard this month. W5HEK has power also, and a new KW job has a 6L6 co tritet 807 doub., and PP 250 TH final; a pair of 8JK antenna stacked one above the other put a hefty signal in VK and New Zealand.

## VK3MR DX Notes

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It becomes necessary for me once again to remind you dx men that I am unable to reply to all letters, but I can only say that they are appreciated to the full, so please keep it up and keep your eye on the date of closing. Don't forget to add the times and frequencies of this rare dx.

Since my return to the air, conditions do not appear to be very good and even W's are not coming in with their usual punch and you have to dig for the rare stuff . . . winter was always a bad time for real dx, and during the 7mc days, this time of the year was the time to rebuild the rig in readiness for the dx season, but still, there is a lot to be worked all the same. It is good to be on the band again exchanging dogs with even the W's; it sorta bucks you up, just like a good tonic, something that can never be experienced with a hundred fone contacts (what have I said now?). I feel so good that I can even stand the "Air Raiders" slinging off at my mike! Say O.M., very pleased to notice you have taken notice of my words, they were meant for your ears! Just too bad you will have to sign your name in future.

Evidently a statement to the fact that you have worked so many countries will not satisfy some of the real dx men . . . it seems that the verified contacts count. What about you Ron? (3KX) 2DG has worked 109 and has 92 verified—any better? If it wasn't for this dx racket, radio would lose more than half of its fascination—if any one is polite enough to ask me I'll tell you next month why.

At last we have a very active station in New Guinea in the form of VK9BW, 14400 kc. on most nights. Also one from Papua, VK4KC, 14375 kc. They are much sought after by the W's. W1BUX works some good dx in the early a.m.'s now as his new daughter has him on the go early doing his stuff as all fathers have to (so I'm told). It was in this way that 5KO ex 3WL worked some of his best dx in days gone by!

2DG with others have reported working the above new VK districts and 2DG also has worked the following juicy ones:—UK1CC, 14055 kc., 6.50 a.m.; HK3AL, 14405 kc., 3.30 p.m.; TI8GA, 14275 kc., 4 p.m., and our old pal K6BAZ is now operating from Howland Island, which was in the news recently during the search for Mrs. Putman. His freq. is 14375 kc. Not much from the South Africans and little from South America. VK5LD tells me that they can't get out too well over in VK5.

For those looking for some of the harder W states for the WAS will be pleased to learn that the following stations are on the job and are keen to work VK's. This is from 2DG. New Mexico, W5GZU, 14350 kc.; Utah, W6FRN, 14375 kc.; Nevada, W6FUF, 14060 kc.; Wyoming, W7GGG, 14360 kc., and South Carolina, W4BPD. Just call "CQ" Nevada and see how many W1's come back! It will surprise you. Next month I will give a similar resume of the BERU tests and our own October tests. All get ready for the D.A.S.D. Test in August.

A brief resume of the past ARRL dx tests will be of interest to both old and new hams. The first test was held in May, 1927, and the idea was to exchange an 8 word technical msg with usual number, and the answer was given to the next W worked. It ran for two weeks and the bands used by the W's were as follow:—18.7 to 21.4, 37.5 to 42.8, 75 to 85.7, and 150 to 200 meters, and the VE's also used the above and a band on 52.5 meters. In 1928 a similar test was held in Feb. No test held in 1929, and all tests since then have been held in March except 1930 in January, all using the present bands. Up to 1931 the test was of a msg handling nature, but in 1932 a different stunt was tried which proved unsatisfactory to many. The idea was to call for so many hours on the different bands and then listen at other periods for dx stations calling and as logs were sent in so it was ascertained just where you were being heard, no

## 'Parco' High Fidelity Audio Transformers

Input Audio Transformers.		Line to Grid.	List.
LG51	50 to 100,000 ohms	LG55 50 to 500,000 ohms .....	40/-
LG101	100 " " " " .....	LG105 100 " " " " .....	40/-
LG201	200 " " " " .....	LG205 200 " " " " .....	40/-
LG251	250 " " " " .....	LG255 250 " " " " .....	40/-
LG501	500 " " " " .....	LG505 500 " " " " .....	40/-
LG1001	1000 " " " " .....	LG1005 1000 " " " " .....	40/-
LU15	—Universal Input Type—17, 50, 125, 200, 250, 333 and 500 ohms to Grid .....		55/-

All above types are fitted in cast iron case finished in Silver, French Grey or Black with terminals on top of case. Primary shielded from secondary in all types.

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SS1.	1 to 1 Primary Inductance	
SS2.	1 " 2 125 henries at	
SS3.	1 " 3 10 MA D.C.	
SS4.	1 " 4 .....	18/-

Push Pull Transformers.		List.
SP10.	1 to $\frac{1}{2}$ Primary 125 henries at	
SP15.	1 " $\frac{2}{3}$ 10 MA D.C.	
SP20.	1 " 1 Standard P.P. Type.	
SP30.	1 " $1\frac{1}{2}$ Ratio Primary to $\frac{1}{2}$	
SP40.	1 " 2 Secondary.	
.....		20/-

P.P. Plates to P.P. Grids.		List.
DP10.	1 to 1 Ratio Primary to Full Secondary.	
DP20.	1 " 2 Standard Double P.P. Type	
DP30.	1 " 3 .....	
DP40.	1 " 4 .....	27/-

All above fitted in welded sheet iron cases, finished in Silver, French Grey or Black. Hook-up leads brought out underneath can.  
Prices for cast cases on application.

Class AB & B Driver Types.		List.
BB1.	30 to 19 Class B .....	18/6
BB2.	30 " PP30 Class B .....	18/6
BB3.	30 " PP49 Class B .....	18/6
BB4.	217 " B240 Class B .....	18/6
BA8.	42 " PP42 Pentode AB2 Fixed Bias .....	30/-
BA9.	42 " PP42 Pentode AB2 Self Bias .....	30/-
BA10.	42 " PP42 Triode AB2 Fixed Bias .....	30/-
BA11.	42 " PP42 Triode AB2 Self Bias .....	30/-
BA12.	6N7 " 6N7 Class B .....	30/-
BA13.	6F6 " 6L6 PP Class AB1 .....	34/-
BA16.	6F6 " 6L6 PP Class AB2 .....	37/-
BA17.	6C6 " 6L6 PP Class AB1 .....	34/-

These types are fitted in welded steel cases, but cast iron cases can be fitted at additional cost.

Output Transformer Types.		List.
OA1.	Single Triode to Line, 200,500 ohms 0. db. ....	20/-
OA2.	PP Triode to Line, 200,500 ohms plus 10 db. ....	30/-
OA3.	PP Triode to Voice Coil, plus 10 db. ....	30/-
OA4.	Single 45, 50, to line 200,500 ohms .....	35/-
OA5.	Single 45, 50, to Voice Coil .....	35/-
OB5.	PP 45 or 50 types to Line 200,500 ohms .....	40/-

(Continued Opposite)

QSO's, only listening. This was won by VK3ZX and VK3VP, both with 100 points. 3ES and 2OC were also prominent in this test. Each test since then has been run on the present scheme of handling numbers only and has been shortened to ten days. The only suggestion I can offer to improve this test, especially for countries outside of W, is to limit the hours of working to a reasonable period based on local time in each different country, say from 6 p.m. to midnight during the week and a longer period during the week-end. This will give everybody an equal chance as well as attract three times the entries. It is worth considering.

The winners from its inception are as follow, 1927 to 1937. By the way, the second test in 1928, the first prize of a xtal controlled rig with an 852 in the final was won by OA7CW (OA old VK prefix). All other tests, a certificate has been issued. 1st, OA2SH, OA7CW, OA7CH, VK3HL, VK3ZX/VP, VK3ML, VK3MR, VK3GQ, VK3MR, VK3MR, respectively.

## Radiotron Releases

A complete series of 6.3V. .15A. heater valves is now available in the Radiotron range. These are particularly intended for use in receivers operating from a 6 or 12 volt supply where a reasonably heavy current is practicable but where economy is desired over the heavier drain types commonly used in A.C. receivers.

The range comprises the following types:—6D8G Converter: Heater 6.3V. .15A. 6G6G Power Pentode: Heater 6.3V. .15A. 6L5G General Purpose Triode: Heater 6.3V. .15A. 6N5 Magic Eye Tuning Indicator: Heater 6.3V. .15A. 6S7G Super Control R.F. Pentode: Heater 6.3V. .15A. 6T7G Dou-Diode High Mu Triode: Heater 6.3V. .15A. In addition to these types there are also two twin triodes, each fitted with two units having similar heaters, but the total current being twice as great since the two are connected in parallel. 6C8G Twin Triode Amplifier: 6.3V. .3A. 6Z7G Twin Class B Amplifier: 6.3V. .3A. Small quantities of all these types are held in stock.

OB6.	PP 45 or 50 to Voice Coil	40/-
OB7.	PP 2A3 to line 200,500 ohms or Voice Coil	40/-
OB8.	PP Pentode 42A to line 200,500 ohms	40/-
OB9.	PP Pentode 42A to Voice Coil	40/-
OB10.	PP Pentode 42ABI Fixed Bias to line or Voice Coil	40/-
OB11.	PP Pentode 42ABI Self Bias to line or Voice Coil	40/-
OB12.	PP Triode 42AB2 Fixed Bias to line or Voice Coil	40/-
OB13.	PP Triode 42AB2 Self Bias to line or Voice Coil	40/-
OP14.	PP 6L6 Class A to line or Voice Coil	40/-
OP15.	PP 6L6 AB1 250 Volt Screen to Line or Voice Coil	45/-
OP16.	PP 6L6 AB1 300 Volt Screen to Line or Voice Coil	45/-
OP17.	PP 6L6 AB2 250 Volt Screen to Line or Voice Coil	50/-
OP18.	PP 6L6 AB2 300 Volt Screen to Line or Voice Coil	50/-

All output Transformer types can be wound with multiple line or voice coil secondaries.

**Multiple Line**—50, 125, 200, 250, 333 and 500 ohms.

**Multiple Voice Coil**.—1.3, 3, 4.5, 7.5 and 15 ohms.

Additional price for Multiple Secondary Windings, 9/-.

OA types are fitted in welded sheet iron cases with hook-up leads brought out underneath.

OB types and OP14 are fitted in cast iron cases with terminal panel on top.

O.P. types are fitted in cast iron clamps with terminals on sides.

All "Parco" High Fidelity Transformers are designer to maintain a frequency constant of within 2 db. from 50 to 10,000 cycles per second.

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## Cairo !!

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The International Telecommunications Conference, which was held in Cairo from January to April this year, was attended by 710 official delegates and the Governments of about seventy countries were concerned with its deliberations.

The Conference dealt with many things relating to telegraph, telephone and radio services. One of its last tasks was to modify somewhat the wave-bands employed for wireless services, mainly by way of widening the bands employed, especially in the higher frequency ranges. These changes will not become effective until September 1st, 1939.

The Conference has not allocated any wave-lengths to particular stations, but it has charged the Union Internationale Radiotelephonique with the formulation of a "new Lucerne plan" whereby an effort will be made to obtain an entirely new allocation of wave-lengths for broadcasting purposes. If approved (at another conference to be held before February 1st, 1939, in Switzerland), the new allocation will become effective six months later and, at the same time, an attempt may probably be made to modify the power of certain stations.

How the changes made at Cairo affect broadcasting and television services was explained by Sir Noel Ashbridge, controller of engineering, B.B.C., The long-wave bands (derogation and regulation) between 150 and 431 kc. remain unchanged. To the medium bands from 519 to 1,500 kc. there has been added a 60 kc. extension (downward from 200 to 192.3 m). A new set of intermediate wavebands has been established between 2,300 and 4,965 kc. for the assistance of broadcasting in tropical and semi-tropical countries (between 30 deg. N. and 30 deg. S.). These are intended more for local use than for truly short-wave services over long distances.

Most of the changes have been made in the short wave-bands as follows:—6,000 to 6,150 kc. extension to 6,200 for relieving congestion in winter. A quite new 7,200 to 7,300 kc. band has been established for all regions (except the American continent), which is to be shared with amateurs; 9,500 to 9,600 kc. extension to 9,700. There is no change in the 11,700 to 11,900 kc. and 15,100 to 15,350 kc. bands; the 17,750 to 17,800 kc. band is extended to 17,850. The 21,450 to 21,550 kc. extension to 21,750 is not of immediate importance, but will be useful for overcoming sun-spot interference during the next period of solar activity. The 25,600 to 26,600 kc. band, which is not much used, remains unchanged.

The ultra-short wave-band, which includes television frequencies, has not hitherto been specified. Contrary to expectation, a definite demand for allocation was made at Cairo and so the following four bands have been established:—40.5 to 58.5 Mc, to accommodate three stations; 64 to 70.5 Mc. for one station; 85 to 94 Mc. for 1.5 stations, and 170 to 200 Mc. for five stations.

Although no frequency band lower than the first (6,000 to 6,200 kc.) has been allocated for long-distance broadcasting, Great Britain may utilise, by agreement with America, a frequency within a band of the order 3,500 to 4,500 kc. (85.7 to 66.67 m.) for transatlantic broadcasting in the exceptional period when the sun-spot cycle renders the higher frequencies ineffective.

The whole of the foregoing has been reprinted from the *Electrical Review*, 6th May, 1938, and we note several rather interesting expressions of opinion notably that the Conference has modified the wave-bands, "mainly by widening the bands employed," and that a "new set of intermediate wave-bands has been established between 2360-4965 kc.," whilst a "quite new 7200-7300 band has been established for all regions

(except the American Continent) which is to be shared with amateurs." Even the television people have had a slice of the 56 mc. band allotted to them, whilst the 80 metre band has some valuable attractions for long distance broadcasting on transatlantic services.

Our natural reaction is to say it could have been worse, but on second thoughts it could have been a lot better. We mustn't be misled by the fact that we didn't lose much of our already restricted allocations, when we see to our dismay that certain countries will even be sharing part of our 40 meter band for broadcasting services. We are struck by the significance that the amateur whose numbers are increasing rapidly and who is really needing and deserving of more space, is actually getting a bit lopped off here and there.

The amount of licence fees received by the various Governments of the world from Amateurs should surely demand more consideration for our comfort and satisfactory experimentation, not forgetting our national value in time of war.

We know that because of our restricted frequency allocations, the Amateurs have been forced to rise to the occasion and design new and suitable equipment to even permit operation in territory impossible to most people. Are we pessimistic when we wonder if the new users of the 7200-7300 kc. portion of our band will find it very difficult to use because of the presence of so many amateur stations and at the next Conference seek to appropriate this portion or the whole lot for that matter, entirely for themselves.

In the meantime our policy must be determined, are we to use this section more consistently, perhaps as a phone band, or is it to be deserted in favour of the commercial stations, thus eventually losing it for ever. The Amateur has to wake up and improve his organisation or the commercial stations will drive him off the air with their selfish and grasping methods.

It is about time that the World's authorities realised that broadcasting services and broadcasting listeners are well served by present

allocations, as even the most devout listener is already tired by the continuous advertising drivel heard on the air on all bands from commercial stations.

Our policy is more space for the growing Amateur fraternity and we can logically put forward our claim for more space because of the steady annual increase of Amateur stations, and the increasing difficulty of securing effective communication on our crowded bands.

It is to be hoped that the fair treatment and consideration meted out to Amateurs here in Australia by our P.M.G.'s Department will be continued in a policy which will preserve the maximum space free of commercial interference for the Amateur, who represents a cultural as well as a national asset to the Commonwealth.

—The Editors.

We have advanced information from Mr. R. H. Cunningham, the Australian representative of the Eddystone manufacturers, that he will be marketing through his distributors some fourteen new lines that will be of particular interest to hams. This remarkable range has risen to about 119 components, all of which are available in Australia. Some of the lines to be landed within a few weeks are No. 1090 a Low Loss Frequentite Former and Base for transmitters. It is 5 inches long and 2½ inches in diameter, and will take up to 26 turns of 12 guage wire. Fourteen holes are provided for tapings. No. 1096 is a flexible cable coupling which will drive through 90 degrees perfectly and enable condensers to be tuned from awkwardly located condensers up to 5½ inches away from the control. Everybody will be pleased to learn that the popular Microdenser series of condensers are to be made available in a special series for transmitters. No. 1094 has a maximum capacity of 18mmfd and flashes at 3500 volts. No. 1093 is especially suitable for C.O. tuning and tunes up to 60 mmfd. The new catalogues arriving soon illustrates all these lines and you are advised to book one now through your local distributor.

## VK3VY

The following is a description of an unusual rig in operation at my shack.

The rig is built in rack and panel form using two racks each 6 ft. high and 18 in. across, one being used for the modulating system and speech amplifier equipment and the other the RF portion.

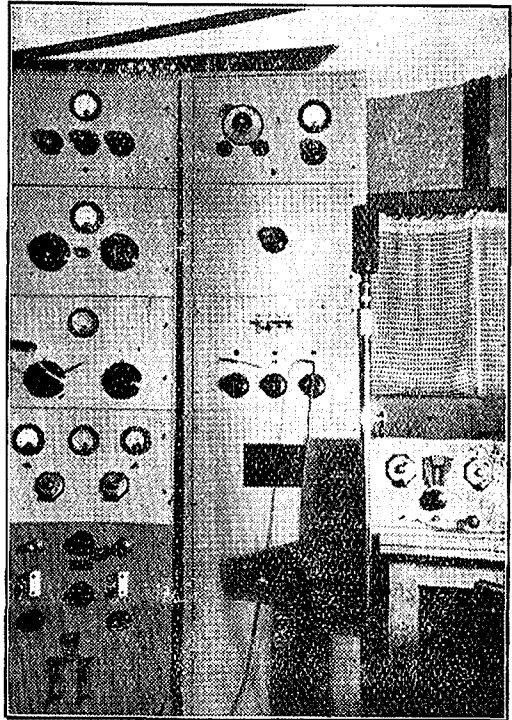
I have given much thought to the construction and design of this station, as I wanted to put a good quality phone transmission on the air (hi). I, therefore, chose the Philips EL3 penthode as a crystal oscillator which has performed very well. The tube has a very steep slope and with 250 volts on the plate and screen, an output of 5 watts RF could be got from it with only about 15 mA flowing through the crystal. This was a big advantage as I discovered that the crystal oscillator did not shift in frequency due to heating.

Owing to the tube having a big slope I chose it again for the doubler and the efficiency was excellent. The oscillator was capacity coupled to the doubler and with the same voltage on the plate and screen the output was quite sufficient to drive any medium powered tube. Both the oscillator and doubler were built on the one panel or rack and had a complete power supply so as to get good efficiency. The next stage to be added was a buffer which consisted of the Philips PEO5/15 screen grid tube. This tube I chose because it is very easy to drive and does not need neutralising. The tube is link coupled to the doubler and is assembled on the next rack above the oscillator and doubler. The tube with only 500 volts on the plate and 250 on the screen and working in class C requires only 5 watts R.F. to drive it and with fixed bias of 250 volts I obtain an output of 25 watts.

The next stage added was link coupled to the buffer. The P.A. consisted of a triode TCO5/25. This tube I found needed plenty of drive, hence the extra buffer stage, but it was well worth the trouble as I have had very good efficiency. With 700

volts on the plate and driving power of 20 watts one could get as much as 50 watts output on phone modulated 90 per cent. and the tube would not drop in efficiency or run hot.

In C.W. I have made tests into a dummy antennae and working the tube in class C plus with about 200 volts fixed bias on the grid one can obtain an output up to 100 watts without the tube running hot, but as this tube is only rated at 25 watts plate dissipation I did not go any higher.



Both the buffer and final P.A. have a complete power supply and fixed bias supply so as to obtain good efficiency. The final stage is also link coupled to the buffer. All stages have plug in coils except the final tank coil which is copper tubing. The antennae used is a half wave vertical voltage feed zeppelin fed at the ground end with quarter wave feeders and is series tuned. This aerial was chosen for low angle radiation on 40 meter band and has proved very satisfactory over all states. So much for the R.F. portion of the rig.

The modulating system was designed to give a good overall response from 50 cycles to 10,000



cycles. It consisted of a Bruno velocity microphone into a step up transformer to the grid of the first pre-amplifier. This transformer was made with a very high ratio 500 to 1, so as to do without an extra valve in the speech amplifier, thereby reducing hum trouble.

The first valve from the input transformer is a 6C6 resistance coupled to a 6C6 penthode with an equalising circuit in plate. This equaliser consisted of two swinging chokes, one  $\frac{1}{2}$  henry with maximum D.C. resistance of 200 ohms shunted with a .0004 condenser which lifted the high frequencies and a 200 henry choke with 3000 D.C. resistance shunted with a .035 mfd condenser as the larger the condenser the greater the base reproduction was emphasised. The voltage applied to the plate of the 6C6 was very critical, as the higher the plate voltage, the less the chokes affected the frequency response of the amplifier as the lower the notes the higher the impedance of the tube was swung by the chokes and the greater the

amplification. I found about 45 volts on the plate to be the best. This tube was then resistance coupled to an EBC3 triode and then resistance capacity transformer coupled to two F443N penthodes in class AB. These tubes gave me 40 watts of audio output with only 3 per cent. distortion and only required 37 volts to fully drive them. The plate voltage required was only 550 on the plate and 250 on the screen. The screen voltage is very critical as the slightest variation in screen voltage caused the percentage of distortion to increase rapidly. These tubes are the modulators and are worked in push pull and are coupled to the final in Heising transformer modulation. The impedances of the transformer secondary and primary were matched to the tubes in use under 50 watt rating.

This unit was built in a similar rack and panel to the RF section as in photograph. The top rack consisted of a frequency meter and modulation meter and monitoring equipment.

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## Federal and Victorian QSL Bureau

R. E. Jones, VK3RJ, QSL Manager.

Gordon McLeod (VK3ZZ), after a spell in V1S, has joined the H.M.A.S. Swan, and expects to be afloat for some time. Gordon says he will miss his 28 mc. activities, as this band intrigued him greatly and gave him much success.

The Poles were late again with notification of their DX contest, which took place between May 1 and May 15. All VK's who worked SP stations during this period are requested to QSL to enable the Polish competitor to score his points. Prizes to foreigners are:—"The best competitor in every country will receive a certificate. Three foreign competitors who will get the best scoring will be awarded special certificates and artistic prizes. Special prizes will be awarded to the best foreign competitors of Polish descent in all the six continents."

YR5CF, C. Florian, Str. Trotus 53, Bucharest, Roumania, states that during 1937 he enjoyed 50 VK QSO's, which he has acknowledged, but has received in return only 11 QSL's. He is extremely anxious to receive the remaining 39.

Alterations to European Bureaus include:—Esthonia: E.R.A.U., Post-box 220, Tallinn, Esthonia; Denmark: Arne Hammer, OZ7D, Norre Aaby, Denmark.

Another DX contest of which late notice was received is that of the Hungarian Shortwave Amateurs. Their contest took place during the week-ends of May, and logs and QSL's should be sent to N.U.H.S.A., Lendvay-u 8, Budapest, Hungary, by August 1. Foreign awards are: "The third of the participants in every country, at least one, but not more than three, will get a certificate."

VK6UK, Perce Kernick, an old-timer who is still active, recently enjoyed a trip to Colombo.

Apropos the recent country convention at Warragul, Mac, VK3XZ, writes to let us know that 3UL still

functions, and a census of all spares taken immediately after the gang left the station showed all present and correct.

Recent advices point to W2UK, Ralph Thomas, as the likely winner of the 1938 Yank contest, 176,000 points from 329 QSO's with 76 countries being his tally. A likely runner-up is VK3EG.

A correspondent says it in verse  
A dashing young ham named Tim  
Worked his DX with a great deal  
of vim,  
Said he, "I'm renowned  
For covering ground,"  
But, alas, now the ground covers  
him.

Cards for the undermentioned VK3 stations are hibernating at the Bureau, 23 Landale street, Box Hill; a stamped envelope wakes them from their lethargy:—3AH, AP, BE, BJ, BK, CA, CC, CU, CV, DE, DT, DZ, EA, EC, EI, FK, FM, FT, GM, GN, HB, HP, HE, IL, IN, IR, JA, JS, KG, KM, KO, KP, KY, LD, LI, LM, LP, NA, NB, NF, OF, OI, OU, PB, PC, PH, PU, QO, QR, SD, SE, SF, SM, ST, TB, TD, TG, TT, TV, TZ, UC, UO, VB, VK, VX, VY, WH, WO, WP, WR, XA, XE, XU, YA, YG, YM, YS, YT, ZG, ZL, ZW, Dyson, Hurray, ECP, XKCH, Treloar, Webb.

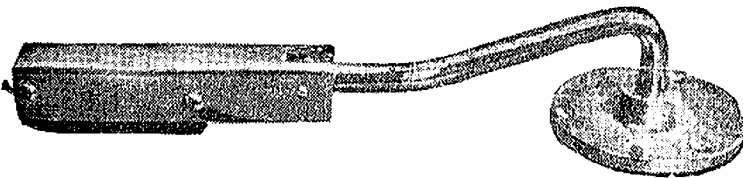
Among the numerous country and interstate visitors to the June meeting of the Key Section of the Victorian division was Launse Deane, VK5LD. Launse looked in the pink, but more subdued and demure than of yore.

Sam Wilcox, VK3KC, explaining a long absence off the air, writes that he has a newly acquired YF. Congrats., Sam, and nuff said! We trust the new QRA will be as good on 56 M.C. as you anticipate.

W9IJY and W6CUR are at present appearing at the Melbourne Tivoli Theatre in the roles of a card trickster and mad musician respectively. Their season should extend into July.

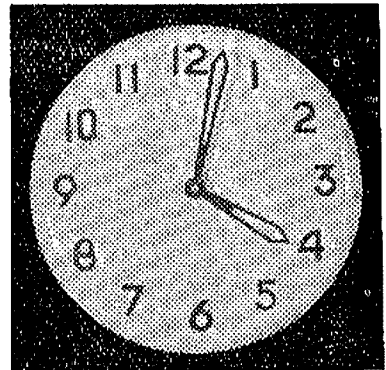
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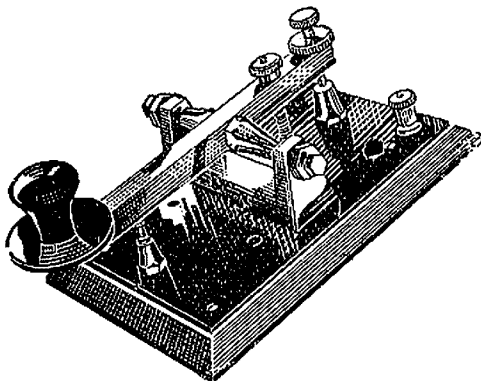


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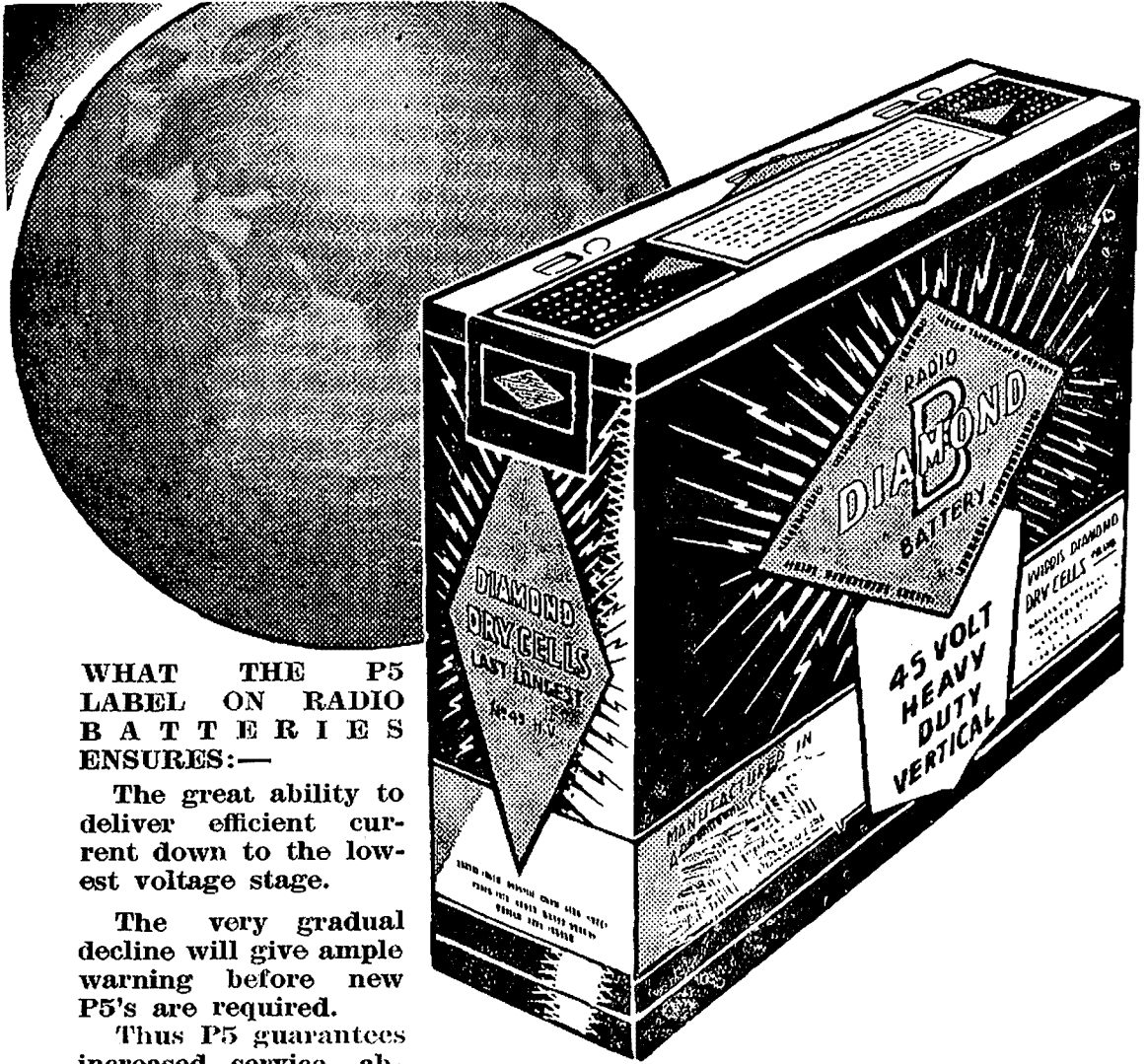
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XJD	J. L. Matthews, Richmond.	XLO	C. W. Donne, St. Kilda.
XJE	A. E. Pell, Malvern.	XLP	A. A. C. Miller, St. Kilda.
XJF	H. V. Heinecke, Brighton.	XLX	H. W. Maddick, Elsternwick.
XJG	A. G. Frazer, Camberwell.	XMB	R. H. Owen, W. Melbourne.
XJH	V. Barnes, East Brunswick.	XMC	F. G. McClelland, East Melbourne.
XJI	F. W. D. Gowers, Seymour.	XMI	J. Saban, Auburn.
XJJ	R. Bryson, Richmond.	XMJ	J. K. Twycross, Abbotsford.
XJK	W. Fisher, Middle Park.	XML	E. B. Parker, E. St. Kilda.
XJL	E. H. Brasch, Hawksburn.	XMO	C. Whitelaw, Rosedale.
XJM	R. Payne, Armadale.	XMQ	H. C. Trumble, M. Brighton.
XJN	C. Ham, Melbourne.	XMS	W. Bishop, Queenscliff.
XJO	W. R. Armstrong, St. Kilda.	XMT	H. E. Dangerfield, Malvern.
XJP	H. D. Billings, Brighton Beach.	XMU	M. Israel, St. Kilda.
XJQ	W. T. Appleton, Jr., Malvern.	XMV	C. C. H. Ellis, Auburn.
XJR	F. J. W. Derham, Malvern.	XMW	R. W. Allen, Beulah Rail.
XJS	J. Stickland, Hawthorn.	XNE	E. F. W. Goodwin, Essendon.
XJT	T. Pickford, Malvern.	XNF	A. M. Wright, Brighton.
XJU	W. V. Nicholls, Korumburra.	XNH	W. S. Tregear, Kensington.
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XJX	B. J. Mullett, Upper Pakenham.	XNM	A. E. Pritchard, Moonee Ponds.
XKA	G. F. Lloyd, Brunswick.	XNO	J. Boyd, Jun., Elsternwick.
XKB	E. L. Reynoldson, Strathmer-ton.	XNQ	A. Wellman, Kensington.
XKC	R. S. Wilson, E. Malvern.	XNT	C. Hazard, Brighton.
XKD	C. F. Cooper, E. Melbourne.	XNU	J. R. McConnell, Canterbury.
XKG	D. Hodges, Essendon.	XNV	M. L. Robertson, S. Yarra.
XKI	W. J. Miller, Croxton.	XNX	R. Horne, Kensington.
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XPD	C. C. Bailey, Malvern.	XJCW	J. Welch, Murrumbeena.
XPF	Jas. H. Wilken, Kilsyth.	XJCX	C. Bannister, Brighton.
XPG	A. H. Wain, South Yarra.	XJCY	C. Semmens, E. St. Kilda.
XPH	A. Holst, Caulfield.	XJCZ	H. E. Taylor, Camberwell S.
XPI	Jas. McNair, Brunswick W.	XJDA	C. Forshaw, Elwood.
XPJ	Wireless Institute of Victoria, Melbourne.	XJDB	K. Francis, Coburg.
XPL	O. E. Rawson, Richmond.	XJDC	C. T. B. Knell, Windsor.
XPO	H. J. Taylor, Warracknabeal.	XJDD	H. M. Shannon, Brunswick.
XPP	W. Ming, Melbourne.	XJDE	I. Hughes, Kew.
XPR	G. Flanagan, Ascot Vale.	XJDF	Captain William Clarkson, Toorak.
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XPU	H. C. de Crespigny, Middle Brighton.	XJDH	E. G. Offen, Middle Park.
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XPW	H. S. Kennedy, Coburg.	XJDJ	F. G. Cathcart, Canterbury.
XPZ	S. Newman, Canterbury.	XJDK	T. Cummins, E. St. Kilda.
XJAA	C. G. B. Colquhoun, South Yarra.	XJDL	A. McKay, Hawthorn.
XJAB	C. M. Urquhart, Albert Park.	XJDM	J. Fitchett, Balwyn.
XJAC	B. C. L. Harvey, Port Mel- bourne.	XJDN	F. S. Barnett, North Wil- liamstown.
XJAD	C. J. Brown, Melbourne (Ch. of E. Grammar School).	XJDO	A. C. Smith, Matlock.
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XJBM	L. Latham, E. Camberwell.	XJEI	E. Robinson, Caulfield.
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XJCP	R. Mitchell, Royal Park.		

Victorian Division Annual  
General Meeting  
July, 27th

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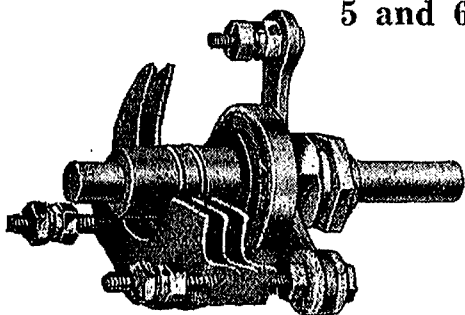
Phone, U1218.

# Amateur Radio

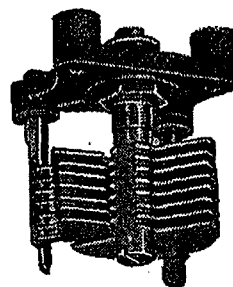
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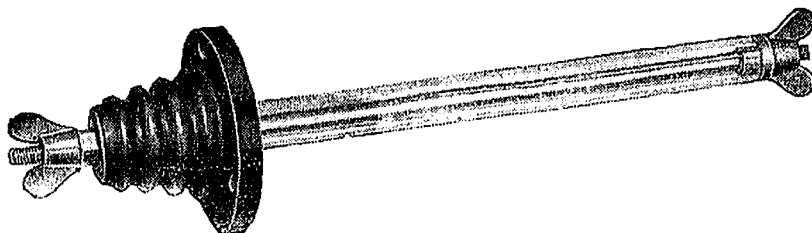
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## Divisional Notes

To ensure insertion all copy must be in the hands of the Editor not later than the 18th of the month preceding publication.

### N.S.W. Division

D. Reed, Secretary, VK2DR, Box 1734 JJ, G.P.O. Sydney.

#### Country Zone Officers.

Zone 1 (Far West).—J. Perooz, VK2PE, Hope Street, Bourke.

Zone 2 (North-West).—H. Hutton, VK2HV, Byron Street, Inverell.

Zone 3 (North Coast).—R. J. Berry, VK2NY, 54 Bacon Street, Grafton.

Zone 4 (Hunter River and Coalfields).—R. W. Best, VK2TY, 57 Hunter Street, Newcastle.

Zone 5 (South Coast and South-West).—R. Ross, VK2IG, 673 David Street, Albury.

### WAVERLEY RADIO CLUB.

(By VK2AHJ.)

Direction finding receivers have been occupying the time of all of the club members during the last six weeks, the reason being the rapid approach of 5th June, the day set down for the club's annual field day at National Park. In due course the day arrived and the Transmitter Hunt was in full swing. The Hidden Transmitter as supplied by 2ABS consisted of a 6P6 eco on 7mc. suppression grid modulated by a 57-57 combination and a D104 mike was used. Power was derived from two 180 volt genemotors in series, the input being about 10 watts.

Frame aeriels were the order of the day, and various types were used. The receiver used by the winner, 2AFZ, consisted of a detector and audio, the grid and reaction coils both being wound on the same frame. 2AHJ made use of an old collapsible BCL frame 2 feet square with the antenna coil of  $1\frac{3}{4}$  turns used as the

grid coil of a 32 TRF stage, followed by a 15 ec detector.

2WN supplied the only mobile transmitter, which was built in a small aluminium box with a D.F. receiver. Condolences must be offered to Bill Starley, who had the misfortune to drop his receiver prior to the outing, thus ruining his chances in the field—also his 32.

Col Saunderson had considerable success with a straight piece of wire as aerial, and, says Col, he had very good directivity with it. At the meeting following the outing it was un-animously agreed upon to hold a further field day on 15th July on 3.5 mc.

At the election of officers on 7th June, the members showed their appreciation of the fine work done by Mr. G. Wells by returning him to the office of president. The offices of vice-president, secretary and treasurer were filled by Messrs. Lusby, Howes and Johnson.

Inconvenient working hours have prevented 2AHB attending the recent meetings, but, according to information via the ether, Arthur will come along at the first opportunity.

The new club transmitter promises to be something out of the bag—wot with thermo—frequency control 'n all, and will be in action very shortly, so you had better detune your RF stages just in case.

### NORTHERN DISTRICT ZONE NOTES.

VK2KK.—I guess Matt you are kept busy getting the B Class, 2CK, on the air to hear much of you, but I understand the Y.W. is quite good on the air, so let's hear a little more of you.

VK2KE.—Have not heard you this month Bill, understand your qra is changed once again, but don't listen much on 7mc. so may have missed you.

VK2KZ.—Old Max in bad luck, is giving radio up, selling off, some good gear going for sale, retaining a little gear in the hope for better days, sorry to hear it OM.

VK2YO.—Hear you now and again George, playing around on 14mc. on phone, working a few Yanks, trying 6L6 tubes in modulators, but do not match Class B transformers, hope your new 60 foot stick goes up o.k., guess you have to call the boys in to erect it and supply a keg some week-end.

VK2XT.—See you now and again Bill in Kurri, what are doing in radio, have you a station going? Bill is local salesman and serviceman in local store, but lives in Newcastle.

VK2DG.—Old Keith gets plenty dx on 14 mc and is on regularly using 808 in final at 40 watts and a zepp antenna, about 108 countries, and 84 verified by qsl, so good going, also a stamp collector, may be heard regular on 14mc.

VK2YL.—Don't hear you much, Harry, OM., hope the class B modulator turned out all right; have heard you on 14mc very weak, but of course skip caused that.

VK2CW, 2PZ, 2CX.—Nothing to report on you three chaps as have not heard you, so drop a line please.

VK2YQ.—Hear you regularly, Jack, with old Gilbert 2XU on the mike, you come in fairly good, and you sure work G. very nicely on your grp, OM., and say Gilbert, drop in again, some time since I saw you, OM.

VK2XQ.—Well, John, understand you're back in Maitland again, rebuilding so 2TY informs me, so please drop out to see us or drop a line, John, as it's years since you left this zone.

3RX.—Has a new 10-20 receiver under way using octode.

3HC.—Busy building transformers commercially with Trimax.

3BQ.—Still grinding xtals. Has xtal saw and is producing 20 metre high power xtals.

3YP.—Is off to Cairns again via Brisbane, per "Kanimbla" for about two months.

3OC.—Is playing round with recording gear and junkbox amplifiers.

3MR.—"Snow" has taken up tennis, and, we fear, Y.L.'s! He threatens to return to Tassie in a couple months.

3CZ.—Is engaged! That's why he didn't know 3ML had shifted to within 200 yards of him!

3CX-3UE.—Have been buying up alleged crystals from local opticians. They are still trying to build a frequency meter to check them—Oy!

3UM.—Given 20 mx a break and trying luck on 5 mx fone.

3ZU.—On 5 mx fone and how!

3JI.—Trying to neutralise a 6L6G still QRT.

3ZY.—Giving cw a break on 7 and 14 mc.

3KR-PR-YK.—All seen at meeting where 3KR serving his "probationary term" before being admitted to ranks of VIM!

3AH.—QRL with University course. Thinking of putting a rig together.

3HK.—Thinking of putting up some kind of directive antenna on Europe to combat some of the W QRM—maybe a W8JK beam using four sections instead of usual two sections, so as to get better gain and directivity than usual.

## COUNTRY SECTION NOTES.

(By VK3UK.)

Considerable interest has already been aroused in the country by the Division's new Experimental Section scheme as, when organised, it will be of tremendous assistance to country men who may have difficulties with some portions of their gear or may wish to co-operate in some definite line of experiment. A proposed UHF Country Group would, from present indications, have an initial membership of over fifteen and it has already been suggested that a country mc relay be organised in hops of about 75 miles, around the country districts.

## Victorian Division

### Key Section (ByVK3HK)

At our June meeting an interesting technical lecture was given by 3UK by reading before the meeting some papers that were given at lectures in Sydney during the recent Sesqui-centenary convention.

Well, let's see what the boys are doing.

3WG.—Since 3ML shifted Bill has a new interest in radio, and has converted his sleep-out into a shack.

# Amateur Radio

## EASTERN ZONE.

(3DG-3PR)

3IL.—Not heard lately, sigs might possibly be in skip now.

3GO.—Graham getting out fb on 40 mx fone, in fact ail bands, the bcl's say. With Ron 3LY, they had the pleasure of a qso with 3LY the pirate. Oh, boy, what did Ron himself say?

3EG.—80 mx is back to normal again, so what about some more dx on it, ob?

3LY.—Ron back from holidays, but not as yet even thinking of coming back on the air. Says a pirate is doing a fb job for him, so why worry yourself?

3EA.—Fish must still be on the bite, as no sign of Eric anywhere.

3SS.—Vrey QRL and with a shift in view will be off the air for a time.

3QB.—Rebuilding recr. and proposes adding another stage to mitter.

3XH.—Not heard on yet, but still hoping to hear you, Stan.

3JE.—Bill prefers bulls' eyes to qso's, hence the inactivity. But you can't shoot after dark, Bill.

3DI.—Also qrl, but did mention of getting a xmitter going again on 80 mx.

3WE.—Willie, we have missed you, also your big fat sig., but just wait, boys, it won't be long now.

3PR.—Ron not hear on so much lately grl. Heard to be installing a home lighting plant.

3DG.—Has an 807 to instal, may be followed later by 809 or pair of them for P.A.

## WESTERN ZONE.

(VK3HG)

3XG.—Has reappeared on 7 mc. with quite good phone after long absence.

3CK.—Gets on occasionally when time permits, but is QRL with farm work. Has vibrator type power supply ready for action.

3PE.—Seems to be a man of leisure as is very consistent on 14 mc in the afternoon s, and is raising the DX in great style.

3WT and 3SZ.—New hams in Gee-Long and Hamilton.

3DX.—Very good Sunday transmissions on 250 metres.

3TM and 3JQ.—Also 250 metre phone men.

3TW.—Still as active as ever on 7 and 14 mc.

Ex-2SL.—Reported to be settling in Hamilton and starting up from there.

3OW.—Too busy selling BCL receivers to get on the air at all.

3GA.—Has Bliley crystal and is starting up again soon.

3JA.—Active on 7 and 14 mc. as usual.

3HG.—Getting very good results with the new V beam recently erected. Reported to be the strongest VK phone in England at present.

## NORTHERN ZONE.

(3ZK-3HX.)

3OR.—Is active on 80 and 40 mx, but has hopes of getting down to 20 soon. Murray is talking Vee beams.

3TL.—Spends most of his time on 20 mx with success and otherwise.

3BM.—Bruce, oh Bruce, where are you? Bruce has a mast up now, and intends or has erected a rhombic, but as Bruce hasn't been heard for some time we don't know what he is doing. Name the day, Bruce, and put us out of misery.

3CE.—Is amongst the absent ones, as Roy says, he has a lot of stray live stock depending on him for their food and he hasn't much time left for radio.

3WN.—Is again active with rather a good signal at times.

3HR.—Has been heard on 40 mx fone, and a good sig.

3EP.—Works 20, 40 and 80 mx. Ted is doing some fb 20 mx work; plenty of Yanks and sundry other countries. Gets or has got up at 4 a.m.

3TS and 3FF.—Are, we understand, on 20 mx, or maybe 10; heard a report of a rather large power xformer being built for them in Vim. Yes, they are putting in a pair of 809's following a pair of 807's in PP.

3IH.—Had a visit to VIM during the month, where 3KR saw that Fenton didn't get into trouble. Fenton has retired to the background, leaving most of the rag chewing to May, who, we may say, is very capable.

3DU-3TC.—Paid a visit to Charlton, where he didn't get a chance to draw a deep breath. Doug was taken to the talkies (?) and he reckons that Laurel and Hardy are the best ever. What say, Doug?

3ZK—Still keeps the jaw active eating his meals, three a day, he tells us. Is building a new Rx 6D6 TRF 6C6 and a 42.

3BG.—Is still on 20 mx, and working the world.

3EF—Still holds his end up on 40 mx.

3HX—Has made a comeback after an inactive period. Has been tied up in civic affairs.

### South Australian Division

(By VK5KL.)

Interest during the next month will be held by the holding of two contests in the VK5 division. The first will be for country members only. A written article on any piece of equipment suitable for a country ham's shack. This must not be operated from any mains supply. Entries close on 31st July, 1938. The second contest for Institute members is to be in the nature of an all-band message originating and relaying contest. Bands to be used are 160, 80, 40, 20 and 10 meters. Hours of duration are from 9 a.m. to 12 noon on Sunday, 3rd July, and on Sunday 10th July, from 7 p.m. p.m. to 10 p.m. These hours will give times for most of the country members to be audible in the city. The full rules have been circulated to all members, so a fine muster of entrants is expected.

During the latter part of May a no brighter personality than Dudley Nourse, VK2DG, Broken Hill, was married, and was met in Adelaide as he passed east on his honeymoon accompanied by his four days' married blushing bride. Congrats. Dudley!

Conditions on the 20 meter band during the month have been bright early in the mornings for European qso's. 80 meters at the moment is showing signs of reviving, especially when it is known that many W stations are audible and being worked by ZL's on fone.

### WAKEFIELD ZONE.

(By VK5RE.)

VK5LR.—Jack is one of the few fone men with a proper regard for sensible operating procedure. Don't think we have heard him say "hi!" on fone, and he appears to keep the Q-code for C.W. operation. Makes

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Price 9d. each



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Price 7/6 dz

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Phone: F4323.

Open Friday Nights.

intelligent use of remarkably good fone.

5HS.—Very quiet. Most of us are still looking forward to a contact with Wally, and hoping that he will get busy soon. Would like details of the rig, O.M.

Lance Catford.—Still waiting to hear that you are ready to sit for the exam., Lance! Just about ready? Good! Best wishes from the whole gang.

5RE.—Had the pleasure of seeing Col. Bottrall in Renmark recently. Col. has been doing the river districts "a la caravan," and looks to be in the pink.

## GREY ZONE.

(By VK5WG.)

Conditions much the same as last month, 80 mx still a very popular band. Plenty of activity on 40 mx during week-end.

5HR.—Bill, I understand, is at Mirlaton in the role of radio mecha-

nic. Has no transmitter at present.

5MP.—Len has been building a 5-meter super. It is now complete except for signals!

5YM.—Is on the air spasmodically. Believe he, together with 5MP and 5FW have been working like niggers burying miles and miles of wire. What is the job, Norm?

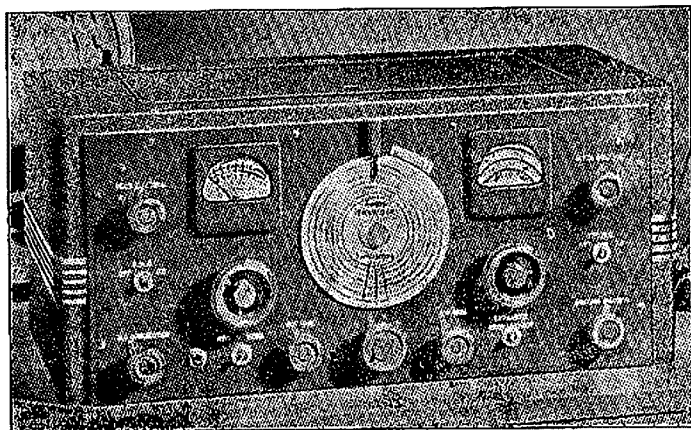
5BK.—Jack has not forsaken the amateur bands altogether, but I believe he is bothered quite a lot by harmonics from two broadcast stations.

5NW.—Snow is active every second week on 80 mx and 40 mx.

5FB.—Was in the city recently, and as he found time hanging somewhat, just trotted along and sat for the broadcast ticket exam. Has already passed the 1st class.

5KJ.—Sat through one night listening to test circket broadcast, and turned out of bed at 3.45 p.m. George certainly likes his sleep.

5LC.—Have you ever heard Les on 80 mx in the evenings? Calls CQ at 8 p.m. At 8.15 he says he is



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SOUTH AUSTRALIA (F2490).

going to bed, and closes down at 11 p.m.

5TL.—Is going to get busy on fone. This, in response to requests from the fone gang who find themselves unable to copy code in these enlightened days.

5WG.—Hopes to be devoting a bit more time to 40 mx in the near future. A new station round 7250 would be welcome.

## BARKER ZONE. (By VK5GW.)

5BF.—Frank has erected a rotary beam antenna. At present it is only a temporary structure, but if results justify it, a more elaborate affair will take its place.

5BG.—Is now on fone, has installed crystal-control, and is putting out a very nice signal.

5YL.—Betty, surely you will come into line with the rest of the Murray Bridge gang and start up some fone on 7200-7300.

5XR.—Cam., you must get busy on fone again and keep Naracoorte in touch with the rest of the State. What do you say, O.M.?

5BN.—Believe Graham is now on fone as well as C.W.

5CJ.—Has been working Adelaide stations on fone.

5GW.—Promises that in future he will see that his zone notes are in the hands of 5PN not later than the fifteenth of the month.

## Tasmanian Division (By 7YL.)

The annual meeting of this division took place on Saturday, 11th inst., at 7 p.m. A good attendance of the Southern members was noted, but the North and North West had but few representatives. Among the visiting hams were 7JH and two friends, 7QZ and 7AB. The other Northern members for various reasons were unable to attend.

At the conclusion of the most unusual meeting all hurried to the "Ship Hotel" for the dinner. Prominent among our visitors were Mr. Conry, our new R.I., and Mr. Bowden, the former R.I. At the end of an excellent meal the usual toasts were made, after which everyone

chin-wagged and then returned straight (???) home to listen to the first test.

Scandal:—

7CM.—So busy rebuilding his receiver that he forgot the annual dinner and did not wake up until too late. Too bad, Charlie. At present experimenting with a W8JK beam.

7DH.—Doing a little work at one of the local broadcasting stations. Going to the "dogs," I guess.

7CT.—Reports having built a battery receiver. Uses it so very often that the batteries will probably give up ghost through lack of usage. What did you drink at the dinner, Terry?

7KV.—Kept decidedly quiet at the meeting. Keith was very busy taking notes, but relaxed thoroughly afterwards.

7JB.—Has just completed a new super-superhet. that worked A1 first pop. I am told Suzy wants a receiver that will work properly Buck.

Other members present at the dinner were 7JH down from Waddamana for the occasion; 7PA and his brother, 7AL; 7LH from the local fire brigade, and 7AR, who possesses an awfully f.b. car.

7ZL.—Thinking of extending the shack for when nine visitors arrived on Sunday there was hardly breathing room let alone standing or sitting space.

A special toast was proposed in honour of 7AH, who, in spite of his years, acts very capably as president. "Pop," in replying, said he had felt considerably younger and better since his return to the Institute.

7AB and co. arrived from Launceston in a super car, and only came through at a cruising speed of 90 m.p.h. Doug's xyl accompanied him to keep him and his comrades in order, hi!

7QZ.—Rather surprised by the number of QSL's that have arrived for him through the bureau during the past month.

7CK.—By this time will have the mains laid on to his gra. After continually chasing away the cows to prevent them from drinking the contents of the pond so that his dc supply would remain constant, this must be a welcome break for Pokey.

(Continued from page 18)

## THE EDDYSTONE PRODUCTS.

The P. and L. Wireless Supplies Pty. Ltd. feature the famous Eddystone products, for which this live concern are Victorian distributors and of which large stocks are carried. Hams, town and country, are cordially invited to call or write to 31 Hardware street, Melbourne, where Mr. Aarons or Mr. Johns, or members of an expert staff, are on the job and chock full of enthusiasm. Note also in this issue the advertisement of R. H. Cunningham (VK3ML), who is the Australian representative for the Eddystone Company.

## ARTHUR J. VEALL PTY. LTD.

"Veall's six big stores" are popular rendezvous for amateurs. Necessarily the range of goods they carry is very extensive and the choice a correspondingly wide one. At present the big firm is featuring frequent transmitting condensers, including a midget type. Hams are asked to have their names recorded on Veall's special list of transmitters entitled to special prices. The firm is now settled down and reporting up grade business all the time at the big new headquarters at 490 Elizabeth street, Melbourne.

## THE HILCO TRANSFORMERS.

Our special representative during the month chatted Mr. Leslie E. Cole, managing director Hilco Transformers Pty. Ltd., of Berkley street, Carlton, Melbourne. He found the factory going at full capacity and was told a story of rapid development in a few years from a modest commencement and ambitious plans for the future. "The power equipment with a powerful reputation" is the firm's slogan and amateurs' requirements in transformers, chokes, etc., are safe.

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## AND FURTHERMORE—

Bright Star Radio (VK3UH) offers crystals ground from best Brazilian quartz, plug-in dust proof holders, etc.; J. G. Parr (VK3OM) presents his new complete list of transformers; our old friend, Max Howden (VK3BQ) tells the story of his always dependable crystals; and a new announcement from Joe Kilgariff (VK5JT), of South Australia, releasing the Hallicrafter "Skyrider" receiving sets in an interesting range from 5 to 11 tubes.

So there you are, Hams, we've secured the ads. and we trust, earned the goodwill of the advertisers. Your indispensable job is to take advantage whenever possible, of the service offered by these different firms, and justify to the fullest extent you can their fair and square request: "Help us to help you!"

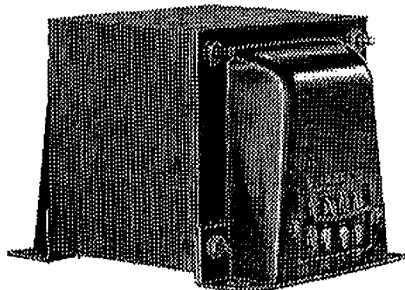
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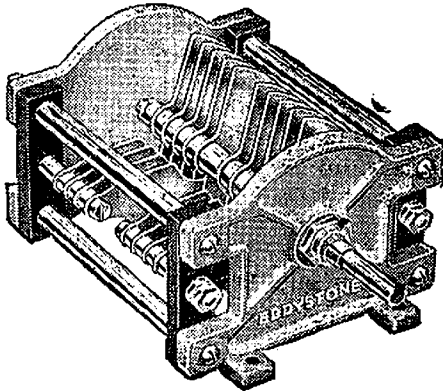
(Continued from Page 20.)

As I said before, these stations and the gentlemen concerned will be duly reported by other contributors to this narrative, but we at 3WI had some very excellent "contacts," if they could be called by such a simple term, with 3KU, 3NP, 3EN and 3PB. To mention only two of the mysterious feats that the relay stations accomplished; on several occasions we had short duplex QSO's with 3KU and 3NP. Now, these stations operated on 14 mc. and 28 mc. respectively and our receiver was tuned to 3EN or 3PB, both on 7mc.—so just how it was done may be explained by these gentlemen. I hope so.

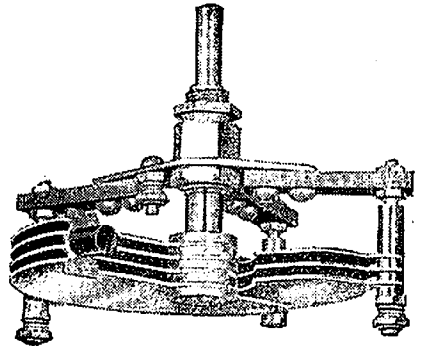
And so to sum up the week-end's operations—Although as up to date no DX reports of 5 meter reception have come to hand, I think I voice the sentiments of all concerned in saying that the whole "test" from 5 meters to 40 meters (to say nothing of a relay by 3RI on 1173 kc. on Saturday night) was a huge success.

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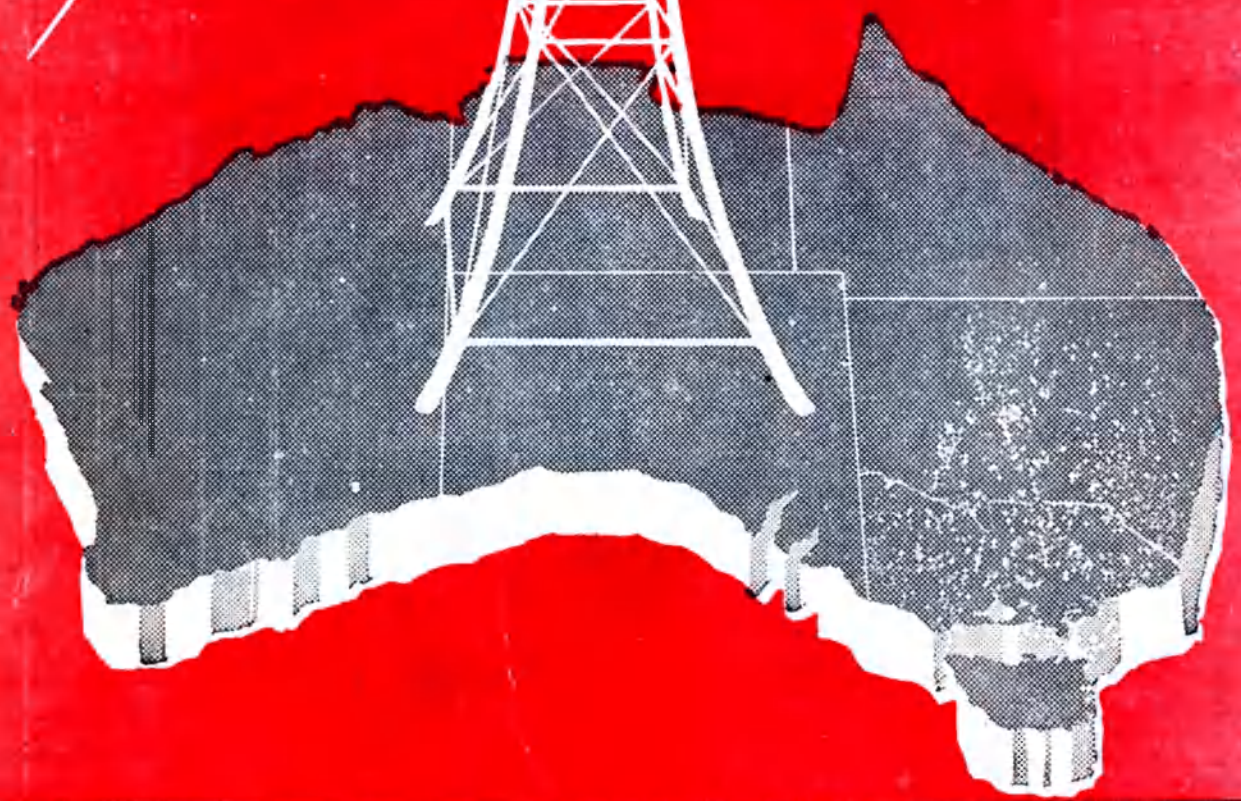
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# AMATEUR RADIO



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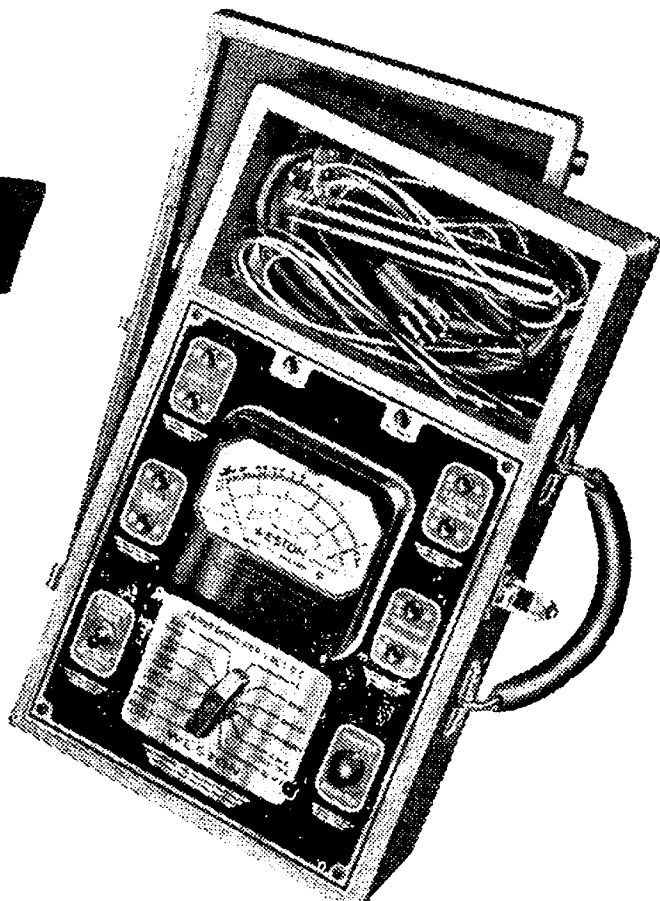
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Vol. 6 No. 8

1st August, 1938.

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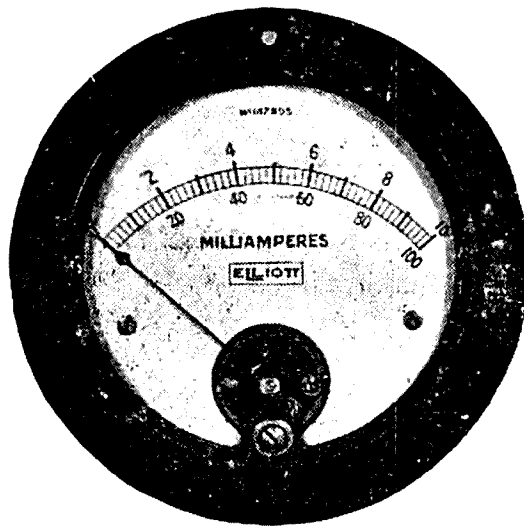
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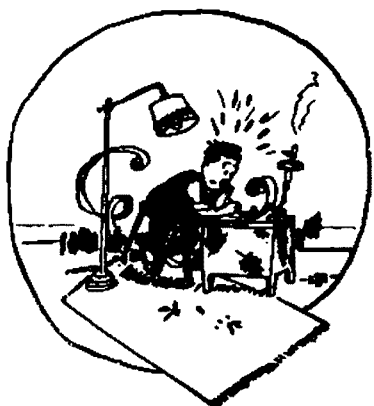
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## EDITORIAL

How often have we paused each time a new idea or event has marked another step in the advance of Amateur Radio and wondered along what lines our hobby is to be influenced during the future years and what new developments are likely to occur and what unforeseen and far reaching effects each item is to have on our general operation and on the Ham Radio Movement.

It is not so many years since transmissions using the quartz crystal as the stabilising element were first introduced to ham circles, of necessity, due to the narrowing channels, and now hardly a station exists, which does not employ this system of stability. The super-het method of reception has been re-introduced into ham radio to stay, that is of course, until any better system is forthcoming, and with it, associated improved features, involving crystal filters, R.F. regeneration, image rejection, noise suppression and audio filtering, constituting improvements, which have been a definite advance on the receiving side in latter years.

The advent of beam tubes and high efficiency triodes of improved design with better driving and ultra high frequency efficiencies, is an example of improvements from the transmission angle. New and more suitable apparatus, an increasing population of the lower frequency channels, coupled with the incentive to "see what exists on the other side," is responsible for the achievements and the increased activity, which is now evident on our ultra high frequency bands. The whole atmosphere and background of ham radio alters year by year.

Over a period of years, we have passed through many stages of evolution, from the days of spark, when we contented ourselves with yarning to the fellows in the next suburb, to now, when international radiotelephone communication is, one might term, an after dinner relaxation; from the time when our interests centred around fixed gaps and galena crystals, to to-day, when items of varied interest are too numerous to mention; when our bands were measured as "allbelow," to now, when they are measured in kilocycles width, during which time we have had to evolve gear to meet the situation. Where else does the proverb so aptly apply, "Necessity is the mother of invention."

Through these years the personnel of ham radio has not remained unaltered. On an average we claim, we are more efficient and better informed than of former years through the efforts of our organisations and publications from which tuition and information is so readily available; and rightly so in this year of 1938.

The movement comprises men of varied interest: DX men, key-punchers, fone men, high frequency men, broadcasters; all add to make the movement what it is to-day, but we feel that it is the experimental streak that exists in most of us, that desire to "see what is on the other side," that will influence the circumstances that govern the ultimate future of Ham Radio.

# Meters

by P. J. K.

For the purpose of this article, meters will be divided into five groups:—

- Moving coil,
- Moving iron,
- Dynamometer,
- Thermal,
- Electrostatic.

The first of these is the most important as it is by far the most useful and the commonest of all the types met with in radio work. Its construction is quite simple (see Fig. 1). The magnet is of high quality, generally tungsten or cobalt steel specially treated to retain its magnetism over a long period, and shaped at the ends of the poles to fit closely around the moving coil. This latter consists of a few turns of fine wire wound on a square aluminium former, pivoted at each end with jewelled bearings and constrained to its minimum position—zero on the scale—by means of two fine hairsprings. These also serve

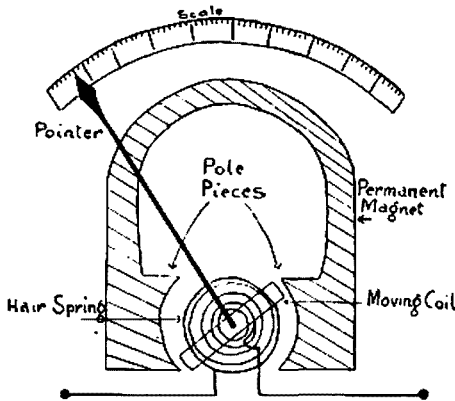


Fig. 1.

to carry the current through the moving coil. The centre of the space around which the moving coil travels contains a cylinder of soft iron which serves to close the magnetic path, thus reducing its reluctance and also causing a more uniform distribution of flux.

When a current flows through the coil it becomes a small electromagnet and hence moves so as to adjust its position with regard to the magnetic field in which it is placed, so that the

North pole of the coil approaches the South pole of the permanent magnet. The pointer is affixed to the moving coil and moves across the way in which the current flows through the coil. The meter, therefore, has polarity and needs to be connected correctly in the circuit. It will not read A.C. as it will stand still under the action of the two currents tending to make it go in opposite directions faster than its inertia will allow.

In order to achieve high sensitivity it is essential to have a high flux density, light moving parts and a minimum of friction in the bearings. In extreme cases only a single pivot is used, or none at all, the movement being entirely suspended, in which case the limit to sensitivity is the elastic strain in the suspension.

Assuming that the magnet is perfectly homogeneous, the gap perfectly uniform, and the deflection of the springs directly proportional to the torque, then the scale will be linear. While none of the above requirements are perfectly met, the variations are too small to warrant attention, except where extreme accuracy is desired. In the case of the cheaper instruments a printed scale is used as distinct from individual calibration and still an accuracy of two per cent. can be guaranteed. A warning is here necessary that this figure of two per cent. often means that the accuracy at any point on the scale is within two per cent. of the full scale deflection—or, in other words, with a 0-100 volt scale the meter can be two volts out at, say, the ten volt point and still be within the limits of the guarantee.

This type of movement is essentially a current indicator as the rotational torque is proportional to the current flowing, but, of course, it merely needs a series resistance and the application of Ohms Law to measure voltage. Similarly, the range of current measurements can be extended by putting a resistance in parallel so that only a certain fixed



fraction of the total current is read by the meter.

It is desirable that the movement should be "dead beat," that is, that it should come quickly to a standstill at the spot to be indicated and not oscillate backwards and forwards. This is achieved by magnetic damping. As the coil cuts across the magnetic field the flux also links with the aluminium former and generates a current therein. The direction of this current is such that its field

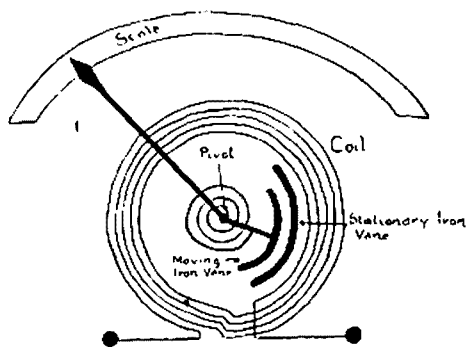


Fig. 2.

tends to oppose the force that produced it, and so the faster the rotation the greater is the braking action. It will be noted that this system does nothing to increase the frictional losses nor the weight of the movement.

High sensitivities are readily obtainable. Servicemen's meters with a full scale reading of 50 microamps. are available, and much lower readings can be obtained with laboratory instruments. Its versatility can be appreciated when it is realised that with a single movement it is possible by providing shunts to read current, with series resistors to read voltage, with a series resistor and a battery to read ohms, a copper oxide rectifier to read A.C. of low frequency and a thermo couple or a vacuum tube to read currents at radio frequencies.

### Moving Iron Meters.

A typical construction for one of these types is as shown in Fig. 2. The coil carries the current to be measured and consists of a large number of turns of fine wire for a voltmeter and a few turns of heavy wire for an ammeter. In the centre of the coil are two pieces of soft iron, one fixed and the other (to which are attached the pointer and hairsprings) moveable. When a current passes through the coil it mag-

netises the two vanes with like polarity. Following the fundamental rule for like and unlike charges, the movable iron will be repelled away from the other piece and the meter will read accordingly. A variation of this construction is seen in the attraction type in which a single piece of iron alone is used.

These meters read independently of the direction in which the current is passed through the coil and so can be used to measure A.C. of low frequency. As the frequency is increased the inductance of the coil becomes an important factor which must be taken into consideration, and which indeed—together with the capacity at radio frequencies—limits the meter to supply and audio-frequencies with a correction needed for the higher audio range. D.C. can also be measured, but sometimes a reversal error is found, that is, the reading will vary with the direction in which the current passes through the coil. If such is found to be the case, the mean of the two readings will be substantially correct. If the meter was calibrated on A.C. inaccuracy may occur on D.C. as this can be regarded as A.C. of zero frequency and unless the inductance is small or well swamped by resistance, there is likely to be a frequency error. Another variation of this instrument is one in which the moving iron is replaced by a bit of steel which is polarised by being placed in the field of a permanent magnet. These meters are used on D.C., generally with a centre zero such as on a car dashboard to indicate charge and discharge.

The scale of the moving iron meter is not linear owing to the fact that the torque produced is proportional to the square of the current and also to the rate of change of inductance between zero and full scale deflection. Damping is pneumatic, being arranged by having a small piston compress a cylinder of air. Its ruggedness is a desirable characteristic, as no current passes through the moving parts and overloads of many hundred per cent. will probably have no effect other than bending the needle.

Another point in its favour is that it reads the R.M.S. value and is free from waveform error. The main obstacle to its popularity is the fact

that it cannot be made with a sensitivity approaching the moving coil type. Two typical meters with 15 and 150 volt scales require 75 and 15 m.a. respectively for full deflection.

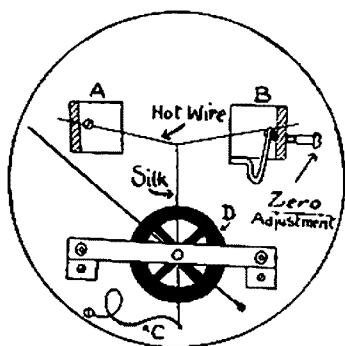
### Dynamometer Meters.

These are really a cross between the moving coil and the moving iron types, as they utilise the field coil of the latter with a moving coil instead of a moving iron. The two coils are connected in series and both are magnetised by the current passing through them. They read A.C. and D.C., have a square law scale and a frequency error, are less rugged, but can be made more sensitive than the moving iron types. They are about as common among amateurs as ten pound notes.

### Thermal.

These are of two types, thermal expansion—hot wire to you—and thermocouple. A simple example of the former type is shown in Fig. 3. Here the current to be measured passes through the resistance wire A.B. This wire is very fine and on being heated by the current expands. This expansion is taken up by the spring C through a silk thread which is attached to the centre of the hot wire by a small hook, after passing around a drum D carrying the indicator.

D.C. and A.C. both audio and r.f. are measured with very little frequency error, and R.M.S. values are indicated. As the heat developed depends on the square of the current ( $I^2R$ ) the scale will be square law.

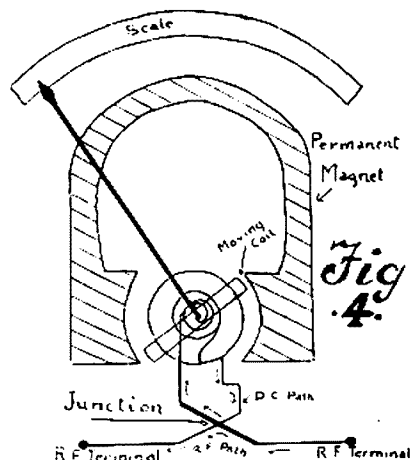


*Fig. 3.*

Owing to the fact that they are normally running at a very high temperature these meters have little overload margin, and are subject to variation with room temperature.

They are very sluggish in action, are very insensitive and except for home made instruments are fading into the dim past.

The second type shown in Fig. 4 consists of a sensitive moving coil instrument connected to the D.C. output of a thermocouple. These couples vary in construction, but consist basically of two fine wires of dissimilar metals, such as iron and



*Fig. 4.*

Eureka, joined together, which when heated develop an E.M.F. between them. This is used to force a current (D.C.) around an external circuit which is measured by the D.C. meter and is a measure of the heat developed by the input current.

This meter has the same advantages as the hot wire instrument but in addition can be made more sensitive. It is the standard type for measuring r.f. currents and numerous methods of construction are used such as insulating the r.f. or heater circuit from the D.C. path, using pairs of couples in series, and running the unit in a vacuum, while special precautions are necessary as the higher frequency range is approached. Care is taken to keep the leads as short as possible, and free from bends as well as avoiding capacity effects from the r.f. circuit to the mounting frame. To avoid skin effect on the ultra high frequencies, which increases the resistance and causes the instrument to read incorrectly, a special tubular heater element of thin platinum foil welded to the thermocouple is used. The May issue of Q.S.T. gives some useful data on the degree of inaccuracy of early Weston instruments, together with a chart showing the necessary correction factors.

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To increase the range a shunt may be used on D.C. and low frequencies but at high frequencies appreciable error will result because of the inductance of the loop formed by the shunt. An arrangement that is satisfactory at r.f. consists of two condensers in parallel, one larger than the other. The current divides between them directly as their capacities, and if the meter is placed in series with the smaller one, the larger condenser acts as a shunt. It is essential that the reactance of the series condenser be much higher than the resistance of the thermocouple.

## Electrostatic.

This is another *rara avis* being only occasionally seen outside the laboratory. For an idea of the construction imagine a very finely constructed condenser of, say, 100 micro micro farads with the moving plates mounted on jewelled bearings, equipped with a pointer, and a pair of hair springs to hold it in the zero capacity position. When connected across a source of E.M.F. the plates, having dissimilar charges, are attracted to each other and the pointer indicates the degree of the attraction and consequently the voltage applied. The torque produced is very low so that a light construction is essential. (If you should see your tank condenser suddenly close when you switch on the power you can be reasonably certain you are over the 50 watt limit.) The smallest full scale reading readily obtainable is about 150 volts. Smaller voltages, however, can be measured by connecting in series a battery of known voltage so as to raise the reading into a portion of the scale which can be read with ease. For example, suppose a condenser was thought to be charged to 15 volts and it was desired to measure this. As the 150 volt instrument had as its lowest calibrated division 20 volts it would be unsuitable. But by connecting a 60 volt battery in series with the condenser we could obtain a reading of 75 volts, from which the battery voltage could be subtracted. Higher voltages can be measured by utilising the voltage divider principle, using a divided resistance for D.C., and any number of equal capacities in

series for A.C., then measuring the voltage across any percentage of the whole. The total voltage can then be calculated.

As the attraction is proportional, with a constant capacitance, to the square of the applied voltage, the scale would tend to follow a square law, but as the capacitance varies with the deflection, the plates are shaped so as to modify the scale to be open in the middle and only cramped at the extreme ends. The first 20 per cent. or so is useless and is not calibrated.

The importance of being able to make a measurement without taking any power from the circuit will be appreciated, and for such readings as the grid bias on a large valve, the charge in a condenser, the no load voltage of the power supply, or the voltage across the load in the plate circuit of a valve and others of a like nature the electrostatic voltmeter is without peer. Care must be taken that the capacity does not disturb the circuit across which it is placed—it would be useless to lump an instrument of 100 micro micro farads capacity across a tuned circuit. The capacity varies with the range of the meter, being considerably less than the value stated above with high voltage instruments.

Another precaution which must be observed is to remember that although no current is taken on D.C., a current which varies with the frequency is taken on A.C. As the condenser is nearly without loss the current will be almost wattless and negligible power will be taken from the circuit. Nevertheless, this current may be more than the circuit can stand. In the instrument described, at full scale deflection (150 volts) the current taken is 94 micro amps. at 1 k.c. and 94 milliamps at 1,000 k.c.

## Rectifier Instruments.

Although not previously classified in this article because they are hardly a different type of movement, rectifier meters have characteristics which warrant consideration. It will have been noticed that so far no meter has been described that is capable of reading low A.C. voltages with a high sensitivity. The rectifier meter fills the requirements as it is possible to obtain meters with less

than 1 milliamp or 1 volt full scale deflection.

Fundamentally, it consists of a moving coil milliammeter used in conjunction with copper oxide metal rectifier. The rectifier is usually bridge

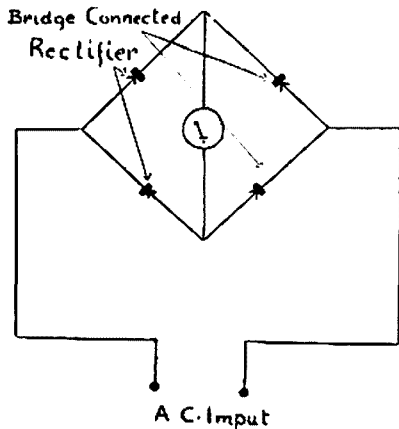
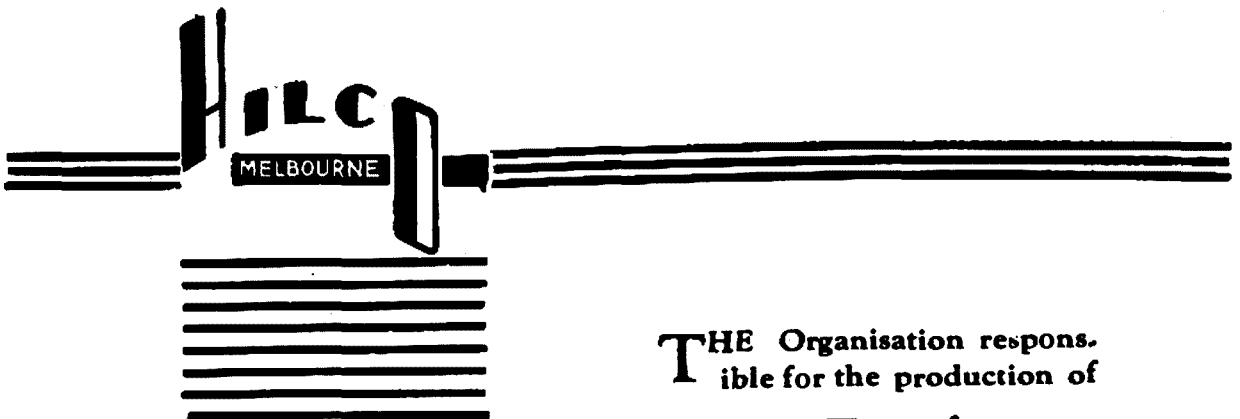


Fig. 5.

connected as shown in Fig. 5 though for certain special applications, other hookups are used. The rectifier passes a unidirectional current with a pronounced ripple of double the fundamental frequency. The moving coil instrument indicates the mean

value of the current passing which is .636 of the peak. As this is not usually required the scale is calibrated in R.M.S. values (.707 of the peak). Actually mean current is still read, but the arrangement is perfectly satisfactory until a current with other than a sine wave form is read. This is because the ratio of R.M.S. to mean values which is 1.11 for sine waves will vary with other waveforms. The instrument, therefore, is said to have a waveform error.

While this is normally a disadvantage, it can be usefully applied by using the arrangement shown in Fig. 6 to indicate whether this form of distortion exists. Connected to some of the alphabetically designated modulators heard on the amateur bands, it could show that the letter "B" can describe other things besides classes of amplifiers. In this circuit the meter reads only one half the wave and should the waveform be unsymmetrical about the zero line, the meter will give a different reading upon reversal of its connections as the other half will then be read.



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# Amateur Radio

A further inconvenience is that the rectifier has considerable resistance and unfortunately this resistance does not follow the rule of behaviour set down by old man Ohm. On the contrary, it decreases with increasing current which means that the scale will not be linear, but will be bunched at the beginning. Another contributing factor to this non-linearity is that the rectified D.C. is nearly proportional to the applied A.C. at high currents but at small currents tends to be proportional to the square of the A.C.

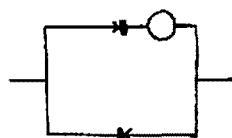


Fig. 6.

This characteristic of the rectifier instruments complicates the process of extending the range as different ranges would tend to require different scales. One method of correcting the low voltage range to enable a linear scale to be used is to place a reactance, represented by a condenser in series with the resistance given by the rectifier. As the voltage drops across the two components will be 90 degrees out of phase they will not be added directly but vectorially. If the reactance is much larger than the resistance the variations of the latter will not affect the resultant impedance to any great extent. This way has the disadvantage that the calibration will only be correct for the frequency at which it was designed. Another method is to use two scales, one for the lower voltage ranges and the other for the

higher. The lower ranges consist of one resistance in series and another in parallel with the meter as shown in Fig. 7. The higher ranges are unshunted as the rectifier resistance is such a small proportion of the total that its variations will not appreciably affect the result, and the scale will be reasonably linear.

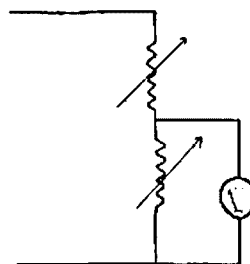
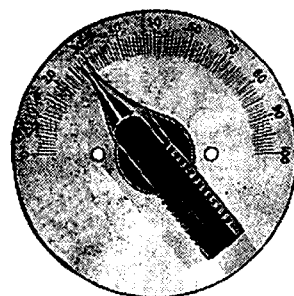


Fig 7

Owing to the fact that the rectifier unit has considerable capacity, the reading, assuming a 50 cycle calibration, will have an increasing error of from  $\frac{1}{2}$  to 1 per cent. for each thousand cycles and the instrument will be useless at radio frequencies.

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The address of the Polish Qsl. Bureau is:—P.Z.K., Warsaw, Box 520, Poland.

Geoff. Wookey, VK3YJ, after an absence of two years from the air, is now active on 56 mc. Another newcomer to this band is VK3KD.

A. R. Callander, for many years second op. at VK3ES, has taken over the station call, since Ern Yorston was married in February last.

Another station who we are pleased to hear is staging a comeback is VK3NQ, Jim Watson, Darlington, Vic. The advent of A.C. to his district has fired Jim's enthusiasm, so the "shadow" who has been working his callsign overtime had better seek another.

J. McKeone, now VK3JY, who had his old call, 3CV, snatched by a country B class station, is an enthusiastic

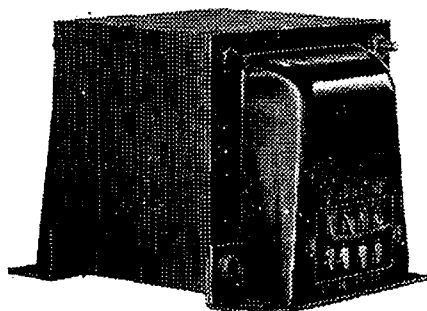
member of the new Northern Suburban Get-Together Movement. Tis rumoured that emanations from a station with a high mast and a Scotch accent in O'Heas road, Coburg, forced this bunch to band together for self preservation.

Ted Jenkins, VK3QK, is in the throes of rebuilding. New rig which promises to be a ball-tearer will consist of 42, 807, 807, HK154.

Cards for the following stations are obtainable from the Bureau in the usual manner:—3AH, AP, CA, CC, CU, DE, DJ, DQ, DZ, EA, EC, EI, EI, EK, FK, FM, FT, GD, GM, GN, GP, IL, IN, JD, JS, KG, KM, KO, KY, KY, LD, LM, LP, NA, NB, NV, OF, OI, OU, PH, QO, QJ, SD, SE, SF, SM, SZ, TD, TF, TG, TZ, UC, UO, VB, VK, VM, VX, VY, WR, XE, XI, XU, YG, YM, YS, XG, ZJ, ZL, XR, ZW, Dyson, Rowe, Freeman.

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## Correct Procedure - and How!

Time: 8 p.m. Friday. Scene: Headquarters W.I.A. (Qld. Division).

by "Anom"

Three students are lounging around the door waiting patiently. The Secretary arrives and opens the door, whereupon the students follow him in and sit down quietly. Secretary proceeds to sweep up cigarette butts and lunch papers, clean the blackboard, wipe down the table and unpack his portable library.

Loud noise and raucous laughter are heard from without, and half a dozen hams enter the room. Kicking the chairs out of the road, they reach for the QSL cards, toss them around the table in complete disorder, and after muttering uncomplimentary remarks about the QSL Officer, sit down with disgruntled looks. Sundry others begin to trickle in, and punctually the Chairman arrives half an hour after the meeting was due to commence.

After settling, he ventures "Order, gentlemen, please!" with no audible effect on the din. "ORDER, GENTLEMEN, PLEASE!" and those in the front row drop their voices a few D.B. and continue. "SHUT UP, WILL YOU!" accompanied by a resounding smack on the table, and those at the back look up with a surprised expression. Before they have a chance to resume, he asks quickly, "Any apologies, gentlemen?" Silence, then a voice is heard, "I apologise for Herr Scholz having his feet on the table." The secretary leans over and threatens to tell the German Consul that Herr Scholz's great grandfather used to live next to a Jew. Herr Scholz promptly obliges, but it is noted that the air immediately around him has become ionized or, at any rate, has the characteristic purple tint.

The Chairman then calls for the Secretary to read the minutes, and when completed appeals to someone to move their adoption. The first silence of the night then occurs. All eyes are turned to the roof lest they

should meet the Chairman's roving eye. After a few more ignored requests, he sees Willy Washout, who is too engrossed in explaining to Bill Harston his theory of why 56 mc. signals don't get there, to notice what is happening. Says the Chairman, "Moved by WT, seconded by RY, all in favour carried. Read the Council report." While the secretary is endeavouring to make his voice heard, the rest of the members, who have been investigating the reason for the light shining through the windows of a nearby bar, after the door was closed at eight o'clock, troop noisily into the room. Reaching over the heads of those in the front row they grab the QSL cards, proceeds to reshuffle them, glare suspiciously at the QSL Officer, and resume their conversation in the back row.

By this time the Chairman has made his usual appeal for "Any general business." As, of course, this has all been previously argued out while the minutes and council report were being read, there is nothing more to be said, so silence again reigns.

As the silence is becoming oppressive, the Chairman again rises, and states, "I now declare the meeting closed. The lecture for to-night is-er," looking despairingly at the blackboard, whereupon the Secretary hands him a slip of paper. "Oh, yes, 'How the Ionosphere is Conized by Mr. Kelly.' Well, gentlemen, I think that this should prove a very interesting lecture as after performing such a feat Mr. Kelly should have no difficulty in telling us how it is done."

The lecturer then approaches the board, and after rummaging in the corner for a piece of chalk settles down for a stern struggle against the rising level of conversation. The older members draw up another chair for their feet and close their



eyes. The students for a while watch the figures drawn on the board, and then, as they can't hear what is coming from the front, listen to the yarns emanating from the back.

An hour passes, and by this time silence again reigns, broken only by the lecturer, who, unable to realise that the audience are asleep, thinks that he has quietened the opposition, and is getting warmed up to the subject. At this point, Mr. Guildford is awakened by the town hall clock, and, realising the necessity for drastic measures, arises and moves a vote of thanks. This is seconded by the Secretary, who has learnt the art of dozing with one eye open from supervising debates on Phone versus C.W.

The rest of the members, on being roused, file out the door and, the lecturer being dimly conscious that the opposition must be starting again raises the gain a few notches and continues unperturbed. The President, being the last to leave, suddenly realises that he cannot leave the light going indefinitely and switches it off. This causes Mr. Kelly, who has been flitting from layer to layer with complete indifference to the true facts, to reflect that if he is going to reach "Ted's" before the toast is all gone, he will have to hurry.

.....  
Called at Vealls up Elizabeth street during the month, and found genial and always courteous friend White, the advertising manager, up to his ears in the preparation of the firm's big new catalog. Particulars of the new catalog will appear next issue.

## Third Annual German DX Contest Rules

The DJDC 1938 is based upon radio contacts between European amateurs at one side and overseas amateurs on the other side as it did in 1937. The traffic again consists of two parts:—

(1) DX-QSO between Europe, German included, and overseas with exchange of serial numbers. There is a difference between DX-QSO.

(a) Overseas-Germany.

(b) Overseas - Non - German Europe.

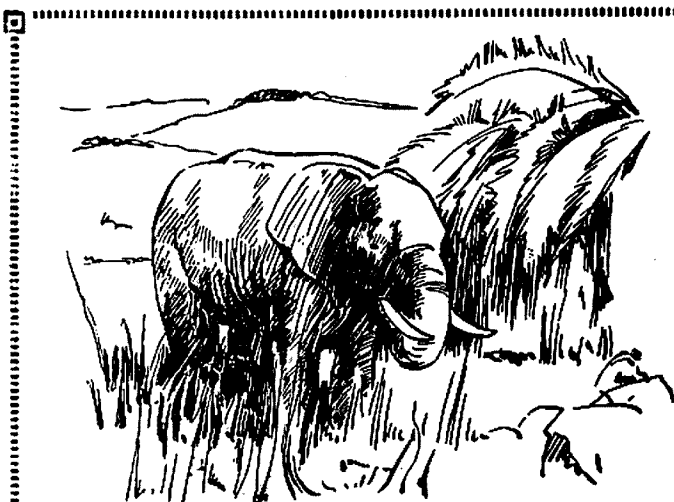
QTC Reports only can originate from DX-QSO as under (b).

(2) QTC-QSO between Europe outside Germany or Overseas at one side and Germany at the other side.

Time: The four week-ends of August, starting with the 6th. Each Week-end from Saturday 1200 GMT to Sunday 2400 GMT.

Frequency bands: All amateur bands. There is a special band scoring that time. The German amateurs are unable to transmit on 56 mc, 3.6-4 mc and 1.75 mc bands. Off band working causes disqualification.

DX-QSO. contacts between Europe, Germany included, and Overseas. The idea of the DJDC is to get a maximum number of such contacts. Six-cipher serials are to be exchanged. The first three characters mean the RST (or RSN) with which the other amateur has been received,



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## Amateur Radio

the last three mean the number of the DX-QSO. The first DX-QSO has the number 001, then 002, etc.

The general call for the contest is CQ DJDC. Amateurs who don't wish to participate are requested not to answer CQ DJDC to avoid wasting time of the participants.

Only one DX-QSO is possible between the same stations per weekend and per frequency band. DX-QSO between European and German amateurs are not existing.

QTC Traffic: Each DX-QSO between European stations outside of Germany and Overseas may be the origin of a QTC-Report for each of the two partners of the respective DX-QSO.

By QTC-QSO between Non-German and German stations such QTC-Reports may be sent to Germany (and Danzig). QTC-QSO may be arranged by foreigners with Germany as it is wanted. Each time as many QTC may be transmitted as there are. Overseas Stations may also send QTC-Reports in connection with DX-QSO.

The QTC-Reports are to be transmitted in the following manner:—

- (1) Call of the worked station.
- (2) Local time of the DX-QSO in four characters (0001-2400).
- (3) The received serial.

The German partner of the QTC-QSO only has to verify the correct reception of the reports, f.i. 5 QTC OK. Points may only be claimed after such acknowledgment. From the above you will see: European amateurs can work with Germans QTC-QSO only. QTC-Reports never can show D- or YM- calls. Example: ON4AU reports to D . . . W6CUH 1515/589012. This means ON3AU to have worked W6CUH at any day of the contest at 1515 his local time, where he received the serial number 589012. This serial means with its first three characters that Y6CUH heard ON4AU rst 589, the latter three characters mean the 12th DX-QSO of W6CUH.

At his side, Y6CUH would be able to report this QSO in the following manner: ON4AU 2115/579005, that means, the QSO took place at 2115 W6 local time. ON4AU heard W6

CUH with rst 579, and it was the 5th DX-QSO of ON4AU.

Scoring: The scoring of the results is done by points. For each DX-QSO may be claimed:—

4 points between Germany or Danzig or Overseas.

2 points between Europe (except D, YM) and Overseas.

Each correctly acknowledged QTC-Report counts two points.

The points of this scoring are summed up, and, for European foreign amateurs and the overseas amateurs, multiplied with the number of the German districts worked on each frequency band. The German districts are indicated by the final letters of the call. There are 19 districts: final letters A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V. The 20th district is formed by YM4-Danzig. The different characters 3 or 4 are not regarded.

Hence it follows: A station outside Germany which did not work any German QSO is getting no points. European stations therefore are forced to send QTC to Germany for they can work QTC-QSO only with Germany.

In U.S.A., Canada and Australia (W, VE, VK) each district forms a country of its own. The same concerns, G, GI, GM, GW, etc.

Awards: There is no world-winner. The amateurs of each prefix zone are competing among themselves. The top-scorer of each country (district area) is awarded with an artistic diploma. Two awards are given if there are five or more participants.

Each competitor which sends his log in due time will get a nice verification card and a report on DJDC 938 regardless of his result.

The Amateur is the participant, not the station. If there are more than one operator each one has to make a log of his own.

Log: There are no entrance formalities for the DJDC, just send the DASD your completed log, which is made up according to the attached form. For the DX-QSO the log must show: Date, Time, Frequency Band, worked Station, serial number sent and received and the points claimed. For the QTC it is to show what Ger-

# Amateur Radio

man stations received them and at what time the QTC-QSO started. The heading of the Log must show the name of the competitor, address, call and an abbreviated description of the station. At the end the total score is to be calculated. Logs which reach the DASD after November 30th, 1938, can't be regarded. Each competitor is asked to send a log to give a complete look over the results of our contest. If you do so

you will get at least a nice verification card. Please send all your logs to—

Contest Manager DASD e. V., Berlin-Dahlem, Cecilienalle 4.

Best wishes and good success, The DASD Headquarters, D 4 Buf, DJDC-Manager.

Pse mark stns wkg outside the bands! Don't contact them!

## LOG

Name, Address:

Final score: \_\_\_\_\_

Call: \_\_\_\_\_

**TX:** \_\_\_\_\_ **RX:** \_\_\_\_\_ **Ant.:** \_\_\_\_\_ **Nr German Distr wdk:** \_\_\_\_\_

Date Time	Freq band	worked Station	Serial numbers		points	QTC sent to D . . . .	
			sent	received			
2354	14	W2GVX—1	569	001	578 005	2	D4BAF
2358	14	PY2AL	547	002	358 003	2	„
0235	„	D4BAF	—	—	—	4	2 qtc.
(Examples for a European amateur)							

Nr. German distr. wkcd:

Sum of points

Total:

(Please enter total also in heading of Log!)

The DASD must have the log not later than Nov. 30th, 1938! Play safe Om, send early!

I state I have abided by the rules of the Contest and that my total score is true and proper.

I know that I may be disqualified if I have hurt the rules of my licence.

.....  
Signature.

Send the log to: DASD, Contest manager, Bln.-Dahlem, Cecilienallee 4.

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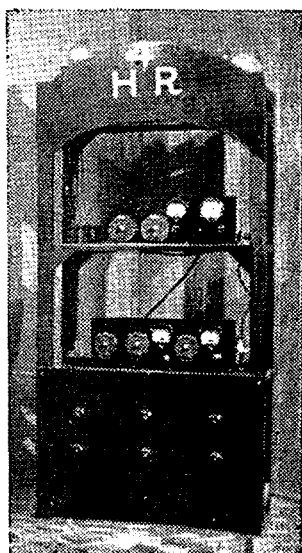
## Station Description

### VK4HR

VK4HR has been licensed since June, 1931.

The first rig built was a Hartley with a 210 as oscillator tube and a pair of 250's in parallel as modulators. Activity was confined mainly to 80 and 40 metres.

After about one year of operation on short waves, 4HR was rebuilt to xtal on 210.2 metres and the rig con-



sisted of a 47 xtal oscillator capacity coupled to a 46 buffer capacity coupled to a 210 in the final. A pair of 250's in push pull were used as modulators with a 3 stage amplifier and Reiss mike.

After about three years of 200 metre operating the operator was bitten hard by the dx bug and consequently the gear was rebuilt to operate on the 20 metre band the line up being a 247 xtal oscillator, 46 double 46 double and 210 final capacity coupled throughout and using an 80 metre xtal.

The rig has been rebuilt again lately and is link coupled throughout with a 42 oscillator, 6L6G doubler, 807 final, using a 160, 80 or 40 metre xtal; the 6L6G operates as a buffer stage and as a doubler stage on 20 with the 40 metre xtal. The

42 oscillator is used as a Tri Tet for 10 metre operation with the 6L6G doubling to 10 and the 807 as an amplifier on that band. On 5 metres the 807 operates as a doubler and is coupled to the aerial with reasonably good efficiency.

The modulator is a pair of 250's and an N stage amplified with Reiss mike.

The 160 metre receiver is a 2 tube electron coupled job with 6L6 and 42 valves.

The 80, 40, 20, 10 metres receiver is a 7 tube super with 6D6 RF, 6C6 1st detector, 6D6 HF oscillator, 6D6 IF with iron corned air tuned IF transformers, 6C6 biased detector, 6D6 beat oscillator, 42 audio.

The receivers for 5 metres are a 2 tube super regenerative with 76 and 4 valves and a 6 tube set with 56 HF oscillator, 57 st detector, 58 IF, 57 2nd det., 27 beat oscillator and 2A5 audio.

The 160, 80 and 40 metre aerial is a 133 foot end fed Heitz. For 20 and 10 metre operation a half wave current fed vertical zepp (on 20 metres) and 2 half waves on 10 metres is used.

On 5 metres the aerial at present in use is a half wave matched impedance clipped on the tank coil of the 807.

DX worked is 82 countries to date.

Best dx on 5 metres is 110 miles with portable equipment approximately 3 watts input while QSO with 4AW, 4CG and 4UZ in Toowoomba have been QSO'd from Springbrook and Brisbane, a distance of 90 and 75 miles approximately. 2GS Murrumbidgee has been worked from Springbrook, a distance of about 15 miles.

WAC, WLU, HBE has been made also on 10 metres.

Three cups and a pennant were won at the last annual dinner of the Queensland Division of the W.I.A.

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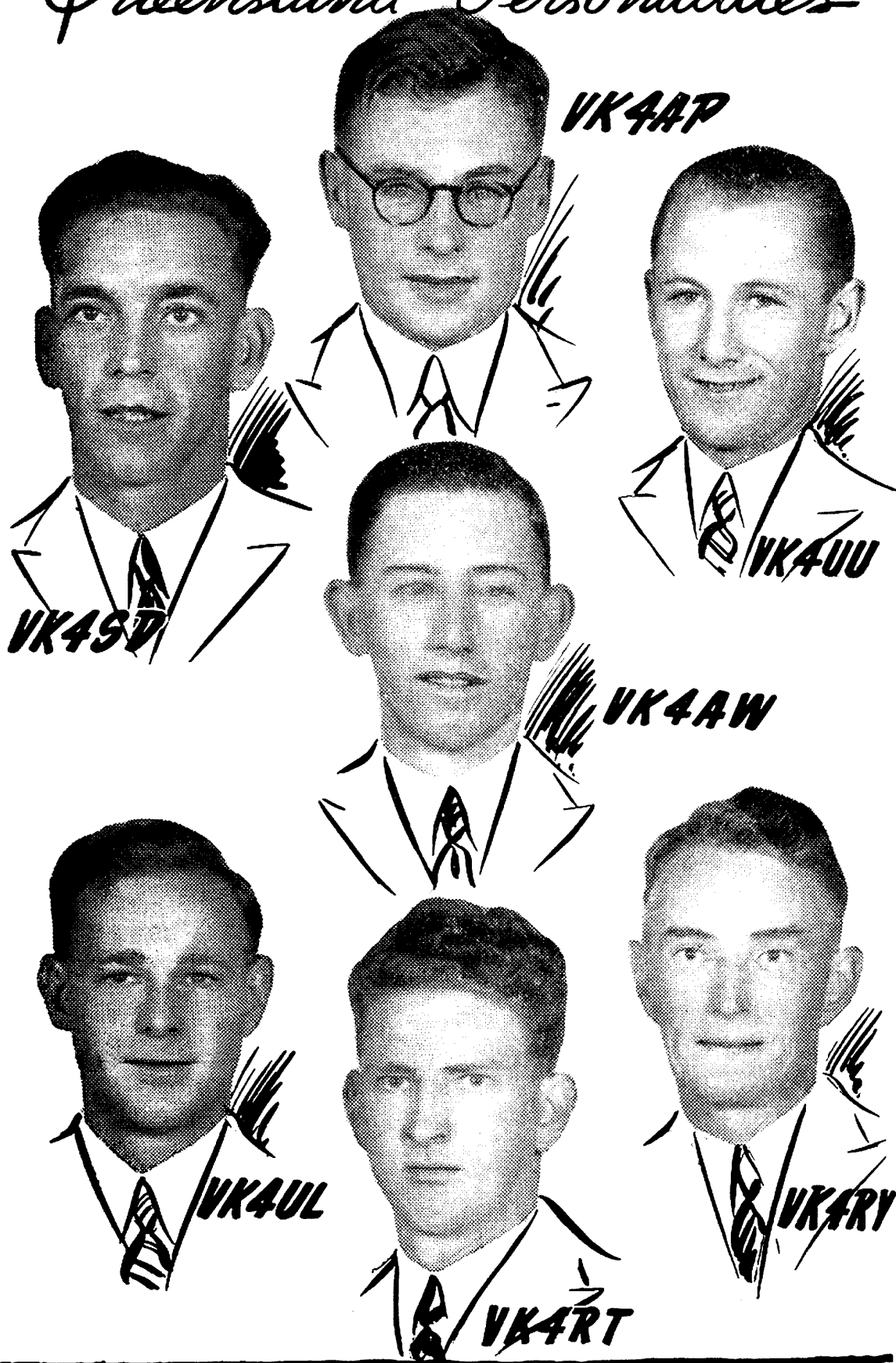
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Queensland Personalities



## VK4 Personalities

In a daily paper recently a Turkish Bath Service featured the following announcement: "Separate Department for Ladies except Saturday and Sunday nights." And I want to say for myself that the request that I say something about the gentlemen on the opposite page, puts me in the same position as the virtuous lady who unfortunately called at the above advertiser's address on a weekend night. I am full of hesitation. However, hurry is the essential requisite if a tale is to be told of the VK4's who keep in motion the machinery of the Queensland Division, so perhaps I had better begin. To tell the truth, the time is exactly 9.30 p.m., Friday, 22nd July, and if this doesn't reach Amateur Radio's magazine committee by to-morrow, the praises of the Queensland heroes will have to go unsung.

4AW.—Arthur Walz, Sandgate road, Nundah, born 1908, single. Arthur is one of the old soldiers of amateur radio. Became interested in radio during his school days, and rumour has it that he somehow acquired a P.M.G. telephone receiver to listen in to spark station VIB on a crystal set. He has been actively associated with the VK4 Division almost since its inception. During the last six years has been the Division's president and shows no sign of weakening under the strain. Conducts a radio business on his own

account and is one of our leading public address amplifier men. The rig, when it hangs together, is 2A5-46-807 and push pull 809's. The RX is a super and the antenna a time honoured Zepp. Arthur is a positive force in the Division and attends to its welfare unsparingly.

VK4UU.—Bill Chitham, Doggett street, Valley, born 1911, single. Bill is one of the Division's anomalies. Been off the air for some considerable time, but never misses a meeting. Has been guardian of the Division's funds for the past few years and always voted an excellent treasurer. Bill's big days in radio were around 1932-33 when he used to pile up big scores in the W-VE contests. Of late he has alienated his affections—motor cycling is now all the go. When not balancing the VK4 budget, Bill spends his time in the drug business. His chief characteristic is that he is never discouraged, never depressed, never tired. Just take a peek at his bright smile.

VK4RT.—John Thoreby, Baver street, Annerley, born 1913, married. John spends more time than any other member of the executive in serving the Division. Is now in his second term of office as secretary and has proved himself the ideal man for the job. When John comes to a meeting he has everything at his finger tips. Ask the interrogators. Secretarial duties do not leave much time



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for DXing, but occasionally a good signal is emitted from a 6A6-807 push pull 10's combination. John is always praying for rain. More rain means more grass and better times. No, John is not a grazier, he's a lawn mower specialist. Nearly forgot to mention the XYL. Think she has a lot to do with the secretary's success. May she always think kindly of the Division.

4AP.—36 Bramsten terrace, Herston, born 1906, married. Drifted into radio around 1917 and took a transmitting ticket in 1932. Owes what little progress he has made to Q.S.T., Amateur Radio and other amateurs. Always regrets that he ever took up radio when his final grid drive wont exceed 50 mills. Listens on headphones instead of a speaker because his wife is highly musical. Spends most of his time on the higher frequencies because he likes to be alone. Alf is publicity

officer for the Division. Spends his daylight hours in a large furnishing house.

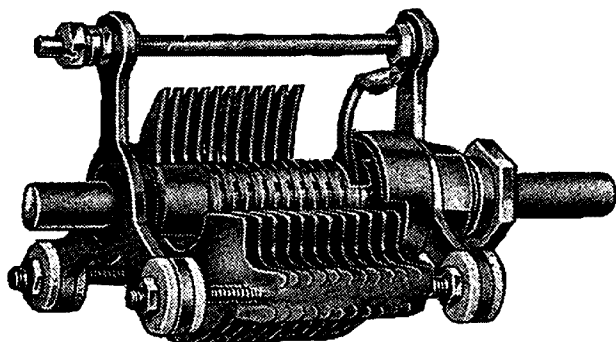
4UL.—Paul Hubsher, 98 Commercial road, Brisbane, born 1917, single. When one visits Paul's shack it is easily seen that it takes a structural steel engineer to build a real rack and panel rig. The raid rig is worth going miles to see. Neat, efficient and workmanlike in every respect. The 6A6-6A6 exciter unit is followed by an 807 and a 210 final—the only one of its kind for no matterter what is pushed through it the plate never blushes. Paul is country librarian and prior to that was Q.S.L. officer.

4UL.—Jack Bates, 233 Arthur street, Teneriffe, born 1913, single. Jack promises to be the star VK4 DX man of the future. He is WAC, WBE and will be WAS when three eagerly awaited cards arrive. Dur-

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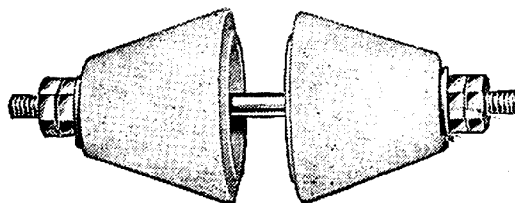
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Min. Cap. Max. Cap.

13.5 m.mfd. 192 m.mfd.

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This insulator is primarily designed for carrying high frequency leads through metal baseboards with a minimum of loss. The insulator cones are of glazed Frequentite and are flanged at the bottom to centre into the baseboard. A 4BA brass rod is used as the conductor. They are ideal in transmitters constructed on the rack principle. Lead washers are supplied to prevent breakage of the cones.

Cones  $1\frac{1}{2}$  in. long,  $1\frac{3}{4}$  in. max. diam.

Cat. No. 1018, price 3/6 ea.



ing the last three years he has acquired a fine station. The TX is a 2A5-807-801 combination and the RX, a joy to see and operate, employs 11 tubes. Jack takes his radio seriously, so much so, that he was busy chasing DX when the photographs were taken. Has just relinquished the job of Country Zone Manager and taken over the VK4 Q.S.L. Bureau. When the Europeans come through during the early afternoon, Jack is busy attending to the wants of those who worship at the shrine of "Lady Nicotine."

4SD.—Arthur Sharland, Sandgate road, Bondall, born 1910, married. Arthur is a newcomer to radio, but by far one of the Division's most enthusiastic executives. He is the man who posts your "Amateur Radio" around the beginning of each month. Get in touch with him if your copy is not arriving regularly. In the June issue "Air Raider" almost hurt Arthur's feelings by saying he was trying to raise some DX. During the month in question VO and VP7 were raised. The rig that raises 'em is a 53-6L6-210 outfit. A 6 tube super takes care of reception. When not worrying over radio Arthur has the trouble of taming the hot Queensland temperature—in other words his real business is Air Conditioning.

4RY.—Bill Haesten, Riverton street, Clayfield. Bill refused to give his age so we will casually hint that the photograph more than does him justice. However, we do know Bill is old in radio. His association with the Division dates back more years than one cares to remember and it is good to see him holding office again. Has the neatest looking station in VK4 and always has on hand portable gear that does work. Present air activities are on 14, 28 and 56 mc. The rig consists of 47-6A6-807. Bill has more time for radio than most of us and gets the maximum amount of pleasure from his hobby.

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## VK-ZL CONTEST

(By ZL2LB, Contest Manager, 1937)

As was the case with the previous VK/ZL contests, the event held during October, 1937, was an outstanding success. The contest was organised by the New Zealand Association of Radio Transmitters in co-operation with the Wireless Institute of Australia.

The committee wishes to thank all of the overseas societies for the manner in which much publicity was given, and all the competitors whose support enabled the contest to be so successful.

Conditions appeared to be very changeable during the Senior weekends, but were better during the Junior ones. 28 mc. was very poor this time, compared with the previous year, and there were few contacts made on that band, interest being mainly on 14 mc.

SENIOR.—The winner for ZL was ZL1DV, who was incidentally the top scorer in the previous contest, with a total of 71235 points. VK2ADE was the successful one for VK with 83430 points. Both are to be congratulated on their very fine totals.

JUNIOR.—In the Junior Test, ZL2QA with 72192 points and VK2DG with 32800 points were the winners. Congratulations also to both of these competitors.

RECEIVING.—The receiving section was well supported, particularly overseas, German and British listeners being well to the fore.

## COMPETITORS' COMMENTS.

The highest score from W was from W6CXW, who amassed the excellent total of 11460, while W6NKY is next on the list with 7680 points.

G8PF entered the Senior Section with only an input of 3 watts, and returned the very creditable total of 1512 points.

W9TB, who just failed to top the W9 entrants, was pleased that there were no serial numbers to exchange. W3EVT wishes that more use was made of QMH, QML, etc. VS1MB was unable to hear any ZL or VK

(Continued on page 24.)

## VK3MR DX Notes

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Conditions for the past month have been exceptionally poor on all bands even up to 80 mx! The 14 mc. band has let us down badly this time, only the usual W's and the late afternoon Europeans are worked with any consistency, but nothing up to the standard of the same time the past three years. Similar conditions are reported from other countries as well, and our own local dx men are having a bad spin, especially on 20. No sign of 4JU even! 2DG, who is always to the fore in this dx racket, must be congratulated on winning the junior section of the 1937 contest, also 2ADE in the senior. Be seeing you chaps later! hi!

Ron of 3KX has now qualified for the "Century Club" with 119 countries and 102 verified! His latest fone contact being CN8MA, 14080 kc. Still has great faith in the two half waves in phase and can't see his 8JK doing as well for him. 2NY reports working OA4AI on 7 bc. on fone! 3TL also worked this same station a few months ago. 7 mc. is reluctantly showing signs of "waking" up, and we can look forward to some early morning European dx on this band in the near future. An old CW ham, J5CC, has come to light with some excellent fone on the HF end of 14 mc. and speaks good English. It is understood that English is spoken in all countries except England and America! VS2AE, an ex-ZL, is very active on about 14350 kc. at late evenings, modulating pair of RK20's and an 8JK ant. Can't work his home country. Nothing outstanding is reported, and there seems very little activity on the dx bands. 80 mx. seems full of fone; all wondering if there is anybody else playing at the "fone contest!" Several chaps heard testing on 160 mx getting ready for the contest on that band. Printer's error in last month's notes; "dogs" was included instead of dots!"

A short review of our own October dx contest will not be out of place in this issue. The first contest was run in conjunction with the Melbourne

Centenary Celebrations in October, 1934. Under the able hands of 3ML as contest manager, and widely advertised celebrations, this test was a wonderful success, so much, that there were hundreds of overseas requests for its continuance. As Australia was considered to be among the rare countries those days, and inspired by the occasion, the news spread throughout the world, and consequently it was well competed for. To further the event, the presentation of the prizes was broadcast from 3DB. The prizes were very substantial—1st in senior test, 852; 2nd, 800; 3rd, set of Siemens meters. The Junior Section was a complete set of Phillip's tubes, which was won by 3HL. The first three in the senior were 3MR, 3GQ, 3JQ. It was a real battle, and lasted from 10 a.m. Saturday to 10 a.m. Monday the four week-ends of October. Beards were worn long those days! It seems that I displeased the judges the least and that is how I got my 852! This test has been run ever since during October, with various alterations to the rules and times, with the idea to make it easier for all to have a go and not such a hardship as the first, and so long as the contest committee realise that it is the man behind the key that counts and not a test of the transmitter so much, this test will continue to be popular with overseas as well as locals. The winners of the other tests held are as follows:—1935: Senior: 3EG, 3MR, 3KX; Special Section (500 points per 28 mc. contact): 4BB, 3EG, 4AP. 1936: Senior: 3EG, 2AE, 4BB; Junior: 2HV, 3HK, 2YC; and the 1937 just announced are: Senior: 2ADE, 4BB, 2HF; Junior: 2DG, 3MR, 2ADE. The junior section is limited to 25 watts. 3EG's wins were outstanding and left us well behind! 1935 test was loosely worded, and there was much doubt as to the interpretation of the 500 points bonus for 28 mc. contacts, so the committee decided to award two prizes. 4BB won the 500 points 28 mc. contact as he did excellent work there as well as on the other bands.

## 28 and 56 M.C. Notes

---

(By A. Pritchard, VK3CP).

The ten metre band has been very quiet this last month, except for the usual phones from the States, and these only increase to the punch we have become accustomed to hearing, for approximately an hour during the mornings, i.e., 11 a.m. until noon. The New Zealand stations have excellent quality and punch, and show that this distance, during the winter months, for ten metres, evidently gives maximum signal strength. The local stations in some cases are usually only R2, 3, and yet are received in ZL at R9, and VK3NP being very obviously in the skip. None of the Australian States have been heard during this month, except VK6MW, who has R8 phone and many ZL contacts, although the lads from U.S.A. call and work VK2's, especially 2NY and 2YQ. On Sunday, 19th June, several 20 mx harmonics from VK2 were R8 at 11.30 a.m. for a short time, but no fundamentals. The harmonics from JNM3 and PLK reach R6 during the mornings, although no Japs have been heard. Sunday, July 10, was the best and most interesting day for strange and rather abnormally good conditions. At 9 a.m. the band was dead; 9.15 a.m., several New Zealand cw 20 mx harmonics, the best being ZL2UV; 9.45 a.m. many faint carriers from the States, which built up to the band full of R8 phones at 11.50 a.m., when a terrific hiss was noticed at least a dozen times, rising from inaudibility to R max. and down again in cycles of a few seconds. This hiss was exceedingly heavy ionization somewhere and evidently not locally, because earthing the antenna showed no sign of static discharge during the rapid hiss cycle. Listening to R9 phones showed that they were completely swamped during the hiss peak, but their actual strength did not decrease. The band was full of R9 phones at midday, and all had faded out by 5 past 12. Any explanations? I understand that the strongest sun spots since 1870 are at a maximum at present. But New Zealand stations were not affected in any way, and were still the same

strength for the usual hour or so later. VK3VM has four stages, e.g., 6V6G 40 xtal, pair of 6L6 doublers and an 807 final modulated by a pair of 42's in class ab. A 20 metre figure 8 beam (2 vertical  $\frac{1}{2}$  wave sections) phase switched by relays, is used on ten although the high angle radiation characteristic, when on this wave will not be the best for dx. ZL2BE reported that ZL1IR on 5 metres has been heard in Wellington, an air line distance of 400 miles; no details of the outfits are to hand. Talking of 5 metres, VK3UK will have plenty of xtal controlled power on that frequency in the near future, the co-starting with a low drift 20 mx xtal by VK3BQ. W5HGK is a new ham (we are told) and the KW input job has a 6L6 COx, 807 doub to 10 mx, 808 puffer and PP 250 TH final. The modulator has a Shure xtal mike, into a 6S5, 6C5, 6M7, Push Pull parallel 6A3's and Class B 204A's as modulators. An 8JK beam completes a line up and a half. The beam described in last month's notes, i.e., ZL3DJ's director, di-pole, reflector combination, is fed by the Y, matched impedance system. The centre of the dipole has an impedance of only 8 ohms and the Y match is obviously the best feeder to it. ZL1HY is fairly new to 10 mx and is using a bi-push exciter 53 P. Pull, 53 Push Push, 6L6 doub 10, HF100 final which is grid modulated by a 2A3—xtal mike—A Jones all band antenna gives us good signals when other ZL's are fading badly (Jones 67ft. flat top and single wire feed). At present the most consistent W's are W6GCX, W6PNO, W6PDB and W6—portable W2JKX, using 6F5 co, 6L6G doub, 809 final, pair of 6L6 Class B and HRO receiver—a nice portable! W6MOU puts 500 watts into a pair of 35T's and uses a pair of heavy duty Taylor 203H as modulators; he is often the only readable dx on the band before the peak periods. TI2FG is the only other dx for the month apart from the many K6's.

## LOWERING FILTER CHOKE COSTS

(By 3JX)

When using several stages off one power supply considerable voltage will be lost across the power choke unless it has very low D.C. resistance, also the filtering may be poor due to the choke core becoming saturated.

The circuit shows a simple method to overcome both these difficulties, and it will probably be cheaper to buy several small B.C.L. chokes than one large transmitting choke.

With the one mike connected as shown by dotted lines, the voltage output will be greater, but the life of the 83 may be shortened if the current drawn from it is near the maximum current rating.

(Continued from page 21)  
stations on 28 mc. SU1WM wants more inducement for the 28 mc. band. OA4J returned a better score

in the Junior test than in the Senior, which helps to prove that it is not always the high power that matters.

Many entrants made a mistake in reading the closing date of the logs. Only VK and ZL logs were to be received here by December 1st. All others by the end of the year.

VE3AU, PK1BX, OK2OP, OA4J, J2MI and PO0UN all were highest in both sections, but are only eligible for one award. NY1AE sent in a very fine neat log.

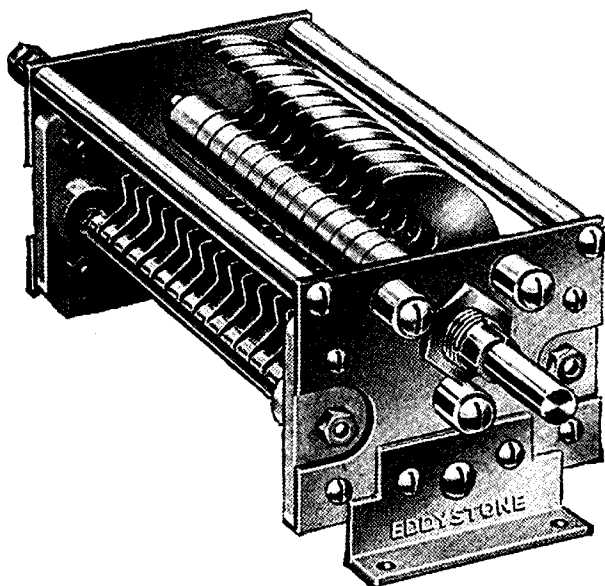
Thanks are due to both the W.I.A. and D.A.S.D. for putting the logs of their entrants in order before sending them on. Many cases were noticed of off frequency operation, rough notes and very poor operating. All seemed in favour of the system of scoring, while it was about even on the question of the duration of the contest.

VE3AU spent the whole of the last hour trying to raise his first VK4 and managed to work one in the last three minutes.

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## Divisional Notes

To ensure insertion all copy must be in the hands of the Editor not later than the 18th of the month preceding publication.

### N.S.W. Division

#### WAVERLEY RADIO CLUB NOTES.

(By (2AHJ.)

Great nervous tension is being experienced by the club members in anticipation of the arrival of the new club transmitter. Extensive experimenting has been done by those participating in the construction of the rig in the design of a thermostatically controlled crystal holder. The finished product should well merit the delay, and, if all goes well, the rig should be on the air within a few weeks. At the weekly meeting held on 5th July a lengthy discussion was held on the subject of alterations to the club room so as to provide a real businesslike operating position for the new station.

The time is drawing close for the 80 mx field day, to be held on 17th July and consequently the members' interest is mainly centred on the alteration and improvement of their D.F. gear. Many points of interest were learned when Mr. Lusby, 2WVN, delivered a talk on D.F. theory and practice. At the same meeting the club was fortunate to have, as a visitor, Mr. Miller, of Qantas Airways, who has promised to become a member of the club. Mr. Miller is also an authority on the subject and should provide some very interesting talks.

With the coming of winter it was moved that warm refreshment should be served at all future meetings. The idea was heartily approved of and the social committee took charge of the matter.

A small technical library is to be added to the clubs and should be a great benefit to any member who is going for his AOCC. Books and periodicals will be available to all members and new literature will be purchased from time to time.

Thanks are due to 2AFG for having presented the club with a very FB code practice oscillator—wid built in power supply 'n all. Nice work, Jack—may ur 6L6 become an 807.

2AFZ is full of glee now that he has got his new super to perk on 40. Is heard mostly on Sunday nights and takes up as much of 2AHJ's dial as Eric does the clubroom.

2ABS devotes his time nowadays to furthering the science of talking pictures. Should have some practical results soon, Jack. How about giving the gang a demonstration. Also heard that he intends cutting some figures (including his own) on the ice.

Bill Stanley's ideas have changed, we notice. Instead of spending his shekels on new toobs he spends them on a YL—pore Bill.

2AHJ has done away with a fone monitor and instead sends the OW inside to monitor on the bath heater!

#### NORTHERN DISTRICT ZONE NOTES.

VK2KK.—I have not seen you for some time Matt, so very little to say on your doings, but it is up to you to let me have some news, so I can carry on with these notes.

VK2KE.—Well Bill, no doubt you will be very active soon, seeing that you have been buying 82 and 46 type tubes to improve the outfit; your exams will soon finish, and give you all the time you need, using 59-46-46 line up in the rig; receiver is a 4 tube T.R.F. job.

VK2KZ.—Very little doing I guess Max, due to out of work, but a low powered rig in use, using small beam type tubes, and some new ideas from "Jones Handbook," will send it along to A.R. next month as the idea is good but by no means new. Doubtless it would interest those who want to get to 10 and 20 metres using 80

metre crystal, 1 power pack B.C.L. type, 2-6L6G tubes and 1-280 rectifier, the output on 20 is respectable, but we will have to try it on 10 later.

VK2YO.—Well, George, after yesterday I guess we could write plenty, as spent ten hours helping to put up a pair of 50 foot sticks, and a full wave 40 metre zeppelin antenna. George is using 6L6G tritet, 807 buffer, 800 in the amplifier, class C, modulated by 56-56-45-46PP speech amplifier about 40 watts input, receiver T.R.F. 4 tube but a 6 tube super in the making. He buzzes about in a new Ford 10, CD-149 so if see it Newcastle, make acquaintance.

VK2XT.—Well Bill, happy trip to Suva, as I guess you will be nearly back by the time A.R. gets these notes. Bill is not yet active due to living in Newcastle but working in Kurri, so you have half Newcastle, and so has Kurri.

VK2DG.—Maybe we will find you home some time Keith, sorry to miss you last week, called to pick you up for Cessnock trip, but will try again. In the rig uses 2A5, 2A5, 46, 808, 45 watts input and grid modulated, receiver 4 tube T.R.F. has about 96 verified countries and 109 worked, fine going! He is now busy making test equipment.

VK2YL.—Cannot say much about you Harry, called on you last week, but you were out so nil to say on your doings, that also applies to you, Chris, of 2PZ.

VK2CW.—We thought a ship had taken to land when we saw 2CW, but turned out to be an 8JK beam antenna for 14 mc. Bill has also shifted his shack to a more suitable place and like all shacks you can just move about in it due to radio gear, etc.; has a 6 tube super going and the rig is 2A5, 46, 46 PP line up about 30 watts input, unfortunately out of work, so just carries on as best he can.

VK2CX.—No word from you Jack on your doings, I guess its YLs again, but turn the nose of your old buggy west and drop in and we will get the dope.

## ZONE 5 NOTES.

(VK2IG Feels Chirpy.)

2EU.—The cold wx prevents a gap in the ham racks. His rig's gone haywire, but the rivers frozen over.

Ought output, ought modulation and ought input.

2QE.—Making too much coin and thus too busy to be on.

2OJ.—Looks as if he has pinched the body off a V8 and has the modulator in it. Anyway it's screened, totally enclosed, ducoed and polished.

2AP.—Busy inviting his colleagues to the shack for qx's, but as is usually the case the condx always letting him down.

2AFD.—Amateur found dead?

2IG.—Using new ant and fb for w. but osc. has to be on for about half an hour to stop freq. creep.

## WAGGA NOTES.

(By courtesy of 2AEO, Wagga.)

2VO.—Now owns an xmr. 42, 45, 210 and a 4 tube TRF rx. It was decided to have a social evening every month. The night chosen was the second Tuesday and the beano starts after the usual weekly meeting. The new vice-president is Mr. Moye in lieu of 2RH, who is now in Young.

2MP.—Whilst travelling per train heard a plaintive CQ being whistled by one who was roving the corridor. A pleasant conversation followed.

2FQ.—Still pottering round on 40. How did the exams go Doc.?

2AID.—Hasn't been doing much now he has a motor bike. How's the galloping bedstead Stan?

2AIB.—Complains bitterly of the condx. Thinks he'll apply for more power. Has installed a very efficient click filter which he evolved after much experiment.

2AEO.—Just doing this and that, here and there, now and then. Wants to know how red the grid of a 210 must be before it's overdriven, hi!

2JL.—Of Coolamon, has been heard a lot on 40 lately. What's doing down there, OM?

## Victorian Division

### PHONE SECTION.

(By J. C. Kerley).

The annual meeting of the Section was held at the Club Rooms on Tuesday, 28th June, 1938, with 3CB occupying the chair.

The main business of the evening was the election of office-bearers for

the ensuing twelve months, and resulted in the following being elected:—Chairman, W. Sievers 3CG); hon. secretary, J. C. Kerley; hon. assistant secretary, H. Simonds. There being only four nominations for the four vacancies on the Allocations Committee, those nominated were returned unopposed, and are:—J. C. Kerley (Chairman), Messrs. Dinan, Smith and Timmins. The Section representative on the Council is 3CB (W. Sievers).

A considerable amount of discussion took place over the instructions received from the R.I.'s department with regard to the use of "V.K." and "Experimental" in call signs of the B.C. band stations. It was decided to instruct the chairman to get a full interpretation of the instructions, and to notify members when he had done so.

The Chairman of the Allocations Committee read the annual report of that body, and at the conclusion of the reading the allocations for the month were read and frequencies allotted for the month of July. The meeting closed at 2225.

## KEY SECTION

(By 3UH)

At the July meeting, Mr. Cunningham maroused considered interest by giving details of a transmitter constructed from parts supplied by the various trade houses. This transmitter is to be shown at our exhibition and afterwards presented to the Victorian Division.

3OG.—Getting fine results with 56 M.C. beam antenna.

3EB, 3DP, 3DT, 3TB—Still messing about on 56 MC.

3QW.—Has built Radiotron super, but still getting bugs out of it.

3UM.—Rebuilding rig into relay rack with 6V6G, 6L6G's push push, push pull 809's for 10 and 5 MX.

3ZV.—Complete rebuild and may be on by Xmas.

3ML.—Has just completed a new rig, 6V6G, 6P6, 809 to be presented to the Victorian Division after the forthcoming exhibition.

3EQ.—New tube, new QRA, lots of kick.

3JI.—Working locals, DJ scarce.

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**BRISBANE**

# Amateur Radio

3IW.—Now off the air owing to poor condx.

3EN.—A bad case of DX-itis.

3ZU.—Another fone hound.

3ZD.—Fone mad for 6 months, now on CW again.

3IG.—May be another fone bird.

3DA.—Working plenty of W's on 40 MX, but wants to know why 20 MX is called the DX band.

3KQ.—Rebuilding into standard ARRL racks with hand switching set.

3ZC-3MR. — Recently conducted Melbourne-Sydney chess match with 2TI and 2DR.

3ZR.—Working CW and fone on 40 and 20 MX, and very interested in DX.

3HK.—Has W8JK team (4 half waves long) in action on 14 MC and got R8 from O.K. and F8 on first trials.

3UH.—Building new Super 8 tube with a Xtal gate to counteract local fone.

As we are beginning a new year, perhaps a few notes on the doings of the past twelve months would not be out of place.

The most consistent station for the year was YK3AM, whose present quality is probably the best we have heard for a long while.

The return of 3DH to the gang during the year brought another good quality station back on the air, but this station is not, as yet, the DH of old.

3RI has had a few ups and downs and seems to suffer from too much "multiple control." One man on the job would probably produce more consistent results.

3GK, who is doing good work at present, breaks down on station conduct. A little stricter supervision of the running of the station would certainly bring a rise in position on the order of merit.

More about the gang next month.

(By 3JO)

The outcome of the discussion on the amalgamation with the H.F. fone section showed that the majority of members were not favourably disposed towards the move at present. They were, however, willing to join forces with the short wave group, and this move was approved by council. The short wave group has been absorbed into the U.H.F. section and

meeting nights are as usual—the third Tuesday in the month.

## Amateur Exhibition.

This section is to play an important part in the exhibition to be held in the W.I.A. Rooms early in August, and we have promised to enter a working exhibit of U.H.F. equipment and to demonstrate duplex working with a portable station on 56 mc. 3DH will provide the portable station, while other members are polishing up their gear to provide satisfactory working the W.I.A. Rooms.

The cold weather has put an end to the activities of 3DH portable and Ivor is turning his attention to installing some U.H.F. gear at home, but is handicapped by lack of room for an effective antenna system.

3JD, 3EM and 3RI are keeping the band alive, while 3OT, 3XM, 3GG, 3RJ, 3OJ and 3JO manage to appear at various times.

3OG and 3MS at Essendon have been worked by 3JD and Co., but their signals are not readable here, nor are they able to hear 3JO. This is due apparently to the directive antenna used by 3OG, and someone suggested that the pub, through which the sigs. must pass to reach the antenna system here, was responsible for quite a lot of absorption!!

The August meeting is on the 16th, and as the important business of election of office-bearers for the ensuing twelve months is scheduled to take place, a large and representative gathering is required and expected.

## (3ZK-3HX.)

The star sensation of the month was the announcement of Ken's, 3KR, engagement to June, one of 3WE's famed twins from Omeo. It was reported that several Northern Zone hams were treated for shock after reading an edition of one of the daily papers. Say, Ken, look what Amateur Radio brought you.

3EP finds it a little cold out in the shack these evenings, so Ted is not as active as previously. Spends some time on 20 mx.

3BM, we learn, has been very active without being on the air much. Being in sole charge of ???? acres. Bruce has been kept busy, but not



# Amateur Radio

too busy to find time to erect a 90-foot stick, sundry beams, and work a few Yanks on 20 mx.

3OR will, we suppose, be very busy keeping the Bull in order at the Kerang Apex Ball.

3CE has been very busy on the farm, but thinks now that he will be able to spend more time at radio.

3NN heard the first time for some time, with a very respectable signal.

3WN puts in an appearance now and again, with rather a good signal. Let's hear you some more, John.

3HY, at Murchison, has spent most of his time on 20 mx. Doc is building a decent sort of mast from which a rotatable beam will be strung. Is at the moment using a pair of 6L6's in the final.

3EC spends most of his time on 40 mx. Ern is considering all sorts of improvements, including a new receiver.

3DU-TC is still holding the fort at Clydesdale with his portable rig. Doug is president of the local Dramatic Society and threatens to give us a full dress show one night when he instals television.

3IH has now replaced his 6P6 with a 6A6 and running the heaters from the mains. Fone quality excellent.

3ZK has now finished with commercial radio for a while, so there is another occupied frequency on 80 mx.

3HX is now taking more interest in Ham Radio; has a few more pet ideas which will probably do everything but what Tom wants them to do.

(VK3HG)

3JA—Has the misfortune to have

his genemotor go west and is off the air after a period of activity working some good DX.

3WT—A newcomer with a very nice signal on 7 mc., although not with very great strength yet.

3GQ—Our sympathy goes to Frank on the death of his father recently.

3SC—Active on 7 mc. phone, with quite good signal.

3TW—Nothing heard from Tim lately, but guess he is as active as ever.

3OW—Showing signs of returning to the ham ranks again soon, after his sojourn into commercial radio.

3HG.—Still doing well on 14 mc. phone, working lots of Europeans in the afternoons. Also active on 3.5 mc. and having a QSO or two on 28 mc. when conditions suitable.

There is still no definite news of our convention, but we hope it will take place soon and the town in which it will be held will probably be Camperdown, where Mt. Leura is very suitable for 56 mc. work. A practical demonstration of 56 mc. gear will probably be arranged for the convention. Very little news of the activities of other stations is obtainable this month. Conditions on the various bands have been fairly good, especially 14 and 3.5 mc.

## Queensland Division

The last monthly meeting at the Division's headquarters, Celtic Chambers, George street, City, was deserving of better attendance. Far too few turned up to hear the really excellent lecture given by Mr. Pat Kelly. The subjects covered by the lecturer included "Lorenz Landing Beams,"

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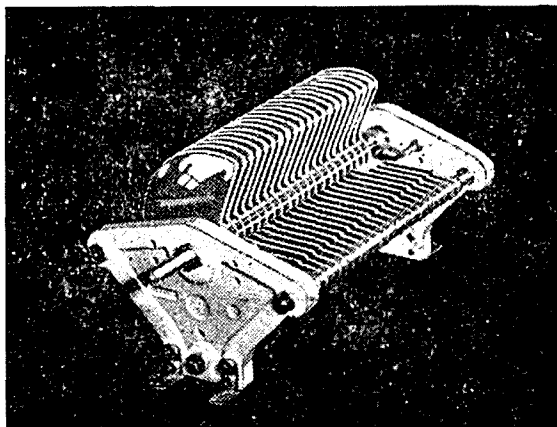
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"Homing Beacons" and "Amplification on the Higher Frequencies." The description given of the Lorenz type beam, both in theory and practice, was particularly interesting in view of the fact that beams of this nature have been put into operation at the Archerfield Aerodrome. At the next monthly meeting the lecturer will be Mr. Vern Kinnar of the P.M.G.'s Department.

For the information of country members it should be mentioned that the W.I.A. men selected by the Department for the Vigilance Committee's second term of office are 4AW, 4HR and 4AP.

The secretary stated that although it was originally intended to have 4WI operating from the first Sunday in July, the reopening of the station had been postponed pending permission from the Department over the transfer of 4WI's licence.

## PERSONAL DOINGS.

When DX is quiet give 4PX a call. Arthur's a good "op." and always ready for a chat.

4GK is on the air at Ithaca, his new QRA. Don't think the new location will trouble "Mac." The weekly sked with VE5BI is being maintained so 4GK can safely be expected to more than hold his own with the VIB DX gang.

Don't build a new super RX without first seeing the one at 4UR's. It has everything—including eye appeal.

A little impromptu meeting at 4UR's shack is not likely to be forgotten by 4GK, 4HR, 4KH, 4AP, and 4UL. The last named kindly arranged for the boys to actually witness the fabrication of some of the steel work for the new Storey Bridge. The evening was as enlightening as it was enjoyable.

4AP promises to make a noise shortly with the aid of a new modulator. The outfit uses a pair of 46 valves in class B. To date three speakers and a 70/- modulation transformer have been ruined so the new modulator evidently has that "plus a little extra which others haven't got." The quality is fair. Even the dog can recognise "his master's voice."

News is wanted of 4BB and 4EI. Here's timely warning that you may be wanted for the next Fisk Trophy Contests, O.M.'s.

4HR has had a bad break with xtals. The last one, product of a leading VK rock grinder, proved to radiate on an unlicensed frequency.

A well known VIB ham has his eye on an 808. The limit is 50 watts not 200, o.m.

4UU, guardian of the W.I.A. funds, seldom misses a meeting at headquarters. What about selling the motor bike and doing some more ether busting?

4WT is finding difficulty in neutralising a straight P.A. on 56 m.c. Keep the leads shut is the golden rule for "five."

What about a line 4JX? Tell us what DX is like in Toowoomba.

It's good to hear 4EL and 4RF rag chewing around 30 w.p.m.

4FB is still sorely troubled with power line QRM on 14 m.c.

VK9DM uses P.P. 10's. Contact him o.m.'s—he QSL's.

4KS is a new ham who has made a modest start with a single 45.

4RH is helping to keep Bundaberg on the map. Rig comprises three stages using 42's throughout.

4JP, George Gray, has just returned from U.S.A. George has promised us an article for Amateur Radio.

Here's a reminder to country members. The librarian advises that only on the return of old magazines will new ones be forwarded. Don't hoard the "mags" O.M.'s, do your best to keep 'em in circulation.

## South Australian Division

(By VK5KL.)

Last month unfortunately Mr. Reiman, hon. secretary, had to resign from the secretarial duties owing to change in his work not allowing sufficient time to devote to the job. Mr. Castle has voluntarily taken over the above position. Also with much regret the council received the resignation of Mr. Luxton as a council member due to his work taking him away from the city. Regret was felt by all, as Mr. Luxton has been a hard worker for years past as a council member and also as QSL officer, a position to which a lot of praise is seldom given.

Members of this division are most anxious that an Emergency Corps be formed to cover all Australia in lieu

of the R.A.A.F.W.R. being abandoned. This has been mentioned to Federal Headquarters and, we hope, receive due consideration.

In October on Eight Hours Day, a field day has been decided to be held at Murray Bridge. The locality was decided upon after a great discussion, that it was only fair to give the Murray and South Eastern district members a chance to attend, after having held two in the north. Arrangements are in the hands of a committee of three, Messrs. Kilgariff, McAllister and Walker.

The last general meeting took the form of a visit to the Railways Institute, where members were entertained by the above Institute's Radio Club and shown around all the working appliances of the whole institute, including the transmitting room and model railways.

(By VK5GW.)

The first week of this month will see the commencement of the new student classes under Mr. Mullet.

It has been suggested by some of the members of this division that full consideration should be given by all divisions to having State control of each division abolished, and have only one controlling body, namely Federal Headquarters. The State councils would still remain, to manage their own particular division. What do you say, fellows?

## BARKER ZONE.

There is not much doing in this zone. The Murray Bridge and Mt. Gambier gangs appear to be the most consistent.

The Naracoorte gang will be more prominent from now on, as 5GW is on the air again and 5XR now has A.C. and has tried out the oscillator with 150 volts on the plate. The main power packs are not quite ready and a new receiver is to be built.

5GW had his first QSO's after being off the air for almost two years, when he worked 3DZ, 3TT and 5BG. The rig from 5GW is very rough, due to using EC on power that is not up to the standard AC. Will soon be using crystal.

5BN will be on phone shortly. Talking of speech amplifier and modulator. Has been rather quiet lately. QYL and rebuilding blamed. Now using C.C. 43 osc., pair of 43 as

buffer and four 48s in parallel as final amplifier.

5TW.—Tom has been on holidays. His antenna has either blown down or been taken down. Expects to be on phone shortly.

5CJ.—Has been rebuilding. Rig is now C.C. 6A6 oscillator-doubler, 89 buffer link, coupled to 807. Now working off 460 volts D.C. mains with 6 volt battery supplying filaments. Crystal frequency 3591 k.c.

5BG.—Very consistent with FB phone.

5BF.—Frank can sure get out. Heard with very FB phone on 40 mx every Sunday. Works on 20 mx during the rest of the week.

5YL.—Betty also on phone now, in line with the rest of the Murray Bridge gang.

Conditions here in Naracoorte very patchy on 20 mx, W, KA and K6 being the most consistent.

## WAKEFIELD ZONE.

B.E.R.S. 195.—Eric has now received his new U.H.F. receiver and will be looking out for sigs, so get busy chaps and shoot your 5 mx stuff at him. If you wish to make skeds write to Eric Trebilcock, c/o Telegraph Station, Powell Creek, via Tennant Creek, Northern Territory.

5LR.—Rumour has it that Jack was in the city recently. His fone still as good as ever, and that means as good as any in the amateur bands.

5HS.—Still very quiet. What are you doing Wally? Don't keep us in the dark, O.M.

5RE.—Will be as active as ever as soon as his busted arm mends.

Now an appeal to all amateurs in this zone to make for Murray Bridge for the festivities on Eight Hours Day, Wednesday, 12th October. I'm hoping to be there myself. It is a long time since we had a field day at a location easily accessible to the River and South Eastern gang, so make the most of it and show the Council that the idea is a good one.

## GREY ZONE.

(By VK5WG.)

Very little news this time chaps. I must appeal to you to keep me in touch with your activities. I was pleased to hear a few of the members of this zone active in the recent message handling contest. I hope that you have all sent in entries for the

country members station equipment contest. Now for scandal.

5AT.—Bert has been transferred to the city and as soon as he has settled down I think we shall hear his call on the air again.

5LC.—Les was one of the most active men in the message handling contest, despite his very low power.

5FB.—Back again in Sydney. Looks as though this division is going to lose Frank. Well, we certainly wish him the best of luck.

5KJ.—George was in the city recently and met a few of the city men. Believe he intended to buy a gun to deal with a clergyman B.C.L. Drastic measures, but perfectly justified.

5NW.—Puts over a very FB session on 160 mx, between 8 and 9 a.m. Sundays.

5TL.—Has daily sked with 5JT. Tom also competed in the message handling contest.

5HR.—Bill has decided that he will not be off the air much longer. The bug is biting good and hard.

## Tasmanian Division

(By 7YL.)

The monthly meeting, which included a special meeting for all VK7 members, was very well attended. Several important matters were thrashed out and resulted in some extra keen and warm arguments. However, finally these were settled to the satisfaction of most.

The social committee under the capable direction of L. Hyland (7LH) has secured the use of a movie projector for one evening, and has arranged to show the film, "Process of Valve Manufacture," kindly loaned by Noyes Bros. some evening soon. This should be both entertaining and educational.

Our QSL manager, "Buck," threatens to write an article "The Trials and Tribulations of a QSL manager." He would welcome suggestions on how to procure the other fellow's long awaited dx card.

A proposed trip north had to be postponed owing to the extreme inclemency of old man weather. Snow fell in the streets of some of the suburbs around Hobart and members preferred warm firesides to the bleakness of the Main Highway.

Condx here have been like the weather—not so hot. 80 mx is ex-

tremely patchy, during the bright spots, ZL's and VK3's pound through R max. 40 mx has been deadly during the evenings this month. The same can be said of 20 mx, except during the early evenings, between 5 and 6 p.m., when W fone stns come through quite solidly.

Personal and otherwise. Jottings about the VK7 gang will be few this month as all are most inactive.

7CM.—Only member who can be heard regularly down here.

7DH.—Bought a new meter for his rig recently. Very busy these days, servicing BCL sets which have a of going wrong during tests.

7LH.—Energetic man! Drove forty miles on a frosty night to attend W.I.A. meeting, and then didn't obtain a seat near the fire.

7JB.—Has the motor car craze—wonder if it will mix financially or otherwise with radio. Dark "goings-on" in shack, said to be in preparation for October contest.

7KV.—Last heard helping out a local "B" class station during submarine cable breakdown in Bass strait. Keith's new super certainly pulled through the description of the Second Test from GSB very well.

7YL.—Sadly watched the poor old 210 pass out t'other night. Maybe it was weary of doing nothing lately. However, a super process of rejuvenation restored it completely (for time being, anyway.)

News from North and North West would be greatly appreciated.

7RY.—On 40 mx quite consistently, but heard only occasionally here owing to "skip." Had pleasure of QSO last Sunday. Edgar uses a home made dynamic mike which certainly sounds fb. Sends his 73's to Sthn gang, whom he hasn't seen or heard for ages.

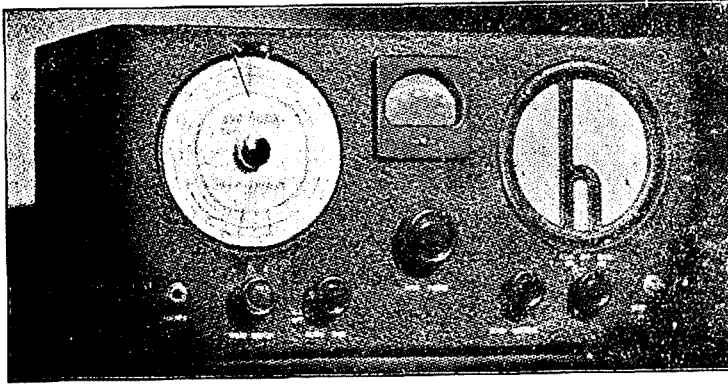
7NC.—Had a very interesting QSO with "Popeye" of the "S.S. Spinach"—a real he-man pirate on board ship somewhere in vicinity of Gibraltar. Seemed to know quite a few Hobart "hams"—wonder who he was?? (hi).

73's,  
JOY.

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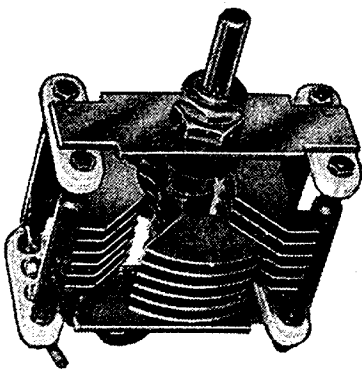
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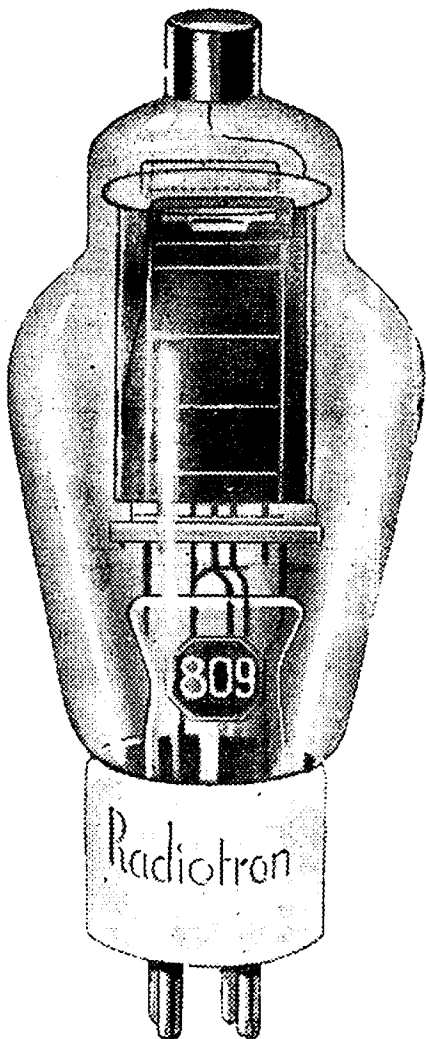
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# **AMATEUR RADIO**



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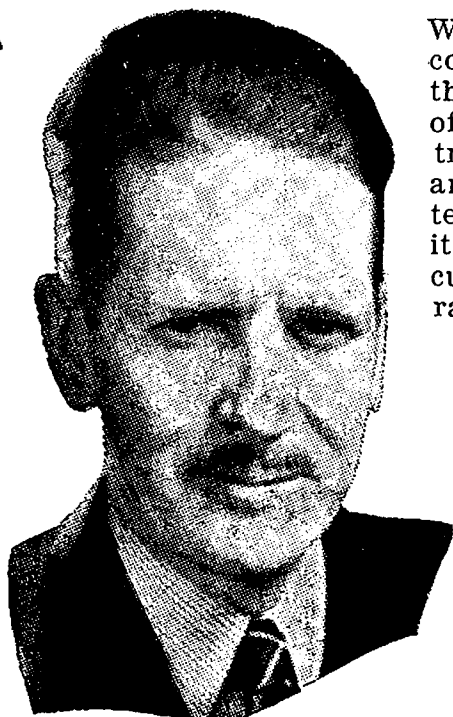


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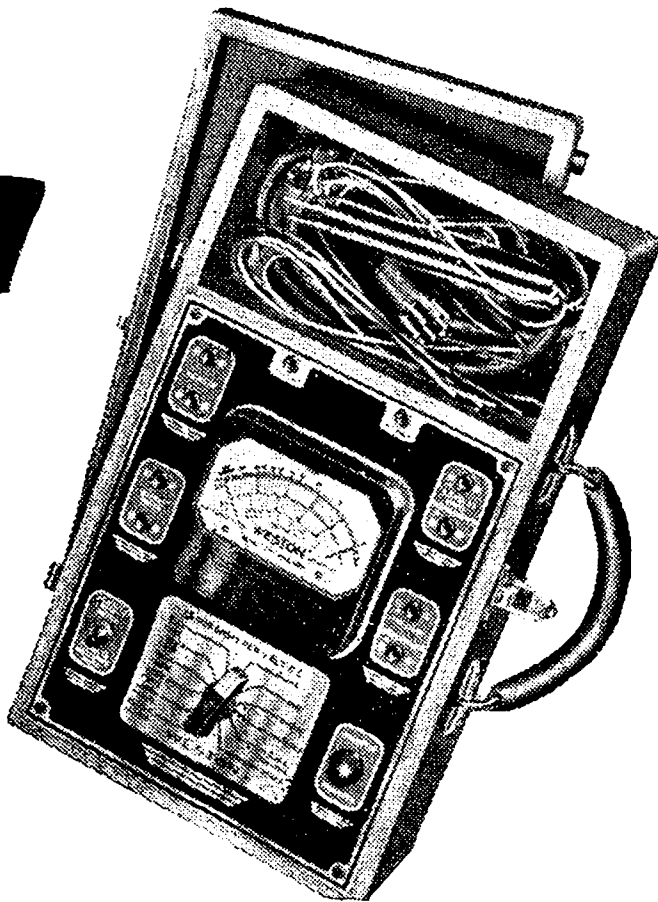
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Published by the Wireless Institute of Aust., Victorian Division.

Vol. 6 No. 9

1st SEPTEMBER, 1938

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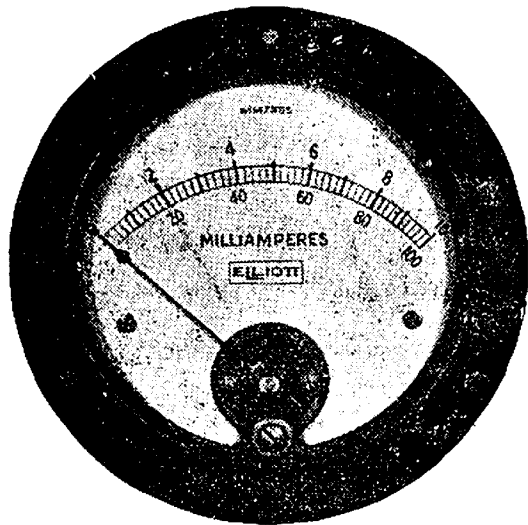
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Advertising and Publishing Office: Address Publicity Manager, "Amateur Radio," Whitehorse Road, Box Hill, E.11. 'Phone: WX 2429.

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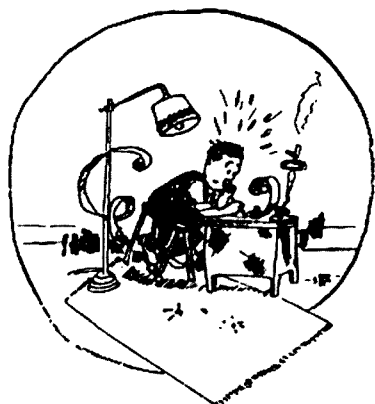
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# EDITORIAL

## THE SOUTH AUSTRALIAN DIVISION

Amateur Radio, both to the newcomer as well as to those of us who have been associated with it for years, is recognised as the greatest of all hobbies. From the very first, when one passes through the stages of building BCL receivers, SW receivers, learning the code and so on until one emerges as a fully-fledged ham, there is a delight and thrill in every moment spent. On through the stages of designing the station, endeavouring to keep the expenditure of the station of our dreams within the confines of our purse, on through the testing of aerials and the acquisition of the DX Bug. DX, QSL's by the hundred, plenty of lost sleep, until finally those coveted W.A.C. and W.B.E. certificates are hung proudly on the wall. Then a pause for breath, for the preceding few months have been hectic in the extreme. Whilst ruminating, some ideas take shape in mind that were not appreciated before. DX—yes, it is certainly a thrill, but one does get a little tired of such a continuous run of somewhat empty QSO's; operating—a successful QSO depends almost more on the operator than on the combination of receiver and transmitter, something not previously suspected. And Amateur Radio

itself—not composed, as one perhaps imagined at first, of hosts of individual Amateurs all over the world, but a huge organisation throughout the world headed by the I.A.R.U., and made up of societies in each country affiliated with it. ORGANISED CO-OPERATION is the secret of the successful continuance of our hobby, our well planned International Contests prove it, our representation at the recent Cairo Conference proves it, our friendly relationship with the P.M.G. Department here in Australia, through our own Society, the W.I.A., proves it.

The majority of Amateurs in each country belong to the Society run there, but those who are not members are enjoying all the fruits of the efforts of their fellow hams who are working hard for the good of the Hobby as a whole. It is beyond all shadow of argument that every Amateur, who has the continued well-being of his Hobby at heart, should be a member of the Wireless Institute of Australia, which is standing up for his rights and working in his interests; in fact, is the focal point around which his whole Amateur existence should revolve.

## Studio Acoustics

---

Our knowledge of sound distribution is being immeasurably augmented, and to such an extent that larger stations overseas are rebuilding their studios time and again in order to keep up with the rapidly developing technique of broadcasting.

Before taking up acoustic defects, however, we must be clear on the manner in which sound is radiated. The sound waves in air are caused by the vibration of some object, and the normal form of radiation is that of an expanding sphere. Thus the sound travels in all directions and at all angles, but as the expanding wave gets further from the source, its amplitude decreases as the energy is spread over a larger area—the amplitude of the energy varies inversely as the square of the distance. The reaction of the ear is logarithmic, however, so that the apparent decrease is not nearly as rapid as the actual sound energy; while to produce a noticeable increase of sound at a given point, this requires a very considerable increase in the power producing the sound.

Echo, due to the reflection of sound from a smooth surface, is perhaps one of the worst features. This can be eliminated by designing the studio with walls and ceiling broken up to produce irregular distribution, although curved walls and ceilings should be avoided with the rectangular variety being universally satisfactory.

It is comparatively easy to remove echo, although another problem is evident in reverberation. And in the case of excessive reverberation, the sound is defused in all directions and its regular repetition is destroyed—but if the surfaces are hard and do not absorb sound waves, the sound reflected back and forth in all directions results in hopeless confusion. These surfaces, therefore, must be treated with sound-absorbing material to ensure that sound will die away rapidly.

Dead spots are the result of echo-producing conditions. When the sound wave reaches the observer 180 degrees out of phase with the direct sound, the intensities are about the same and almost complete neutralisation will result. On the other hand, standing waves occur when the reflected and direct sounds reach the observer in phase and reinforcement is evidenced by the sound level being increased. This point is called a "sound foci," and is often caused by domes, although the exact paths of the sound are usually difficult to locate.

The results of this sound reflection manifest themselves in several ways, and are due to the sound waves being unable to continue their spherical expansion indefinitely, so are reflected inwards. Frequency distortion occurs because the average surface absorbs the high frequencies more than the lower ones, with a consequent loss of high frequency energy at all points. Frequency and phase distortion come from the interference of sound waves reaching the observer from different points out of phase. And sometimes, the observed sound persists after the original ceases which causes echo and reverberation.

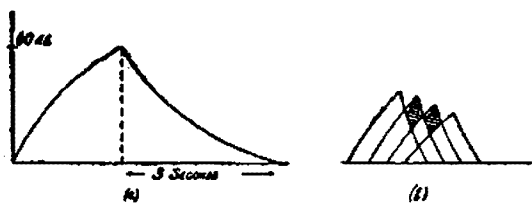
The sound level actually varies widely at different frequencies due to reverberation; but since the human ear is not critical and no wide bands of frequencies are discriminated against, the result is not as bad as it would appear from measurement.

So far, it would appear that all reverberation is bad and the ideal condition would be perfect sound absorption by room surfaces so that the reverberation time—the time the sound persists after the source has stopped—would be zero. This, however, is not the case. Anyone who has experienced such an approximate condition will realise the particular "dead" sensation.

Sound or speech in such a studio would have no "life," which is en-



tirely undesirable. Music is undoubtedly improved by a certain amount of reverberation; while the amount of energy in speech is very small and in a very large hall the speaker often would not be heard if it were not for a certain amount of reflected energy from low absorption walls. On the other hand, if the reverberation is too great, the articulation would be poor—articulation is the degree to which the syllables and words of speech are intelligible. It is excessive reverberation that causes the syllables and words to run together and make the speech less intelligible.



There is, therefore, the optimum reverberation time for a certain set of conditions which for speech is less than for music, although in a small room the amount usually is negligible. In a large auditorium, however, this may be several seconds, and without adequate treatment may easily be great enough as to be useless for speech. The amount depends upon the ratio of:  
 Volume (cubic feet of air in a room)  
 Area and absorption of walls and other surfaces.

The reverberation time is equal to the time in seconds required for a sound to decay the inaudibility from a value of 10.6 x minimum audible signal, that is, for a signal of 60 db level to decay to inaudibility (zero db is taken as the threshold of audibility).

Reverberation time equals  

$$\frac{.05 \text{ volume in cubic feet}}{\text{Total absorption units.}}$$

This equation is strictly true for a source of sound in a cubical room with all surfaces similar, but it is sufficiently accurate for most practical work. One absorption unit equals 1ft. x 1ft. of total absorption which could be represented by an open window one foot square as an open window is a 100 per cent. sound transmitter.

Since the ideal for speech and music is somewhat different, a compro-

mise condition must be reached, and in practice most attention is given to speech, for unless it is clear and intelligible, it is a failure. Also, the average person is not qualified to judge good music, and therefore certain discrepancies are not as noticeable as in speech.

Figure 1a shows the growth and decay of a sound of 60 db in a highly reverberant room, and under this condition, speech is not intelligible, because the part of the sound effective in articulation is very small. This is shown in Fig. 1b, where the overlapping of high-level sounds makes the peak variation almost undefined. By increasing the absorption and thus reducing the reverberation time, the hang over of sound is greatly reduced; while the sound is not so loud as before, although it is much more intelligible. This is shown in 1c, and 1d illustrates a case of absorption carried too far when the sound becomes harsh and gives a staccato effect. A little more reverberation than shown in 1c is desirable.

The quality of sound largely depends upon articulation. Speech is made up of syllables and words, so that if each syllable and each word is clearly defined and distinguishable, then the percentage of articulation is high and the speech is fully intelligible. Reverberation or any



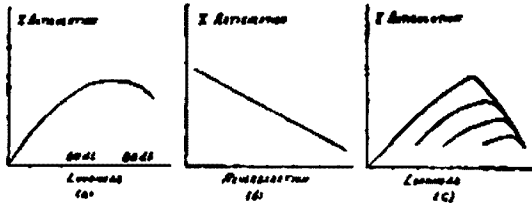
other effect that causes the syllables or words to run together and not be clear-cut decreases the percentage of articulation. Fig. 2a shows the effect of loudness on articulation, where it will be seen that after the level goes above 80 db, the percentage of articulation decreases.

Figure 2b shows the effect of reverberation on the percentage of articulation, which, for a theatre of average size, is decreased about 7 per cent. for each added second of time that reverberation lasts.

The human ear is adapted to hearing one thing at a time, because in the presence of any foreign noise, the audibility is decreased, giving the same effect as deafness. If the volume of speech is increased in an attempt to get above the noise level,

the percentage of articulation is decreased. This is shown in 2c. However, the percentage of articulation need not be 100 per cent. to give acceptable speech, as shown in Fig. 3. The ideal condition gives about 95 per cent. articulation, and an acceptable condition is taken at about 75 per cent., which gives very good intelligibility.

Since the reverberation time is a comprise figure to give both acceptable "fullness" of music and intelligible speech, the question now arises as to what factors may be used to control the reverberation time. Fortunately the human ear is not particularly critical, and there is a quite reasonable tolerance which



is very necessary because of the factor of absorption that helps, along with volume, to determine the reverberation time. Of these, it will be quickly appreciated that the audience may vary over quite wide limits, so it is very necessary that the reverberation time is not too great with a small audience and not too short with capacity audience.

The reverberation time is a function of volume, and this is shown in the equation:—

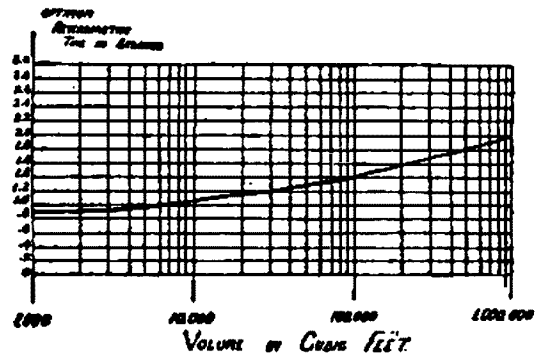
$$\text{Reverberation time equals—} \\ \frac{.05 \text{ volume}}{\text{absorption.}}$$

Thus the larger the studio, the greater will be the time — other things being equal. And this is not an undesirable feature, since experience shows that the optimum reverberation time should be greater for a large studio than a small one. Some reverberation is due to reflection back and forth from the room surfaces, so that if the surfaces are further apart—room of greater volume—a given number of reflections will require a greater time interval.

Experiments and calculations by acoustical laboratories and others show that the optimum reverberation time for musical reproduction varies from about .85 second for a volume of 1000 cubic feet to 1.08

seconds for 10,000 cubic feet, 1.4 seconds for 100,000 cubic feet, and 2 seconds for a volume of 1,000,000 cubic feet. This is shown in the curve in Figure 4. Thus given the volume of a studio, which can easily be calculated from measurements, a comparison with this curve will quickly demonstrate what the approximate reverberation time should be. A detailed survey of all room surfaces and objects will enable the computation of existing absorption units, this figure in conjunction with the volume being used to determine the actual time of reverberation and the result will show whether or not corrective treatment is required, and, if so, how much.

The determination of the amount of absorption present, and the expression in terms of absorption units is not difficult, although somewhat tedious. Before attempting such a problem, however, it is necessary to know something of the absorption properties of the various materials



as compared with the absorption unit. As this varies with frequency, 512 cycles has been adopted as the frequency at which absorption coefficients are expressed. Table 1 shows the absorption co-efficients of many commonly used surfaces.

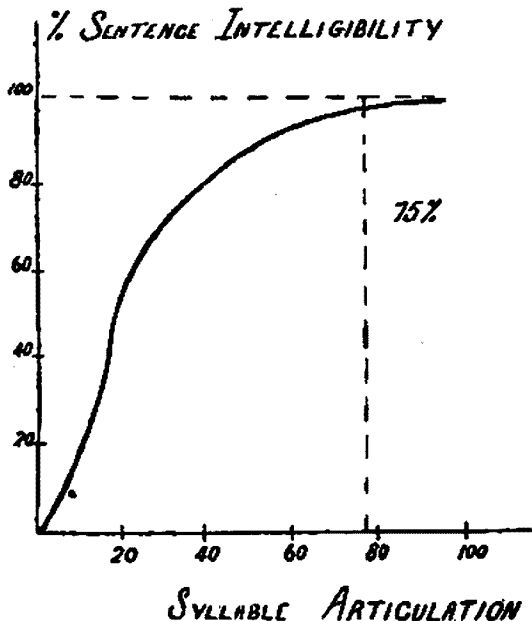
Table 2 shows the total average absorption by individual objects in terms of absorption units and since in practice, variables will exist, in very few cases can an optimum condition as shown in Figure 4 be maintained. It becomes necessary, therefore, to know what variations from the optimum may be tolerated. Experience of acceptable acoustical quality has enabled Table 3 to be prepared, although they are merely close approximations, so that in design and treatment, effort should be made not to approach the outside limits too closely. These figures are

# Amateur Radio

recommended by the Bureau of Standards of America.

An example of a survey and treatment will more clearly illustrate the process of computing the reverberation time. And in this case, we shall take a studio having the following specifications:—

Studio, 80ft. x 60ft. x 20ft.; Volume, 96,000 cubic feet; Cork tile floor, 80ft. x 60ft., equals 4800 square feet; 3 carpeted aisles, 4ft. x 80ft., equals 960 square feet; Plastered ceiling, 80ft. x 60ft., equals 4800 square feet; Plastered walls, 280ft. x 20ft. equals 5600 square feet; 600 Upholstered seats having absorption of 1.2 units each.



Total absorption when empty:—

Floor, 4800 - 960 (aisles) equals 3840 x .03 equals 115 units.

Aisles, 960 x .2, equals 192 units.

Ceiling, 4800 x .003, equals 158 units.

Walls, 5600 x .033, equals 185 units.

Seats, 600 x 1.2, equals, 720 units.

Total, 1370 units.

Reverberation time (empty) equals:

$$\begin{array}{r} .05 V \\ \hline \text{Abs.} \\ .05 \times 96,000 \\ \hline 1370 \end{array}$$

Equals 3.5 seconds.

For one-half audience:—

Add 300 x 4.7, equals 1410 (absorption for 300 people).

Subtract 300 x 1.2 equals 360 (seats replaced by persons), equals 1050 units.

Thus the total absorption now is 1370 plus 1050 or 2420 units.

$$\begin{array}{r} \text{Reverberation time equals—} \\ .05 \times 96,000 \\ \hline 2420 \end{array}$$

Equals 2 seconds.

Table 3 shows that this is somewhat high as the time for one-half audience for a volume of 100,000 cubic feet (close enough for actual volume for use) is 1.5-1.8 seconds. For maximum audience:

$$\begin{array}{r} \text{Add } 600 \times 4.7 \text{ equals } 2820 \text{ units} \\ \text{Subtract } 600 \times 1.2, \text{ equals } 720 \text{ units} \\ \hline 2100 \text{ units} \end{array}$$

Total absorption now, 1370 plus 2100, equals 3740 units.

$$\begin{array}{r} \text{Reverberation time equals—} \\ .05 \times 96,000 \\ \hline 3470 \end{array}$$

Equals 1.38 seconds.

This is almost exactly the best time for the studio, but maximum audience cannot always be depended upon, and the reverberation time is somewhat high for half audience. The reverberation time for one-half audience can be reduced to 1.7 seconds.

$$\begin{array}{r} \text{Absorption Units equals—} \\ .05 \times V \\ \hline \text{Reverberation Time.} \\ .05 \times 96,000 \\ \hline 1.7 \end{array}$$

Equals 2824 units.

The present absorption with one-half audience is 2420 units, and so it will be necessary to add 2824-2420), or 404 units. This correction may be accomplished by the use of acoustic tile, which is fireproof, and can be applied in panels on the rear or side walls arranged in decorative designs. The absorption co-efficient of this material is .033 and the added co-efficient of the panels will be .56 minus .033, or .527, and 404 absorption units have to be added.

$$\begin{array}{r} \text{Acoustic tile needed equals—} \\ 404 \\ \hline .527 \end{array}$$

Equals 766 square feet.

With the reverberation time brought well within the accepted limits for one-half audience, the time for maximum audience will now be:—

$$\begin{array}{r} \text{Reverberation Time equals—} \\ .05 \times 96,000 \\ \hline 3470 \text{ plus } 404 \end{array}$$

Equals 1.24 seconds.

As shown in Table 3, this is within the acceptable limits, although rather near the lower end, and with full audience the studio may seem slightly "dead." The "best" time now, however, is obtained somewhere between half and maximum audience which is a desirable condition, and the quality of both speech and music will be good with an audience of any size.

But acoustic materials can be obtained in practically any desired form, decorative and plain, so that when making any such survey, it is advisable to get in touch with the manufacturers of the acoustical materials, who are glad to furnish complete information on their product, technical data, method of installing, and often when desired an engineering service, and advise on any particular problem. The foregoing, however, will indicate the procedure and how the acoustic properties of a studio can be improved in order to obtain higher quality in broadcast transmission.

**Table 1.**

Acoustic tile .....	.56
Brick wall (18in. thick) .....	.032
Brick wall, painted .....	.017
Brick set in Portland cement .....	.025
Plaster on lath .....	.033
Plaster on tile .....	.025
Celotex (½in. thick) .....	.200
Concrete .....	.015
Cork tile .....	.03
Glass (single thickness) .....	.027
Marble .....	.01
Varnished wood .....	.03
Wood sheathing .....	.061
Ventilators (50% open space) ...	.50
Linoleum .....	.03
Cocoa matting, lined .....	.17
Carpets, unlined .....	.15
Carpets, heavy, with lining .....	.25
Hair felt, 1in., with unpainted membrane .....	.55
Hair felt, 1in., with painted membrane .....	.25 to .45
Hair felt, 2in., with unpainted membrane .....	.70
Hair felt with painted membrane 2in. ....	.40 to .60
Cretonne cloth .....	.015
Curtains, chenille .....	.23
Curtains, with heavy folds, .50 to 1.0	
Oil Paintings, including frames, .28	
Oriental rugs, extra heavy .....	.29

**Table 2.**

Audience, per person .....	4.7
Church pews, per seat .....	.2
Seats, upholstered, depending on material and lining per seat .....	1.00 to 2.5
Seat cushions, per seat ...	2.16 to 2.27
Settees, upholstered, in hair and leather, seat and back, per seat .....	3.00
Wooden seats .....	.10

**Table 3.**

Volume in cubic feet.			
Acceptable limits of reverberation.			
Time in seconds.			
		Half	Maximum
		Audience.	Audience.
10,000 .....	0.9-1.2		0.6-0.8
25,000 .....	1.0-1.3		0.8-1.1
50,000 .....	1.2-1.5		0.9-1.3
100,000 .....	1.5-1.8		1.2-1.5
200,000 .....	1.8-2.0		1.4-1.7
400,000 .....	2.1-2.3		1.7-2.0
600,000 .....	2.3-2.6		1.8-2.2
800,000 .....	2.5-2.8		1.9-2.3
1,000,000 .....	2.6-2.9		2.1-2.5

**VK3 TEST ON 5 METRES.**

**5 Metre Signals Heard in Western Australia.**

Experimental shortwave transmission on the five metre band on May 21 and 22, 1938, times stated being Perth time.

3.30 p.m.—Record, followed by VK3WI 2 channels, 56, 31, 56. Anyone with facilities to report, Victoria, Australia, all over the world.

3.45 p.m. — Record, violin, "My Thoughts Go Round the World" (singer, R. Crooks), followed by Morse Call, VK6WI, Talk, Morse Code.

4.15 p.m. — Call. Standing by, looking around the band.

8.30 a.m.—VK6CN (?) calling VK3WI, Morse. J.R. Talk. Power 100, Beam 4½, ordinary curtain layout, etc.

9.55 a.m. — Talk. Amplification 2A5? H.F. May be gaining—single distance—3 years or just on 3 years reception. Building 3—up-to-date probably coming winter months — weather down here — rain — dry up — last year. So—

(From George A. E. Major, Roselyn, Somerville st., Manjimup, W. Aust. 22nd May, 1938.)

## A Necessary Evil

(By VK5PN, W. L. Pearn).

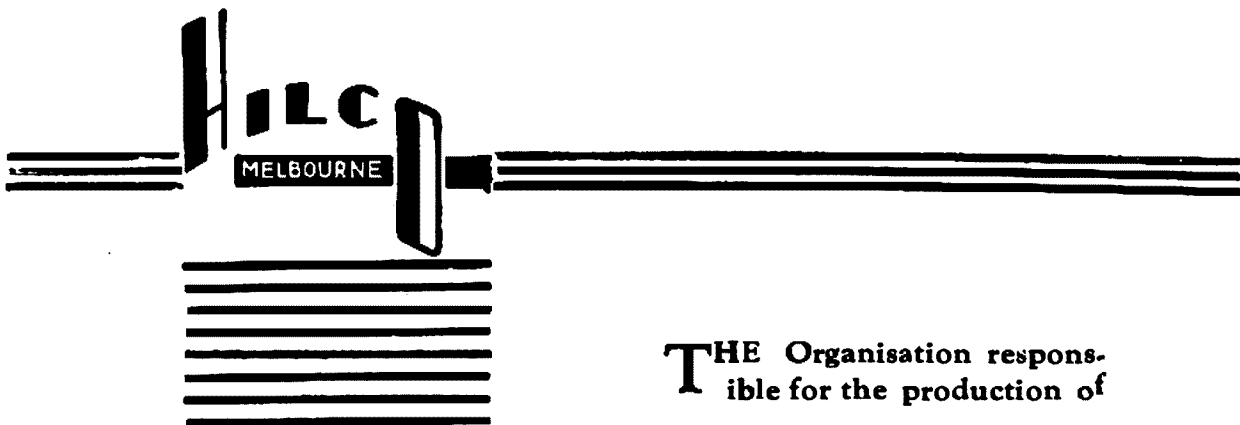
If there are such things as necessary evils, I should imagine that the inoffensive-looking domestic electricity meter qualifies for inclusion in that category. As it appears to be an essential adjunct to the electrification of the home I suppose we must make the best of it. But, how? Well why not make it do a few little measuring jobs for us as well as its main function of running up an account for us to pay to the electricity supply concern.

The usual type of meter is really an integrating watt-hour meter, but we can make use of it as a watt meter.

In all of these instruments a disc-type of rotor, or an armature, rotates at a speed that depends upon the load in use. A small window is provided

for observation of the rotor, and a mark on the latter makes it possible for you to count the revs. that take place in a given time. Now, as the speed is proportional to the power in use, we can calculate the power taken by any piece of apparatus supplied through the meter.

Here is an example. A three-stage telephone transmitter, together with modulator and power supplies, is found to cause 7 revs. of the meter disc in 65 seconds, whilst idling, i.e., filaments burning but H.T. not switched on. Switching on the H.T. and connecting the antenna causes the meter to speed up to 16 revs. in 58 seconds—for the sake of accuracy the test should be taken over approximately one minute. To determine the power taken from the supply mains we make use of cer-



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# Amateur Radio

tain constants to be found on the meter manufacturers' name plate. One of the following three will be found. (1) The number of revs. per kelvin (or kilowatt-hour, or Board of Trade unit—all the same thing). (2) The number of watt-hours per rev. of disc. (3) The number of revs. per minute on full load of the meter.

Suppose that in this case we find that the manufacturer states that 40 revs. per min. equal full load, and that the meter is a 200 volts, 5 amps. type. A formula we can use is  $W = \frac{60rL}{S.M.}$  where W equals power

taken by the transmitter, in watts; r equals number of revs. observed; L equals full load of meter in watts; S equals time of test in seconds, and M equals full-load revs. per min. of meter disc.

In this case, with the transmitter idling,  $L = 200 \times 5 = 1,000$  watts; S equals 65 secs., and M equals 40. Making use of the formula we find  $W = \frac{60 \times 7 \times 1,000}{65 \times 40}$

equals 162 watts, nearly. With the transmitter on the air r equals 16, and S equals 58, so that  $W = \frac{60 \times 16 \times 1,000}{58 \times 40}$

nearly (no wonder my electricity account is so high!).

Maybe your meter is marked in revs. per kelvin, say 2,400 revs. equal 1 kelvin. Taking the same conditions, i.e., 7 revs in 65 secs. with the transmitter idling, and 16 revs. in 58 secs. with plate power on and antenna coupled.

The formula to use in this case is  $W = \frac{3,600,000 \times r}{R_s}$  where R

equals revs. per kelvin, and r and S have the same values as previously. Then the idling power is  $W = \frac{3,600,000 \times 7}{2,400 \times 65}$  equals 162 watts;

and the power under transmitting conditions is  $W = \frac{3,600,000 \times 16}{2,400 \times 58}$

equals 414 watts. Perhaps you think this is too much, and that you are being overcharged for your electricity as a result of a faulty meter. You persuade the supply people to change the meter. The new meter is marked "1 rev. of disc equals 0.417 watt-hour."

This calls for a different formula, and here it is.  $W = \frac{3,600 \times k r}{S}$

where k is the watt-hour constant shown on the name plate, 0.417 in this case. Checking up, we find that r and S still have their original values. Substituting these values in the formula, it is found that  $W = \frac{3,600 \times 0.417 \times 7}{65}$

watts for the idling transmitter, and  $W = \frac{3,600 \times 0.417 \times 16}{58}$

414 watts when the transmitter is fully loaded.

As amplified above, one of the formulae given will meet your case. Where the revs. per min. on full load are given, use the formula  $W = \frac{60rL}{SM}$

shown make use of the formula  $W = \frac{3,600,000 \times r}{RS}$

(Continued on page 24.)

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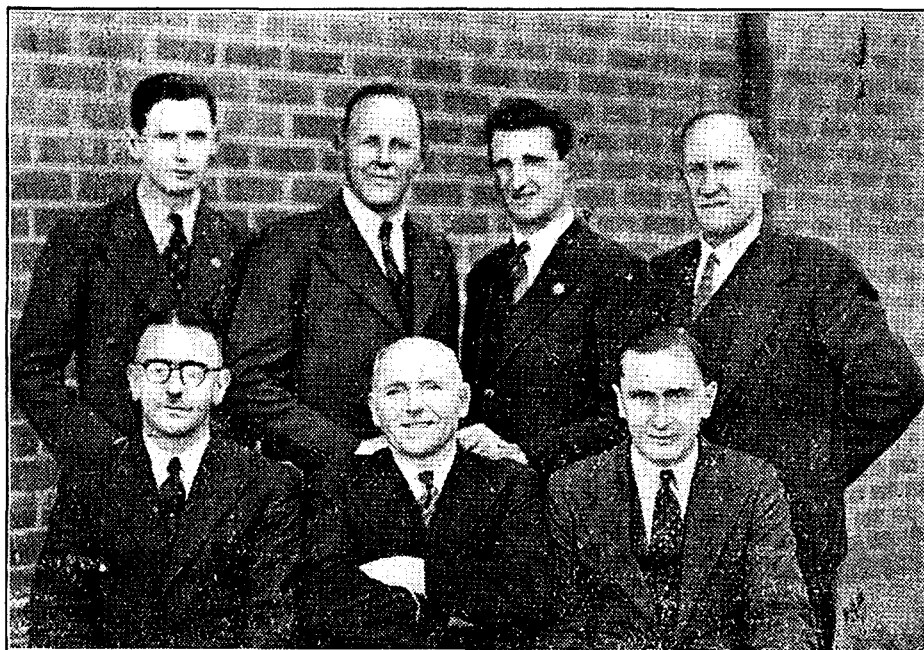
157 ELIZABETH STREET, BRISBANE.  
(At Rear of Regent Theatre)

## The South Australian Executive

As this is the special issue for South Australia it is only fitting that we should honour those who were responsible for the commencement of the Wireless Institute in South Australia. Although all of the foundation members' names cannot be found on record we at least can publish the personnel of the first council. The Division was formed in 1918. President, J. W. Handly Black, VK5AA; secretary, Clem E. Ames; W. J.

Bland, A. A. Cotton, R. B. Caldwell, VK5BP and H. Coles. To these men we sing our praise, which reminds us of the good old days.

Personnel of the 1938 Council: President, J. Kilgariff; vice-presidents, L. Pearn and W. S. Walker; secretary, C. H. Castle; hon. treasurer, E. A. Barbier; J. McAllister, C. Cheel, A. Rieman, F. Bourne, QSL officer, and E. Rielly.



### THE COUNCIL OF THE SOUTH AUSTRALIAN DIVISION.

Back Row (Left to Right).—E. Reilly 5AI, L. Pearn 5PN, J. McAllister, C. Cheel 5CR.  
Front Row.—E. Barbier 5MD (Treasurer), J. Kilgariff 5JT (President), and C. C. Castle 5KL (Secretary).

### PERSONAL PARS.

**J. Kilgariff, VK5JT.**—Joe is well known as ex-VKZ of Alice Springs a few years ago. His famous question was "QRT?" What is the correct him? His way of conducting anything is a slogan in itself—"Do it

now." What with a Comet Pro., a Mid West and now a Super Skyrider, Joe should have no trouble in hearing anything that is on.

**L. Pearn, VK5PN.**—As the country members' representative, Les. is well

known in ham circles and also for conducting the W.I.A. session on 7mc. each Sunday morning at 9 a.m. Les has great praise for the 809 tube and with two in push-pull, his rig radiates a wonderful signal. Has been on council ever since joining the Institute.

**W. S. Walker, VK5WW.**—Being on council and secretary since he has had his ticket, Bill never got time to get on the air consistently, but now he has no bindings except for being chairman of the Transmitters' Section and an attractive YL in a country town, Bill manages to be a little more active these days. 802's are the favourite bottles.

**C. H. Castle, VK5KL.**—Well known as a competitor in Interstate contests and for his activity on the U.H.F. bands, Clarry is the traffic manager for VK5, and for years the scribe of the South Australia Division notes in Amateur Radio, and playing no small part in making this issue a success. Publicity officer is another part of his work for the Institute.

**E. A. Barbier, VK5MD.**—Known to all as Doc., Mr. Barbier has been the delegate for South Australia to the last two Conventions held in Sydney, and well pleased we are for his clear explanations on all points discussed there. A lesson to all is the way Doc. builds and wires up his gear. A sight of perfection in itself. He never ceases to speak about the wonderful good job his T.R.F. receiver does. But now Doc. has changed his QRA, so he will get another receiver. Yes. A Sky Buddy. (Advt!)

**J. McAllister.**—Joe has been a hard worker for the W.I.A. for years and years. Sometimes receiving very little encouragement or help, whenever there is any function, field day, or meeting, Joe will be there always ready to do his share of the work. A fine example of what a good member of the Institute should be. Many others in this State could take a lesson by doing likewise.

**C. Cheel, VK5CR.**—Charlie is an old timer in radio, though he has not had his ticket more than five years, many are the incidents he can recall of the old 200 metre days. The

phone from 5CR on 40 metres is well known to most in Australia. Building push bikes is his trade, but when home is active on 5 metres as well. Whilst in Institute activities Charlie is the student manager.

**A. Rieman, VK5JO.**—Here is another old timer who has staged a comeback to the air and incidentally to W.I.A. affairs. Al has been working DX and taking about it with all the enthusiasm of a newcomer. Of course things have changed during the past few years. Al's return to council and activity have now been somewhat limited as he has again been transferred to where his job needs more attention.

**F. F. Bourne, VK5BU.**—This year Frank took over the duties of QSL officer and what with building himself a shack outside, it has curtailed his time spent on the air. He may be heard in conjunction with 5PN giving a hand with the Sunday morning sessions. Has also been giving 5 metres another try. Frank's favourite pastime is inventing new "Gin Sling" mixtures and as a sticker he is a champion. It will be remembered Frank spent four nights of his holidays sitting in the rain on the end of a jetty listening for 5mx signals.

**E. Rlelly, VK5AI.**—To most Ted is well known for his 14MC fone. Working Yanks being the majority of QSO's. Ted is a relative newcomer to council ranks but already has impressed as a good man for the job. Helping to strengthen the membership and improving the Institute in general is enough for anyone

## Federal and Victorian QSL Bureau

(R. E. Jones, VK3RJ, Qsl. Manager)

Gil, VK9VG, writing on conditions in New Guinea, mentions his difficulty in raising VK3 on 14 mc., and also states that receiving conditions are poor, with plenty QRN. Gil is shortly to take delivery of a new RX -a NC 101X. Full QRA is—V. H. Gilchrist, Power House, Bulolo, New Guinea.

Jim Austin, VK6SA, desires to tender an apology to VK5, VK3 and VK2 hams for his inability to look them up during his trip to the Radio



# Amateur Radio

Convention in Sydney during the recent celebrations. Jim had little notice of his being selected to attend on behalf of the VK6 police department, and his time was at a premium during the whole of the trip.

The Czech postal authorities refuse to transport QSL cards at "Printed Matter" rates, and are surcharging all cards arriving at that rate. The C.A.V. are refusing all surcharged cards and advise hams and QSL managers to prepay the postage on cards at letter or commercial paper rates.

The C.A.V. and the national amateur society of Czecho-Slovakia announce a DX contest to take place from 3rd to 11th September, and to coincide with the twenty years' jubilee of the establishment of the Re-

public. The rules are a little obscure in some respects, but it would appear that the contest is confined to Europe.

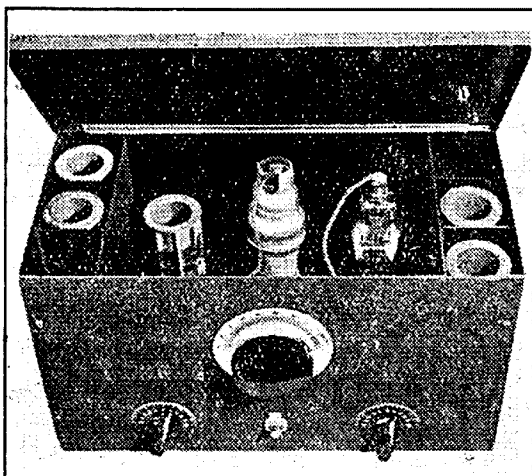
John Mabbitt, of Lake Boga, Vic., advises that his old call sign VK3KI has been changed to VK3JQ. Does this mean that Jack Brebner, of Belmont, has quit his call sign?

A visitor during the past month was Bill Alder, VK3JE. Bill looks well, and has moved from Yarram to Kyneton, and expects to be on the air again shortly.

Owing to pressure on space in "A.R.," and to the ever increasing amount of work in keeping the Bureau functioning as a QSL Bureau should, it has been decided to limit cards on hand to four times annually. Lists will appear in the November, February, May and August issues. Cards may be had by application at the Bureau at any time.

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## Station VK5LC Winner VK5 Country Station Contest

Came on the air 12th September, 1931 (the op's birthday) with a TNT oscillator, 600 volt a side transformer, two 281's as rectifiers and an input of 25 watts. The antenna was a full wave Zepp. The receiver TRF A442 RF, 115 DET, 409 1st audio, B405 2nd audio, powered with a B and C. eliminator. The location was Caltowie township 5½ miles from where the operator lived on a farm. With this equipment five continents were contacted three times in a week on 40 metres during a South Australian DX Contest. Was runner-up in the contest although the station was only one or two months old and the op. had to go 5½ miles to operate the same. The operator soon tired of this journey so 5LC on 29/3/32 was shifted to the farm, but a big problem arose, Power, and it is today a problem. A secondhand 32 volt lighting plant was purchased and an alternator constructed on a very crude method,

The day arrived for a try out and what a disappointment; the regulation was shocking. Press the key and the filament of the 210 go almost out. This was a six pole instead of eight, so eight pole made up and much better, but still not right. Ah! Too much iron or stalloy in secondary coils, so made the pieces into a T and only the pieces 1 inch square instead of about two inches and then things worked beyond expectations. With it connected to 600-0-600 transmitter, 2-281 rectifier, 350-0-350 and 80 rectifier, 47 xtal osc, 210 buffer, 210 PA. All AC filaments, a voltmeter across the output of the alternator and the PA keyed to 90 watts, hardly any movement in the voltmeter reading, no more, and I think not as much as was noticed at 5PK at Georgetown on the A.C. mains. The rx was hooked up with the B and C eliminator and with a couple of 2mfd condensers across the brushes of the 32 volt generator. DX could be worked on 20 and 40 metres in fact phone put across to W on 40 metres and 5LC was entirely (with

exception of the filaments of the rx tubes which were battery tubes) A.C. operated on the farm and very satisfactory too. And every time 5LC went on the air the house 32 volt batteries were charged as well and consequently always fully charged.

On 22/5/33 5LC was shifted to its present location on a farm 2½ miles south from Gladstone, but the power supply had to be left behind due to the fact that the lighting plant was owned and installed by the op's dad. Problem again power; had no engine or anything, so tried an old telephone generator connected up to a cream separator but N.B.G. so went real QRP with the rx batteries and a Hoffmann balanced Colpitts with .9 watt input. Worked all VK and ZL on 80 and 40 metres on CW and VK2, 3, 4, 5 on phone with grid mod. 5LC went off the air from November, 1933, until April, 1934, during which time the YL became XYL or Mrs. 5LC.

A fresh supply of batteries was purchased and with 1½ watts had a try for some 20 mx DX working VS6 and PK4, but found it hard, so a generator and a CC xmitter was put in and things began to happen, could work anywhere but South America, which to date hasn't been contacted. The station to date is a 2 stage CC xmitter with a 6V6G tritet oscillator for 20 mx with 40 mx xtal or straight on 40 mx and 80 mx with 80 mx rock capacity coupled to a 6P6 P.A., input 8 watts, CW 6P6, suppressor modx with 89 and 630 speech amp, G.E. mike receives the old TRF and 5 tube battery super; two six volt batteries and a wind charger, one battery for the 250 at 50 mills generator and one for the filaments (all the A.C. gear lying idle). With this 25 countries on CW and 4 on phone have been worked and winner of the Brandon Cup.

Having found the ideal for low power at low cost of upkeep where no mains are available, experiments were turned to antenna experiments,

although some had of course been done before. The operator received quite a lot of enjoyment out of antenna experiments and being used to having several on tap decided when on shifting this winter from the shack in the back verandah to the dining room-sittingroom alongside of the fire to construct an antenna system that would make several combinations available and still not mess up the room with lead-in wires everywhere, so the one with the three wire lead in was made and is at present the only antenna up at 5LC. Others that have been used were matched transmitter, full wave 80 mx fed in centre, full wave 40 mx fed in centre and 8JK beam (66 feet over all), zepp fed, all with good results.

Was using a 33 ft. vertical zepp. and as it was only 3 feet off the ground at the lower end I thought by putting a horizontal portion on and feeding both in phase the angle would be raised and by swinging the horizontal portion around and fixing it in the direction from which the best DX was coming from have a beam antenna. This was my own theory, but it worked very well on DX, but no difference than with the one half for VK's. After doing good work with it I proudly showed it to a fellow ham and he laughed and said, "Call that a radiator." He wanted me to put up two half waves in phase horizontal, which I did 38 feet above ground, and after calling for four nights without a bite at about 9.30 p.m. on the fourth night changed back to the former (ten minutes to change) and on the first CQ two Yanks were calling me on

the one frequency on QSO and both with a good report, W3 and W4.

## VK3 Amateur Exhibition

A very successful ham exhibition was held in the rooms of the institute on 5th and 6th August, also Saturday afternoon. Some really first class gear was on show and great interest was shown in the RME69 with preselector, HRO and the Super Sky Raider, also the Radiotron Senior. Those interested in super het design were able to have a direct comparison which will in some cases, spur them on to improved design, and then again, these receivers, apart from appearance, are not in any way superior to the home built jobs. Some excellent work was included in home made bug keys and many 5mx receivers were in evidence and two way contacts were effected with outside stations during the exhibition.

The winners of the various sections are as follow:—

HF receiver, VK3OC, Super Gainer; HF Transmitter, VK3RH, Portable. Measuring Gear, VK3WG, Frequency Meter. Oddments, including keys, VK3DP, 5mx Receiver.

Suitable cups inscribed are to be awarded to these winners.

No effort to entertain the general public was made as there was not enough room available and it was not extensively advertised for that reason, but those really interested in the different types of ham gear in use, had an interesting time. The committee wishes to thank all who were instrumental in making this exhibition a success.

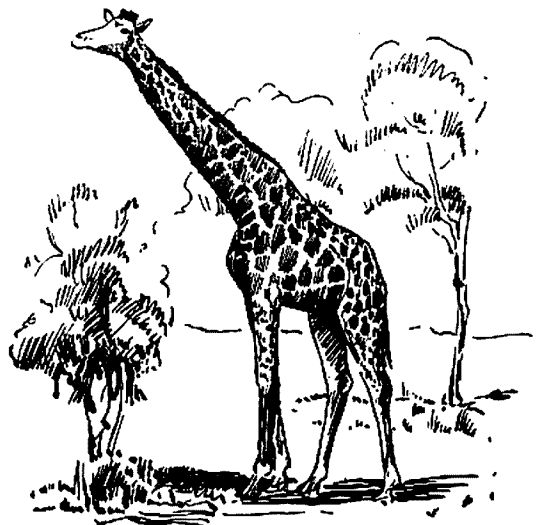
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**CONS. RADIO ENGR.**  
**13 Balwyn Rd., Canterbury,**  
**E.7, Victoria.**



## Contests Section

---

(R. F. Cohen, VK2TF, Federal Contest Manager.)

With the advent of the month of August, the contest season is in full swing again. The D.J.D.C. Contest just concluded was fairly well supported in VK, but conditions generally appeared very poor. Although the European stations were breaking through splendidly, most of us here in VK, especially VK2, experienced great difficulty in raising them. It was not an uncommon occurrence to spend a whole afternoon from 2 p.m. till 6 p.m. steadily increasing the light and power account for the sake of one or two contacts.

This phenomenon may have been due to local conditions, but more probably was due to the new system of scoring inaugurated this year.

With this system 2 points were awarded for each contact other than those with Germany, for which 4 points were awarded. This was entirely independent of the distance covered, with the result that European stations obtained as many points for a contact with W as one with VK.

With a system such as this, Europeans would be content to work one station in each country, each VK district counting as a country, to get a good multiplier, and then concentrate on working as many W stations as possible to bring up their point score. W stations probably averaged R8 in Europe, so why copy weak signals when they are only worth the same number of points. Possibly these were the tactics adopted, so if you did not run up a large score, don't come to the conclusion that you were not putting a signal into Europe, and go and chop down the new beam or decide to rewire the final, just console yourself with the fact that the W stations were putting in slightly better signals and so gained first preference.

So much for the D.J.D.C., and as an antidote for all your pent up feelings, why not have a try in the

new VK-ZL 160 metre contest on 10th September. Rules for this contest were published in July "Amateur Radio," so there is no need to enlarge upon them here. One point might be mentioned, however, with regard to Rule 4, which states:—Stations with which an entrant can work are those beyond a radius of 200 miles, but within Australia, New Zealand and New Guinea.

This distance of 200 miles is the minimum possible for a scoring contact, but need not extend over a district border. That is to say, stations within the same district can contact one another, provided of course, they are situated 200 miles airline or more apart.

From the interest displayed in this contest already it appears that the 160 metre band will be full of signals. There will be room for yours, the contest is only eight hours' duration, so for an interesting evening at the key, with no bandswitching necessary, be in the 160 metre contest commencing 1200 GMT, Saturday, 10th September.

The remaining contests yet to be held this year are the VK-ZL DX Contest in October, an All Band C.W. Contest in November and the National Field Day in December.

The DX Contest this year is being held in conjunction with the New South Wales SesquiCentenary Celebrations and as the rules are given elsewhere in this issue by the VK2 Division, there is no need to stress them here.

With regard to the All Band CW Contest, F.H.Q. hope to run this along similar lines to the recent Fiske Trophy. The rules for this contest will be published in October "Amateur Radio."

The National Field Day to be held in December promises to be the most interesting contest of 1938. Those participating last year had a won-

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derful time and are all busy preparing for the next contest.

Only three months remain before the big event, so if you have not yet designed your portable rig, it is high time a few bright ideas began to take shape, otherwise you may be caught napping and miss the contest this year.

## Radio Society of Northern Ireland

### LEONARD TROPHY CONTEST.

Open to all transmitting stations in Ireland, EI and GI, and the rest of the world.

Dates of Contest: 1st October, 1938, at 12.00 GMT to 2nd October at 24.00 GMT. 8th October, 1938, at 12.00 GMT to 9th October at 24.00 GMT. 1st October, 1938, at 12.00 GMT to 16th October at 24.00 GMT. 22nd October, 1938, at 12.00 GMT to 23rd October at 24.00 GMT.

Rules: The Contest is open to all licensed transmitting stations. Licensed power must be used. Only one operator allowed at each station, if more than one operator, each operator's score counts separately. All stations must exchange R.S.T. reports to count for points. Stations may be worked once only during the contest. All licensed frequencies may be used.

Method of scoring.—1 (one) point for European contacts; 2 (two) points for African contacts (above Equator); 3 (three) points for African contacts (below Equator); 3 (three) points for North American contacts; 4 (four) points for South American contacts; 4 (four) points for Oceania contacts.

Awards.—For the leading Irish station the Leonard Trophy will be awarded for one year (replica also). For the leading station outside Ireland a Gold Medal. For the second station outside Ireland a Silver Medal.

All logs must reach the hon. secretary R.S.N.I., H. F. Ruberry, 19, Little Victoria street, Belfast, Northern Ireland, on or before 31st December, 1938.

Please look for the Irishmen during the week-ends of October, 1938.

## Australia's 150th Anniversary Celebrations

### 1938 VK-ZL DX CONTEST.

(W. G. Ryan, VK2TI, Contest Manager.)

During 1938 Australia is celebrating her 150th Birthday and the New South Wales Division of the Wireless Institute of Australia in co-operation with the New Zealand Association of Radio Transmitters Inc. will organise and control the 1938 VK-ZL. Amateurs throughout the World will no doubt take some satisfaction in the knowledge that the Government of New South Wales has recognised the Contest as part of the Sesqui-Centenary Celebrations and has made available a monetary grant to publicise and make available trophies for the contest.

The contest is divided into three sections, viz., Senior Transmitting, Junior Transmitting and Receiving. The Senior Section embraces a power limit of 150 watts input to the Final Stage. The Junior Section is limited to 25 watts input to the Final Stage and this limitation is an endeavour to cater for the interests of the QRP enthusiasts.

Three trophies have been provided for each transmitting section. In addition certificates will be awarded to the highest scoring station in each country. In making these awards each W, G, VE, ZL and VK Prefix will rank as separate countries. In order to obtain a certificate it is necessary for the contestant's score to exceed 100 points.

A plea is made to all participants to send in a log irrespective of the number of contacts made. As an inducement a special verification card will be sent to all Amateurs who send in a Log.

### Rules—Senior Transmitting Contest.

1.—The Wireless Institute of Australia, New South Wales Division, Contest Committee shall be the sole adjudicators and their ruling will be binding in cases of dispute.

2.—The nature of the contest requires the World to contact VK and ZL. Six cipher serials are to be exchanged. The first three characters to be the RST of the station received

and the last three the number of the QSO. For example, VK2RA may be in contact with W6TI and would send 579055. That would mean that VK2RA was receiving W6TI at RST 579 and that W6TI was VK2RA's 55th QSO on contest.

3.—The contest is to be held from 1200 GMT Saturday, 1st October, 1938, to 1200 GMT 2nd October, 1938, and repeated over same time period during next week-end, namely 1200 GMT Saturday, 8th October, to 12 GMT Sunday, 9th October, 1938.

4.—The contest is open to all licensed Transmitting Amateurs throughout the World. Unlicensed ship and Expedition stations are not permitted to enter the Contest.

5.—Power input to the final stage is limited to 150 watts. Where the National Regulations of any country do not permit the use of this power participants must not exceed the power allowed them by the said National Regulations.

6.—Only one contact with a specific station on each of the bands will be permitted during the contest.

7.—All Amateur Frequency Bands may be used.

8.—Only one operator is allowed to work any station. Where more than one operator has worked a station individual logs must be forwarded under the callsign of each operator and each operator will be considered a separate competitor.

9.—Scoring. Twelve points will be scored by the first contact with a station outside VK-ZL, 11 points for

the second and 10 points for the third and so on until the twelfth will score 1 point. Thus the first twelve contacts will score 78 points and each additional contact after the twelfth will count one point. In all cases contacts are irrespective of the band used. This will apply to all countries except England and the United States of America; in these countries twelve or more (as above) contacts will be permitted with stations having the following prefixes:—G2, 3, 5, 6, 8, GW and GM and W1, 2, 3, 4, 5, 6, 7, 8, 9. The points by contacts in the above manner will be added together and multiplied by the total number of countries worked on All Bands which will give the final score. Each W and G District will not constitute a separate multiplier.

10.—Scoring by competitors beyond VK-ZL. Twelve points will be scored for the first contact with a VK-ZL Prefix Zone 11 for the second 10 for the third and so on to the twelfth contact, which will count one point. Thus the first twelve contacts with a particular prefix zone will score 78 points. Each additional contact after the twelfth will count one point. This will apply to each prefix zone worked. The points scored in the above manner will be added and the total multiplied by the total number of VK-ZL Prefix Zones worked on all bands. Prefix zones are VK2, 3, 4, 5, 6, 7, 8, 9, and ZL1, 2, 3, 4.

11.—No prior entry is required, but each contestant is to submit a log at the conclusion of the contest showing date, time (GMT), band station worked, cyphers exchanged,



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points claimed for the QSO, together with a declaration that the rules of the contest have been followed and that the power limit has not been exceeded.

12.—A large percentage of reports under T8 will render the participant liable to disqualification.

13.—Out of band operation will also be a ground for disqualification. In all cases the National Regulations of each country must be observed by the various competitors.

Entries from ZL stations must reach N.Z.A.R.T. not later than 26th November, 1938. All overseas logs must reach contest committee, W.I.A. (N.S.W. Division), G.P.O. Box No. 1734 JJ Sydney, N.S.W., not later than 31st December. All VK logs must reach contest committee not later than 2nd December, 1938.

#### Rules—Junior Transmitting Contest.

1.—The contest will be held from 1200 GMT Saturday, 22nd October, 1938, till 1200 GMT Sunday, 23rd

October, 1938, and repeated during the same time period during the following week-end.

2.—Power input to the final stage to be limited to 25 watts.

3.—All other rules as set out for the senior contest will apply to the junior.

#### Rules—Receiving Contest.

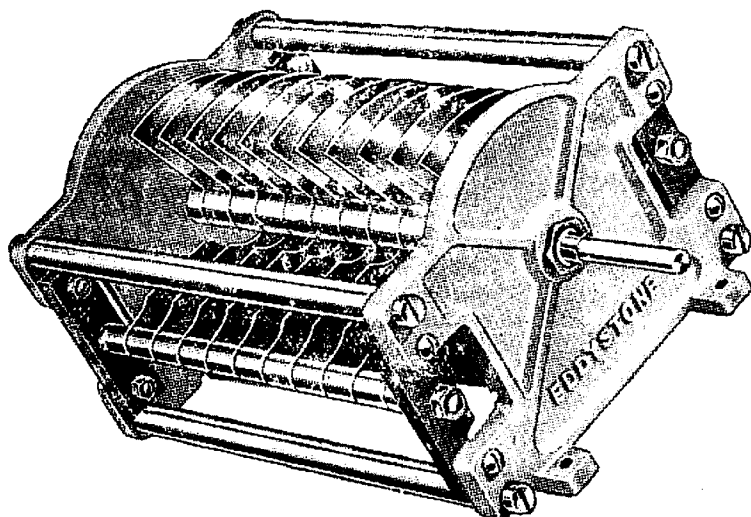
1.—The General Rules for the Receiving Section are the same as for the Transmitting Contests and it is open for any short wave listener in the world.

2.—Only one operator is permitted.

3.—The dates, times, scoring of points, logging of stations and bands used for the duration of the contest are the same as for the transmitting contest.

4.—The contest will cover both sections of the Transmitting Contest. That is to say, it will be held over

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the first and last two week-ends of October, 1938.

5.—To score points, the callsign of the station being called, the readability, strength and tone of the calling station must be entered in the log together with band, time, date. Logging of CQ or Test Calls will not count. Note.—Overseas stations must be logged when calling VK-ZL by Australian or New Zealand listeners. Overseas listening stations must log VKZL stations when they are calling overseas stations.

6.—Australian and New Zealand stations will count their score as per Rule 9 of Transmitting Section.

7.—Overseas stations will count their score as per Rule 10.

8.—Entries must be sent in as per Rule 14.

### Awards.

Three handsome trophies are available for competition in each of the Transmitting Sections and will be competed for as follow:—

First.—For that station outside VK-ZL that has the highest score in the World. This trophy will become the outright property of the winning station.

Second.—For that station in Australia or New Zealand who obtains the highest score. The winner will retain this trophy for all time.

Third.—For that district of Australia or New Zealand whose first six participants aggregate a greater score than any other district. This trophy will also be won outright and its property will be vested in that division of the Institute or branch of the N.Z.A.R.T. which has the highest aggregate.

In addition to these trophies handsome certificates will be awarded to the highest scoring station in each country. All G, W, VE, ZL and VK Districts to be considered countries when these awards are being made. The only provision to these awards is that a contestant must score at least 100 points.

Each participant who forwards a log will receive a verification card of Australia's 150th Anniversary Celebrations and Souvenir of the 1938 VK-ZL.

VK2TI, Contest Manager.

Contest Committee:

H. Peterson, 2HP,

R. Priddle, 2RA,

J. Corbin, 2YC,

H. Ackling, 2PX.

## VK3MR's DX Notes

Conditions have taken a turn for the good and great activity is the result in the DASD Contest. This test is the surest way to prove or disprove as to whether your antenna is any good for Europe as every European country is on the job and you soon find out just how much better the other chap gets there before you do yourself, and consequently you want to know the reason! It all boils down to the aerial. It is also very interesting to hear how the different stations "hang" on and can be heard when all other Europeans are just audible or missing altogether, and it is also most interesting to note the way the northern Europeans come in first and then following closely are the rest of European countries. This is the short way across. Speaking of tests. A local ham mentioned that there was a test on in England during July as he heard lots of G's calling "test" . . . what about the VK5 who heard a G calling CQ on fone, and coming in R8 too! I thought those fairy tales had died a natural death. VK2ADE had 880 contacts in the W test last March; score claimed is 104.880 points! Multiplier of 40, what a score. He has worked 127 countries and 92 verified. VK2DG, in spite of inactivity, still can manage some juicy dx, has also degenerated to fone and worked HC2HP, 14250 kc at 1845 EST., also HK3AL, 14350 kc at 20 30. On CW he has worked PY2HM, 14325 kc at 2030 and CE3DU, 14360 kc at 1430. A rare one heard is LX1AO, just outside of the HF end of the band, which still maintains its popularity for rare stuff. 3XV managed to work PY2DC using about 8 watts in TPTG, and the usual stations; gets an excellent note out of the self excited rig. The W's are very anxious to know the gra of AH2BU, work it out.

Little activity reported from VK7 as 7YL is off the air. We regret to hear that you are not enjoying the best of health Joy, but get ready for that medal for the October test.

By using 66 ft. top feeders 1 and 2 we have half wave 40 mx zepp. By using 132 ft. top and feeders 2 and 3 we have full wave 40 mx zepp. By

That the aerial is the only thing that counts for real consistent dx is again amplified by a comprehensive report from 3BM at my special request. These country chaps hide their light under a haystack! He uses a pair of 801's in the final and modx by pair 2A3's PP in the usual 3BM style and has 50 watts to amuse the SWL's with. Antennae consist of 12 half waves per side of a Vee beam for the States and 10 half waves per side on similar beam for Europe, using zepp feeders about 170 feet long. Reception on the beams is two points better over a doublet 60 feet high and 130 feet long. When conditions are good the real value of these beams are not appreciated to the full, but when poor conditions prevail, they do their stuff in fine style as proved by the consistency that he works the G's when all other VK's have faded out. A real fone man at last! An interesting qso with G6DT found our old friend VK2XU on the mike who is staying over there for about five years.

## 3NP Antenna Experiments

### INTERESTING RESULTS OBTAINED.

(Notes by VK3ZX.)

The poor dx conditions of late have given 3NP ample opportunity to obtain some interesting comparisons in the "pros and cons" of various popular radiating systems. The results briefly have been his proof, that the horizontal radiator is definitely superior to the vertical systems, as an all conditions aerial. He has proved that when conditions are good, any type of radiator will give good results, and this fact has been borne out by the results, that certain stations are experiencing now with the present DX lull, on the same aerials that gave such outstanding results in the good times. Most of these aerials are of the vertical type.

With the assistance of VK3KU tests were first made with vertical aerial by 3NP with various spacings between elements. Original aerial tried consisted of 2- $\frac{1}{2}$  wave dipoles spaced 1/20 wave and made rotatable. Both elements in this aerial were directly excited from a Zepp

feed line. From observations made, it was ascertained that this type of aerial gave a very strong field locally, but had no directive properties. As the object of the experiments were to obtain a close spaced aerial easily rotatable and having a fairly high Gain, the original job was taken down and the spacing between elements increased to 1/8 wave and the bottom ends of the dipoles were bent in at right angles towards each other, and terminated at a spacing equal to that of the feed line, that is 3 $\frac{1}{2}$  inches.

This aerial was also rotatable and fed with the same zepp feeders as the previous one. The results obtained with this aerial were quite good as it had decided, directive, properties both on reception and transmission. Although the directive properties on reception were more marked when receiving vertically polarised signals. For instance, it was quite easy to reduce the signal strength 2-3R points on one local station by merely rotating the aerial system. It was on transmission, however, that the directive properties of the antenna were evident. Test made with 3KU revealed that when the aerial was rotated through an arc of approximately 3 inches the field strength peaked sharply. This was also borne out later, when contact was made with a station in Copp's proving that with this aerial it would be necessary to orient it directly on the station one wished to contact if the true gain of the aerial was to be realised. 3NP, after satisfying himself that the aerial was working reasonably well, an opportunity was taken to try it out on DX, but the results were not as gratifying as anticipated. However, the aerial was persevered with and although several DX stations were worked, the reports were poor.

The vertical aerial was then dismantled and reverted back to the old standby-by "2- $\frac{1}{2}$  waves-in-phase." With this type of aerial it was quite easy to contact dx stations, which it was impossible to contact with the vertical. NP took the opportunity of making a comparative test between the horizontal aerial and vertical aerial, and found that when it was not possible to make contact with

(Continued on page 24.)

## 28 and 56 M.C. Notes

(By A. Pritchard, VK3CP.)

Since last month 10 metres has begun to show life again and at present all continents are being heard except South America. The South Africans are on the job again with several new stations showing up. As far as I know the Europeans have not been qso'd for several months, but the best heard here is F8ZE, who peaks around 6 p.m. at the low frequency end of the band. Observations with antenna systems seem to indicate that the 8JK beam is losing popularity, and the H type is showing its very superior qualities for all the year round service. Also two half waves in phase are excellent, being easy to tune and feed, but the great advantage of both these types (H type and 2  $\frac{1}{2}$  waves) is that the angle of radiation is not so critical for the time of day, yet the directivity and over-all gain is just as great, giving a more useful signal in the desired direction. Many are using the V beam but this requires such a big space that there are not many fortunate enough to be able to try it out. The  $\frac{1}{2}$  wave dipole with close spaced director, is very efficient and many phones from the States rely on its good performance, making an excellent rotary in a small space.

Sunday, 14th August, W9BCX was qso'd here at 10 a.m. and was the only readable phone on the band; he used only 60 W input to a pair of 6L6 tubes in the final but his fb signal was due to the dipole director combination. He reported VK4HR's phone at R8. W6MSQ, using a H type with reflectors, rotatable, dropped from R8 to R3 when a little off the line to us here in VK. K6PCF who was heard r8, qso the States using an H type dropped to r3 each end when an 8JK was switched in. The most consistent W's at present are W6LOY, 6PDB, 6GCX, 6MYS, 6PNO and 6MSQ, who have very powerful sigs during the mornings, heard during the week ends. The hiss cycles mentioned in last month's notes were very pronounced again on Sunday, 31st July, at 1 p.m., and showed fading ZL's before the hiss. ZL1HY during a 3 way qso with 3BQ and 3CP, reported this heavy ionisation, but did not notice any difference with

the strength of signals. At VK3BQ Max has had the best luck with the South Africans, ZE1JU, ZE1JN, ZE1JJ, ZE1JZ being the most consistent. ZE1JU also qso'd ZL3DQ on Sunday, 14th August, and the ZL was called for some time by ZE1JN without success. Ten metres seems the best band for a qso between these countries. ZL1KG has good output and is often heard lately. His outfit has a 6L6G co, 6L6G odub. and PP T20's final with 100 watts input modulated by 4 2a3's in Push Pull Parallel.

Talking of line ups, VK3BQ has rebuilt his modulator and is using resistance coupling from the Reiss mike and also a new Trimax universal modulation transformer giving excellent quality. The modulator here at 3CP has been rebuilt with a 57 pen., 58 tri., 46's class ab2 (triodes) and a pair of 801's in class B. 3CZ is building a similar job, but using 6.3 volt tubes and 809's class B. Trimax driver and universal modulator output trans. in each case certainly make it a pleasure to match up the impedances.

5 meters.—Judging by "Radio" 56 mc notes W5EHM has put up an enviable record with his 400 watts and 14 mc Rhombic adjusted for low angle signals. On Sunday, 7th August, ZE1JZ qso'd VK6SA, who was R9 here during exceptionally good conditions judging by the number of harmonics from other VK's. 6SA, who is using a new 2- $\frac{1}{2}$  waves in phase vertical, has greatly improved signals. VK3BV is the strongest VK3-20 mx harmonic. From VK5, 5AI, 5MV, 5LL and 5RX, also VK4QA, had very powerful 20 mx harmonics between app. 5.30 and 6.15 p.m. the same evening. Later, VU2FY had loud signals but they were very chirpy and unstable. The New Zealanders, ZL1HY, ZL3AY, 2FY, 2BE and 4GM are the most consistent. 2BE is the only one getting through regularly to the States. He uses a V beam with 3 waves in each leg set 52 degrees east of north and is using a Collins rig. VK2GU has r6 fading phone around midday at present and is the only VK2 heard during the month.

(Continued from page 10)

watt-hor constant is specified use the formula  $W$  equals  $3.600 \text{ kr}$

$S$

To find the value of  $L$  in the first formula just multiply the rated voltage by the rated current as shown on the manufacturer's name plate. The above formulae are useful for measuring the power taken by quite a lot of the gear to be found around the "ham shack," such as soldering irons, receivers, modulators, the no-load losses of transformers and so forth, besides such things as the domestic toaster, radiator, laundry iron, etc. And knowing the power consumption and the price of the kelvin, you can go ahead and impress the Y.F. by calculating how much per hour it costs to use these things; but I guess you will not tell her the truth regards the cost of using your transmitter. Alas! Such is human nature!!

(Continued from page 22.)

vertical aerial contacts were easily made with horizontal aerial.

Although good results were obtained with vertical aerial when conditions were good, these results were not obtained in the conditions existing now, which are definitely not good.

**Conclusions:** Horizontal type aerial best for all round results irrespective of conditions.

**Theory:** May be possible to put signals in desired location irrespective of conditions existing, if the angle of radiation is altered to suit those conditions.

Further tests are to be made with beam aerial having varying angle of radiation.

Concluded that angle of radiation from vertical did not suit conditions existing at time of transmission.

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## Divisional Notes

To ensure insertion all copy must be in the hands of the Editor not later than the 18th of the month preceding publication.

### N.S.W. Division

#### ZONE 2 NOTES.

VK2HV—Still concentrating on 20 metres, and seems to be getting a share of the DX. Conditions on this band seem quite good for afternoons and early morning, but are extremely patchy at night. Zone 2 members are asked to look for 2HV on 40 metres Sundays.

Arthur, VK2ZP, can be found almost any week-end on 40 metres, and is a member of the early-morning all-States hook up. Although a fair share of DX has been worked on 20, ragchews are the big thrill at present.

VK2ZX has been inactive for some time, as very QRL with work. Recently purchased a couple of 40 metre AT cut crystals, and that conveys to us a little more QRM on 20.

VK2GM has decided to build himself a nice rig around an 809, and will be looking for DX phone and code on 40, 20 and 10.

VK2UJ seems to spend a great deal of his time in research work, and has a number of original gadgets around the shack. H.T. supply is from a genemotor and accumulators, which are kept charged by a home-made wind generator.

Bob and George of VK2AFS-VK2AGL spend most of their time on 40 metre phone, and some very interesting ragchews are had with the locals.

Next month a complete list of Zone 2 stations will be published, and all are asked to send notes to 2HV before the 10th of each month.

#### COALFIELDS NOTES.

(By VK2KZ.)

VK2KK—Your doings in amateur radio are absolutely dead, Matt, and seeing the reorganising of the area

is under way OM please consider that sub. and get the old rig going on 7 mc. You are getting left behind. Don't let the B Class 2CK get you down OM.

VK2KE.—Well, Bill, OM, you missed one of the finest trips in years when you did not turn up for the prearranged trip to Cessnock. We waited for you, too, at appointed place. Guess the old car would not go or something.

VK2KZ—Yours truly doing very little on the air, but on 14 mc. when conditions good. I wish to thank VK2YO for supplying car and making trip to Cessnock possible, which resulted in four new members for W.I.A. How's that, Mr. Editor, also for QRM created by XYL for rolling in at 12 p.m. (Nice work.—Ed.)

VK2YO.—Well, George, I guess you fared about the same as myself from your XYL, but it only happens about once a year, so guess you can take it.

VK2DG.—Another culprit in the Cessnock trip. I hope your XYL was not too hard on you. We walked into 2DG's shack at 11 p.m. to give it the once over; well, you guess the rest. Shoot the dope down on your new modulator OM.

VK2YL.—Well, Harry, many thanks for arrangements you made with 2YQ, 2CW, 2PZ concerning our trip, and we leave it to you to organise one to come to our end. We will do our best to entertain you all and leave as many pleasant memories with you as you all at your end left with us. Harry is using several types of antennas, mostly beam types on 14 mc. He has a regular ham's paradise of a shack, and likes to crack a joke. Regular on 14 mc., C.W. and fone.

VK2PZ.—Chris interested in 10 metres; has a fine 9-tube super on

10, but rig on 14 mc. using CW only. Winding tranny to suit Class B modulators, and to use PP 809 in r.f. stage on 10 metres. Don't forget that return trip, Chris, and we thank Mrs. Cowan for her hospitality while at 2PZ.

VK2CW.—Bill also using 8JK beam on 14 mc. fone and C.W. Likes an argument on beams and direction, etc. Unfortunately not in employment, but plugs along as best he can with a minimum of equipment. Keep going, Bill, OM.

73. Max.

## ZONE 4 NOTES.

Things have been very quiet here for months now, and there has been very little to write about.

Since the N.A.R.C. went out of existence, Newcastle has gone off the radio map.

2BZ still works a few, but has a bad habit of ragchewing across town with 2AEZ and 2AHA on 20 metres. Judging by the power 2BZ uses, it must be quite difficult to cover those couple of miles.

The Vigilance Officer has been after them so perhaps they may wake up. He has also been chasing 2AHA for working a chap repeatedly, who is using a private call.

AHA has been much quieter lately owing to the necessity of earning a crust.

Don't know what's happened to 2UF. Either he's on 10 metres or taking a rest.

2ZC also seems to be very quiet, although apparently still enthusiastic as I see that he has a very nice beam antenna. Maybe he works them in the early A.M.

2ADG and 2AGD.—Very quiet.

2CS and 2SO.—The two old-timers seem to have given up the game altogether.

2UI also seems to be among the legion of the lost.

2MT.—Doing a little (very little).

2TY.—On a bit when time permits. If I could only get hold of the coot who's using my call, I'll "pin his ears back." And I don't mean maybe.

2YL had a W8JK beam up for a few days, but dragged it down again. No good, OM?

2OS—Now up at BCL station 2HR and has ideas of using the 100ft. lattice masts for his matched impedance 20 mx antenna.

2NL—Out at Waratah Police Radio Station causing a bit of QRM to the BCL's around about the district.

Don't hear much of 2AES and 2AFA out the Lake way. I think they're up on 40 using fone.

The local lads here are all buying tickets in the raffle of 2QS's gear. The late George was quite popular with the boys around here, and also throughout the State. Anyone who would like to help? Tickets, 5/-, may be had from 2BZ. Drawn September 30. Limited to 100 tickets. What about it, boys?

Well, cheerio for the present.

VK2TY.

## WAVERLEY RADIO CLUB NOTES.

(By VK2AHJ.)

On July 12th, the members had the pleasure of meeting Mr. Gray, ZS1CU, who was introduced to the gang by 2TI. Mr. Gray was in Sydney for a few days, and was anxious to meet as many hams as possible during his brief stay. Before leaving he gave a very interesting talk on his travels, and produced a copy of the Handbook that had been autographed by hundreds of foreign hams.

Another very enjoyable field day was held at National Park, and took the form of D.F. Unlike the previous outing, 80 mx. was used for operation. The date set down for the next field day is September 11th, but the location has not been definitely decided. A new scheme was advocated, wherein the party splits up into as many groups as there are portable stations, each group having a picnic of its own, and all maintaining a chain of communication. The

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Messrs. Gerard and Goodman, of 192-6 Rundle Street and Synagogue Place, Adelaide, S.A., are the agents in that State for the ever popular Eddystone components.

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A perusal of their advertisement on page 34 and a visit to these new showrooms will certainly be to your advantage.

main object in holding this type of field day is to encourage the members to construct gear which would be adaptable to emergency use. Power will be derived primarily from accumulators, thus making each unit as portable as possible. The club would appreciate co-operation from any hams who happen to hear any of the stations operating, and would also appreciate a shout or a report from them. The call signs being used will be 2BV, 2ABS, 2AHJ and 2AFZ.

An amplifier demonstration was given on July 26th by Ted Rogers and Jack Howes, 2ABS.

Alterations are being made to the club room for the building of a new operating position.

Noticed Col Saunderson getting into the code practice the other night. Keep at it, Col, OM, and it won't take long to master—but don't forget the theory!

2FJ, on the verge of a nervous breakdown trying to induce an 8JK beam to beam, was referred to June issue of A.R., and completely cured.

2ABS reports his talkie gear in working order, and has promised to give the gang a demonstration. Should be worth-while hearing. Wow!!

2AHJ has given up spending and taken on saving as a sideline. One way of preventing QRO.

2AFZ has finally trampled his condenser mike underfoot, and is now interested in home-made velocity mikes.

Round-table QSO's seem to be the order of the day lately, so the members are going to hold one every Sunday at 10 a.m.

## GLADESVILLE DISTRICT EXPERIMENTAL RADIO CLUB.

The above club has just completed its first six months and is progressing very favourably. Average attendances per meeting are about 20 members, and all as keen as mustard. Owing to the lack of necessary finance we are not yet "on the air," but the club's receiver should be completed almost immediately, and should be the "berries."

On July 15 we had a pound night and swapped yarns (ham ones) over coffee and biscuits. This proved so

popular that it will be repeated at regular intervals. Mr. Walters is to be congratulated on his fine effort as chief cook and dish-washer.

On July 22, we were fortunate enough to have a lecture and demonstration on the "Oscillograph," capably delivered by VK2HB and his assistant from the Lakemba Radio Club.

Commencing about the middle of August a DX contest is to be held in conjunction with the North Suburban Radio Club, over a period of three weeks. All the hams in the club are migrating to 20 for the contest, the winner, by the way, will receive an 809, and the second prize is an 80 metre rock. Non-transmitting members are busy building receivers for a competition to be judged in the near future.

Mr. Manley has given some interesting lecture for A.O.P.C. aspirants, and Mr. Fryar thumps the key for the Morse class.

VK2AEX and VK2NP claim to have held the first five-metre contact in the district.

If any readers of these notes should be interested in our club, Mr. Dick Ellis, of 180 Morrison road, Ryde, will supply all particulars, or, if possible, attend one of our meetings which are held every Tuesday night at 8 p.m. in the Protestant Hall, right at the Gladesville terminus.

## THE HURSTVILLE AMATEUR RADIO CLUB

(Affiliated with the W.I.A., N.S.W. Division)  
(By VK2MZ)

The A.O.P.C. classes held by the Club are being taken very seriously by all members of the club.

Under the capable direction of Mr. W. Laing, who holds a Broadcast Engineer's Certificate, all lectures are found to be very interesting.

A test paper set by Mr. Laing found that all aspirants are taking notice; incidentally, 2VT showed them that the questions could be answered.

The secretary's address is 34 Park road, Carlton, who will be pleased to give any information regarding club activities.

## LAKEMBA RADIO CLUB.— VK2LR. (Affiliated with the W.I.A.) (By 2DL.)

The total membership of the above club now stands at approximately 90 members and it is anticipated that the century will be reached very soon.

A new transmitter is to be installed shortly and is of the semi-portable variety. Unfortunately, the location of the club rooms is right on the tram lines and at times the electrical interference is very bad. The main events over the past few months have been visits to Philips and A.W. Valve Works, a lecture on antennas by Mr. J. Reed, VK2JR, the weddings of 2HB and 2KS, and the return to the club of 2XW, who has now settled down to married life.

Members still complain of the activities of "pirates" who make use of various licensed calls. Cards are coming to hand for VK2LR from America, indicating the DX activities of these "joeys," while members report hearing other members' calls being used, mostly during week days when the owners of same are at work. It was suggested that the club members who are servicemen, fit DF apparatus to their cars, and pay a few extra calls in the course of their daily rounds.

All inquiries relative to club matters will receive the immediate attention of the club secretary, Mr. V. Bennett, 2VA, 14 Park avenue, Concord.

## Victorian Division

### TECHNICAL DEVELOPMENT SECTION.

Members desirous of serving the Institute in the T.D.S. for the 1938-39 season are invited to lodge their names with the secretary immediately. The work involved calls for assistance in the rebuilding of the laboratory and construction of certain equipment for members' use. Membership is strictly limited to financial members, of course.

### GENERAL MEETING.

A general meeting of all sections of the Vic. Division will be held at Law Courts Chambers on the night of the Key Punchers meeting, 4th

October, at 8 p.m. Business left over from the annual general meeting will be concluded and it is anticipated that a popular lecture will be provided thereafter.

### GADSDEN TROPHY.

It was resolved by the Division's Council at the August meeting to appoint an advisory committee whose duties it will be to recommend to council whether any of the applications for the Gadsden Trophy are worthy of the award each year. In the past it has been the custom to award the prize to the best entry irrespective of whether the work was of high standard or not. Should the committee consider the works eligible for the award an adjudicating committee will be appointed to decide on the winner. Full details of the Gadsden Trophy are available from the secretary and entries close this year on 30th September.

### COUNCIL FOR 1938-39.

The following members were elected by ballot as members of the council for the new year:—Mr. W. R. Gronow, VK3WG; Mr. M. R. Campbell, VK3MR; Mr. R. Jones, VK3RJ; Mr. V. E. Marshall, VK3UK; Mr. R. H. Cunningham, VK3ML (chairman); Mr. I. Morgan, VK3DH; Mr. K. Rankin, VK3KR; Mr. J. Marsland, VK3NY; secretary, Mr. R. A. Anderson, VK3WY; treasurer, Mr. J. Marsland, VK3NY.

### PUBLICITY OFFICER.

The Division badly needs an enterprising publicity man who could look after the general advertising of the institute activities. There is an interesting job awaiting the right man. Could you do it? Communicate with the secretary and have your name placed before the council next meeting, which will be on 13th September.

### KEY SECTION NOTES.

(By VK3UH)

VK3BG showed up at the K.P. meeting. Now has Einac 35T.

3YP is back from Brisbane.

3RX is instructing the A.O.P.C. Class.

VK3ET is drilling code into them.

VK3EB—Has built a new 5 mx. received.

VK3ED has 809 and W8JK beam.

VK3XN—Now has excellent fone, but prefers C.W. for DX.



# Amateur Radio

VK3QK—Now has new rig. Wkd. HK154 and 90 countries in 18 months.

VK3WO—Has shifted his QRA to Wangaratta.

VK3ZH—Wkd. F7JDY wid 9 watts 59 regenerative osc. Tickled pink.

VK3EQ—Now getting in amongst DX.

VK3BQ—Got two half waves in phase up again only 30ft. high, non rotating, and QSO'd ZE1JV and ZE1JN. Now cutting AT crystals from raw quartz with phenomenal success.

## NORTHERN ZONE.

(3ZK-3HX)

From the number of zone members who are active on 20 metres, conditions are excellent. From personal observations, the DX is excellent, the W's and G's coming through wonderfully well. 80 mx is very quiet, and locals are absent to a large degree. The ZL's, however, are very active.

3TL—Spends most of his time on 20 mx, but we understand that Treb has not worked very much. Intends to put up another 8JK beam with 4 sections.

3OR—Haven't heard much of Murray, but I guess he is keeping up the good work.

3EP.—Ted is spending most of his time on 20 with, we understand, success.

3EC—Is another 20 mx fan now, but had the misfortune to blow up a couple of 10's. Just too bad, Ern!

3BM—20 mx also. Bruce put up a beam on 20, directional on Europe and works the G's.

3CE.—Where's Roy?

Ex-7RC.—Has ideas about 3CV's mast for ham work, and we can believe it; a 250 foot vertical.

3IH.—Still has May as the attraction. Ask some of the boys.

3ZK.—Is fast becoming very active; recently heard arranging extra skeds with 3IH.

3HX—Has fits of activity. Has been experimenting with the static velocity mike.

Would like to hear the doings of 3BG, HL, HR, HN, WN, TS, FF, HY, DW and any other members of the zone.

## HIGH FREQUENCY FONE SECTION.

Notes on meeting held on Wednesday, 6th July

VK3YZ.—Displayed feed wire spreader consisting of  $\frac{1}{4}$  inch diameter glass rod with lead castings cemented on each end, lead ends are U slotted to allow clinching to feed wire.

VK3DH.—Suggested the heating of glass rods and grooving on ends while hot to retain wire. Applied pressure tends to bulb ends of glass rod and creating the necessary grip.

VK3PW.—Suggested the grinding of small necks in the ends of glass strips, the feed wires being bound on with copper wire and if necessary, soldered.

VK3YZ.—Question asked whether current measured in each leg, A and B of a full wave rectifier would be half of the reading in the input lead to the filter. He has two tubes of 100 MA DC rating and questioned the total load at filter. Confusing points were:—(1) Page 274, Jones, 1936; peak plate current, 66 type tube, .6 amp. and the wording in a full wave circuit Fig 2. . . . Max. current equals 400 (approx.) mils. for

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2 tubes (which is the R.M.S. value of 600). (2) Page 157, RCA Receiving Tube Manual, 1937, definitely states that for type 81, with each tube at the same operating voltage as for half wave, twice the DC output may be obtained when using 2 tubes for full wave. This gave rise to a varied lot of opinions. Some questioned the pulsating DC arriving at different instants, etc., etc.

## COUNTRY SECTION NOTES. (VK3UK)

As I have been away for the month I have not heard any news of a personal nature about the Country Section. VK3MR carried on the weekly broadcast, and in discussing it with a number of the country men a suggestion has been made that the VK3WI broadcast would be more conveniently timed if it were to be sent on a week night instead of a Sunday morning as in the past. The only way to find out which is going to serve the interests of the country member best is to try the suggestion out, so from September 1 VK3WI will be heard on Wednesday nights at 2030 hours, frequencies as before. Your comments and criticisms will be welcome on the change so kindly tell your Zone President or Secretary the next time you contact.

VK3KR, Ken Rankin, who has been elected to the Council, will take over the Country Section from me immediately. The Section is extremely fortunate to have such a man as Ken to look after its interests in the future. It is rare indeed for a man who is so thoroughly conversant with Country doings and the Country members themselves to be available to the W.I.A. to represent them on the Divisional Council, and I know that the Section will progress very well under his guidance.

## U.H.F. SECTION NOTES. (By 3JO)

Election of office-bearers for ensuing 12 months:—Chairman, 3JO; Secretary, 3DH; Technical Advisers, 3OT, 3DH; Representative on Council, 3JO; and the responsibility for these notes were handed to 3DH.

### Another Field Day.

It was felt that a field day would be welcomed by those at present active on the band, and the date has been tentatively fixed as the last

Sunday in November. More details later, but be sure to be in the fun, boys!

### Special Lecture at October Meeting.

Arrangements are under way to provide a very interesting lecture by a member of the P.M.G.'s research lab. The activities of this department are too well known to need mention here, and we can rest assured that a really first-class lecture based on actual experience and experimental work will be submitted and probably demonstrated — but more details next month.

### Competition — Prize Offered.

One of our enthusiastic members has kindly offered to donate a prize in the shape of a useful receiving (?) tube for greatest number of stations contacted during the month of October on 56 mc. One point is allocated for each different station with whom contact is established, and a definite exchange of reports must be made and recorded at both ends. Logs should be in writing and submitted to the secretary of this section on or before the 7th November. Anyone is eligible to enter (except pirates), and the prize will be presented at the November meeting to the financial member of the W.I.A. showing the greatest number of different stations worked either fone or CW. This competition will be repeated at an early date. In the meantime, September 20th is next meeting night. Don't, don't, don't miss it, chaps!

## South Australian Division

(By VK5KL.)

This month is a special South Australian issue. Although notice was only received of it three weeks before the articles were to be in the hands of the printers we are sure that this issue will be a success. The attendances of meetings have sadly fallen off in this State, but all possible will be done to encourage members to come along and enjoy the company of their fellow hams. A change of routine should liven activity up. There are still a lot of chaps who cannot realise that in a united body the Institute can get things done. With the student class

numbering twenty, the Institute is well represented with enthusiastic budding operators.

On August 24th a social was held in the Institute building. During the evening dancing was enjoyed and supper supplied by the ladies. In all, everyone had an enjoyable time. Everyone's attention is drawn to the field day to be held on October 12th (Eigh Hours' Day).

Apparently subscribers to this Magazine in the various States do not read their divisional notes of the Mag. Many are the times one has seen appeals for skeds or information, etc., asked for, but one never hears of any response, and so WE, the South Australian Division of the Wireless Institute of Australia, appeal for all Amateurs in this State and every State to become a member of your local Division, subscribe to Amateur Radio, or do anything that will help, for we will need it all at the next Convention. We ask you. Are you going to sit down and leave everything to the other chap? Answer "No" and do your bit from now on.

Congratulations go to Les Catford (VK5LC), who has won the two contests held recently—the message handling and the article contest for country members. He will receive the cups in due course.

## BARKER ZONE.

(By VK5GW.)

The Barker Zone boys appear to be on holidays, except for the Murray Bridge and Mt. Gambier gangs.

The Naracoorte gang is making slow progress, a few sigs. coming from this area during the last month.

5BG and 5BF—Very consistent with fone on 40 mx.

5YL—Very little heard of Betty. The Naracoorte gang are on the lookout for you, Betty.

5BN.—Has not been heard on fone here yet, but is believed to have had some good fone reports.

5CJ—Hope you have the new rig going O.K. now.

5TW.—No news of Tom lately. Hope to hear from you soon, O.M.

5XR—Cam on F.B. fone again. Everything going nicely when a horse ran into a guy wire and

brought the antenna system down. Cam now looking for some more Pyrex insulators.

5PB.—Still quiet. Wattie has gone bush.

5GU—Bob Gregory, Mt. Barker. Good fone and good enjoyable QSO's. Watch for Bob on 40 mx on Sundays.

5GW—Puts a rather rough signal out occasionally. Will be on xtal within a fortnight.

The Adelaide gang is very hard to contact at night from Naracoorte. Sigs. fade out except on rare occasions.

## WAKEFIELD ZONE.

(By VK5RE)

.....5HS—Wally is understood to be keen on mustering a carload of the Northern gang to go along to Murray Bridge for the Field Day in October.

5LR—Believed to be a bit more enthusiastic about 5 metres since having 5HD as a visitor to his shack. Hope that will not mean Jack deserting 40 mx.

Lance Catford will probably make an appearance at Murray Bridge. He also will endeavour to take a carload of Northerners with him.

5RE.—Promises faithfully to attend the F.D. outing in October, to bring the YF and family, and locate the hidden transmitter half an hour before anyone else!

## GREY ZONE.

(By VK5PN)

Sorry news of activities in this zone is rather scarce of late. The most important happening of late was the capture of two trophies by VK5LC. Les won the recent traffic-handling contest, and also the special contest for country members only, a description of station equipment suitable for amateurs without power mains. Congratulations, Les, OM. I guess you will have to set aside a corner of the shack for the display of trophies soon!

5KJ—It is whispered that George is an exponent of Radio Chess. You should keep to skeds though, George.

5YM.—Norm sent along an excellent paper on the theory and construction of a genemotor as his entry for the station equipment contest.

5RJ—Darce heard recently testing a new mike. Very nice, too!

5MP.—Has anyone heard anything of Len? Also 5WG, 5NW and a few more of the gang?

5TL—Tom competed in the station equipment contest, his entry being a very simple and useful portable transmitter suitable for emergency work.

5AT.—Bert is now in the city, but not yet on the air.

## COUNTRY SECTION, VK5TL.

The transmitter described below should prove of interest to those who are considering the South Australian Division's scheme for an emergency corps.

There is nothing unusual in its lay-out or construction, and I make no claims for originality.

It is intended for battery operation, but is actually used with a "B" battery eliminator which delivers 135 volts, and has been used on 3.5, 7 and 14 mc., being principally used on 7 mc.

A minimum of parts are required, and the type 19 tube used has proved most reliable, an input of  $3\frac{1}{2}$  to 4 watts being readily obtainable on 7 mc. On 14 mc. it is possible to get 6 or 7 watts, while on 3.5 mc. the input drops to about  $2\frac{1}{2}$  watts.

On 7 and 14 mc. I have used it on a half wave (on 7 mc.) Zepp centre fed antenna, but on 3.5 mc. it has been necessary to use a Marconi type antenna.

Originally the key was located in the negative A and B lead, but as an unpleasant thump was audible in a B/C super in another part of the house, the keying was placed in the grid return. This had the desired effect.

The tank coils are made of  $\frac{1}{4}$  in. diam. copper tube mounted on stand off insulators, and the tuning condensers, 2 old .0005 mfd. from the usual "ham" collection, used as a split stator.

No doubt  $\frac{1}{4}$  in. diam. tube and stand off insulators sound incongruous at 4 watts, but it was originally intended that this stage should become a "push pull" final at a later date. However, it makes firm tank coils. The R.F. chokes in the grid leads are 1.25 millihenry types, and

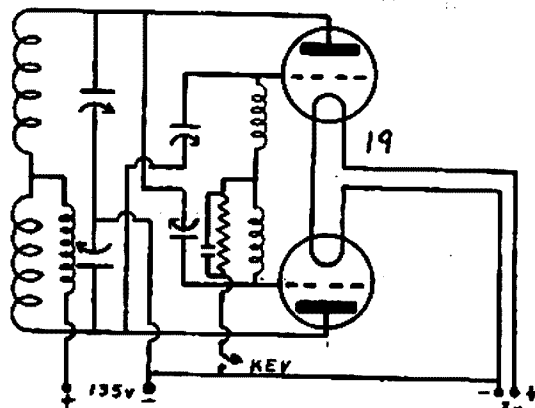
the variable grid condensers 11 plate midgets. A 5000 W. grid lead and .01 grid condenser give satisfactory operation.

The wiring was carried out with 14 gauge copper, which provides solid wires.

For convenience, the entire oscillator unit is mounted on a board  $1\frac{1}{4}$  in. x  $9\frac{1}{2}$  in., and the tube stands directly behind the tuning condensers and in front of the tank coils.

The end of a petrol case provides quite a satisfactory base board for this job.

There is no "special way" to do any part of the wiring, and being a very simple rig it does a reasonably good job as my model on occasion raises R8 T9 reports from stations up to 600 miles on 7 mc. and R6 T9 on 14 mc. at 1200 miles.



## Tasmanian Division

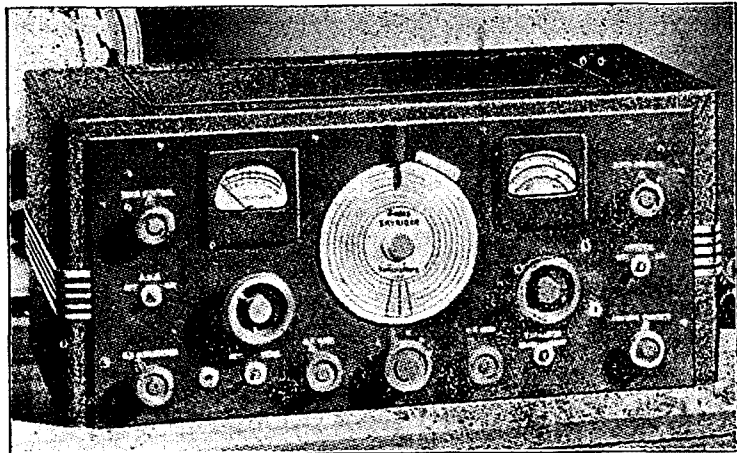
(By 7YL)

As there was no meeting this month owing to unforeseen circumstances, matters which were to be discussed had to be postponed.

We have been notified by our R.I. Mr. Conry, that a division of the I.R.E. is to be formed in Hobart. The first meeting is to be held on the 17th and 7AB will be presented with the I.R.E. trophy won by him during the N.S.W. Centenary Contest.

7CT.—Terry journeyed north a week-end or so ago, and dropped in on several of the northern gang. Is still contemplating building a shack.

7KV.—Keith is so seldom seen or heard that we are thinking of putting a "Lost" advertisement in the local rag.



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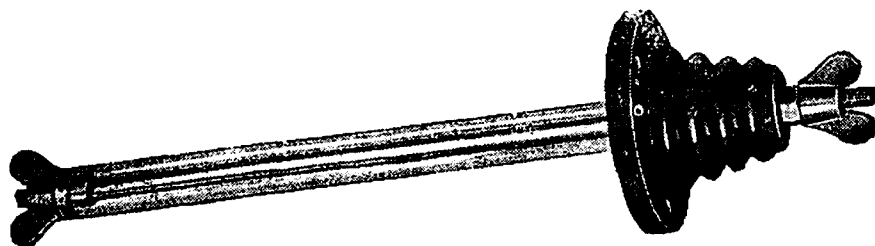
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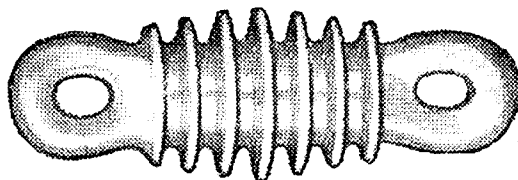


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## Amateur Radio

7HM.—Our secretary has had a busy time moving his gear to the new QRA at Sandy Bay. More QRM for the poor Sandy Bayites.

7JB.—Buck is at present building himself another receiver, having sold the spanking new one he built only a short time ago. Is trying a spot of journalism for the local edition as recreation (?)

7LC.—Has changed his QRA from Winnaleah to Queenstown, and is now working at 7QT, the local broadcasting station. Evidently worked quite a lot of DX at Winnaleah, judging by inward QSL's.

7RZ.—After a spell of inactivity has been chasing the Yanks, and has worked a goodly number in the last few months.

Congratulations are extended to Maurice Burleigh, who has just secured his "ticket," and is stationed at Moorinah Power Station; also to the other successful candidates, one

of whom already has had the misfortune to fracture a brand new crystal while experimenting with his new rig.

Little has been heard from Launceston, but we expect to have 7AB down shortly for the I.R.E. presentation.

7SR.—The Army Signals Radio Club, affiliated with the W.I.A., has just acquired a new 7-valve super and should be heard regularly on Mondays and Wednesdays. The xmtr has also been reconstructed, and is now c.c. and working f.b. Contacts with any ham in any State would be greatly appreciated.

7YL.—Disgusted with the exhibition of the rejuvenated 210. It lasted only a day! At present using an E408 which seems to have a tendency to blush. However, it works efficiently even if it is an ugly looking thing.

Well, that is the issue this month as everyone is becoming quieter and quieter.

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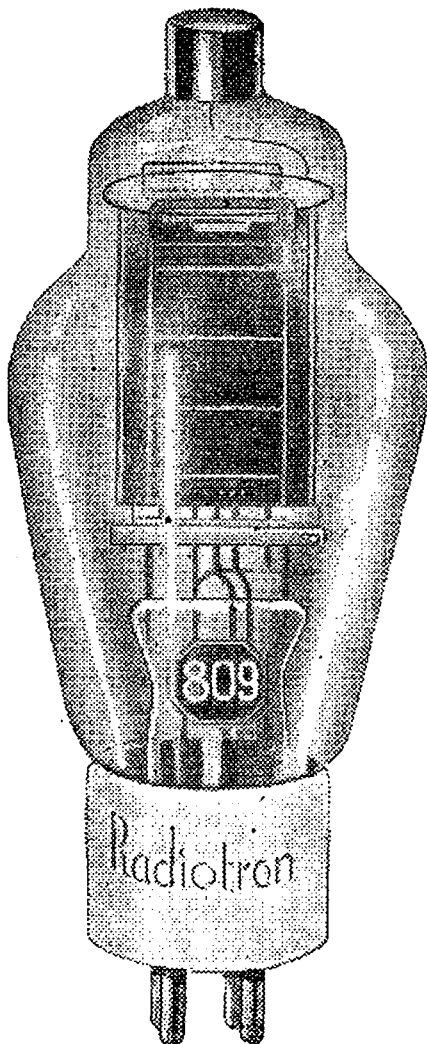
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Published by the Wireless Institute of Aust., Victorian Division.

Vol. 6 No. 10

1st OCTOBER, 1938.

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All Communications and MSS. should be forwarded to the Editor, "Amateur Radio," BOX 2611W, G.P.O., MELBOURNE.

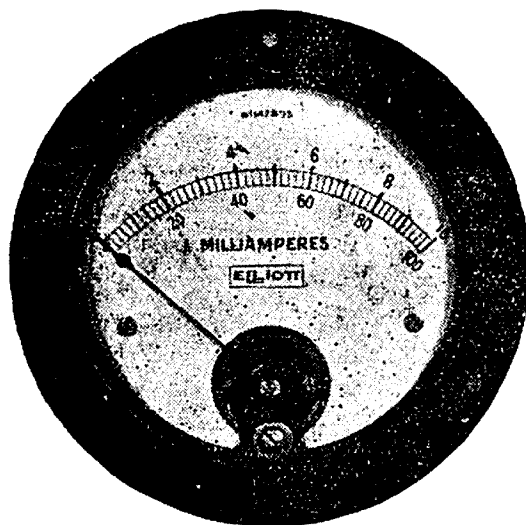
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Should you not receive your copy of "Amateur Radio," notify your Divisional Secretary at once.

Advertising and Publishing Office: Address Publicity Manager, "Amateur Radio," Whitehorse Road, Box Hill, E.11. Phone: WX 2429.

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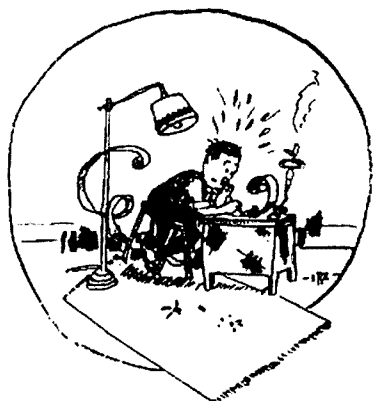
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## EDITORIAL

The other day we heard it said that the average Australian Amateur has no opportunity of "doing something" for his hobby. We place the words "doing something" in inverted commas because the phrase is delightfully vague even if the inspiration behind it is laudable. Further questions elicited the facts that "doing something" seemed to be irrevocably tied up with earthquakes, floods, hurricanes, etc. This was interesting because we have never felt that the active co-operation of Mother Nature was essential for us to adequately serve our Hobby. No! Our friend was not a member of the W.I.A. How could that alter the question, we were asked. To quote only one reason, did he know that the W.I.A., and, through it, its members, contributed towards the expenses of the Amateur Delegation to the Cairo Conference? Surely by not being a member he let an opportunity of serving his Hobby slip by.

Last week the Ham world suffered a terrible loss in the tragic death of Ross Hull. Known and respected throughout the Radio world, he was regarded as one of the foremost experimenters of the day and typified all that is best in Ham Radio. An ex-Federal and Victorian Division President, our Hobby is the better for his contact. It is men of his calibre who, through their association with organised Amateur Radio, have improved, not only the technique but also the co-operative spirit of fraternity existing to-day amongst Amateurs the world over. He was the pioneering spirit that admitted no failure—

experimentation was in his blood. He "did something" for Amateur Radio day by day—may his example be an inspiration to us all.

During the last weeks the international tension has increased, and the world is anxiously awaiting the results of Britain's efforts in the cause of Peace. Should war come, we fervently pray it will not, Australia will need operators — good operators. The man who takes a pride in his fist, who has consciously tried to improve both his speed and accuracy is a man who will be of inestimable value. The "wise guy" who so proudly announces that he "hasn't a key in the shack" will not only be useless, from an operating standpoint, but also a menace to the good name of Amateur Radio. For those who wish to train themselves to be ready to serve their country through their Hobby the R.A.A.F. Wireless Reserve will train them in Service procedure, in addition to helping them improve their operating ability, so that in a time of national emergency they will be immediately available.

There are hundreds of Amateurs who are daily "doing something" for Amateur Radio; to the others it may be said, "Opportunity is half the battle, but the ability to seize it is the other half." It is up to you.

## Power Tuning Condensers for "Ten" and "Five"

(By E. H. Cox, VK2GU.)

Design of the output circuit of a high frequency amplifier for power applications involves a compromise between a variety of conflicting factors. The attainment of the best possible efficiency involves the use of as high an impedance as is practically procurable in the tuned circuit into which the valve or valves operate. This in turn, involves the use of high driving power. High plate impedance, even in practice, is comparatively easily obtainable by the use of a high ratio of inductance to capacity in determining the oscillation constant of the plate tank circuit, and if these factors were the only ones involved in the design of an output circuit the job would be comparatively simple. No tank tuning condenser would be required, and the circuit could be resonated by the employment of an appropriate variable inductance operating in conjunction with its own distributed capacity, and the accidental additional distributed capacity introduced by other circuit components, all of which, of course, would be built to reduce their capacity to a minimum.

Unfortunately, there are other limitations which prevent the use of such a circuit as an amplifier tank, particularly when the tubes are operated under the highly biased Class C conditions of to-day. These arise from the lack, in an "all inductance" tank of the necessary "fly-wheel" effect to sustain the normal oscillation of the tank circuit current over the portion of each cycle in which the tube itself is biased beyond cut off. In a single ended Class C amplifier the tube conducts and imparts power from the DC plate supply to the tank circuit for only a fraction, the size of which depends on the fixed grid and plate pressures on the tube and its amplification factor of each cycle. During this short conducting period, the tank circuit must acquire, and store, sufficient

power, not only to carry it over the hiatus of DC current flow, but also to impart energy to the antenna or other load during the same period. If it fails to do so, the currents in the output circuit will differ materially in wave form from those impressed on the grid of the tube. Efficiency will suffer and there will be a sharp rise in the harmonic content of the output from the system. The position is materially improved if the amplifier employs tubes connected in push pull. Then, instead of one DC energising impulse per cycle there will be two pulses, the peaks of which will occur at diametrically opposite points on each cycle. A marked improvement of wave form will thus result, but even the push pull stage requires a certain minimum ratio of capacity to inductance for a given frequency, below which minimum it is impossible to go without deterioration of the output wave form. The minimum value of capacity to be employed in a tank circuit for a given frequency will vary with the conditions of operation of the tube. For instance, the higher the grid bias for a given tube operated at given plate voltage and fixed driving power the shorter will be the period of plate filament conduction in each cycle, and the greater the storage capacity needed in the tank circuit. Other conditions being the same, the required storage capacity tends to rise as plate voltage is reduced, and current kept constant, and to fall as the voltage is raised for a constant current. Conversely, if the anode voltage is kept constant, and the current is varied by coupling adjustments, the minimum necessary value of tank capacity will rise as the current rises, and fall as the plate current is reduced. It follows from this that constants optimum for a given tube at one set of values of plate current and pressure will in general not hold if these are varied, and also that, in general, the constants for a low impedance tube operated at



moderate pressure and high plate current will be very markedly different from those for a high impedance tube operated at high voltage and relatively low space current.

The flywheel effect in the tank circuit can be given numerical expression as a ratio of the volt amperes in the tank circuit to the power delivered by the tube, and it is called the operating  $Q$  of the circuit. Although it is nearly always permissible and safe to use a lower value of  $Q$  when an amplifier is to be used for telegraphy only than when it is to be modulated, general practice has become to design the circuit so that the value of  $Q$  is approximately 12. By making the value lower the tank capacity is reduced, and the impedance of the circuit is increased for a given frequency of oscillation. Provided that this reduction is not carried too far, a small resultant rise in plate circuit efficiency can then be obtained without the generation of objectionable harmonics.

The relationship between the circuit constants in a conventional single type Class C amplifier can be expressed for normal Class C operation as follows:—

$$C \text{ equals } \frac{QI}{3.3fE}$$

where  $C$  is the total capacity across the tank coil in microfarads  $Q$  is the numerical expression of the "flywheel" effect,  $f$  is the frequency in megacycles,  $I$  is the DC plate current in the stage in amperes, and  $E$  is the DC voltage applied between anode and filament. Any pressure from the power supply dropped across a cathode biasing resistor must not be included.

Since the capacity required if the amplifier is push pull is one quarter that needed when the stage is "single ended" and conventional the necessary value can easily be obtained by dividing the solution of the above equation by four. By assigning the optimum value of 12 for  $Q$ , it becomes easy from this equation to determine the necessary value of  $C$  for a given frequency under known conditions of tube loading.

Results of very considerable interest follow the application of the equation to representative tubes

operated at the maker's ratings on the ten metre band. For instance, a pair of 807's operated in push pull with an effective plate voltage of 600 and a total plate current for the two tubes of 180 milliamps would require about 9.5 micromicrofarads total tuning capacity across the plate tank. If the tubes were 809's operated at 750 volts, and 200 mils total plate current, the capacity value required would be just over 8.5 micromicrofarads. For a pair of 800's with 1200 volts on the plate and a total plate current to the amplifier of 140 mils, the necessary value of  $C$  becomes 3.75 micromicrofarads.

Notice also that in the equation  $C$  represents the total value of capacity in the circuit, not merely that in the tank condenser. The 807 has an output capacity of 7 micromicrofarads to start with. Thus in push pull, a pair would contribute an effective capacity of 3.5 micromicrofarads to the circuit before any condenser was included. The distributed capacity of the tuning coil itself, leads and even the neutralising equipment, if any were used, would add a bit more, so that the value of plate tank capacity actually required would be considerably less than the total value of 9.5 micromicrofarads given by the equation.

In the case of the high impedance 800's it is quite clear that the tank tuning condenser is required to add very little capacity to the circuit. Notice also that if the frequency of operation was 56MC instead of 28MC, these values would become just half those quoted. In such a case, it is evident that the main job of the designer should be to eliminate distributed capacity to reduce its value to something approaching the optimum. In such a case, the tank condenser becomes merely a convenient mechanical device for adjusting the resonant frequency of the system, and unless it is made extremely small the effect of the tank condenser capacity on the electrical efficiency of the circuit would be disastrous.

Next let us look at the characteristics of the tank tuning condensers commonly used on amateur bands. Not many manufacturers are as informative as they might be, but one or two have helped. One big Ameri-

can manufacturer making tank condensers typical of those in general amateur use, discloses that his dual section 50 micromicrofarad condenser has a minimum capacity between the two fixed sections of about 12 micromicrofarads. This figure is in good agreement with the published minimum capacity figures for a leading English made tank condenser, and it may be assumed that it is fairly representative. The implication from this figure is an illuminating commentary on the reason why so many people fail to get a really satisfactory no load plate current dip in the final of a ten meter transmitter. The condenser is so large that, even before its plates are meshed, and before any allowance is made for tube capacity or circuit distributed capacity, its minimum capacity is above even the optimum for the most obliging tube set up—the very low voltage high current beam power 807. The minimum capacity is very nearly three times greater than the optimum for the push pull 800's under the operating conditions mentioned on ten metres. In view of the figures quoted, it seems superfluous to discuss the suitability of such a tank condenser for a five metre rig, particularly when it is born in mind that the irreducible values of minimum distributed capacity in other components will not be appreciably lower on five metres than on ten, and whether operation is on five metres or ten, the conclusion is inescapable that the conventional tank condenser is not the ideal tuning unit for such an amplifier.

There is, fortunately, an excellent substitute for the conventional condenser. That is the simple disc type of neutralising condenser so widely used on all forms of transmitters. Once the point is appreciated that a push pull transmitter does not of necessity require a split stator tank condenser, the advantages of the disc neutralising condenser as a high frequency tank are obvious. Provided that the grids of the stage are driven by a set up involving the use either of a split stator, grounded framed tuning condenser, or a grid tank with a high frequency earth connection at its centre point, the use of a big split stator plate tank condenser on 28 or 56 mc is not merely not necessary, but actually undesirable. The disc

type neutralising condenser, on the other hand, is admirable. It is physically extremely small. It has much less insulating material in or near the field than any ordinary tank condenser. Its minimum capacity is extremely small, and its maximum ample, when used in conjunction with tube capacity and circuit capacity, for tuning any of the tube pairs mentioned, or any others we can think of on either ten or five metres, and it has the further advantage of an inbuilt, natural semi vernier adjustment. Moreover, it costs very much less than a high voltage condenser of conventional design.

We first appreciated the merits of the disc type neutralising condenser when we use one experimentally in a five metre final. Previously a 7,500 volt Hammarlund condenser had been used, but when this big job was in the transmitter it was impossible to obtain an encouraging plate current dip, and whenever a dip could be obtained, the heavy aluminium bars of the condenser became warm, and copper tank coil actually blued with heat after a run of more than a few minutes. When an Eddystone type 1067 neutralising condenser was substituted, it became necessary at once to more than double the value of tank inductance to strike resonance. The plate current dipped magnificently and everything remained perfectly cool, except the 12 gauge wire tank coil, which, without aerial, became warm, but not hot. This heating disappears when the antenna load is applied.

A little calculation then showed that the same condenser would provide ample capacity for the 10 metre circuit, and it was installed there also. The improvement, although less marked than on five metres, was still quite profound and the rise in plate efficiency was so great as to leave no doubt that the Hammarlund condenser was not comparable with the neutralising condenser for this service. Although we used the larger of the two Eddystone disc types, the smaller (No. 1088) would undoubtedly serve even better for any five metre transmitter within amateur reach, using a push pull final and on 28MC it would unquestionably have a sufficient voltage rating for any tubes up to 808's operating

at maker's rated input. Also, it is much cheaper than the larger type.

A surprising result of the installation of the two pole neutralising condenser in the plate circuit was a marked improvement in the neutralisation of the stage. The set up always had employed a small, split stator grid condenser through the earthed frame of which the stage was balanced for neutralising. When the split stator Hammerlund was used in the plate tank neutralisation was never dead perfect, and a readjustment, moreover, was required when changing from 28MC to 56MC. It is, therefore, concluded that although of the split stator type, either one, or both of these condensers were not perfectly symmetrical. Though the frame of the Hammarlund was floating its capacity to the transmitter chassis was nevertheless considerable, and the asymmetry in the condensers evidently produced an ill defined earth point—virtually the equivalent of two separate earth points on the stage, which made precise neutralising impossible. The smaller plate tank, with greater real symmetry and negligible capacity to earth, completely eliminated this trouble, and neutralisation immediately became perfect, and fixed for all bands when it was employed.

Everything so far written has assumed the use of a push pull stage. For the reasons mentioned at the outset the capacity required on a single ended stage would be four times greater than that needed with the stage is push pull for given values of plate and grid current. Referring back to the examples quoted, and assuming the same plate voltage, but half the plate current mentioned above, since only one tube would be used, the proper capacity values for the ten metre band would become about 19 mmfds in the case of the 807, 17 mmfds in the case of the 809 and 7.5 mmfds for the 800. In the first two cases the values lie within the limits which could be reached at the minimum setting of a small, single ended condenser of conventional design, and they are probably a little too high to be reached with a disc type neutralising condenser unless the plates were set so close that the danger of flashover would arise. But in the case of the 800, which is typical of that of a single 100TH, 808, 35T or any of the new high im-

pedance tantalum plate tubes, it is quite evident that the conventional condenser is too big, and the disc type neutralising condenser again provides the answer. On five metres, the neutralising condenser will undoubtedly be far superior to the conventional type for all the tubes in ordinary amateur use.

## QSL Bureau

R. E. Jones, VK3RJ, Qsl. Manager.

FB8AB advises through VK3EY that a "Maroon is using the callsign of VK4FR." As VK4FR is not issued, anyone who has worked that callsign has the consolation of knowing he has worked Africa, but unfortunately it won't do for WAC.

A big bunch of cards is to hand from HH3L. Lanoix says he wants absolutely to send his qsl to all the VK's he has worked since two years.

Alf Chandler (VK3WH) is back at his old address in Beaumaris, which he left in 1928. Alf has had the old sticks renovated and heightened, and adorns them with an antenna of two half waves in phase. Excited by a Taylor T55 this ant. is bringing good reports from Europe, North America and Asia. Needless to say, Alf is pleased.

Tom and Jock Speer, VK3TS and VK3FF respectively, have been engaging in a xtal puncturing competition. Tom blames Jock and Jock blames Tom. According to the latest scores Jock is one rock ahead.

Loud and sustained wails come from ZL anent the Qrm from VK fones on 14mc, according to recent issues of "Break In." Have it how you like nothing is surer and not so far distant than the segregation of phones to allotted frequency bands.

Fritz Haas, OE1FH, expects shortly to emigrate to Australia. Fritz is a graduated civil engineer, and speaks and writes English like a native. Anyone having anything to offer in the way of employment in road construction, water conservation, bridge building, large scale concrete construction of allied schemes or who can put the writer in touch with any corporation or firm requiring the services of a highly qualified engineer please communicate with the writer.

## VK3IR's Antenna Tower

3IR's antenna poles had always been a sources of worry, so after diving into books, mags, etc., looking for dope the following was discovered. Now this mast, or should I say tower, is by no means original, the idea originated from an American engineer and ham. Besides being highly efficient, through lack of stays and guys it is a sound cheap investment. Everyone knows that a high efficient antenna is one of the greatest assets to any ham rig. Now the tower to be described can be made any height, but the one constructed was 65 to 70 feet. Reports from ZL2 and W indicate that a very satisfactory signal was radiated from our new antenna.

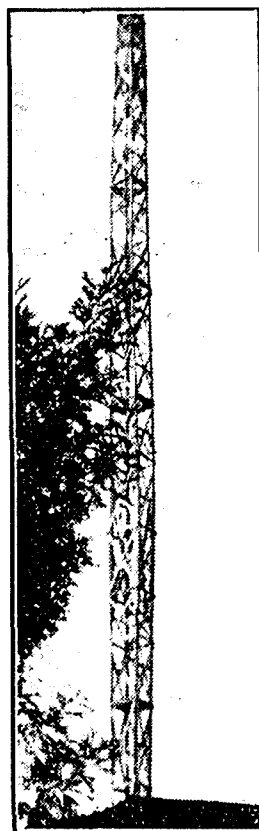
The Yank tower was constructed of 2 in. x 2 in. soft wood and was 100 feet high! We decided that 80 feet was sufficient for our requirements, both from a radio point of view and from a safety one. The idea now is to get four pieces of 2 in. x 2 in. Oregon 20 feet long and lay them out on the ground in one straight line. Now to join them just place four 1½ inch laths over each of the four surfaces of each join and nail securely; this may sound a very feeble way to join timber for a tower of such height, but it is quite secure when all the tower is nailed together. Any other method could be used of course, but this was the method used by the Yank, and that which we used. The joints have proved quite secure as in reality no weight is placed on one but on the four together.

Now get four more pieces of 2 in. x 2 in. Oregon and do same as above, as is done with two more lots of four pieces of 2 in. x 2 in. Oregon. Now you have four pieces of Oregon 80 feet long each laid out side by side, they may look like a distorted sine wave but don't worry.

Now getting four pieces of oregon 1 in. x 3 in x 1 ft. 6 in. long we cut them up to make a square approximately 1 ft. 6 in. x 1 ft. 6 in. Two of these 1 ft. 6 in. squares are made and are placed 5 feet each side of the

centre. Now nail securely one of the 80 ft. lengths on each of the two sides at the corner, making what looks like a box kite in the middle section, these 1 ft. 6 in. squares will now of course be 10 feet apart.

At each end a square of the same thickness Oregon only 6 in. square is nailed in securely, making what looks like (from a side view) a big long diamond shaped frame work. More squares are made and nailed



in every 5 feet towards the main two 1 ft. 6 in. squares which we already have installed in the middle section of the tower.

Quite a quantity of 1 in. or 1½ in. lathes are now procured and are nailed to the outside of the tower to make a square of the outside or should I say a square around the outside. These are nailed at spaces of every 18 inches. When this is completed it will be ready for the cross laths to be nailed. Care should be taken to see that the tower is stretched out on a flat piece of ground and that each end is lifted

with blocks to make it straight. The middle section is left on the ground and each end will have to be blocked up to about 6 to 9 inches off the ground to give the pole the correct bend. The pole is, of course, 6 inches square at each end and the middle section is 1 ft. 6 in. square. **THE MOST IMPORTANT POINT TO ALWAYS REMEMBER** is that **ALL YOUR MEASUREMENTS MUST BE CORRECT.** If a lathe is split then pull it out and replace it.

At this present juncture you have a tower looking like a ladder with lath steps every 1 ft. 6 in. and tapering from the bottom 6 inches to the middle 1 ft. 6 in. and then tapering back again to the top at 6 inches. This will, or should, or **MUST** look alike from all four sides. Now each of the spaces between each step is covered with a cross made of laths. The idea is better obtained from the photograph of 3IR's tower.

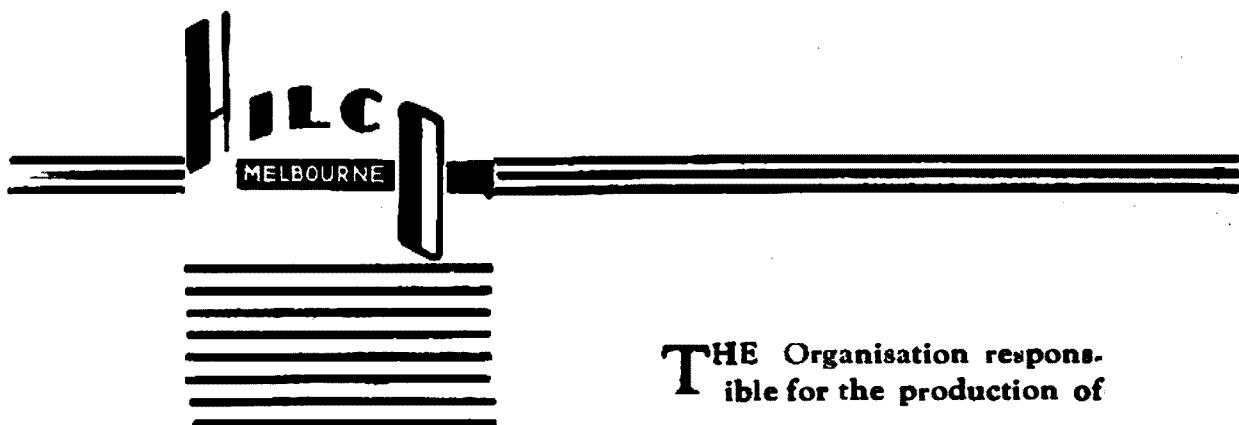
Guy wires! Yes, we do have some, but only four are required (the four guys are connected to the centre section of the tower). These are to be

strong wire and strain insulators are to be inserted every few feet. This tower if properly constructed will definitely not bend in the middle when being put up in the air, the stays are only to hold it up in the air, not to keep it straight when it is up. So have no fears of it bending—it was designed with the centre portion thicker than the ends for that purpose.

The tower made by 3IR was constructed of 1 in. x 1 in. Oregon and 1 in. laths, but is not recommended unless very well made.

A good crew is required to pull it up as no doubt it will be heavy, but will be substantial. Block and tackle is recommended, but in its absence at 3IR brute force was used, this being supplied by fellow hams and commercial ops. from the Navy Depot.

Inspection is invited and 3IR would only be too pleased to offer any further dope to anyone who cares to write or call.



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## Ross Hull

Every VK Amateur will learn with deep regret the passing of Ross Hull, ex 3JU, of Melbourne, Australia.

Ross proved an enthusiastic experimenter in the early days of radio after the War. His activity and influence in the Victorian Division of the Wireless Institute of Australia did a great deal to build up the spirit and encouraged those young men who experimented with then a new art for the pure love of the game.

It can be fairly claimed that Ross was the first member of the Wireless Institute of Australia to discuss before the Institute, Radio Frequency Amplification. His energy and aid were largely responsible for the successful conclusion of the original Transpacific Tests in 1922.

His untiring devotion to the experimental field soon resulted in his abandoning his career as an architect and his being absorbed entirely in experimental work and the publication of vital information to the vast body of experimentally minded men throughout the world.

Unfortunately, the services of Ross Hull were lost to Australia, but the United States of America—indeed the whole world—benefited by his activities in association with the Amateur Radio Relay League and its monthly publication, the Amateur Bible Q.S.T.

A deep thinker, a likeable personality, has lost his life while engaged in the work he loved.

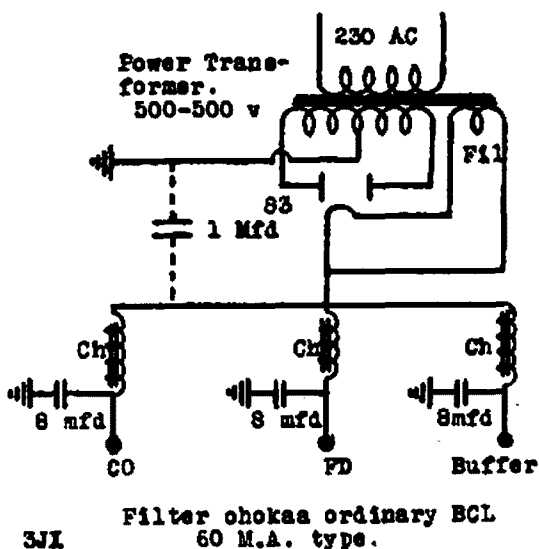
I write on behalf of every Amateur in the Commonwealth when I express the deep regret of the members of the Wireless Institute of Australia and all Australian experimental amateurs.

To his mother and his relatives, we Amateurs desire to convey our deepest sympathy on behalf of Australian experimenters.

H. KINGSLEY LOVE,  
VK3KU.

## Lowering Filter Choke Costs

The following diagram was omitted from VK3JK's article in Page 23 of the August issue:—



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157 ELIZABETH STREET, BRISBANE.  
(At Rear of Regent Theatre)

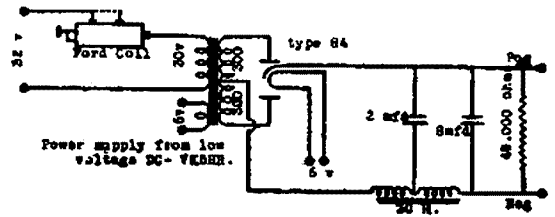
## Power Supply from Low Voltage D.C.

The power supply being used at VK5HR probably will be of interest to those amateurs who are handicapped by having nothing but low-voltage D.C. for power supply. It can be operated either from a 32v. house lighting supply or a 6v. battery.

The power transformer was specially built for the job by a well-known Sydney firm. It has a 5v. and also a 30v. primary and delivers 300v. at 100 mills from each side of the centre-tapped secondary. The transformer is constructed on the same lines as any ordinary power tranny, and could be easily built up by the average amateur. Anyone building their own would be well advised to use about 10 turns per volt on both the primary and the secondary.

The interrupter used is the ordinary Ford coil. For use with a 32v. supply the interrupter is connected in series with the 30v. winding on the transformer and the secondary of the Ford coil is left open circuited. When the arrangement is used on 6v. the coil is connected in series with the 5v. winding and the secondary is short circuited. Contrary to expectations, the sparking at the contacts is very slight, and over 150 stations were worked before the trembler blades needed replacing.

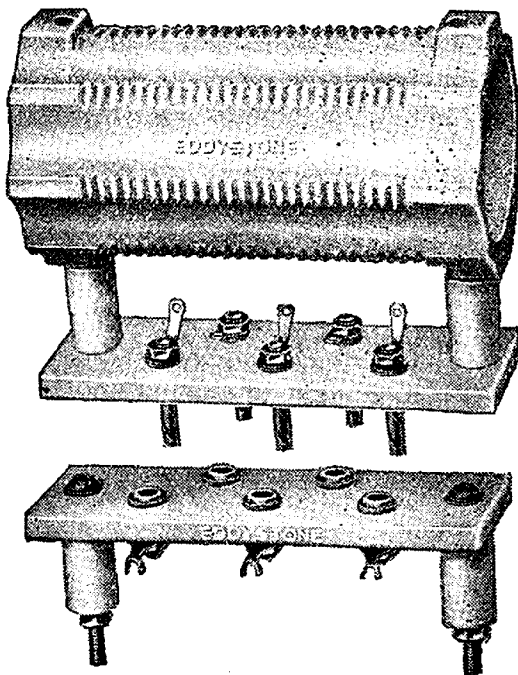
The rectifier used is an 84, and the filter is the ordinary brute-force type. The 84 has proved to be a



wonderful little rectifier, and has stood up well to an almost continual overload.

(Continued on Next Page.)

## EDDYSTONE FREQUENTITE TRANSMITTING COIL FORMER. — A NEW RELEASE —



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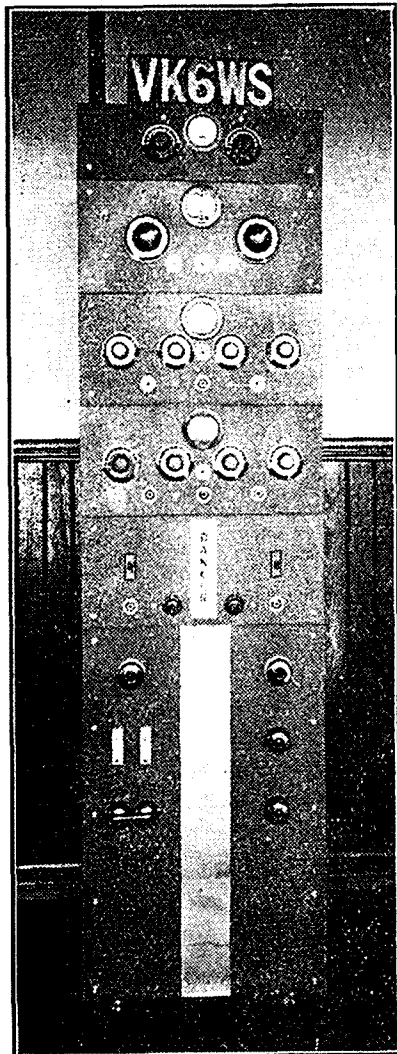
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## Correspondence

Experimental Radio Station  
VK6WS,  
40 Irvine Street,  
Peppermit Grove, W.A.  
6th September, 1938.

The Editor, "Amateur Radio,"  
Melbourne.  
Dear Sir,

In the June issue of your magazine, "Air Raider," in his noties, implies that I am adopting the American nasal twang in my transmissions from VK6WS.



I am a Yorkshireman, but have been out here thirty years and fortunately, or unfortunately, I still retain some of the Yorkshire accent. I have never made any attempt to alter my mode of speech, and at my age (64) I have neither the time nor the inclination to try to do so, and I have been picked out by hams in

other parts of the world as a Yorkshireman.

Now for a little growl on my part.

There are several matters to which Australian transmitters can give attention, one of which is the calling of the CQ signal on phone. One often hears a VK calling CQ twenty or thirty times before announcing his call sign. This is only a waste of time on his part and also wasting the time of the man who is looking for a contact. The regulations regarding calling CQ are plain and definite.

Some hams seem to think they are junior broadcasting stations when they announce "This is VK—the voice of Woop Woop" or something similar and it is the same class of station that puts on canned music and says that he is testing. All his testing could be done in a few minutes with his phone modulation instead of being a nuisance to other genuine experimenters.

I often wonder why some transmitters, when using phone say "Hi Hi" instead of laughing naturally if something amuses them.

The term "Old Timer" when applied to the other fellow can be forgiven, but to finish an over by saying "Take it away" seems to me particularly senseless.

I enclose photos of my transmitter (which I built myself) and operating bench which may ninterest you.  
Yours etc.,

WM. SCHOFIELD.  
VK6WS.

(Continued from previous page.)

The rig used here consists of a 42 tri-tet C.O. anda 201a link coupled P.A. Together with the vibrator power supply this rig has been in constant use since July and nearly 200 qos have resulted — many of them D.X.! The QRI reports have nearly all been T9, and reports of R6 have been obtained from U.S.A. with only 6 watts input.

Taken all round, the outfit described above has proved very reliable, and also very economical, and we sincerely hope that anyone building up a similar power supply will be as well satisfied as we are.



# An Efficient CW-Phone Transmitter for Four Band Operation

(By E. B. Ferguson, VK2BP.)

It consists of only four stages, requires only two power supplies to operate it, one 385/385 100 m/a, and one 600/600 250 m/a. transformer supplying the necessary energy for 15 watts output on 'phone and upwards of 40 watts output on C.W. It operates on the 80, 40, 20 and 10 metre bands from one suitable crystal, or it may be operated as a "self excited" rig of the "Electron-coupled" oscillator variety. The extra few pence and the little extra trouble in incorporating the latter feature are well worth while. Often it is desirable to change from one end of the band to the other.

The circuit, as will be noticed, utilizes "suppressor grid modulation," which, whilst costing far less than would a system of "plate" modulation, operates more economically and has the desired effect of fully modulating the carrier. The modulated amplifier is followed by a linear amplifier stage, consisting of a pair of the popular 46 tubes in push-pull, the input to which, under telephony conditions, is approximately 30 watts, and it is possible with cw to operate these tubes with inputs up to 75 watts or even more.

Taking the circuit. The oscillator it will be noticed, follows the more

or less conventional "Tritet" lines. The grid circuit (L1.-C1.) should be of "High C," having, preferably, a frequency range from about 3mc. to 8 mc. A suitable combination of inductance and capacity is given in the table. This is mainly to ensure stable operation when the oscillator is being used as a self-excited unit. If it is only desired to make use of crystal control, the ratio of C. to L. may be lowered to suit components on hand. To change from "Xtal" to to change over the D.P.T.T. switch (S.1) and re-tune the condensers.

Passing to the frequency doubling or multiplier stage, the only departure from the conventional is found in the cathode circuit. Although to all intents and purposes the circuit appears to be a straight forward non-regenerative amplifier, it is, in truth, highly regenerative, especially at 28 mc. This regeneration being particularly desirable for improving efficiency and output on the higher frequency bands. The regeneration is obtained by a proper choice of resistor at R3, and its by-pass capacitance C5, the effect being an ultra-audion action within the circuit. An aid to this desirable effect on 28 mc is to use as low as possible capacity in the "tank" circuit (C4-L3), and every importance should be attached



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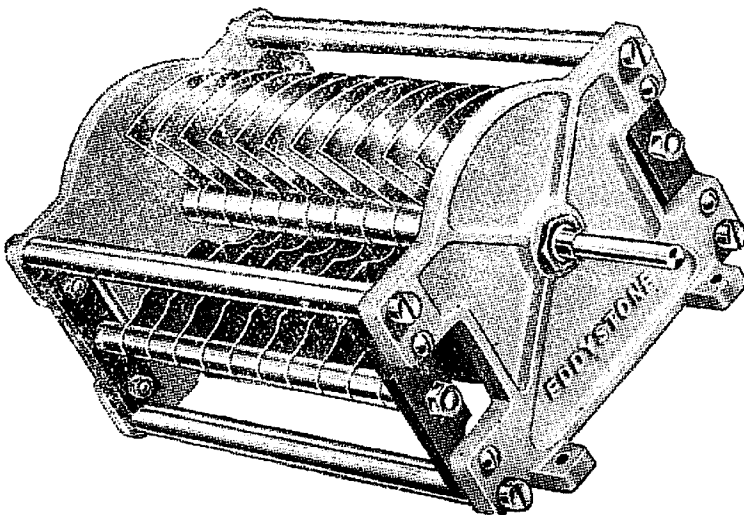
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MODULATION  
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to R2, R3 and C5, which should be exactly as specified. Tuning is straight forward on all bands, and ample excitation is obtained from the "double frequency doubler" stage to excite the 802 on 28 mc.

Next we come to the modulated amplifier or "driver" stage. An 802 was chosen mainly because R.F. excitation is required to fully excite it, which, as everyone knows, is most desirable in the region of 10 and 20 metres. No doubt a 6P6 pentode could be used equally as well with similar results, but with slightly less output on telephony. The 802, whilst operating as a normal R.F. pentode amplifier, requires for maximum output, that the suppressor be at cathode potential or slightly positive. When modulation is applied, the tube must operate under this optimum condition at its instantaneous peak output. For this reason, the suppressor is biased negatively until the R.F. output is one-quarter that to be obtained on modulation peaks. The unmodulated plate efficiency is there-

by reduced to half the normal value and plate current falls to half the normal value. This means, that when modulation is applied to the suppressor grid, at the positive audio peak the instantaneous output is four times the carrier power and plate efficiency rises to a maximum. The average plate efficiency with 100% modulation then varies between the carrier efficiency and peak efficiency, which is about 45%. A characteristic of the 802 is that the R.F. output linearly with variation of suppressor voltage. That is, the plate current remains constant with modulation while power output increases the 50% required for full modulation. In operation, with 500 volts plate supply, the normal plate current will be in the vicinity of 50 m/a. On telephony, this current will be reduced to about 25 m/a. The suppressor bias should be increased to just below a point where the plate current commences to kick when audio voltage is applied, the kick indicating over-modulation.

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# Amateur Radio

Transformer coupling between the modulator and the R.F. amplifier is to be desired in preference to resistance-capacity methods. With resistance-capacity coupling, the suppressor cannot be driven positive owing to the high resistance in the circuit. Suppressor current tends to bring about back bias, so reducing output and introducing distortion if an attempt is made to modulate in excess to 70%. Using a transformer, the low suppressor circuit resistance enables the suppressor to be driven sufficiently positive to give 100% modulation without distortion. The transformer should preferably be of fairly large core section, approximately 1in. x 3/4in., and a ratio of 1.1 or even slightly less. A Class "B" input transformer 53 type, serves the purpose admirably. A 6A6 tube forms an excellent modulator. Its amplification factor is fairly high when used as a triode, so requiring the minimum of speech amplifies equipment. In practice, a 6C6 resistance coupled to the 6A6 is quite sufficient for microphones of the "Reiss" and double-button types. With a good single button type the 6C6 may be dispensed with. A single pole switch is provided for changing over from cw to phone. Filament and high tension switches for the modulator may be wired in if desired.

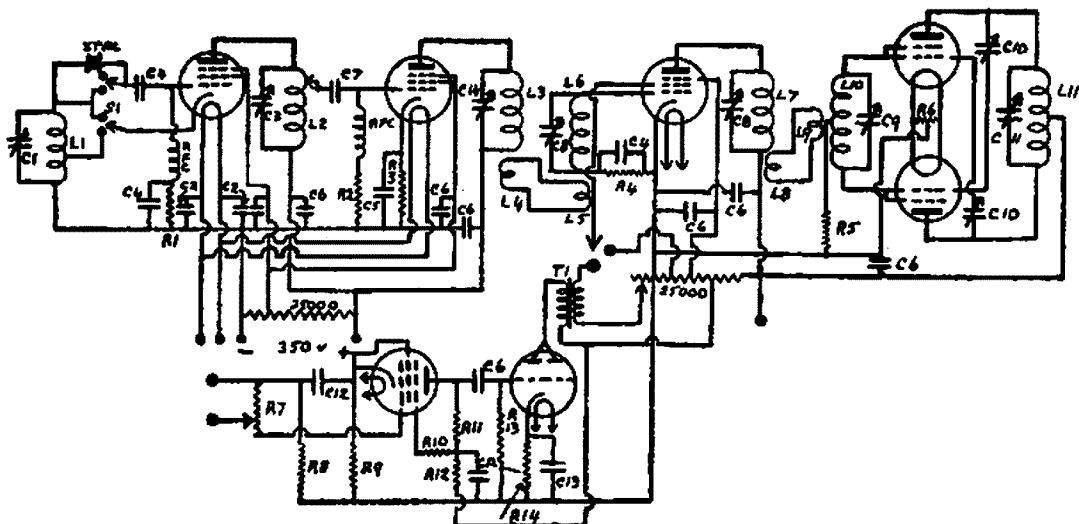
Now we come to the final amplifier, which is quite conventional in every detail, and utilises a pair of 46 tubes with the extra grid tied to its companion control grid, so causing them to operate to an extent as Class "B" boosters. Provision should be made for convenient variation of the excitation to this stage. One method is to mount the pick-up coil from the 802 tank circuit on a movable bracket, so that its relationship to the tank coil may be altered at will. Little difficulty should be met with in adjusting this stage. The neutralising condensers should be of a

good type 5 plate midgets. Neutralisation will be obtained with these about half meshed. A positive indication of neutralisation is indicated by zero plate current with the full high tension applied, but with the excitation removed. For cw operation with 500 volts on the plates, care must be taken to see that too much excitation is not applied, as, with the 802 delivering in the neighbourhood of 12 watts power, the 46's may be driven to draw very high plate current. It is best to start with the link pick-up coil a fair distance from the 802 tank, then tighten the coupling until the desired plate current is obtained to the 46's. This may be increased to 150 m/a. on 20 metres and about 130 m/a on 10 metres. Naturally the tubes will not dissipate this energy continuously, but when keyed handle it nicely and do not over-heat. One pair of 46 tubes in a similar circuit used by the writer served for over twelve months with an input of 550 volts at 200 m/a on 40 and 80 metres.

For telephony operation, the 802 should be adjusted as described, and without any alteration to the final amplifier, adjust the link pick-up coil to a position where the plate current to the final amplifier commences to kick slightly on modulation peaks, then increase the coupling ever so slightly until the plate current is again steady. This will probably occur with the plate current between 55 and 60 m/a. At this stage, the antenna current should show a substantial rise on modulation, and with a correctly designed aerial the carrier power will be about 15 watts. Without doubt, this is no more than could be obtained with the 802 as the final amplifier plate modulated, but the cost of a modulator to deliver 15 watts of audio is very much greater than the cost of, in this case, the linear amplifier, and the added advantage is in having a transmitter capable of delivering a good "Sock" on cw.

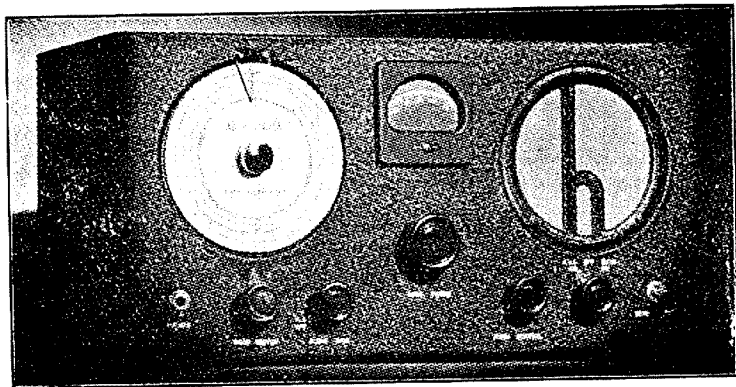
L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	Freq. Band
10	28	22	2	3	20	20	2	3	20	25	3.5
10	14	14	2	3	13	13	2	3	13	13	7
10	14	6	2	3	5	5	2	3	5	7	14
10	14	3	2	3	2	2	2	3	2	4	28

L1—Tapped 3 turns from grid end; L2, 3, 6 and 17—Wound with 14g. enamel 2in. dia. L4, 5, 8 and 9—Wound with 14g. enamel 1 1/2in. dia. L10—Wound with 1/8in. copper tubing 2 1/2in. inside dia. L11—Wound with 3/8in. copper tubing 1 1/2in. inside dia. For 40 and 20 and 10 metres; 80 metres coil wound with 1/8in. copper tubing.



R1. 50000  
 R2. 50000  
 R3. 1000  
 R4. 40000  
 R5. 1000  
 R6. 20 C.T.  
 R7. 50000 V.  
 R8. 50000  
 R9. 3000  
 R10. 250000  
 R11. 100000  
 R12. 5000  
 R13. 50000  
 R14. 1000.

C2. .005  
 C3. 21 p midget  
 C4. .00025.  
 C6. .01.  
 C7. .001 mica.  
 C8. .00025.  
 C1. .0005  
 C5. .001 mica.  
 C9. .00025.  
 C10. 5 p midget  
 C11. .00004  
 C12. 4 mfd  
 C13. 25 mfd  
 C14. .00025



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## VK3MR DX Notes

The first week-end of the dx contest will be well and truly over by the time these notes are in print and no doubt contest history will be in the making as evidenced by the increasing number of stations being worked in each successive test. Judging by conditions at the time of writing and the wide publicity given to this test by the "Sir John Dunningham" Memorial Contest, it will be the biggest yet held. As soon as the test is completed I would appreciate it very much if you contest fiends would drop me a line with full particulars regarding your score. It will be interesting to observe what affect the troubled times in Europe will have on the number of entries from those countries.

It is well known that the operator of the station plays the biggest part in these tests, but it is gradually becoming known that an efficient aerial is a necessity because what good can the best operator with a perfect transmitter do, if his sigs. are not being received in certain dx countries! The position in the band is most important as it must be known that the world, including the Yanks, are to call VK/ZL and they will call from the ends of the band in an endeavour to get in first, therefore it is to our advantage to get as far away from the edges as possible when calling CQ and only use the edge xtals when calling an individual station. This also lessens the qrm locally and gives everybody a better chance of hearing these edge stations.

Some further antenna experiments have been carried out at 3BM and he has now increased the W Vee beam from 12 half waves per leg to 20, which makes each leg 696 feet long. It would be interesting to find out if there are any longer aerials in VK. While on the subject, it would also be interesting to know who has the highest antenna. VK3GV has one 120 feet high and is situated on the highest part of the country surrounding Melbourne. By increas-

ing the sides of his beam, Bruce finds that the coverage is less although the signals have increased in strength. A maximum of 12 half waves per leg seems to give general coverage when directed on any continent. From observations of the leading stations in all parts of the world the Vee and Rhombic antennas seem to give the best results, although the W8JK beam is the most popular. Seems as if the good old zepp is doomed.

Morry of VN wants to know if anybody has worked WAC in less than 1 hour 50 minutes! Who? Conditions are. . . No skeds! and an added condition must be added in fairness to him . . . with the flu! 2DG has been giving wide publicity to the October test by going all out in the memorial test and has done some real good work in spite of corns or similar appendages on fingers and what he sits upon! Has added four new countries to his long list . . . TF3C, 14400 kc, 110 am.; TA1AA, 14420 kc, 3 pm, and LX1AX, 14435 kc. at 410 pm. The rare stuff, I notice, is still to be found out of the band. Other rare stuff are PY1DS, 14325 kc., 710 pm.; CE3DG, 14400 kc, 520 pm.; LU1EP, 14405 kc., 840 pm.; ZP7AC, 14460 kc., 330 pm.; FM8AA, 14250 kc., 1020 pm.; CR7GF, 14275 kc., 2 am.; K6OVN on 14320 kc. hails from Guam. From midnight onwards a batch of South Africans are there for the staying up and are very easy to contact.

No scores to hand from the 160mx test other than 7AB, who had fourteen contacts. Good hunting for the dx test, chaps.

\*\*\*\*\*  
Your attention is drawn to page 27, wherein there appears an announcement from a New Zealand advertiser, Te Aro Book Depot Ltd., of Wellington, who are able to make a unique offer in regard to Ham literature. It will repay all amateurs to read this advt. carefully.  
\*\*\*\*\*

## 28 and 56 M.C. Notes

(By A. Pritchard, VK3CP.)

Ten metres has completely returned to life again with DX coming through at any time of the day and night, keeping the lads' interest going. The Europeans have shown up in large numbers and many qso's can be obtained from 7 until 11 p.m. The Africans can be contacted from 4 till 6.30 p.m. during the Sunday late afternoons and ZE1JR and ZE1JZ have very fb phone signals. VK3BQ and 3XP are having the best luck with these stations. I received a very interesting letter from that world famed OM, Eric Trevilcock BERS 195, who is situated at the Telegraph Station, Powell Creek, North Australia. He has been hearing we VK's with good strength and listens every day when not pounding brass for the P.M.G. VK2GQ, 2HF, 3BW, 3CP, 4HR, 4HG and a stack of W's, ail put in good phone during daylight hours and on cw VK2FY, 2UD, 4HG, 5IT, 6AF, 6SA and W's also VU2FS in the late evening showing that receiving conditions out in No Man's Land are very good. The rx is a TRF using dry cells for battery supply. This rx is efficient on 5 mx and Eric keeps a schedule with VK2NO for an hour from 11.00 EST each Saturday and Sunday morning. VK2HF had r9 speech testing a new rig. ZE1JJ and ZE1JZ were both heard for an hour on 14th August from 4 p.m. until 5 p.m., showing that receiving conditions are quite similar to those here. K6LCV and K6PCF maintain a steady r9 signal for hours on end, every day and any time from 7 a.m. till 5 p.m. Numbers of K6's calling cq10 show that more VK's and ZL's are needed on 10. Eric has stated that he will keep us in touch with conditions up north in the futre, thanks om 73.

VK3XP has had excellent results and a few Sundays back DX started at 4 and finished at 10.30 with ZS6EG, ZE1JZ, ZS1B, ZS3F, SU1CH, VS7MB, all on cw—1JZ on phone; cwVK6SA, G6KS, G2OA; also heard G5LI, G5WH, G5EH, PAOAZ, PAOAF, OK3VA, F8KJ, showing many on the bands. ZL2BT uses 100

watts into a pair of T55, driven by 6L6 doub. and 6L6 co tritet. The final is modulated by a pair of ZB 120's in Class B and link coupled to two half waves in phase on 80. The RX is an 11 tube Hallicrafter; 2BT is on the look out for VK's. On 21st August at 4.40 p.m., 3BQ qso'd VS6EG and Max put over phone receiving the report, r9 on the HRO receiver meter. Also on 28th August at 4.20 p.m., Max again qso'd VS6EG and at 4.40 p.m. heard an r5 phone harmonic from VK6ZO on 20 mx, 6 p.m. ZS3F on cw, ZS1B qso'd at 8 p.m. and ZE1JZ at 569 cw at 8.15 p.m. On Sunday, 4th September, at 7.25 p.m., 3BQ contacted VQ3TOM, showing a new country for 10 metres, but the joke of the evening came with a qso with VS6AO, who was using the harmonic of his 20 mx xmtr. VU2AN first informed VS6AO of his terrific harmonic on 28 mc. 3XP also qso'd the VS6 who was hitting r8 on peaks about 7.45 p.m.

W6NLS has one of the best sigs. here, the antenna systems doing the trick. He is in Little Valley between 5,000 foot hills, an H type beam 55 feet high on VK and a rhombic on South America, a full wave 160 mx atn. for the receiver—plus 1 KW input. W6GSX is using the di-pole reflector director combination and the exact measurements are as follow:—For 28,000 kc, 17 ft. di-pole, 16 ft. 4 1/5 ins. director, 17 ft. 6 4/5 ins. reflector, 15/100 of a wave director spacing, 1/10 wave reflector spacing, giving 60 and 42 inches respectively. The Y matching system of feeding is used, and for a 600 ohm line, 54 inches on each leg of the Y is OK. 6GCX has received r8 reports from all stations contacted and qso'd ZL2BE four hours earlier than other W's. He was the last to fade out here, so this beam with its copper tubes evidently must be the goods and the dimensions halved should make an excellent 5 metre antenna. VK3EH is now on 10 and is getting nice output from a 53, 53 from 80x, 807 buff and PP 809's final modulated by 6L6G's class AB1.

## Divisional Notes

To ensure insertion all copy must be in the hands of the Editor not later than the 15th of the month preceding publication.

### ZONE 5 NOTES. (VK2IG.)

VK20J.—Busy working European on his beam. Is getting R max from G's by the dozen on fone. That V8 amplifier sure must be going well.

2QE.—Still piling up the quids. What a rig Allan will have when he starts up again.

2AFD.—Has taken to the air. Anyhow he has joined up in VIM. He'll be able to air-taxi the locals around.

2AP.—Bought a new petrol eater, but still has time for his skeds. New gra now and has got to remodel all the xtal sets at the adjoining grammar school, hi!

2IG.—Rebuilding again and still hopes to have super rig going for contests.

2EU.—Still worrying about BFO in supers that don't BFO. Some of u super super experts send him some dope or we won't answer for his actions.

2JA.—Believe a new ham has built his nest here in old 2JA from Wagga. Welcome to Albury, Athol.

2YW.—Not heard so much lately.

2AIB.—Has a small 20 watt rig going on 40 on fone. Complains of the lack of DX.

2AID.—Borrowed a 50 from 2AEO but as he can't get it to draw less than 250 mils is wondering if that's why they call it a 250, hi!

2AEO.—Threatens to break out on 20 any time now. Oh, what qrm there'll be then!

2UO.—The old story. Enthusiasm is lacking at the moment, probably due to the wx. Come on chaps, keep it going, you'll miss the club if it goes off. Nothing has been heard from Coolamon, but we're hoping. Same applies to Canberra, too high hat?

2BW.—Of Junee has got going. When told that there was a 2BW in Wagga one time, replied, "Well, he's a pirate! ! !"

2FQ.—Has the exam results and got good news. Good biz, Doc., now rattle that rig? What sa?

2MP.—Talk of the Scarlet Pimpernell. MP has him beat because his own colleagues don't know where he is.

### COALFIELDS NOTES. (By VK2KZ.)

VK2KE.—Very pleased to see you join the W.I.A., have not heard you going as yet, but will do so in a month or so when exams are over.

VK2YO.—Hear you now and again of 14 mc trying fone with W etc., is building a ten tube super for dx, but will be some time yet before ready.

VK2KZ.—Doing very little here at the moment, trying out 8JK beams on 14 mc, but not so good, but continuing with beams hoping to strike one which is suitable as ground area not sufficient to anything big, entering the junior VK-ZL dx contest.

VK2DG.—You will just about win the Sir John Dunningham trophy if I am any judge Keith, good luck. Uses zeppelin and 8JK on Europe, works fine, entering the junior VK-ZL dx contest also.

VK2YL.—Another regular on 14 mc, called you dozen times. Harry when on midday schedule with 30I. Also entering the VK-ZL dx contest.

VK2CW.—Have not heard you yet Bill, yet the 8JK perking and lets hear you, I can't afford to write you all, so please qsp any news.

VK2PZ.—Another who I have not heard yet; are you on 10 metres, using a nice 10 tube super on 10 metres, but rig not on 10 metres yet, qsp any new Chris so as I can keep these notes interesting.

## WAVERLEY RADIO CLUB NOTES. (By VK2AHJ.)

The activities of the club members these days are mostly confined to building more and more portable gear for the future field days. These outings are very popular with the gang and apart from being conducive to good fellowship among the members also promote the construction of gear that could be put to good use in emergency operations. The next field day is only a week away and the gear of the portable stations is in the final stages of construction. That being used by 2AFZ, 2AHJ and 2TN is in operation and is powered by accumulator driven dynamotors.

The members were sorry to hear that 2MQ was QRL in hospital and all expressed their wish that Dud would soon be back in circulation.

At the meetings of 9th and 16th August the president, Mr. Wells, ably demonstrated the use of an oscilloscope and by employing the portable transmitter of 2ABS was able to show the members just how complicated a modulated carrier can be. The following weekly meeting 2EG brought forward his version of an oscilloscope and put it into operation, using some dance recordings as victims. Dev's 'scope was certainly a piece of work and the only thing about it that annoyed 2ABS was that he didn't see it.

The meeting on 20th August saw some of the new portable gear in action and 2AFZ (portable) proved itself capable of "getting out." The club would appreciate the co-operation of any "hams" or swl's who happen to hear any of the portable stations in action at any time, and it may be certain that these qrp rigs will always be on the lookout for qso's.

On September 6th the introduction of the new club transmitter was discussed and it was decided that the new rig should be adequately protected. Many hours' hard work have gone into the construction of this transmitter and great credit is due to Gordon Wells and Dave Halley on that account. The exciter section of the rig is working quite well now and according to reports, the thermostat frequency control is a huge success.

Col Saunderson is making great steps in learning the code and Bill Stanley is also threatening to take it up seriously. Looks like more qrm fellers!

Anyone wishing to disown an 800 should get in touch with 2EG whose week-end dxing is curtailed because of a fatality in 2EG's final.

## LAKEMBA RADIO CLUB.— VK2LR.

(Affiliated with the W.I.A.)  
(By 2DL.)

During the past month several lectures of outstanding interest have been delivered at the Lakemba Club Rooms, "Sunrise Hall," Canterbury. A series of discussions on the use of the oscillograph together with practical demonstrations, were conducted by Messrs. Choules, 2HB, and Martin, while early in September Messrs. Warren, 2QX, and O'Donnell, 2OD, are to conduct a demonstration on "The Process Involved in the Making of Instantaneous Playback Recordings," it being anticipated that an actual recording will be made in the club rooms.

The club membership is fast approaching the 100 mark, and each meeting brings further nominations. Various members are already making arrangements for outings and field days for the forthcoming summer, during which period many interesting hours should be spent with portable apparatus. Inquiries relative to club matters will receive the immediate attention of the secretary, Mr. V. Bennett, 2VA, 14 Park avenue, Concord.

## Victorian Division

### KEY SECTION.

3ZU.—Will be down on 5mx again soon.

3FR.—Just had a tooth out. Can't think of anything else at the moment.

3QS es 3SQ QRA's now adjoining each other. QS using SQ's feeders?

3UM.—In between rebuilding, working some of the rarer ones in the afternoons.

3ML.—Has new 100 watt 56 mc CC transmitter well under way and when finished will pump power into



## Amateur Radio

a double 260 degrees horizontal rotary beam with directors.

**3KR.**—Spasmodically active on 3.5 mc, only aims to outdo 3YK as a hiker—did an 8 mile hike during last week-end.

**3RX.**—Lost a good mast in the recent gales.

**3HK.**—Active on 14 mc at week-ends with Vee beam (8 half waves) on Europe, but not too good as lower ends too low, but better than old zepp.

**3RN.**—Just commenced on 14 mc with 6A6 osc-dub, 6L6G dub, and 809 final, working his share of DX.

**3IK and 3SK.**—Just started and doing ok on 40.

**3UX.**—Got tangled up with a circular saw. Best wishes for a speedy recovery.

**3YP.**—Too busy trout fishing to have time for radio.

**3CP.**—Proud trout fisherman also—one fish.

**3BQ.**—Also trout fishing—half a one!

### U.H.F. SECTION NOTES. (By 3JO.)

#### C.C. FOR 56MC.

3OT, 3PS, 3DA and 3YL are now operating with xtal controlled transmitters. The various line-ups are:—  
**3OT:** 40mx xtal, 6A6 osc-dblr, 6L6 dblr, 807 dblr, 807 PA. **3PS:** 40mx xtal, 42 osc-dblr, 6V6G quadrupler, 6L6 dblr, 807 PA. **3DA:** 40mx xtal, 42 osc-dblr, 6L6G dblr, 6L6 dblr, 807 PA. **3YL:** 60mx xtal, 6L6 osc-tripler, 59 dblr, 809 dblr final stage. These line ups show just how necessary is the modern tube to the controlled U.H.F. transmitter. In addition to the change to C.C., 3DA is now using a vertical J type of antenna with a two wire untuned transmission line terminated at a tuned tank circuit which is link coupled to the tank coil of the final stage. The result is an 'R9 signal at most places (including three B.C.L. receivers) and a big improvement over previous efforts. 3PS, after some feedback troubles, now has PP6L6 mods and is pushing out a very nice sig to most places. 3OT is still using his 6A6 mod. with the new xtal rig, but is talking of P.P. 210's class B. 3YL is also in trouble with the audio channel, but with 6L6G's class B. and P.P. 809's Class C in the wind,

certain 5mx receivers seem to be in danger of burning up.

3JO, 3OG, 3RI, 3YZ, 3YJ are still active and 3LG has also been heard at times while 3GG has left for a trip to U.S.A., but expects to be C.C. when he returns about December. A newcomer to the band is 3HP, a member of the R.I. Department, but he has not been heard very often, contacts to date being 3PS and 3JO, strength here rather weak due mainly to horizontal antenna used for transmission.

### FIELD DAY NEWS.

The field day suggested for 27th November will have to be cancelled as the section has been requested to provide four portable stations at various points around a car race track at Wangaratta on 26th November. No details are to hand at present, but the members are looking forward to the trip.

The lecture promised for the October meeting is to be given at the quarterly general meeting on 4th October, while this section will meet as usual on 18th October and in view of the present activity on 56 mc an interesting evening is assured.

### WESTERN ZONE. (VK3HG)

I must apologise for the absence of notes last month, but it is impossible to get news of the doings of the boys as most seem to be either inactive or on 14mc, where it is impossible to contact them. I again appeal to all members in this zone to let me have some news of your activities, either by letter or radio, so these notes can be made interesting and readable.

Our convention will probably be held about the middle of November at Camperdown, the exact date will be announced later.

Conditions have been quite good in the past month, especially on 14 mc, where all continents have been worked. The Europeans who have been coming through very well since May have been a little uncertain lately and are not so easily contacted in the afternoons, but are coming in quite well in the early morning and

# Amateur Radio

are easy to work. 28mc is improving too, the W's and South Africans being fairly easy to contact.

3KX.—Still working them in fine style on 20mx phone.

3TW.—Not much heard from Tim lately. Reported to have had an accident recently.

3OW.—Working a few on CW and rebuilding speech for phone work.

3HG.—Visited the Northern Zone and learnt from 3BM how to really work DX! Active in the 160mx contest and working lots of DX on 14mc.

3HZ.—Murray is still waiting for a modulation transformer.

3XZ.—How is the new rig coming on, Mac?

3EA.—Evan is thinking of putting a rig on his boat. Might frighten the fish om, hi!

3PR.—Ron still plugging along working a little dx on 40 mx, also on 80 mx fone. Heard a W calling you on 20 other night, so explain that.

## GIPPSLAND NOTES.

(VK3PR-3DG.)

3DG.—Busy with code practice, has two aspirants for next AOPC exam, so whato qrm at Stratford if they are successful.

3GO.—Graham must be qrl or is making drastic changes in his rig.

3SS.—Keith cannot get time to erect an ant., but hopes to just make it soon, has put rig in rack and panel.

3XH.—Stan on 80 mx fone so we hear, fb om. Also another hard worked serviceman.

3LY, 3NO.—Local b.c. station keeping them very busy, rebuilding throughout.

3VG.—On 40mx cw and getting his share of contacts.

3QB.—Have not heard Jack for long time, but guess he is still after those elusive few W states for WAS.

3DI.—Jim is active on 40mx at last, still QRP.

3JE.—Bill has forsaken the Eastern Zone for a warmer place—Kyneton.

3WE.—Bill trying hard to work W on 3.5 mc fone. Any luck yet, om?

## Queensland Division

Conditions during the past month have been more or less "up and down," some days being very good and other days just fair, but on the whole September has been a good DX month to date. We are now entering summer and it is to be hoped that conditions will be at their best for the big October contest.

### 160 METRE CONTEST.

This contest which was run on the recommendation of VK4 proved a disappointment in one respect; far too few stations were sufficiently energetic to put their rigs on the lowest frequency band we are permitted to use. Conditions were far from the best for the contest and not a single VK6 was contacted by any of the VIB gang. The outright winner looks like being ZL4DQ. In Queensland the positions look like being filled as follow:—4AP, 4HR, 4AW, 4UR. The VK4 Division wishes to express thanks to all who took part in the 160 metre contest.

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## ACTIVITY FOR DX TEST.

The sole topic of conversation among the VK4 transmitting fraternity at the moment is the forthcoming DX Tests. The last ounce is being squeezed out of receivers, a few finals are likely to run red hot judging by the power supplies now on order; beam antennae look like being popular with many contestants. Those who have signified their intention of taking part in the contest include 4GK, 4BB, 4UR, 4UL, 4HR, 4AW, 4EL, 4AP, 4JX, etc. We tip 4JX or 4BB as the highest scoring station in VK4.

## PERSONAL ITEMS.

4BB is certainly scoring some successes with his portable TX, W on fone is no mean accomplishment with a mobile outfit.

4UR now using an 8JK beam plus a phased antenna, and putting up another sky wire for the contest.

4HR is our 807 expert—ask 4KH.

4UL is raising the W's very nicely on fone. The modulator uses 6L6's.

4GK certainly believes in loose coupling. The aerial coil is about 2 feet away from the P.A. tank.

4AW has some very interesting dope on 56 mc aerials. Tests have been carried out with 4WT. Profit by somebody else's expensice, om's, and save the pocket book.

4HU is now ok for fine operation. Heard him working break-in with 4AP.

4JX is full of smiles these days. Possibly pleasant reflections on the result of the DX test has something to do with the evident satisfaction.

4JP should be among the place getters in the "Memorial" contest. George has done more to popularise the DX contest than any other VK4. And does JP's fone get out—38 countries in a few weeks is the record.

4HR, 4VJ and 4AP are about the only ones that have used the 28mc band in the last few weeks.

Both city and country members are reminded that the Division's station (VK4WI) is now on the air on Sunday mornings from around 10.30 a.m. on the 7 mc band. The object in running the station is to provide members with items of general interest and students with Morse practice.

4RT will soon be operating on all bands.

VK9VG and friend 9WG intend installing modern commercial transmitting equipment.

## South Australian Division

(By VK5KL)

Well, we are drawing close to yet another VK-ZL DX contest and no doubt by the preparation that has taken place it will be a great success.

Although there were only two entrants in the 160 mx contest on 10th September from the State, the usefulness of the band can be realised when it is known that all States in VK were worked and two in New Zealand. VK5 scores were 5KL, 357 points, and 5JT, 288. Tickets are available for the trip to Murray Bridge on Eight Hours' Day, 12th October. A huge gathering of country and city hams is expected.

No interest has been aroused yet for the National Field Day to be held in December, but we are hoping that an increase of entrants will ensure this year's test a greater success than the last.

Conditions have been particularly good on 20 mx the last month, with plenty of Europeans and South Americans audible. Ten metres has picked up and at week-ends 5GF, 5IT, 5ZU, 5KO and occasionally a few others may be heard contacting U.S.A. and South Africa. It seems that once a band has been conquered it stays open! Let's hope that 5 metres will soon produce the same results. There are quite a few prominent and consistent chaps in this State on 20 metres, qsoing each other regularly on sked, with fone, who could quite easily and more beneficially to the progress of amateur radio be doing it on 5 metres. If these fellows who do not belong or come along to the Institute meetings, would come along one night and state their case they would be assured of a sympathetic hearing and it should be possible to make some arrangement to cut down the terrific qrm on 20. A short wave fone transmitters' group might meet the problem (if they all join it would mean a clear night occasionally for CW! But VK3 tried it and it proved very successful.—3RX).

## WAKEFIELD ZONE.

(By VK5RE.)

5LR.—Had the pleasure of a visit from Jack recently. Jack brought along 5HD and we had a very pleasant chat. 5LR is keen on 5 metres, so maybe some day Berri and Renmark will QSO on 5.

5HS.—Scotty deserting radio for home movies and at present is trying to do some recording to synchronise with the films. However, he hopes to get along for the Murray Bridge Field Day.

Mr. Lance Catford swatting hard for his ticket and hopes to sit for the October exam. Sure hope you land it Lance O.B. Lance also is a home movie enthusiast.

Ron Green has forsaken wireless for "Monopoly" and at times is quite wealthy.

Harold Fisher recently bought a photo-electric cell and is having a great time with it.

5RE.—Still doing a little radio, mostly Sundays, too cold at night.

Three new members, Mr. K. M. Tucker, Renmark; Mr. H. M. Stacey, Berri, and Mr. A. F. O. Cunningham, Renmark. Will tell you all about them next time.

Wakefield Zone congratulates 5LC on winning both cups in the recent contests. Good work, Les, ob. You will be able to fill up the sideboard soon.

## GREY ZONE.

(By VK5PN.)

Pleased to see articles by two members of this zone in the South Australian issue of the mag. It is fair to point out, however, that

VK5LC's article has been somewhat abridged, and though it still is very fine as a history and description of the station, the published version possesses little of the essential substance which weighed so much with the judges when they decided that it was the best article on station equipment suitable for an amateur without mains power. (It will appear as a technical article later.—3RX.)

5TL's article has aroused quite a deal of interest amongst those who contemplate the construction of an emergency portable transmitter.

5WG.—Wally has been very busy with things other than radio for some time, but is now in a position to relax somewhat. He appeals to members in his zone to look out for him and keep him informed of their activities.

Mr. S. W. D. Wilson, of Cummins, is now a member of the W.I.A. He has only to put the finishing touches on his code reception and he will be ready for the exam. Our hope is that we will soon hear him on the air.

As there is a scarcity of news I am going to take the opportunity of informing members that the secretary is anxious to forward membership certificates to all country members who do not already possess one. Please let the secretary know.

## BARKER ZONE.

(By 5GW.)

5TW.—Tom is spending his leisure hours on 40 metres. New rack and panel rig being erected. Will be on phone as soon as xtal arrives. By the way, Tom is the holder of a First Class licence.

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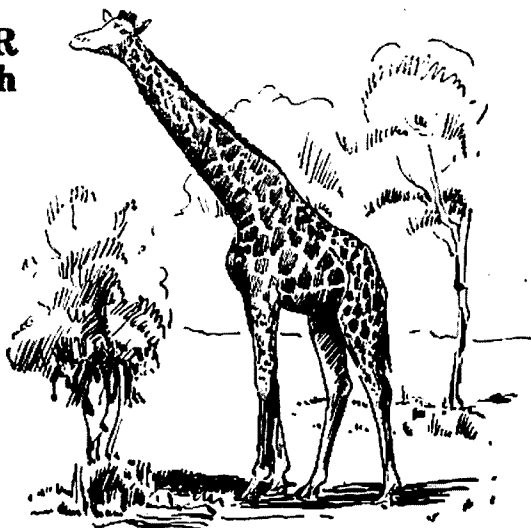
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## Amateur Radio

5BN.—Bad luck, om, when seven tubes went west. Graham appears to be out of action for a while.

5CJ.—Another spot of bad luck, Colin has just returned from hospital. Worked out many fancy ideas while there. We hope to hear some of them soon, om.

5BF.—Nuff sed. We all hear your fb phone.

5BG.—Bob as usual up to standard on phone.

5YL.—Betty was heard on phone in Naracoorte for the first time, very clear but rather weak in this district. Heard telling 5PN that 5XR didn't answer. XR reckons your receiver must have been off.

5PB.—Still bush. Has now grown a beard (some bush).

5XR.—Now on the air with old 40 and 80 rigs rebuilt to suit A.C. 6P6 xtal osc, E406 P.A., 20 watts input to a single wire match imp all band ant. Modulator is 76 driving 2—6L6's tran coupled. 2nd op. Cyril is great on a good rag chew, so watch out for him boys!! (Phooey on 2nd ops.—3RX). Cam put a good R7 sig in ZL on 80 metres.

5GW.—Now on xtal, 3575, 7150 and 14300. Working from 3 band exciter, P.A. not yet coupled up.

Here's hoping to see you all at Murray Bridge for the field day.

### Tasmanian Division

(By 7YL.)

The monthly meeting of this division took place on the 13th inst. There was quite a good attendance. The usual business was hurried through. Among the correspondence was a note from 7AB to the effect that he had undertaken the position of recording secretary for the Northern Zone.

A very enjoyable lecture was then given by Mr. R. Shorthouse, his subject being "Principles of Aviation." This young member of the Institute is a proficient pilot and has the subject at his fingertips, explaining some of the technical details of aeroplane construction very clearly and also giving us a brief description of the

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art of taking off, landing and stunting. It was suggested that one of we hams should take up a 5 mx xmtr and give a running description for the benefit of 200 mx listeners. Everyone then commenced to expound why he (yes and she too) should be chosen to give the running description. Aspirants had better get in a spot . . . . of practice!! hi.

Scandal:—

7AH.—We are all glad that "Pop" is enjoying the best of health this winter, and has not missed one meeting this year.

7CT.—Has purchased a Morris Minor—has used up several spools of film taking fotos of it.

7DH.—Recently sat for his "B" Class ticket—should know results in a few weeks; best of luck, Dave.

7KV.—Keith has had an attack of what he calls "dog's disease," but we're pleased to say is quite OK again.

7AL.—Purchased a new Ford V8 quite lately and hasn't very much time (or money) for radio.

7JB.—Working a little DX on Sunday afternoons. For the benefit of a Scotch lass, worked a GM on fone one Sunday afternoon—R8 both ends and very fb. This is not one of "this week's tall ones."

7RK.—Fairly active on 20 mx. In between times does a "Bing Crosby" act on his new guitar. How could you Ray?

7LZ and 7KR.—Both heard quite consistently on the 14 mc band.

7AB.—Has quite a collection of trophies scattered about his gra now, according to 7CT.

7RZ.—Is evidently taking an interest in the current contest as had to apply for more log sheets. Is shortly taking up residence in VK2.

7CL.—Finding DX quite good lately—worked an LU4 and G1 on fone last week. Is at present teaching at the Devbnport High School.

7YL.—Has prospects of getting an 800 in the near future.

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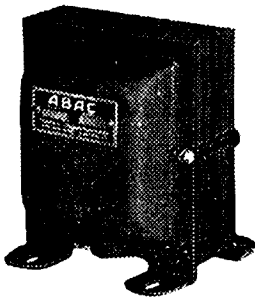
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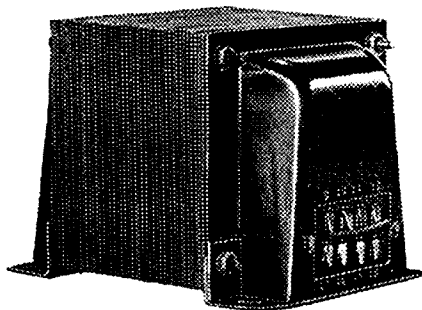


TA 69

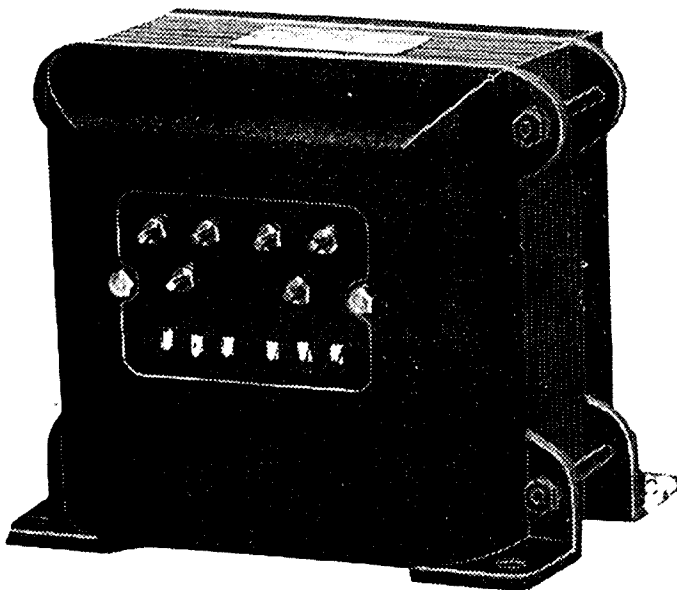
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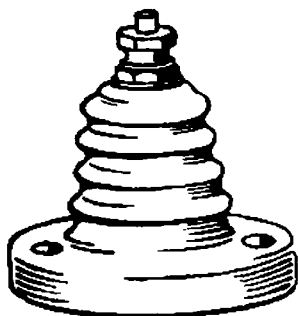
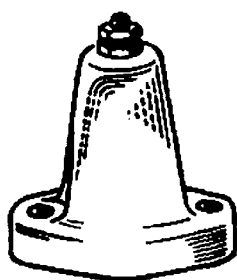
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Published by the Wireless Institute of Aust.. Victorian Division.

Vol. 6 No. 11

1st NOVEMBER, 1938.

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All Communications and MSS. should be forwarded to the Editor, "Amateur Radio," BOX 2611W, G.P.O., MELBOURNE.

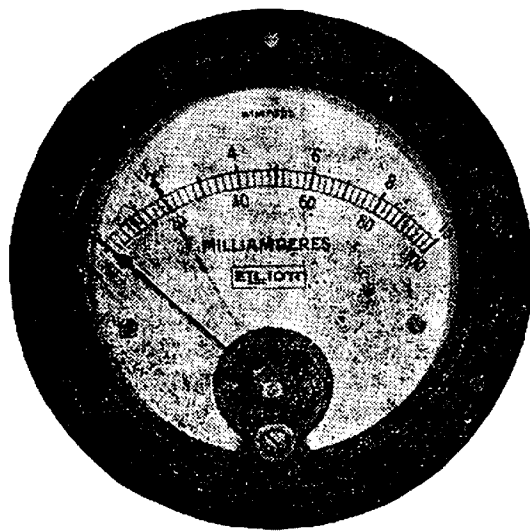
Subscription to "Amateur Radio" is 6/- per Annum (Post Free), paid in advance.

Should you not receive your copy of "Amateur Radio," notify your Divisional Secretary at once.

Advertising and Publishing Office: Address Publicity Manager, "Amateur Radio," Whitehorse Road, Box Hill, E.11. 'Phone: WX 2429.

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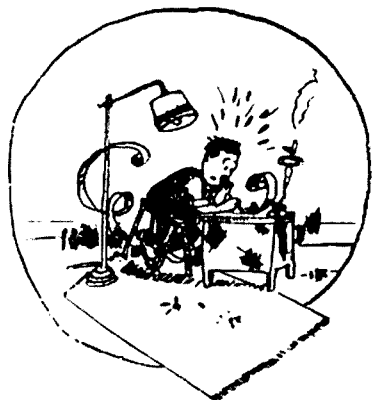
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# EDITORIAL

## THE LESSON OF CAIRO.

The results of the International Telecommunications Conference held at Cairo are now so well known as to require no further elaboration. The item of most concern to amateurs is the allocation of frequency bands, and, briefly, the changes which will affect us in Australia are the sharing of from 7200 to 7300 kc. with short wave broadcasting, and the probability that we shall be allotted a specific band at 112 mc.

Whether frequencies in the range 7200-7300 kc. will be allotted to Australian broadcast stations we cannot say, and it is even possible that in some countries amateurs will be denied the use of this part of the 7 mc. band. However, Federal Headquarters has already made a strong plea to the P.M.G.'s Department for the retention of the whole of the 7 mc. band as exclusively amateur territory in this country, and we have hopes that the Department, which has always been friendly towards the amateur, will view the proposal in a favourable light.

Even if the outcome of the Cairo Conference affects us but little, it is imperative for us to remember that the next conference is to be held in Rome in only three and a half years' time, and then the demands made on the amateur frequencies will be even greater than they were at Cairo, where, but for the magnificent fight put up by the I.A.R.U. and the American Delegation, and to a lesser degree by the British Dominions, a part of each of our bands would have been taken from us.

We must face the fact that in many countries, particularly some of the major countries in Europe, the administrations are definitely antagonistic towards amateur radio. This is simply because they cannot appreciate the value of it in relation to other services.

It is very necessary for us, therefore, to seize every opportunity to make amateur radio a thing of value in the community. The main reason why the amateurs of the U.S.A. are regarded more favourably by their Government than those of any other country is their excellent work in time of national catastrophe, such as floods, etc., when other means of communication fail, admittedly such catastrophes are rare in Australia, but should any such opportunities to serve occur we must not be slow to take advantage of them.

It is true, however, that the majority of engineers and technicians in the industry have been drawn from the ranks of the amateurs, and it is this aspect which should most be stressed when pointing out the value of the amateur to the Government. Amateur radio is the training ground for a large army of technical men who equip themselves at their own expense for research and development work in radio and allied sciences, and this alone must be of great value to the nation. Furthermore, in the event of war, the value of a trained army of radio operators is incalculable.

Finally, and this is possibly the amateur's greatest contribution, although it may be difficult to express the idea convincingly to a Government, the amateur, by the establishment of friendly contacts with others in all parts of the world, does much to further the cause of international amity and world peace.

It is a significant fact that the countries in which amateur radio flourishes best, and is valued highest, are the great democracies of the U.S.A. and the British Empire.

—Federal Headquarters.

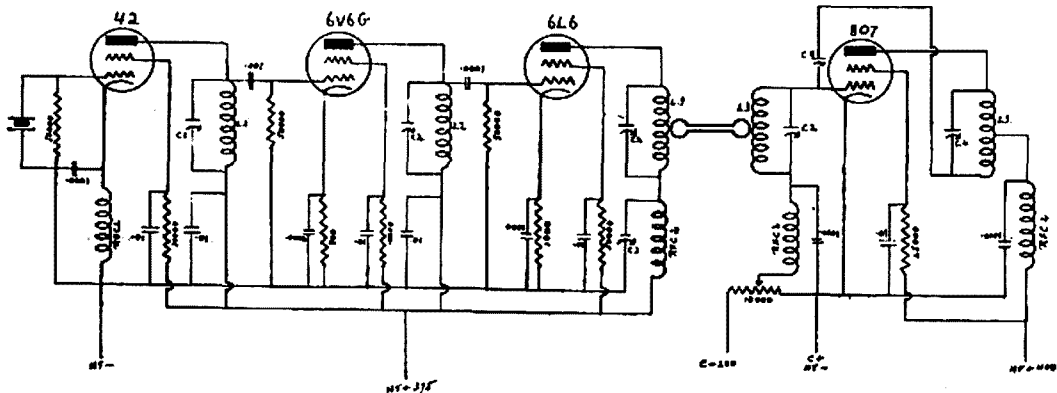
# A Crystal Controlled Transmitter for 56 m.c.

(By VK3PS.)

In designing this transmitter the two main factors for consideration were economy and efficiency. In the first instance the number of tubes with their relative circuits had to be reduced to a minimum and in the second the amount of drive available and the difficulties often experienced in modulating a doubler stage and coupling it to the antenna were the main considerations.

Several circuits and arrangements were tried, particularly with a view to obtaining output on 56 mc from

an amplifier from the third plate, but so many difficulties arose through compensating capacities that the third plate was earthed and link coupling used. When changing over to a standard variable condenser, the r.f. output dropped considerably and many values of by-pass condensers were tried without success until a 7 plate midget variable solved the problem; this is shown on the diagram as C3 and is set with the plates slightly more than half meshed, this capacity is very critical for maximum output



a 40 metre crystal with two tubes and although this was accomplished, the output was not great enough to drive an amplifier efficiently, hence these circuits were discarded in favour of the one shown here.

To gain efficiency, regenerative circuits are used throughout the oscillator and multiplier stages and are found to be quite satisfactory. The oscillator functions on the fundamental crystal frequency and the crystal current is in the vicinity of 20. m.a. The Second stage quadruples to 10 metres. Ample r.f. output is obtained from the 6V6G, but even greater drive may be obtained from a 6L6G. If this latter is used, the cathode resistor may be increased to 1,000 ohms and the screen resistor to 50,000 ohms.

In the original lay-out, aluminium plates as used in the Jones stabilised oscillator were used with the intention of driving the grid of the power

and does not act as a compensating capacity with the tank condenser. A 6L6G was tried in this stage, but was found most unsatisfactory, the r.f. output being only one third to half of that of the metal tube.

The link coupling to the final stage consists of a single turn 1 inch in diameter mounted around the last turn at the "cold" ends of the doubler tank and amplifier grid coils. These links are connected by parallel wires, 14 gauge, and spaced  $\frac{1}{4}$  inch between centres, they are 7 inches long.

The grid circuit of the amplifier is mounted under the subpanel and the plate tank is mounted on a bracket close to the plate cap of the tube and contrary to expectations there is a definite tendency to spurious oscillation unless the tube is neutralised. The neutralising condenser consists of two strips of aluminium mounted on stand off insulators and the spac-



ing between them is 3-16 of an inch. The actual setting is such that the top plate covers a triangular corner of the lower plate, the sides of the triangle being about 3-16 of an inch. This condenser is shown on the diagram as C4.

Bias for the power amplifier is obtained from a 200 volt power pack through a 10,000 ohm wire wound potentiometer. The value of bias used is in the vicinity of 120 volts.

This transmitter is capable of handling an input of 32 watts with 19 watts output and has proved very satisfactory in actual operation. The modulator described in this issue is eminently suitable for use with the transmitter. In the power supplies 150 m.a. rating chokes should be used as the first three stages which are supplied from the one source draw 110 m.a. and the amplifier requires an average of 80 to 90 m.a. The voltages stated in the diagram are measured at the output side of the power supplies under full load and in the case of the first three stages a reduction in voltage caused a considerable decrease in efficiency.

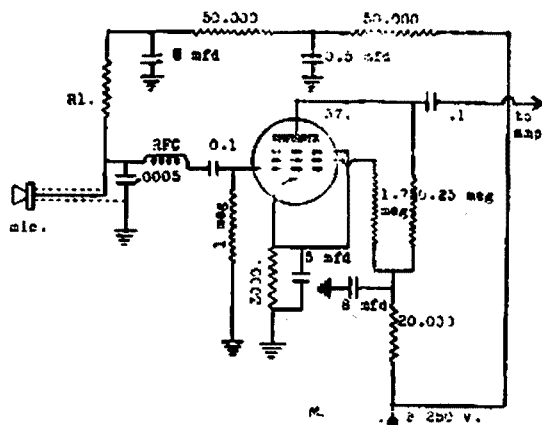
The first three stages are built on a sub-panel measuring 13 inches x 6 inches, and the amplifier on a similar sub-panel 12 inches above the lower one.

L1, 12 turns 18 g. on 1½ inch former close wound. L2, 6 turns 14 g. 1½ inch diameter 1½ inch long. L3, 5 turns 14 g. ½ inch diameter ¾ inch long. C1, 17 plate midget. C2, 18 m. mfd. C3, 7 plate midget—see text. C4, see text. RFC1, Standard short wave choke. RFC2, 75 turns 32 g on ½ former.

causing lower output and adding to the hiss and noise of the mike itself.

The window need not be larger than 1½ inches x 2½ inches, and the chamber should not be more than 1-16 of an inch deep. Gold plated electrodes are reputed to be less noisy than graphite or carbon electrodes, but unless the plating is 9 carat or higher, the noise produced by them will not be much lower than well polished graphite or carbon electrodes.

The circuit itself is self explanatory, the only part to exercise great care in selecting is the resistor marked R1; this resistor should be of the wire wound type otherwise the noise caused by the current passing through it will be objectionable. The value of this resistor is 5,000 ohms, which seems to be the happy medium because the resistance of this type of mike varies considerably. The mike being resistance coupled to the 57, there is no trouble with induction hum as is experienced with transformer coupling, and the quality is improved.



## Batteryless Operated Reiss Microphone

(By VK3JX.)

One of the most annoying things to find in the shack is a flat mike battery. This article describes a method of overcoming this evil.

Before describing the circuit, let us consider the mike. As the layer of granules next to the diaphragm is the only one to move to any great extent it is obvious that all layers behind become mere shunt resistors

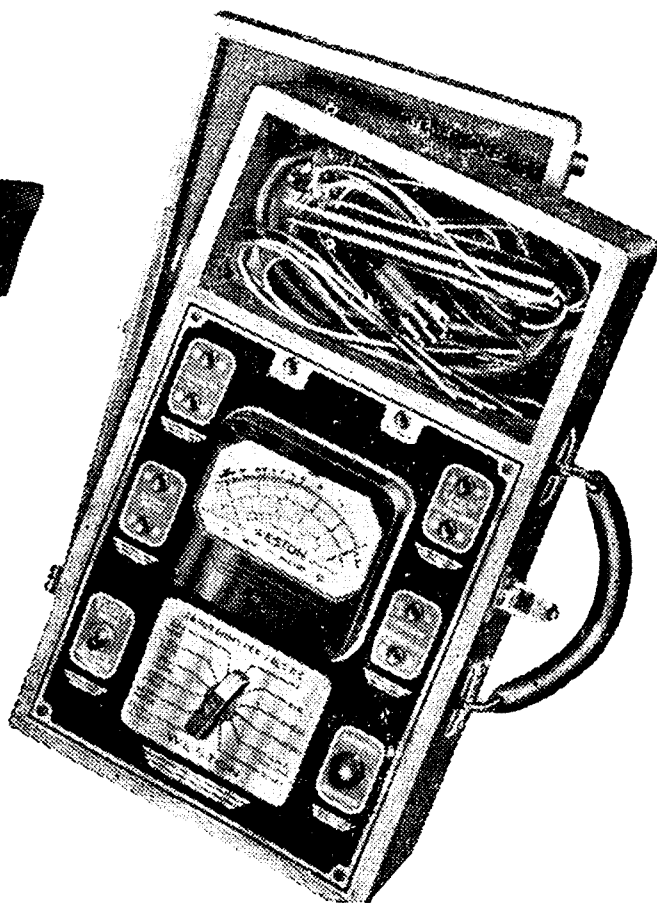
The 57 used as a pentode AF amplifier provides sufficient gain to lift the mike output to pickup level when talking in normal voice at a distance of 1 foot. Closer talking gives greater output, but the breath impinging on the diaphragm causes lots of noise and impairs the quality of the speech.

Single core shielded wire may be used for mike lead if it is not subjected to excessive use, as in portable work, because should the shielding become badly twisted it will cause noises. The RFC 1 meg grid leak and the 57 valve should be well shielded to prevent RF feedback.

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2.5	-2 to plus 14
10	-12 to plus 28
50	-26 to plus 42
250	-38 to plus 54
1,000	Ohms.
Current.	0-3,000
D.C. only.	0-30,000
.1 Ma.	0-3 Meg.
1 Ma.	0-30 Meg.
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50 Ma.	
250 Ma.	
1 Amp.	
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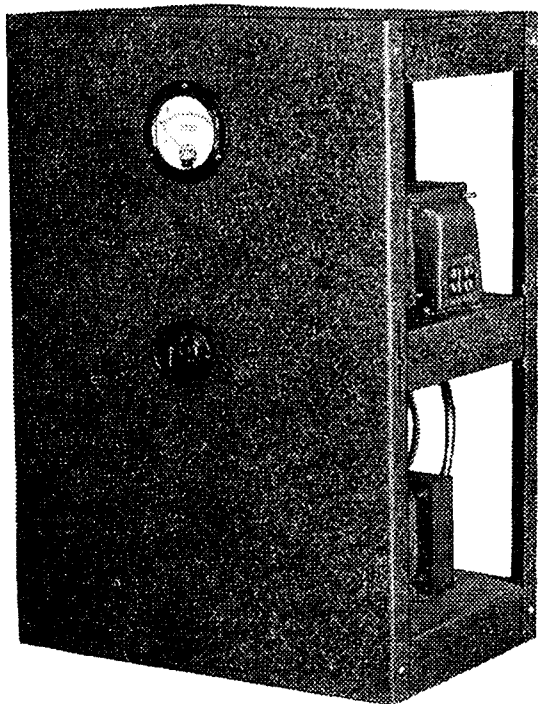
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## The Modern Modulator

(By C. Serle, VK3RX.)

No controversy in amateur ranks has produced such heated discussion and mutual recriminations as has the Phone versus CW argument.

In U.S.A. the amateurs have been well served by the manufacturers in the matter of modulation equipment and phone occupies a definite position in American ham activities.

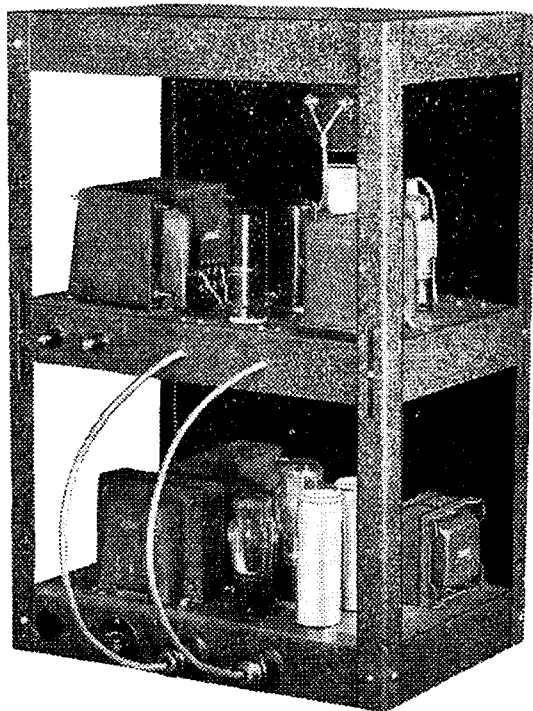


A great deal of the hostility with which phone has been regarded in Australia has been due to what QST termed "Rotten Radio"—the unintelligent operation of obsolete and unsuitable gear.

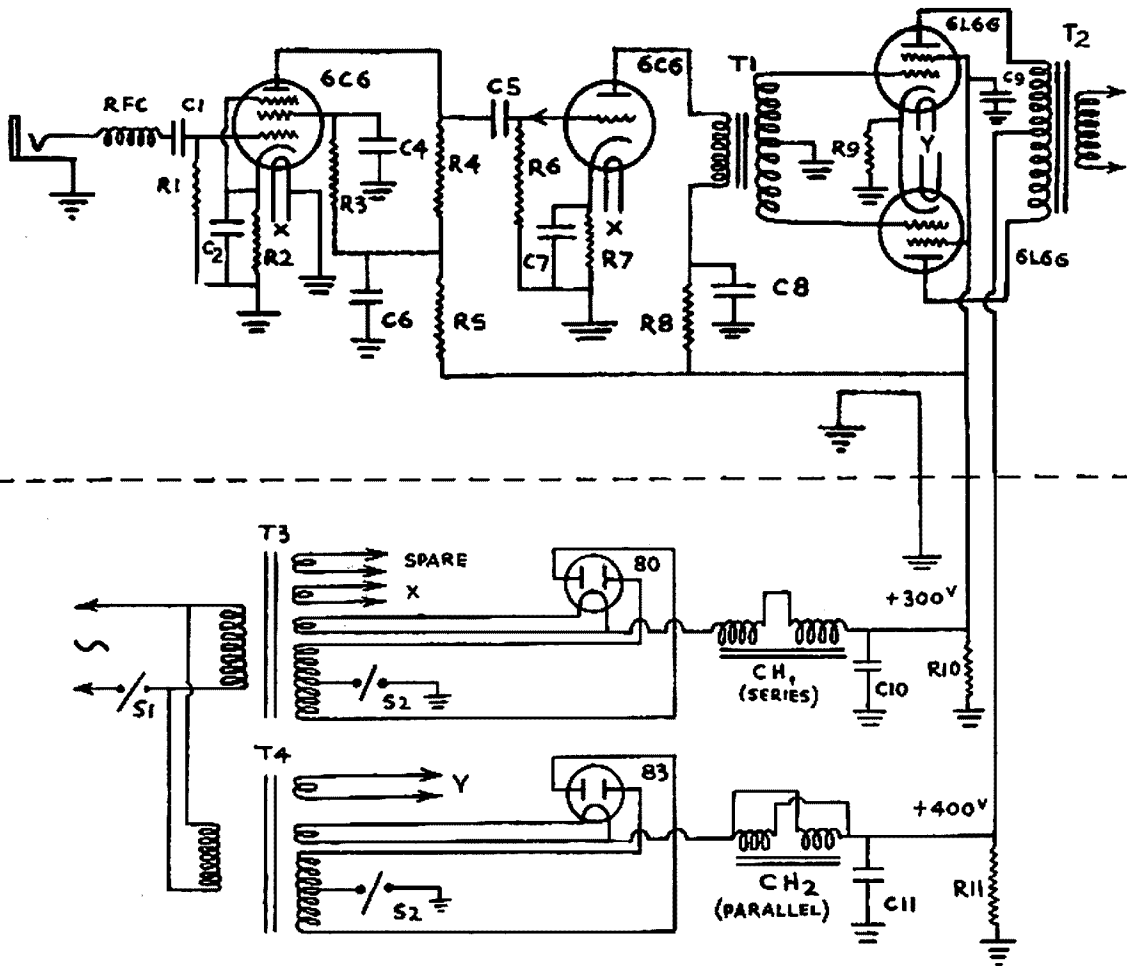
To secure sufficient audio power to modulate a 50 watt carrier it was decided to use a pair of 6L6G tubes in push pull. Operating in Class AB1, the output into 6600 ohms load is 32 watts at plate and screen voltages of 400 and 300 volts respectively. Any amplifier is only as good as its output transformer and most of the credit for the success of the modulator shown here must be given to the "ABAC" variable ratio modulation transformer, which was designed specially for ham use by 3PT and 3HC. By selection of the proper terminals the output can be matched

into any Class C rf stage impedance from about 600 ohms to 19,000 ohms.

From the photographs it will be seen that the modulator is divided into two units. The power supplies occupy the lower chassis, whilst the modulator proper, with driver and output transformer, fills the middle chassis. A third blank chassis forms the top of the rack. As advertised, the rack and chassis are available in kit form from Trimax Transformers Pty. Ltd. A steel cover plate shields the underneath of the amplifier chassis in order to remove the last trace of hum caused by the proximity of power transformer and choke fields to the low level stages. When this plate is installed, it is possible to leave the microphone jack open and with the gain control full on, hear no hum in a high fidelity speaker correctly matched to the 6L6Gs.



The modulator circuit is quite straightforward and comprises one 6C6 pentode resistance coupled to a 6C6 triode. This output is coupled with a driver transformer to a pair of 6L6G's.



### LEGEND

C1	.1 mfd.	R1	.5 meg.	CH1	TZ3
C2	25 "	R2	2,000 ohms.		Series
C3	.1 "	R3	1.5 meg.	CH2	TZ3
C4	.1 "	R4	.25 meg.		Parallel
C5	.1 "	R5	50,000 ohms.	T1	Driver
C6	.5 "	R6	.5 potentiometer	T2	Output
C7	25 "	R7	1,000 ohms.	T3	385 volt
		R8	10,000 ohms.	T4	500 volts
C8		R9	200 175 m.a.		
C9		R10	15,000		
C10	.8 "	R11	15,000 10 watt		
C11		RFC	2.5 m.h. rf. choke.		
					All transformers mfd. by Trimax

Two separate power supplies were found necessary to provide good regulation and a special driver transformer T1 with a low resistance secondary, was used to keep the distortion low at full output. These precautions were justified by the fact that practically every station worked has commented on the quality and absence of distortion.

One power transformer T3 delivers 385 volts per side into an 80 rectifier. With choke input this pack supplies 300 volts to the preamplifier and 6L6 screens. The other transformer, 500 volts per side, uses a 83

rectifier and a similar choke, but with an input inductance of  $7\frac{1}{2}$  henries the two windings in parallel giving at twice the current rating of CH1. Special note should be taken of the fact that neither supply uses condenser input.

The sockets along the rear edge of the power supply chassis are (L to R):—No. 1, spare 250/300 volts DC and spare filaments; 2, AC power filaments; 4, 300 volt positive and lead; 3, 400 volt positive and 6L6G negative and 6C6 fil. Rubber covered cables and Amphenol plugs with metal covers connect the two chassis,

the cable ends being soldered to lugs in an insulating strip mounted on bracket, spotwelded to the inside of the amplifier chassis.

The gain of the amplifier is sufficient to provide a full 34 watts output from the usual types of crystal microphones and the gain control is located in the grid circuit of the second tube. A r.f. choke is used in the grid of the first 6C6 to prevent pick-up and rectification of stray r.f. This first 6C6 is completely shielded, but no shield is necessary on the triode beyond the usual metal braid on the grid lead. As a precautionary measure the input and output leads of the 6L6G tubes were also shielded to remove any tendency to self oscillation.

Since the photographs were taken the layout has been slightly altered and glass 6L6Gs substituted for the metal type shown. The four tubes on the middle chassis are now mounted in a straight line parallel to the front panel and the driver transformer has been moved nearer the centre of the chassis. The line up is now, right to left (rear view):— Totally shielded 6C6 pentode, 6C6

triode, 6L6G, 6L6G. The input jack is mounted in the side of the chassis near the input tube. A milliammeter, if available, is connected in the positive 400 volt lead to the output transformer. The leads should also be shielded with earthed braid.

In wiring the modulator all earths should be soldered to a copper wire connected to the negative HT instead of relying on mounting screws for earth connections. The 8mfd electrolytics used for filtering plate and screen lead; are the pigtail type and are mounted under the middle chassis. The two used in the power supplies are wet electrolytics 600 volt rating and are mounted near the rectifiers.

When using a dynamic or speaker type microphone, the output may sound 'rumbly' owing to the poor high frequency response of these microphones. To remove the predominance of bass the cathode bypass condenser on the first 6C6 may be altered to a .1 mfd which removes the bass almost entirely. The 25 mfd should be retained for music and

(Continued on page 27)

## High Voltage Microdensers

FOR RECEIVING OR TRANSMITTING.

CAT. No. 1094. 18 m.mfd.

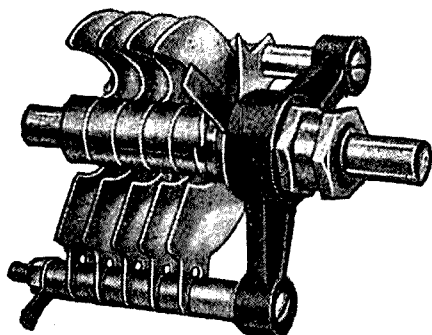
A highly efficient and compact condenser for short and ultra short wave use in transmitters and receivers. Brass vanes with moving and fixed sections soldered to spindles. Construction ensures constantly maintained capacity; very low minimum capacity, less than 3 m.mfd; adequate bearing support. Spindle extended for ganging. D.L.-9 low loss insulation and plates lacquered to prevent oxidation. Noiseless movement. Soldering tag connections,  $\frac{1}{4}$  in. spindle. Peak flashover voltage 3,500 volts. Easy to gang as capacity is matched within 1%.

PRICE, 6/9.

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A low loss condenser of compact and solid construction, which is ideal for crystal oscillator plate circuit, buffer amplifier tank tuning and medium power transmitting tank circuits. D.L.-9 low loss insulation, reliable bearing, fixed and moving vanes soldered, terminal connections. Not extended for ganging.

PRICE, 8/6.



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## Contest Section

(R. F. Cohen, VK2TF, Federal Contest Manager)

The 1938 VK-ZL Contest is over! Maybe it is just as well, otherwise there might be quite an increase in the mentally deficient population—or are we mentally deficient anyway! To keep operating for 24 hours trying to balance countries with contacts and trying to copy that elusive country for an extra multiplier, through the bedlam on 14 mc., particularly near the high frequency end, was enough to paralyse all but the strongest ears.

Still, judging from the number of participants, we appear to be developing a race of people with ear drums at least half an inch thick.

To give everyone a chance of thoroughly recuperating and of repairing or rebuilding the rig that broke down at the crucial moment—and there were one or two of these—we have decided to hold the National Field Day on the 3rd December and the All Band C.W. Contest on the two week-ends commencing the 10th and 17th December.

For the National Field Day intending contestants should notify their divisional secretary re location and call as soon as possible.

### AUSTRALIAN NATIONAL FIELD DAY. Rules.

1.—The contest will commence at 1800 E.A.S.T. on December 3rd and conclude at 1800 E.A.S.T. on December 4th.

2.—The contest is limited to portable stations operated within the Commonwealth and its Mandated Territories.

3.—A portable station shall be defined as one whose power is not derived from either public or private supply mains, and shall not be located in any occupied dwelling.

4.—Operation may be on any amateur bands, viz., 56, 28, 14, 7, 3.5, 1.7 m.c., and a station may be only operated on one band at any time. (Two or more transmitters are permissible, but only one to be used at a time.)

5.—No apparatus is to be erected on the site of the portable station earlier than 24 hours before the commencement of the contest.

6.—The input to the final valve coupled to the antenna shall not exceed 50 watts.

7.—A complete exchange of reports R.S.T. is necessary before any points can be claimed.

8.—For the purpose of the contest, N.S.W., Victoria, Queensland, South Australia, West Australia, Tasmania, Northern Territory and the Mandated Territories will constitute districts.

9.—Contacts within a district are not allowable.

10.—Points will be awarded as follows:—

- (a) For contact with a fixed station within the Commonwealth, outside competitor's State—1 point.
- (b) For contact with a portable station within the Commonwealth, outside competitor's State—4 points.
- (c) For contact with stations in Asia, North America and Oceania outside Australia—5 points.
- (d) For contact with stations in Europe—7 points.
- (e) For contact with stations in Africa and South America—10 points.
- (f) A bonus of 25 points for each continent worked on each band shall be added to the total score. The extent of each continent to be decided as per official I.A.R.U. W.A.C. Map.

11.—Logs showing the station worked, date, time, band and power used, signed by the operator or operators shall reach F.H.Q. not later than 31st December, 1938.

12.—Contestants to use the letters W.I.A.N.F.D. frequently whilst calling to signify that they are portable stations.

(Continued on page 27)

13.—The decision of F.H.Q. in all matters pertaining to the contest shall be final.

14.—Awards: A special certificate will be awarded to the outright Australian winner by F.H.Q. and suitable certificates to the winning station in each State.

## THE ALL BAND C.W. TROPHY.

This year this contest will run on similar lines to the recent Fisk Trophy, that is, it will be an Interstate Test and not an individual one as previously held.

The Trophy will be competed for annually, and will be awarded to the State having the highest aggregate score of its first three competitors.

The scoring system always seems to confuse some competitors, so a formula has been arranged which should clear up any misunderstanding.

The grand total score equals:—  
(A x B) plus 50C, plus 20D, plus 20E, plus 30F, plus 100G, plus 500H. Where A equal number of contacts, B equals number of States worked, C equals number of States worked on 160 MX., D equals num-

ber of States worked on 80 MX., E equals number of States worked on 40 MX., F equals number of States worked on 20 MX., G equals number of States worked on 10 MX., H equals number of States worked on 5 MX.

The above formula will give the score claimed by any station in the contest.

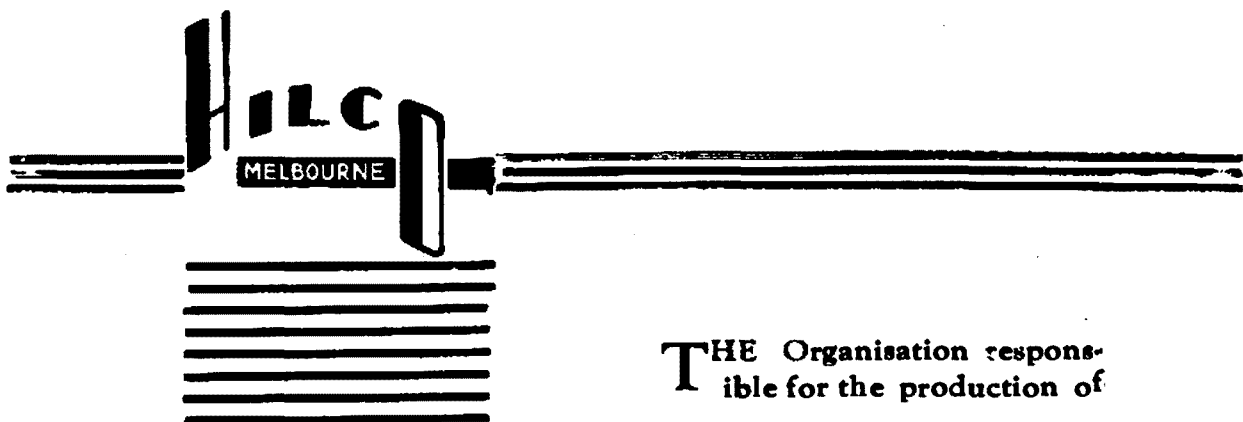
Rules are as follows:—

1.—The contest is open to all licensed amateurs, but only members of the Wireless Institute are eligible for awards.

2.—The times of the contest are as follows:—From 1400 E.A.S.T., Saturday, 10th December, until 2359 E.A.S.T., Sunday, 11th December, 1938, and from 1400 E.A.S.T., Saturday, 17th December, until 2359 E.A.S.T., Sunday, 18th December, 1938.

3.—The test is of a contact nature and with each contact a 10-letter cypher must be exchanged before a point is scored.

4.—Stations with which an entrant can work are stations in Australia and New Guinea, outside the competitor's own State.



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## 28 and 56 M.C. Notes

(By A. Pritchard, VK3CP.)

Ten metres is being affected by the sunspot activity at present, giving very strong signals from the west coast of the States, but high speed fading with its consequent phase distortion is spoiling many of the heavily modulated phones. The Europeans have faded out again, and at present are only heard occasionally; in fact, D4XJF is the only consistent cw signal here. Sunday, 16th October, the phones were very badly distorted, although two new phones had plenty of strength around 9 a.m.—KA1ER and the South American LU8AB. The latter is often qso TI2FG, although usually inaudible here in VK. The contest made the cw portion of the band sound like old times, with many well known old-timers pounding the brass again on 10. VK3EG was heard at r4 here during the Sunday morning, and the W's were qso many VK's who had r9 sigs there, but due to skip effects were not heard in VK3. From New Zealand the contest had excellent support, and the following ZL's had powerful cw sigs:—XL1DV, 1BT, 1GX, ZL2GN, 2FA, 2VM, 2QA, ZL3JA, 3AY. ZL2VN has an interesting outfit, starting from a 6F6 co on 40 xtal, 6L6 doubling to 20 mx. Pair 6L6's Push doubling to 10; pair T20's PP buffer, pair 35T's final. The modulator has a 2A6, 56, 42's PP and TZ40's, class B. The antenna has  $1\frac{1}{2}$  waves link coupled at a current node and all untuned. A 10 tube super completes a nice outfit. ZL1GZ reports the South Americans having good strength from 8 a.m. until 1 p.m. during the weekends, with LU7AG on 28 mc. and LU3NK on 29 mc. both phones. Saturday, 8th October, at 2 p.m. K6LCV had r8 phone qso ZL1GZ and 3KZ, but it is the first time ZL's have been inaudible here when receiving good reports from that distance. ZL1GZ also has an interesting rig, having a 6L6 co and a 20 mx xtal, pair T20 P. Push doub. feeding a pair of HF 100's to 100 watts. The final has good efficiency, for with

1250Y. on the plate the plate current at resonance dips to 16 mills!

VK3BQ is getting good contacts with South Africa, and on Sunday, 18th September, qso ZS6EG, ZS6A, ZS6EF, ZE1JG and also FB8AA on 28020 kc. VK3XP also contacts many Africans and heard YV1AP and G6RB. VK3FL has perfect phone and Lester has a nice outfit permanently on 10 metres. The rig has a 42 as co and 40 xtal, an E13 doubling to 20 mx, a 46 as buffer on 20, 6A6 paralleled, doubling to 10 mx and a 6L6G final with 50 watts modulated by a pair of 50's. VK3BG isn't having any trouble with contacts with the States. The W stations have been heard calling VK4JP and 4HR. VK6LW and 6ZO, both cw, have been heard over the weekends, also 2GU's phone which is usually fading badly. On Sunday, 25th September, K6OQM was heard qso PY2AK, also FB8AA on cw at 4.30 p.m., had fair signals. K7PQ was contacted on Sunday, 2nd October, at 2 p.m., and informed me he is on the look-out for VK contacts. NY1AA's 20 mx cw harmonic was r6 at the same time. Portable W6NWK is on his way to VK6 so will probably look up the 10 mx gang there. VK3KKX at Colac was heard 559 qso VU2FS at 5.30 p.m. on Sunday, 2nd October. VK3GQ, of Camperdown, called in, and after hearing the band full of r9 sigs and all easy to contact, is on the job hot and strong for a 10 mx rig—hi! ZE1JZ has excellent phone, and was heard qso 3BQ, 3XP, 2GU and 5ZU in a run. The 5 mx band should start to show results now that more cc is being used, making possible the use of selective supers and giving the lads a chance to hear any weak dx. In the past, one wobulator would cover half the band with ac hash, and apart from being absolutely untelegible on the better supers, spoilt the band for others. I would be pleased if the chaps would send along the information for these notes well before the 18th. 73's.



**DX NOTES**

(By VK3MR.)

Both the Junior and Senior Contest is over. The band goes dead on the tick of midnight, except for a few who are just completing the last qso which usually happens to be another multiplier! Weary hams pull the big switch and hit the hay, perhaps to work (in their dreams!) all the rare ones that were missed during the test. But the following night finds them all on the job again trying to get the scores of the other competitors. It will be very hard to nominate the winner this time, as so many seemed to be having their share of the dox. The only scores to hand at the time of writing are VK4BB, about 44,000; and VK3KK, 27,000. 3KX, unfortunately, could not spare all the time the first weekend. It becomes necessary once again to bring before the notice of those whom it concerns, that all those stations working out of the band and with crook notes have been "booked," and as 14,400 kc. is the end of the 14 mc. band, it will be hard to explain why higher frequencies were used.

Our dx hound from Abermain, VK2DG, complains that dx is not so good, as he only had 735 contacts during the Memorial contest, working only 64 countries for a score of 47,040! He has now 97 countries verified, and is keeping the postman busy bringing certificates for various accomplishments in the dx field! Considers it was worth while, as he worked five new countries. What some hams will do for a new country! He mentions that LX1AX is working under cover, and for hams not to qsl until they receive his card.

To work S. America is no trouble to Keith, and reports working the following: — LU6DG, 14370 kc., 1930; T8X, HC1PZ, 14420. 1600; PY5QJ, 14400 kc. 200. T4; LU4AG, 14270 kc., 2030; CX1BG, 14425 kc. 2030. You will notice that outside of the H.F. end of the band is still the happy hunting ground! For those who are keen on the Century Club, G8DO is a new country, being in Guernsey. Ron, 3KX, has received his certificate for this award, and is very please. You should be! TG9HA, 14000 kc., workable about 6 p.m., is a rare one for the chasing.



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## Federal and Victorian QSL Bureau

(R. E. Jones, VK3RJ, Federal QSL  
Manager.)

Log forms for the recent VK-ZL dx contest may be had on application to this bureau.

Would the ham who wrote to the bureau and enclosed stamps for forwarding of his cards please supply his call sign. He omitted this essential in his note, which was written on the back of a used envelope.

The QSL manager for VK6 is now VK6CP. Hope you like the job, Clarrie.

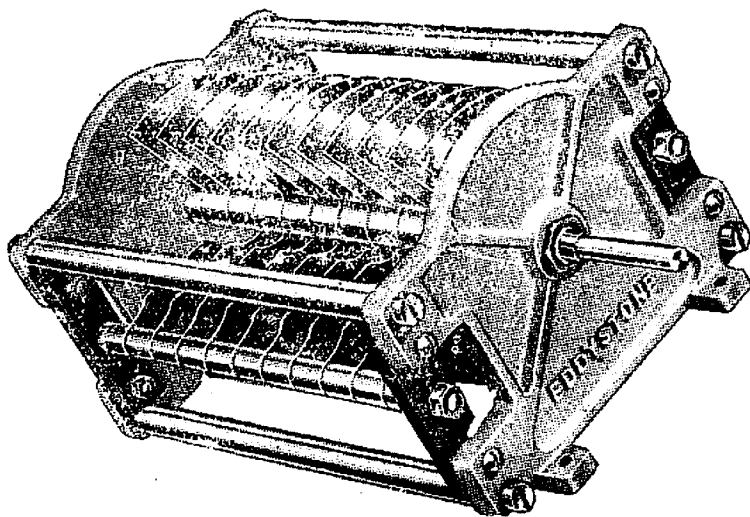
CT1PM, Francisco Antonio Rodrigues, Evora, Portugal, writes requesting me to endeavour and obtain a QSL from VK3XD and VK2ADE in confirmation of his QSO's. He needs them, or one of them, for his WAC. It's up to you 3XD and 2ADE.

VK3BS, long given up as lost, is active again from Montmorency. Allan, with a rig ending in PP 10's, is using 14 mc and anxious for reports.

W9AMP, Don Brickey, Armington, Ill, U.S.A., sending a bundle of QSL's, writes, "I can no longer afford to send QSL's direct, but have always done so in the past. Have QSL'd 81 VK stations and received 4 cards in return and feel bad about it." Look to it chaps. In an article in September, 1938, QST a summary of QSL's sent and received is given by a contributor. VK figures very low in that summary.

W1APU, H. D. Bamford, Dover Foxcroft, Maine, U.S.A., requests the  
(Continued on page 26.)

## EDDYSTONE SHORT WAVE COMPONENTS TRANSMITTING CONDENSERS



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.0001 mfd., 60/-

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40 x 40 mfd.  
Split Stator, 66/-

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## Divisional Notes

To ensure insertion all copy must be in the hands of the Editor not later than the 18th of the month preceding publication.

### N.S.W. Division

#### ZONE 5 NOTES.

(By VK2IG.)

Plenty of qrm now in evidence on account of the VK2 test, but not much outstanding DX coming through except perhaps VR4AD being a new one for man. Some South Americans at R4 or so include CX, LU, OA, HK.

VK2AP—Is leading the Albury field for activity outside the contest with his skeds. Is also dabbling on ten with various results.

2OJ.—Has his European beam going fb. and also had his first ten metre fone qso at R8 with K6. Fb. Noel.

2IG.—Also in the fun on ten, es had three way DX contact with 2OJ and 2AP. Hi!! hi!!

2AFD—Down at Loverton, is learning more than code, we think, eh Angus?

2EU.—Flat out taming speech amplifiers, and not on the air much.

2VK—Still patrolling Australia's coastline in his steam boat.

2AED—On 20 mx working the DX in good style.

2AKE.—Is about 26 miles from Yass at Rye Park, is getting out well on 40 mx. Jim has been on about two months, and has worked most VK States and ZL, and this on super power. The xmitter is a 19 xtal osc. freq. 7032 and 19 PA, giving about 2 watts from batteries. The antenna is a doublet and the receiver a screen grid detector SP2 and one stage using a 2DX tube. So Jim must be congratulated on some real good work.

2OE.—Also busy on 40 and 20, uses a 6L6G in a tritet and 6L6G buffer and 809 in the final. Has some fine DX on 20 mx and believe he has been on ten with doubtful

results, hi! Rx is a 3 tube TRF and the old Zipp takes the strain. Believe 2DO also uses an 809 with good results.

Last, but not least, congratulations to the hams who started the Junior Test on the wrong day!!

#### ZONE 2.

2HV and 2ZP recently participated in the attempted all States hook-up on 40 metres. Unfortunately VK5 and VK7 were not heard, although VK2HV (Key Station), VK's 2ZP, 2VU, 3CO, 3JE, 4HU, 4MF, 4XY, 4DK, 6LH, 9WL, 9RC, 9DK and Papuan station 4KC and 4KT completed the circuit. This test proved to be very interesting, and all who took part are eagerly looking forward to the next attempt. Credit is due to 9WL for bringing in the Papuan stations, and for receiving 6LH 100 per cent. right through. 9RC did a wonderful job in putting out a good R7 signal with 1.5 watts derived from two discarded BCL batteries. Many stations hooked up again after the round table, and from dope received had some extremely enjoyable chats. Thanks for the co-operation, fellers, and we sure did have a time.

2AFS and 2AGL, not to be outdone, were recently heard participating in an eight-way on 40. Bob puts two K.W. into the 245 and modulates the tube socket in series with the antenna. Hi!

2GM is working night and day in an endeavour to get the new rig finished before the end of the VK-ZL test. Jock will be on 20 and 40 phone and CW, but mostly after CW DX on 20.

2HV recently tried 8JK beam, but reports better results with half wave centre fed Zepp. ZB1J, LA1G, ST6KR, U9ML and VR4AD new ones netted during first week-end of VK-ZL.

## COALFIELDS NOTES.

(By VK2KZ)

VK2KE.—Still qrt until New Year, guess your exam keeps you busy, but hoping to hear you.

2KZ—Doing a little dx now and again, in senior contest, in junior also, using a pair of 8JK antennas.

2YO—Away on holidays due to coal crisis, so doings are nil this month.

2XT—Have not seen you of late; has your qra changed yet?

2DG—Getting ready for the junior contest, using 8JK on Europe and Zeppelin antenna for all round; has a new shack, very nicely done up. You should win the Sir John Dunningham trophy, as you were the most consistent station I heard; good luck, OM!

2PZ—Built a speech amplifier using push-pull, had a little trouble with the phase-splitter tube. Rebuilding, using 807-807 in rf line up for 10-20 metres. Get on 20, OM, and let's hear you amongst the boys.

2CW—Doing a little on 40. Say, get on to 20, Bill. I believe you have "Y.L."-itis; don't let it get you down, OM.

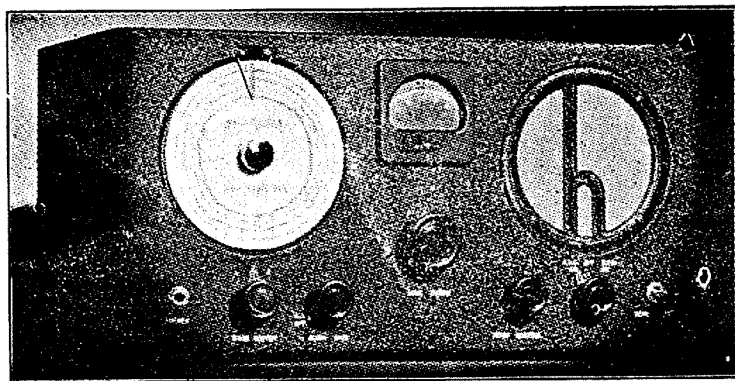
2KQ—A new arrival in this zone. Welcome, OM, and hoping to meet you shortly, using 80 consistently and always a good ragchew.

2YL—Using 20 regularly, also rebuilding to 807-809 combination; dx now 113 countries, using an 8JK to advantage now. Do not forget the return trip, and thanks a lot for combination. Appreciated, OM.

## WAVERLEY RADIO CLUB NOTES.

(By VK2AHJ)

The club has been having rather a busy time lately, both at its weekly meetings and its outside ventures. Portable transmitters have been built and rebuilt, and have, for the most part, been occupying the attention of the transmitting members, all for the purpose of making the forthcoming field day a success — and it was.



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**SUPER SKYRIDER SX 16**, 11 tubes, 5 to 550 metres, crystal filter, separate 12in. dynamic speaker.

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**ULTRA SKYRIDER** (tunes in 5 metre stations with same ease as lower frequency signals), 10 metal tubes, tunes 3.75 to 53 metres, direct dial calibrations, unique band spread system, iron core expanding I.F. trans., single signal crystal control.

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For the purpose the club adjourned to Narrabeen Lakes, and during the morning and afternoon of September 18, the members had great fun working actually portable. 2ABS's 5 watt portable excelled itself by working a VK4 and getting an R6 fone report.

Meanwhile at the club meetings the introduction of the new transmitter has been discussed, and adequate protection has been arranged in the interests of safety from theft. In due course it was brought to the club and put into operation. The occasion was that of the demonstration given by the club for a local social club. The activities of "hams" in general were explained very efficiently by Morrie Lusby, VK2WN, after which a ham station in operation was exhibited. The demonstration was well received by an audience of about 300.

To return to the new transmitter; the layout and constructional work was an eye-opener to the club members, some of whom had not seen it in course of construction. The line-up to date consists of 6L6G pentode c.o. with xtal switching and a choice of four xtals, all enclosed in a thermostatically controlled oven, followed by a 6L6G doubler, 6L6G alternate buffer or doubler and an 807 also alternate buffer or doubler. The final, yet to be added, will consist of P.P. 809's. Who sed 2BV was grp?

On September 20th, the club welcomed two new members in Ivon Bailue (2TN) and Col. Paerson, a cousin of the writer. Col is anxious to tread the path to hamdom, and can rest assured that the gang will do their utmost to give him a helping hand. Ivon is an old-timer in the district, and at present is aiming at getting his rig so compact that it'll hang on a watch chain.

2MQ is still recovering from his recent operation, and it wasn't 5 m operation. He should very soon put in an appearance.

Jack Paterson, 2AFG, produced a very nice 3-tube portable receiver at the field day, and, apart from being pretty, it must have been very businesslike also, according to 2ABS.

The latter's activities have not been very great lately, and it was rumored that Jack was trading in his ticket for a replacement for a

busted P.E. cell. 'Zat so, Jack?

Leo Walters and Dave Halley have been the hard workers in the club these last few months, and have both helped Gordon Wells consistently with the new rig.

In concluding, I would like to invite anyone interested in ham radio to drop in at the club room, rear 13 MacPherson street, Waverley, and meet the gang, who will be only too pleased to welcome them.

## Victorian Division

### VICTORIAN PHONE MEETING.

Combined short wave and 200 metre fone section meet last Tuesday in the month, and all short wave fone transmitters welcome.

### KEY SECTION NOTES.

#### Members' Doings.

3WU.—Shortly be on with 809 P.A. Change of QRA the trouble.

3KR.—Busy Wednesday evenings with 3MR keeping 3WI on schedules.

3OG.—Up to his neck in rebuilding rig.

3DP.—Is losing sight of the fact that B.C.L. QRM is still prevalent.

3ET.—Still brushing up the A.O.P.C. Class code when not grinding xtals or repairing meters.

3ZY.—Took a quiet trip to Tassie, and was successful in landing announcer's job at 7BU. Congrats., Bill.

3ZH.—Works 40 dx wid a 59 Sturmoni osc. and a twisted pair doublet.

3XL.—Still rebuilding rack and panel. Hopes to be on the air again on c.w. November.

3AH.—QRL wid swot. Expects to be on daily from middle of November, and chasing pirate working his DX on 14 mc. Ambition is to pin him by ears to shark ceiling.

3EV.—Working regularly. Vy psed wid first W wid his 6A6 co-doubler.

3PJ.—Not very active.

3ML.—Is polishing up all available gear with a view to renewed activity in the R.A.A.F. Wireless Reserve.

3UK.—Has a mast to take down and vice versa, to put in a new hal-yard. Any helpers? A full overhaul of portable gear is underweigh in preparation for the National Field Day.

3JM.—On 14 mc. c.w., but hoping

to be on fone soon. Full of beans for reorganised R.A.A.F. work.

3VQ.—Amongst the dx again after a few months of grid phone.

3ZU.—Working duplex fone with 3SG.

3SG.—Working dx on grid fone and duplex with 3ZU.

3MR.—Off the air and rebuilding shack and rig, which will be something different.

3EQ.—All recent dx worked by car.

3UM.—Got exciter unit of new rig on air at last, and now contemplating a new recvr.

3RJ.—Finding a little time for VK-ZL Contest.

3EX.—Vy QRL.

3IG.—Now sets alarm for 6 a.m. and works early a.m. dx.

## U.H.F. SECTION NOTES.

(By VK3DH.)

As the news and doings of the active stations were excellently recorded in A.R. for October by our worthy chairman, 3JO, there is not very much to report this month.

In connection with the Wangaratta work on November 26th, we have a few more details to hand. 3JO, 3OT, 3VH, 3PS, 3ML, 3OF and yours truly are the stations who have expressed their desire to take part and willingness to betake themselves to Wangaratta.

As only four stations will be required for the actual "circuit," we should have plenty of gear on the spot. Briefly the requirements are for four stations (one control at pits) to locate themselves around the course and by maintaining constant communication with the control station, will report cars as they progress around the track. Our services will be required from 2.00 p.m. until 5.30 p.m.

We do not know the distance around the car track, but we were told that the greatest distance between any two points would be about  $1\frac{1}{2}$  miles. Spare batteries are to be on tap at the scene of action, so there should be no power failure problems.

At the section meeting on September 20th, the above details occupied most of the general discussion period. Other items of interest include types of vibrators for use with portable 56 m.c. gear and the various me-

rits and otherwise of class "C" finals at this frequency.

As 3JO recorded in last month's notes, there has been a decided forward step in VK3 in the last few months; with the advent of crystal control at 3OT, 3PS, 3YL, 3DA and, of course, 3JO, who has had a 3-stage E.C. line-up for a matter of years now.

If we can all make an effort to have our permanent home transmitters, at least, crystal controlled in the very near future, I should say that with some organised interstate schedules (on CW for a start) we shall very soon see regular and perhaps reliable QSO's an accomplished fact.

It is true that the receiver problem has, up to date, been quite a large one, but with C.C. transmitters regularly "on the air," there is no reason why a standard communications type receiver that performs satisfactorily on 28 mc. cannot be fitted with 56 mc. R.F. (if any) and mixer coils. By making use of the 2nd harmonic output of the oscillator (already calibrated) a large part of the difficulty of locating the band is removed. Secondly, the C.C. transmitters overcome the selectivity problem, since it would be unnecessary to copy, in the case of phone, or follow, in the case of C.W., the broad unstable signals from a single oscillator transmitter.

And so here's hoping we shall very shortly know more of the behaviour of our 56 mc. signals at considerably greater distances.

## NORTHERN ZONE.

(3HX-3ZK).

We hear from members who are active on 20, there's still a little elusive DX about.

Old man QRM has been busy on 80 and 40, but there's still a few ZL's and VK's about on 80.

3TL—Still on 20. Believe 3BM blew along just in time to help with the W8JK beam.

3OR—Last heard of trying his luck at DX.

3EP is still having his share of DX.

3EC.—Taming a T20 and having fun with 83's. Local BC station comes in well. What say, Ern?

3BM.—Rising earlier and contacting G's.

3CE.—Has been heard on 80 occasionally.

Ron (ex-7RC). — Still keeping Charlton B.C. station entertaining or annoying B.C.L's. Thinking of making a comeback. Don't think too long, Ron. Act!

3IV (ex-3EQ-2AGQ). — Now in Birchip; hopes to be making himself heard very soon.

3CH.—Turned up again after quite a long absence.

3AI.—It is rumoured Frank is to stage a come-back.

3IH.—Still making 6 watts go places. Has a brand new receiver, but results not satisfaction to date. Are they ever?

## WESTERN ZONE. (By VK3HG)

The Western Zone dinner and convention has finally been fixed for the 26th and 27th November, and will be held at Colac. All members and non-members are welcome, and the more the merrier, so come along and have a swell time. But please advise either 3KR or myself if you are coming so that arrangements for accommodation, etc., can be made.

Conditions have undergone a change during the last month, and lately, due to the sunspots, have been very erratic indeed. The Europeans, who have been most consistent since May, have only been workable on occasions, although the closer DX has been more reliable. 28 mc. has shown some improvement and all continents have been heard, but rather weak and hard to raise.

3PE.—Working the DX in fine

style on 14 mc. phone and CW.

3KX.—Very active on 14 and 28 mc., and raising them in his usual style.

3TW.—Got fed up with 14 mc. phone, and is now on 3.5 mc. and working the locals. Hope the BCL's give him a clear go.

3AC.—Now in Swan Hill at the local B class station.

3JA.—Borrowed a generator and had a go in the contest, but found QRM too bad on his receiver. Has been working good DX at other times.

3FA.—Active on 7 mc. CW and contemplating higher power and phone.

3SZ.—On 7 mc. with lower power and getting out very nicely.

3OW.—Working a few on CW.

3TN.—Not on very much.

3HG.—Improved the V beams and still working lots of DX.

## GIPPSLAND NOTES. (By VK 3PR-DG.)

3IL.—Bob now on CC and getting out well with QRP fb om.

3WE.—Bill has been successful in working W on 80 mx fone. Congrats OM. What about getting out of bed for Eastern zone hook up, Bill?

3SS.—Keith on again after some months of inactivity. Now in a new house with special shack for radio. Your quality not too good, OM.

3DI.—Jim still QRL service work, but heard he erected new stick to get sky wire up a bit, so it won't be long now.

3HZ-3XZ.—Where have you two

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Scots got to? Working on five or what?

3ZJ—Now at 3UL as announcer. Hope hear you on the air soon, Jim, and welcome to the zone.

3EA.—Evan is a fisherman and spends most of his time on the water. How is the portable coming on?

3PR.—Fairly QRL, but manages to get on 80 mx occasionally. Ron has gone back to the old faithful 6P6 suppressor mod input about 4 watts.

3GO.—Graham on 40 mx again. We want you in the zone hook up om.

3VG—On 40 mx cw, but hopes to have fone permit within a week or so.

3QB—Jack not heard of for months; must be after dx on 40 or 20 mx.

3NO-LY—Too busy for words, let alone radio, hence the inactivity.

3DG.—Playing around with Vee Beam ant; since replacing feeders with ones that do not radiate has trouble to raise VIM with a better report than R5. Rebuilding PA and going in for plate mod.

## Queensland Division

The Senior section of the VK-ZL contest is over. Patchy conditions and terrific QRM due to short skips marked the experiences of the VIB gang who took part in the contest. In fact, it would be necessary to go back a few years to strike conditions bad enough to compare with those of the early morning hours during the last week-end. Over one period 4JX called CQ for three solid hours with no result. Jack was putting out an f.b. sig as no one will deny.

First place honours in Queensland will go to either 4BB or 4JX. The latter station managed around 180 contacts with multiplier of 39 countries. 4BB's score is not known. Bob always turns in a good log. and he won't be far from the top of the list.

4UL, 4UR, 4AW, 4JU, 4SA, 4HG and 4AP all stuck through the 24-hour periods and should have reasonably good scores.

The 10 mx band was not used to any extent by any of the above competitors. After the contest was over we learnt from 4HR that on

Sunday evening, 9th October, from around 8 p.m. the 28 mc band was wide open for European communication. 4HR states that conditions remained good until midnight, and he had no difficulty in contacting some 20 odd stations.

### 4WI Schedules.

The secretary announces that the 4WI transmissions are now in full swing. The frequency used is 7 mc and the times from 10.30 to 11.30 a.m. on Sunday. Country members are strongly advised to listen to the station, as much of interest is given out. A review of W.I.A. activities, news for country members, DX notes and morse instruction for student members are included among the features transmitted.

### Personal Items.

4JP looks like being Australia's No. 1 fone station before very long. W and ZS stations around 7 a.m. are no effect to George. Can hear some of the C.W. dx men saying, "don't believe it." Get up early om's. You'll find the proof around 14050 kc.

4JX has a universal exciter unit in mind. A good idea, Jack. We like the idea of E.C. control—but only in experienced hands.

4FB's portable xtal sig is really f.b.m. Fred works W stations on fone with it.

Heard 4GU calling a PY on 14 wc. All Dick needs for W.A.C. is a South American.

A new W.I.A. member is 4CN, of Cribb Point. Give him a shout, boys.

Good dx seems to be coming 4TK's way.

VK9MC is a new member and looking for VIB contacts.

4NO, Gladstone, is very active on 7 mc.

200 volts of "B" battery on a 41 xtal oscillator is all the power 4SN wants to work dx.

4RG, Brisbane, is on the look-out for country members. He puts out an f.b. fone signal on 7 mc.

4HR can tell a few tales about 10 mx dx, but prefers to keep 28 mc doings a close secret. Tibby uses an 807 final, the aerial is 2 half waves in phase, vertical.

4SA gets out very nicely. Heard plenty of rare ones calling him in the dx test.



4HU is the latest to join the ranks of the 14 mc fone men. It's good fone, nicely modulated. A good antennae will put it in many dx countries o.m.

4AP has returned to 10 metres, and immediately added two more countries to his bag—CT1HK and I1MH. Think Alf's 10 mx total is now 40 countries.

4AW missed a lot of stations in the dx test. Build yourself a good RX, Arthur, instead of fixing up B.C.L. sets.

4RT didn't seem to get going properly in the dx test

Heard 4HA trying his luck on 14 mc the other evening.

4GK took little or no part in the dx tests. Things didn't seem quite the same with Mac out of it.

4KH will be on 14 mc fone before very long. No one doubts Bill's ability to rag chew.

Country members are again advised that notes for inclusion in this column must reach the secretary of the W.I.A. not later than the 7th of each month. This month not a line about country activity came to hand. Remember, 4HR in Brisbane is just as interested in your doings as you are in his. That applies to most hams. What about it, o.m.'s? Give us some notes if you want this column to "Wake up and live."

## South Australian Division

(By VK5KL)

October 12th affording a public holiday, the field day was held at Murray Bridge. Members met at the Institute rooms and proceeded to the scene of activity. Combining together a trip on the river was whiled away the first two hours of the day.

Results of transmitter hunt and other trophies are as follows:— Transmitter hunt, 1st, VK5KL (TZ20), 2nd, VK5LK (order for 10/6 on a city firm); member coming longest distance, VK5CJ (Naracoorte); best piece apparatus, VK5LK. These last two received gold medals donated by Mr. Walker (VK5WW). Many thanks are due to 5BF for supplying the hidden transmitter. Altogether there were 70 to present at the field day, which was a great success. It is our inten-

tion to hold another this month near at home, at one of our beaches, possibly Selleck's Beach, on a Sunday, and it is hoped that a good attendance will again prevail. Judging by some of the portable gear seen there should be a few entrants for the National Field Day next month. The five-metre band is again coming in for more activity. 5ZU is still keeping skeds with 2NO, and trying to get same with ZL by qso'ing them on 10 mx. 5HD's quality is good, resulting from a T20 doubler.

VK5JT is now on this hand and has a hefty sig. on CW. So let's hope some DX will appear this summer. Well, all you country chaps, hope to see you at the Xmas dinner.

## VK5 COUNTRY NOTES.

For some weeks the main topic of conversation throughout South Australia has been the field day at Murray Bridge. Well it eventuated on Eight Hours' Day, October 12th, and what a time we had! Sturt Reserve was the site, and wore its most pleasant garb of green lawns and shady trees, with the cool waters of the mighty Murray flowing lazily by. The weather, neither too hot nor too cold. Everything was all that the most exacting could ask for. Now, what about some of the Country gang who put in an appearance.

5CJ—Came all the way from Mt. Gambier, about 250 miles. The motor bike did the last 15 miles on one cylinder, the other having developed a crack. Colin and his friend, Mr. Jack English, decided to come on to the city whilst repairs were being effected. Started for home on the evening of the 13th and arrived at Mt. Gambier at 9 a.m. on 14th; worked all day, nearly asleep, and then had to travel about 30 miles that night to carry out some repairs to the light at Port McDonnell lighthouse. They have since had some sleep.

5LC, 5YM, Lance Catford and a friend came from along the mid-northern districts, and spent close on 24 hours out of bed. A front wheel came off one of the cars on the homeward journey, without any disastrous effects, however. Parts of a portable receiver were requisitioned to hold the wheel on for the remainder of the journey.

## Western Australian Division

(By VK6WZ.)

Darcy Hancock (5RJ) and Mrs. Hancock came along from Kadina, and appeared to have a good time.

5LR and his good wife travelled from Berri. Decided to have a feed of fish and chips on the way back home. Found that castor sugar instead of salt had been used as a flavouring.

5YL took a party off to inspect her station. Says she enjoyed the boat trip on the river as much as anybody, even though she spends some hours on the water every Sunday in her own boat.

5BF.—Frank was one of the busiest men at Murray Bridge all day. Carrying out programme arrangements, rigging up and operating the hidden transmitter, showing visitors his station, etc., kept him moving from daylight until dark. Frank and Mrs. Miller deserve a great deal of praise for the work they did to ensure the success of the day and for their hospitality.

5BG—Bob was on duty at commercial 5MU until 2 p.m. He then came along and met the gang. Later he was called upon to show a party of visitors his station.

Now a few notes from 5WG. Wally says:—

5LG.—Leith is one of the boys who always sends in his monthly doings; thanks. OM. At present using 50 watts input to an 809 and experimenting with antennae.

5NW.—Bob has been inactive lately. Let's hear from you, Snow!

5BK.—In the city recently, and reports having met a number of the City gang.

5HR.—Rumor has it that Bill is constructing again, and will be active again soon.

5KJ.—So you are an exponent of chess, George! Better give 5RT a call!

5TL.—Tom can often be heard with a good sig from QRP.

5MP—Haven't heard you lately, Len; must be rebuilding, eh?

Our student members, Mr. Col Bottrall and Mr. Frank Trembath, are hard at it, and Lance Catford sat for the October exam. Good luck, OM.

Well, chaps, I guess that's about all the Editor will stand, so cheerio!

The Monthly General Meeting for October having been put forward from the second Tuesday to the third it is impossible to include in these notes anything dealing with the meeting since your correspondent is not endowed with occult powers and has no faith in astrology.

Condx have been poor lately with sunspots and ionised layers doing their combined worst at one stage (mid-month in October) to block out all but local and Eastern VK signals. 7 mc. is getting noisy, but is still popular with a few old-timers and most of the newcomers. 14 mc. is still the haunt of DX hounds—sunspots, etc., permitting.

6WI has been moved to another position in the "operating" room, but even this doesn't seem to have induced the transmitter to go on the air without an operator; looks as though someone will HAVE to stir up some energy and pound the key.

6BB is finding his National receiver a mixed blessing—lecturers are finding the subject "Modern Communication Receivers" a most desirable one, and it seems impossible to give such lectures without BB's NC-81-X as exhibit "A."

6MY and 6JS still threatening to come back on the air. What a shock it'll be when they DO!!!!

6HB heard on a lot wooing SWL's and BCL's with a "programme" and a very noticeable absence of VK in the call sign.

6YZ still waiting for 866's.

6HT, of Albany, on 7 and 14 mc. with 6MM as chief op. most of the time.

6AR doing wonders with a piece of wire strung along a fence; says Minding is fb QRA and can hear the world on 7 and 14 mc. Thinks it unlikely that P.M.G. regulations will allow him to put up a decent antenna—rotten luck, Bert!

6PK back from holiday trip to find his rx. power-pack stolen from shack. Miscreant took pack and left rx., meters, high-voltage transistors and so forth. Could have been worse, Perc, OM!

6FL of Geraldton apparently back on 14 mc fone again, and doing well. How did you fare in VK-ZL, Frank?

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6AF—24 hour service.

6MW—On now and again working fone D X with rotary beam.

6LW heard on Saturdays and Sundays on 7 mc. trying to fit in as many QSO's as possible in short time at his disposal.

6LJ back with rotary W8JK which started end-fire, but has now consented to work according to Kraus. Jack was so impressed with 6AF's vacuum tube keying that he decided to do likewise; results from both quarters vy fb.

6SA—Still putting out fb sigs on 14 mc. and working DX with the best of 'em.

6JC.—Very busy, and on the air but rarely these days.

6YL, 6NL and 6DF — Anyone knowing the whereabouts . . . . .

6LY—Transferred to country, and his QSL Bureau duties taken over by 6CP.

6GR and 6ZO of Fremantle, heard occasionally keeping up the old traditions.

Will VK6's with anything of interest please get in touch with 6WZ so that dope may be included in these notes? Thanks!!

The winner of the August 7 mc Field Day was announced as VK6AF (30 points), with other competitors and their scores as follows:—VK6RW, 23; VK6BW, 22; VK6's GM, AB and DA, each 21; VK6BB, 15; and VK6KO, 14. The Field Day Committee's report was received, and the hope was expressed that although the Field Day had been a success, even more stations would participate next time. The Field Day Committee's next outing is due for November 6, and will take the form of a DF hunt for a hidden transmitter—tone and speech modulated and time of transmission to be from 10.30 a.m. to 1 p.m. Transmitter will be located within four miles of the Kelmscott railway station. Points will be awarded for finding the transmitter, neatness of equipment, portability, antenna system and design.

### Around the Bands.

3.5 mc. full of QRN, Commercials and "B" Class stations with (perhaps) unintentional short-wave relays (harmonics some call 'em), sometimes even possible to hear a ham sig there. 7 mc. also noisy, but

with more activity and only slightly less commercial and harmonic inactivity . . . a little DX o' evenings . . . stamping ground for newcomers. 14 mc. happy hunting ground for DX-ers, and except for a patch of bad condx in the middle of September yielding some pretty good DX.

28 mc. waking up here in the mornings between about 8 and 11 a.m., mostly W, K6, VK and ZL according to observation, gossip and reports . . . quite dead in evening hours . . . dark threats of impending activity on this band from several VK's.

Comments.—VK6SA still the most consistent old timer. Say, OM, we always thought you averse to fone—could pick your voice operating on VK6AG mobile—naughty, naughty! (VK6AG—another old timer—made a comeback on night of 18/9/38 with a stunt transmission from a car travelling about city and suburbs using 7 mc fone with 8 watts input on crystal control. SWL's were wooed in no uncertain manner judging by announcements). Another old timer in 6PK has just returned from trip abroad with YF—had good time among the "can-I-sell-you-a-nice-carpet-master?" blokes in the mystic East—loads of pictures taken on his new Ziess. 6GB still working good quality fone and clean c.w., mostly on 7mc. 6CP still active on 7 and 14 mc bands—has a real clobber in 6HB, but recently arrived back in his home State after many years spent in other parts of VK. 6HB quite active on 7 and 14 mc with effective low-power rig.

VK6FL of Geraldton raking in the DX like nobody's business on 14 mc and heard on 7 for Sunday morning rag-chews with metropolitan chaps. 6HT of Albany heard called by Yanks and other fone DX on 14 mc frequently . . . skip prevents us hearing his sig. here in Perth. 6MW back again on 14 mc fone working old friends in the States. 6HS, a newcomer to fone doing well with VK and DX contacts; making fine fist of grid-modulation transmission. 6LJ back with knobs on and a rotary beam which draws forth much cheap wit from neighbours who think it a sort of chairplane! My, the insults we suffer! 6WS also beam-conscious and has a nifty lattice tower erected on the roof all ready for the W8JK doings. 6BB discovered recently buy-

ing an acorn tube—expensive morsels! 6DF and 6NL and 6YL not heard much recently. 6ZO heard on 7 and 14 mc with good fone and bad c.w.—clicks that sound like power leaks. 6YZ still waiting patiently for 866's for his big rig. 6KW very pleased with his 50 watts to an 809—nice sig.

Parting shots.—Long CQ's and grandmotherly operating still persist in some quarters.

VK6CP is the new QSL officer for VK6, VK6LY having been transferred to country duty (and, incidentally, being QYL!). VK6CP's QRA, Mr. C. R. Cooke, 35 Beechboro road, Bayswater, W.A.

## Tasmanian Division

(By 7YL.)

The monthly meeting of this division of the Institute was held in the Y.M.C.A. rooms on the 11th. There was a fair attendance. The Northern Zone was to have held its meeting on the previous Tuesday, but as yet no news is to hand.

After much parleying, it was decided to hold a picnic for members, xyls, yls, etc., at Blackman's Bay on the 23rd. No gear is to be taken, but in place tennis racquets, cricket bats and balls, golf clubs and swim suits for those who so desire. Guess it is a little too cold down this end of the globe for swimming yet, but there may be a few game ones.

Mr. Hyland (7LP), the energetic social committee chairman, has been at work, and we are to have a picture show and supper at the Fire Brigade Hall. (Hope there is no fire that night.)

Conditions for dx have been exceedingly disgusting down south, especially during the two contest weekends. The local rag informed us that sunspots were the cause of the complete fade-out of 20 mx communication on the 9th. It certainly was a complete fade-out, for not a single dx station was heard from 0200 to 0800 hours—not even a Yank.

### Scandal.

7AH.—Will not attend the field day as will be cruising on the family yacht. Had an attack of laryngitis last club night, so could say very little.

7CM.—Like most others in the senior contest called cq ad lb, but didn't work much. Is on most consistently. How about a key click filter, Charlie?

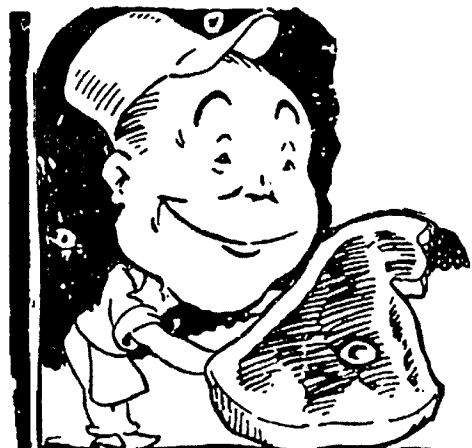
7HM—Is now settled in new qra and is trying to get shack ship-shape. Has oceans of room for year, and lots of play for antennae systems.

7JB.—Thoroughly disguised with senior contest. Threatens to sell gear and take up something which will cause him less headaches. Lots of sympathy, Buck, hi! Now has the Technical College station in operation, and worked 5TX on first try-out. Believe the Technical xmtr works fb.

7NC.—Has been doing some very consistent work on 14 mc and working some dx when it pops up.

7PA.—Is too busy building new caravan to attach to the V8 for weekend trips to be on air much, in spite of many new tubes to be installed in rig.

7JH. — Occasionally visits VIH from Waddamana (power centre). Reports fair amount of activity but not much dx. Occasional J's and W's.



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(VK8BQ)

13 BALWYN RD., CANTERBURY, E.7  
Vic.

Maurice Burleigh is now stationed at the Paper Pulp Works at Burnie. Let us have some news, Maurice.

Have had very little news from the north—guess everyone must be very busy. 7AB heard being called in test now and again. Hope dx was a little brighter up there than it was down here.

7YL.—Tired of seeing things pass out at this qra. The modulation transformer is the latest to be added to the "has-beens." Such is life.

73's. Joy.

(Continued from page 14.)

publication of the following:—"W1APU is trying for 100 VK verified contacts. To date 83 VK's have been worked and 43 verified, just about 50 per cent. Will fellows that have worked W1APU and received his QSL send him one to help reach that 100 mark?" He adds that his idea of 100 verified VK contacts has been going for a period of 8 years.

A card and photo from SM6UA depicts the neatest and most busi-

ness like station the writer has yet seen. John Fr. Karlson, of Gothenburg, the owner and operation, is 73 years of age.

Cards for the undermentioned VK3 stations may be obtained by application to the bureau, 23 Landale street, Box Hill, in the usual manner:—AP, BE, BK, CA, CC, CU, CX, DA, DC, DD, DE, DI, DU, DZ, EA, EC, EH, EI, FK, FM, FN, FS, FZ, FT, GE, GM, GP, GU, HB, HE, HP, HE, HP, HS, ID, IL, IN, IR, JD, JL, JS, JV, JZ, KC, KG, KL, KP, KS, KY, LD, LM, LP, LW, NA, NF, NV, OI, OM, OQ, PH, PS, PV, PZ, QO, QT, RQ, RV, RZ, SC, SE, SF, SM, SO, SZ, TD, TG, TT, TU, TV, TY, UC, UN, UO, US, VN, VK, VY, WR, XC, XU, YM, YT, ZG, ZF, ZJ, ZP, ZR, ZL. The foregoing list appears in the February, May, August and November issues.

Cards are on hand for the following new stations whose QRA's are required by the bureau:—VK3BP, CH, CO, DO, DD, EV, HT, IB, IF, IK, KK, MU, MJ, OQ, PF, PV, QC, QF, QG, QU, RA, SD, TE, UQ, VO, WT, XO, XH, YR, YW, ZS.

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(Continued from page 9)

5.—Any station can be contacted once on each band, each week-end.

6.—States are as follows:—VK2, VK3, VK4, VK5, VK6, VK7, VK8 and 9 combined.

7.—Licensed power must not be exceeded, and infringements of the Postmaster-General's regulations may mean disqualification.

8.—One point is scored for each cypher exchanged. Total points are then multiplied by the number of States worked (as defined in Rule 6.)

9.—Bonuses will be added to the score after multiplying (rule 8.) The bonuses are as follows:—

Contacts on 160 MX.—50 points for each State worked.

Contacts on 80 MX.—20 points for each State worked.

Contacts on 40 MX.—20 points for each State worked.

Contacts on 20 MX.—30 points for each State worked.

Contacts on 10 MX.—100 points for each State worked.

Contacts on 5 MX.—500 points for each State worked.

The sum of bonuses plus those points scored as in Rule 8 will constitute the grand total score.

10.—The cypher to be exchanged consists of 10 letters. The first five are to be chosen by the entrant, and to be used as his identifying letters throughout the contest. The remaining five letters are to be the first five letters of the last station contacted. The initial cypher should consist of the five letters of the originating station, plus five A's, e.g., XYZABAAAA.

11.—All logs must reach the Federal Executive, Box 2127L, G.P.O., Sydney, by 31st January,

1939. The logs must contain:—

(a) Time, date, band and call sign of station worked.

(b) Cypher sent and received at each contact.

(c) Points claimed, contact points and bonus points.

12.—The scores of the three leading competitors in each State will be totalled, and the State having the highest aggregate will be awarded the Trophy. Certificates will be awarded to the leading two stations in each State.

13.—The decision of the Federal Headquarters Executive of the W.I.A. will be final and binding in all matters.

CHASSIS COVERS in sprayed steel or aluminium, also Relay Racks built to specifications. Transmitter Name Plates in Ivorine, Brass or Chromium Plated. Phone B5056. Write or call to CHAS. HANDFORD, 13-15 Mary st., BRISBANE.

HYTRON TUBES.

Attention is directed to the notification in this issue from P. and L. Wireless Supplies Pty. Ltd. It features the dependable Hytron Transmitting Tubes, 25 and 40, obtainable only from this firm.

(Continued from Page 9.) ordinary use as it is essential for adequate low frequency response.

No difficulty should be experienced in building this job and the results will, I feel sure, be very satisfactory. The whole unit was finished one week-end and the first call brought in a W2, the second a W8, which was very pleasing after calling them for days with grid modulation and getting nothing but back fence contacts.

Hytron Transmitting Tubes

H.Y. 25 Triode having 25 watts plate dissipation . . . . . 22/6 net

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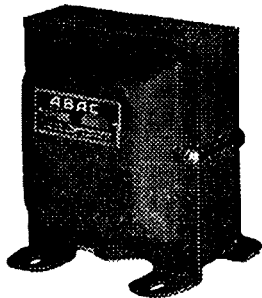
PTY. LTD. TELEPHONE: F4823.

213 ELIZABETH STREET, MELBOURNE.

## Appearance!

Nowadays many a job is sold on appearance, and this angle has an important bearing—more or less—in the minds of all of us when we get going on the design and lay-out of the new rig.

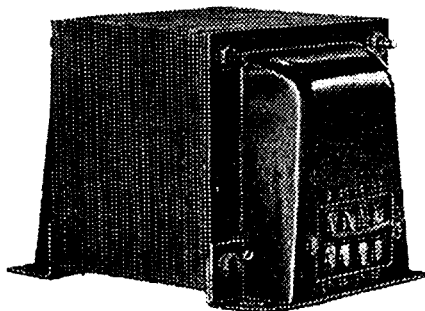
We are frequently asked whether it is possible to have audio transformers, power transformers, and chokes, similar externally. The answer is that it all depends on ratings, and in an effort to clarify the position, here goes:—



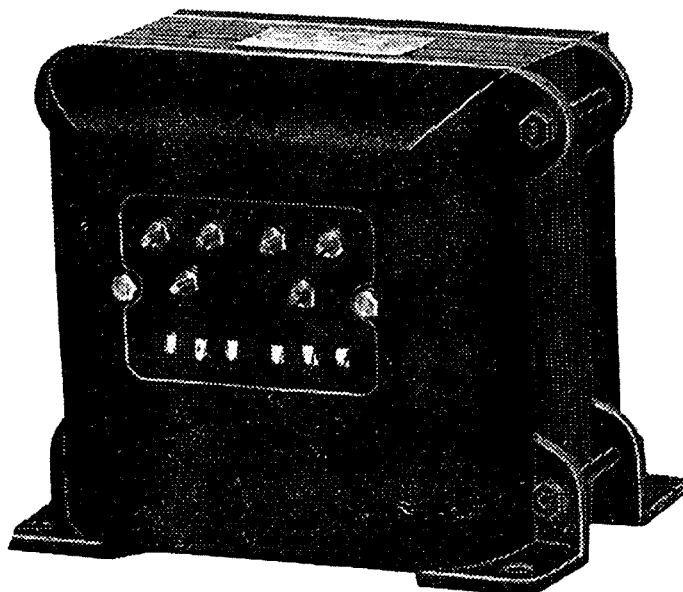
No. 1.

No. 2 covers output transformers to handle around 30 watts, 30 henry 150 m.a. and 15 henry 250 m.a. chokes, 30 watt universal modulation transformers, and power transformers up to 250 V.A.

No. 3 covers the 100 watt universal modulation transformer, 15 henry 500 m.a. chokes, and power transformers from 500 to 2000 volt-amperes capacity.



No. 2.



### THE MODERN MODULATOR.

An illustrated and descriptive folder and price list covering rack, chasses, transformers and chokes used in the unit described in this issue is available free for the asking.

May we send you one?

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VK3HC.

No. 3.

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(See Page 27 for Additional Hamads.)

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2-inch Cathode Tube

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Octal base (same connections as 913).

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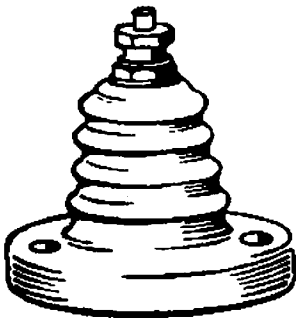
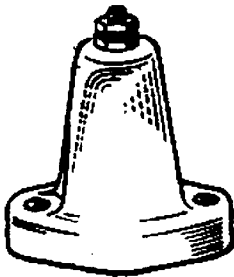


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DECEMBER, 1938

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**BIRNBACH GRAMOPHONE NEEDLE CHUCK TYPE TEST PRODS.**

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# AMATEUR RADIO

Published by the Wireless Institute of Aust., Victorian Division.

Vol. 6 No. 12

1st DECEMBER, 1938.

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All Communications and MSS. should be forwarded to the Editor, "Amateur Radio," BOX 2611W, G.P.O., MELBOURNE.

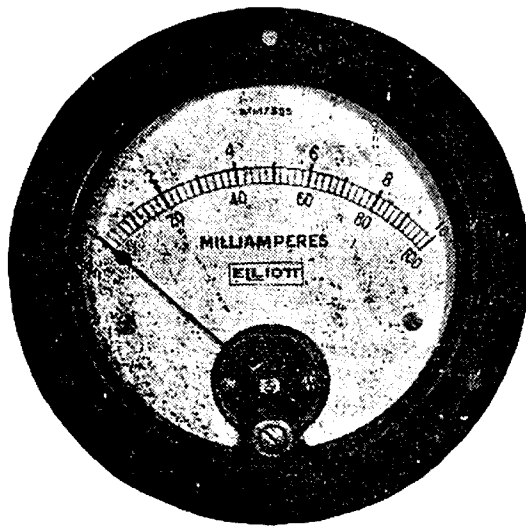
Subscription to "Amateur Radio" is 6/- per Annum (Post Free), paid in advance.

Should you not receive your copy of "Amateur Radio," notify your Divisional Secretary at once.

Advertising and Publishing Office: Address Publicity Manager, "Amateur Radio," Whitehorse Road, Box Hill, E.11. 'Phone: WX 2429.

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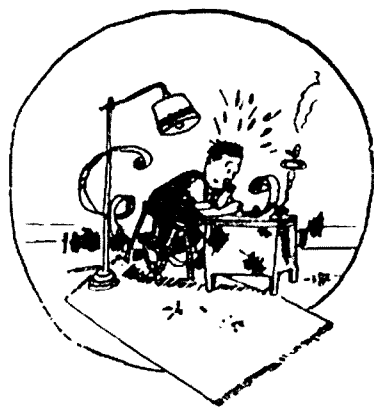
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# EDITORIAL

The following extract from the Editorial of "The Wireless World," England, is the nearest thing to a revolution which to our knowledge has ever occurred in England:—

"We do not have to turn the calendar back very far to be able to appreciate how important it is to the country that there should be available in times of emergency a large body of skilled wireless operators. We know that a skilled operator cannot be created at short notice. Not in a month, six months, or even a year can a high standard of proficiency be attained.

"Surely the time has come when the Post Office should remove every possible obstacle and encourage ownership and operation of amateur transmitters as widely as possible.

"In order to increase the popularity of amateur transmitting as a hobby, applicants for licences should be freed from the obligation of providing evidence as to proposed experiments. We would like to see, too, the removal of some of the present ill-defined restrictions as to the nature of the communications in which the amateur may indulge. At present these restrictions debar the amateur from communicating anything beyond the discussion of the nature of his experiments or purely personal matters. We believe that, without any damage to the monopoly of the Post Office, concessions might be given, provided that it is clearly understood that no remuneration for transmitting messages must pass and that nothing in the nature of commercial intelligence should be put over.

"The Post Office should concede that the desire to become a proficient wireless operator is sufficient justification for the granting of a transmitting licence."

Whilst we do not agree with the sentiments expressed regarding the suggested issue of licences "to those who desire to become a proficient operator," the paragraph is of interest, as it illustrates the trend of thought in England today. It is apparent that "The Wireless World" is aware of the value of Amateur operators in times of National emergency and desires to see them encouraged and assisted to improve their efficiency as a national asset.

We must bring up the question of general contributions to our mag. once again. The plain facts of the case are that technical articles, in particular, have been few and far between of late. Must we remind readers that the existence of "Amateur Radio" depends not only upon financial support, but upon the co-operation given by our contributors and readers to make the pages of general interest. In the past "Amateur Radio" has printed technical material of a high standard and we regret having to make a public appeal for technical and general articles. "Even the blokes that never intended to write one have stopped promising." So you can see how difficult things are in this regard.

As it is only three months to the Federal Convention a reminder on the subject of agenda items is timely. A W.I.A. member who has a matter of Federal nature he would like discussed, should get in touch with a councillor of his Division at once.

The members of the Editorial Committee desire to extend to all their best wishes for a Merry Christmas and Happy New Year.

—Editor.

# A Static Type Velocity Microphone

(By 3IH and 3HX)

There has been a considerable amount of talk and a number of articles have appeared in radio papers in connection with this type of microphone.

The writers' attention to the mike was first drawn by ZL hams, who were using a home constructed job. A delightfully vague article in QST (February, 1937) shed some light on the action and operation of the mike.

Being interested in this type of experimentation, the writers set to to find out the whys and wherefores, the result of which is contained in this article, which may or may not interest somebody.

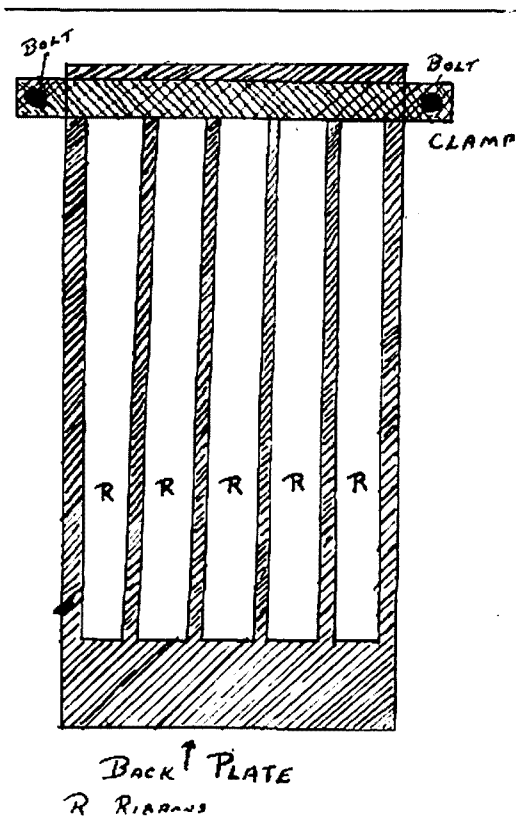
At the time of starting the construction practically no dope was known except for the QST article, which was merely an article telling what the mike was and how it worked.

According to QST, "the mike consists of a number of ribbons loosely laid across a perforated and totally insulated and conducting back plate in such a manner that certain parts of each ribbon are free to move. A voltage difference is maintained between the ribbons and the back plate by means of a D.C. supply. When the ribbons move they alter the capacity between themselves and the back plate, varying the charging current through the resistor R1 and causing a voltage drop across it which is proportional to their movement."

"The static type is a true velocity microphone, having the typical characteristics of high directivity and uniform frequency response, the output level is in the vicinity of -45db."

From experience practically any conducting material will do for the back plate. Zinc-tin alloy, aluminium, lead were the metals tried here, and no difference was noticed.

The back plate was drilled closely with 1/16in. or 1/8in. holes, and then given several coats of insulating material.



Here is the most important part on which rests the whole success, or not, of the mike, because if there is the slightest fault in the insulation, trouble begins.

Several types of insulation were tried; shellac was the first, but was not successful. Success was obtained with dissolving celluloid in acetone and carefully painting the mixture several coats on the side on which the ribbons would hang. The same material and amyl-acetate is another successful insulator. Mica was also tried and proved successful. The mica was glued to the plate, and the holes carefully pierced. A note of warning here; in all cases allow the insulating material to dry over-night.



The ribbons proved to be a simple matter. Several kinds of tinfoil were tried, and the best appeared to be the wrappig from Nestle's chocolate. A piece of foil slightly smaller than the plate was cut out, and strings 1/8in. wide were cut out, leaving a number of ribbons 1/4in. wide or a little larger.

The method of assembling the unit proved interesting, and also the source of plenty of trouble. The only successful method proved to be that as shown in the diagram, and that was clamping. A piece of oiled silk was used under the ribbons at the top to prevent the ribbons being forced into the insulation.

The clamp was simply a piece of brass on one side with a hole for a bolt at each end, a corresponding piece of bakelite was used for the other side.

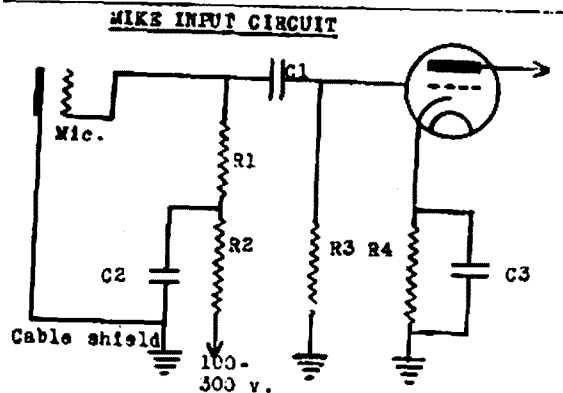
The ribbons are allowed to hang. Shielding of the unit is essential, leaving, of course, both sides open. Good quality shielded cable should be used, and it is strongly recommended that the input filter and coupler be built in a small shielded can, as otherwise considerable hum will be induced. If precautions are taken no hum will be experienced. The polarizing voltage for the unit can be taken direct from the output of the power supply being used for the speech equipment. Of course, the higher the voltage put on the mike the greater the output will be, but it must be remembered that the insulation will only stand a certain amount. The highest voltage used here was about 275 volts.

After the construction of the unit, and it is being tested, it is found to have crackles and various funny noises, the constructor can be certain that his insulation is poor, and the only remedy is to re-insulate the plate.

In use the mike should be placed 15-18 inches away from the speaker's mouth, and if possible never spoken at too close, as this will disturb the ribbons too much, and, further, will increase the low frequency response.

As far as the tests have gone here the frequency response is excellent,

and background noise nil, as should be expected. As one can see, the cost of this microphone, constructed at home, is practically nil, and from the results obtained well worth the trouble.



- C1. .006-.02 coupling condenser.
- C2. .5 filter condenser.
- C3. Usual cathode by-pass condenser.
- R1. 5-10 meg. input coupling condenser.
- R2. 5-10 meg. polarizing voltage filter resistor.
- R3. 1-5 meg. grid coupling resistor.
- R4. Usual cathode bias resistor.
- M. Microphone.

The microphones (several) here are still in the experimental stages, as various kinds of insulation, etc., are being tried.

## Battery Power and Crystal Control

(By VK3XB.)

Contacts over the air reveal the fact that there are now numerous country amateurs using battery or vibrator powered transmitters, and this article will deal with an efficient three band transmitter suited to these supplies.

Some men are using 6 volt heater tubes. To my mind, these are disadvantageous. The heaters must be on all the time the station is in operation, and if two tubes are used, this means at least 3.6 watts of filament consumption continuously. Against this, we have 2 volt tubes whose filaments may be switched off

at the conclusion of each "over," and, even if four of them are used, they have a filament consumption of only 1½ watts, and this is only when transmitting.

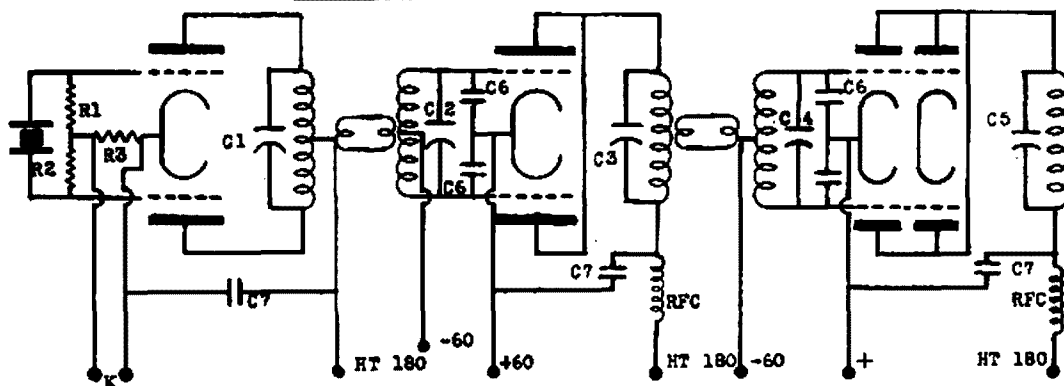
The transmitter about to be described uses 4 type 19's or KDDI tubes, with 2 battery power supplies of 180 volts each, but a vibrator may be substituted if desired. However, I find that where one is isolated, without regular means of recharging accumulators, the dry battery supply is best, if one wants to be on the air regularly.

The following lay-out has been in use at VK3XB for the last twelve months, and with an average of seven contacts per day over that time, the dry batteries go five months before their voltage becomes too low to be usable. It will be seen that the circuit utilises a single 19 as a push push doubler followed by a pair

in push push for 20 metre operation. One tube could have been used in this stage, as in the 40 metre stage, but the drive is sufficient to warrant the higher power available with two tubes. 300 volts could safely be applied to their plates in the set up shown. Output on all bands is high, and there is ample drive available to obtain excellent plate current resonance dips. The oscillator is keyed by the blocked grid method. Coupling to the antenna is by link to the terminating coil of Zepp feeders. Tuning of the transmitter is carried out in the customary manner, using reduced voltages for the initial adjustments. Metres in plate and grid circuits are an adjunct. Single turn link coupling is used throughout.

Coils for the 7,000 k.c. and 14,000 k.c. bands are wound on 2½ inch formers. Condensers C6 are very necessary to prevent self oscillation in the doubler circuits.

BATTERY POWERED TRANSMITTER AT VK3XB



Coil, condenser and resistor data are:—C1, C2, C3, C4, Eddystone 40 mmf; C5, Eddystone 25mmf; C6, .00005; C7, .006; L1, L2, 80 turns 22g DSC on 14in. former; L3, L4, 12 turns of 18g on 2½ in. dia. former, space wound diam. of wire; L5, 6 turns of 18g on 2½ in. dia. former, space wound diam. of wire; R1, R2,

50,000 ohms; R3, 250,000 ohms; RFC, 1.25 MH R.F. chokes, Eddystone No. 1010.

Typical operating conditions:—Osc., Ed. 180 (max.); Ip 7m/a; IG 1 m/a. 40 mx doubler, Ep 180-240; Ip (at 180v.) 25 m/a; Ig, 4m/a 20 metres doubler; Ep 180-300; Ip (at 180) 30 m/a; Ig 4 m/a.

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## Reminiscences of 7AH

A visit paid to Beach Road, Sandy Bay, some three miles from Hobart, was rewarded with a most interesting morning spent with Tasmania's "Grand Old Man of Radio"—"Pop" to the gang.

VK7AH—Mr. F. W. Medhurst—although now 71 years of age, would surprise many much younger than himself. Born in Chobham, Surrey, England, in 1867, educated at Nelson College, Lea, Kent, and at Surrey County School, Cranleigh, then at Electrical Engineering School, London Bridge.

At fourteen years of age he entered the Chobham Post Office as telegraphist and general postal assistant; this establishment included printing works, chemist and druggist and stationery business, the whole of which was conducted by his father.

Here he spent eight years, during which time he spent much of his leisure hours with the Telegraph Battalion, Royal Engineers, being close friends with the officers and N.C.O.s, there gaining a lot of his early experience. In addition to this he had two years with the Second Royal West Surrey Regiment Volunteer Battery Signallers.

At the end of this time he left England for Australia and arriving in Melbourne in 1889 he joined the temporary staff at the G.P.O. and later on at Flinders street and Prince' Bridge railway stations as operator and telegraphist, where he spent his first two years in Australia, coming to Tasmania in March, 1891.

Here he joined the Telegraph Department of the P.M.G.'s Department as operator and the same year transferred to the Electrical Fitting Staff of the department for telephone and telegraph work.

During 1900-1901 he carried out experiments with Mr. Hallam, engineer for the department in W/T,

and in 1901 as assistant to Mr. Hallam conducted successful experiments in contacting and maintaining telegraphic communication with the H.M.S. St. George, which, with H.M.S. Juno, accompanied the Ophir in which the Duke of York visited Tasmania. The land station which they constructed personally was situated at the Long Beach Light, known as "Blinking Billy" on One Tree Point, then also a defence battery.

Operating was continuous and was very highly commended by the vessel's officers concerned. The equipment used constituted 90 feet of scaffold poles lashed together from



which a vertical aerial was supported. This was end fed and used a plate immersed in the river as earth. 12 in. and 14 in. spark coils were used alternately as transmitters having an adjustable brass ball spark gap and tuned with a tapped inductance. Power was derived from Plante Accumulators, communication being essentially SPARK and very broad, hi!

## Amateur Radio

Receiving equipment constituted two coherer detectors consisting of nickel and iron filings in a glass tube with two silver contact electrodes and decohered by an electric bell used as a tapper in one case and by being mounted on top of a sounder relay in the other, duplication of the coherer was essential as often they became inactive in a very short time due to oxidisation and a change of filings had to be made repeatedly. The sounder relay previously mentioned operated a Morse Recorder (Siemens).

The coherers were tested for activity by using a spark gas lighter, a miniature Whimshurst machine which flashed a spark between contacts and acting as a small transmitter, was held close to the receiver aerial, an active coherer would register the flash.

A photograph of the equipment Command of Signallers in Tasmania, and held this office till he reached the retiring age after the World War.

In 1912 the firm of Medhurst & Sons, Radio and General Electrical, came into being and here he has continued taking an active part in the business until the present day. When originated, the firm specialised in radio. Among his earlier business career he conducted the installation of the first electric lighting equipment in Hobart. He is still very active and takes a delight in going back through the years relating early experiences and comparing them with the present day. He talk of the first Edison Talking Machine and electric lamp, early experiments with radio and the equipment then (not) available, how many ingenious ideas were thought out and how they were



Snapped at a Recent VK7 Field Day.

made to work, and a variety of other was produced while this description was being written and is a treasured possession of 7AH.

The set up was made in a low roofed room or perhaps cellar would be better, normally used as an oil store room and when the visitors expressed the desire to visit the "so wonderful" land station great concern was felt by the local officials about making the place presentable.

Pop's military career commenced in England, was continued in Tasmania, spending two years with Submarine Mining Co. of Engineers, he transferred to Mounted Infantry and after eight years became Officer in

subjects dear to those who spent so much time and energy delving into possibilities which have grown to be present day realities.

As one might observe from the foregoing, radio has been foremost with him sleeping and waking, and he now expresses regret at not being able to be still active on the popular bands, in fact, during the conversation he suggested he was considering a bit of 5 meter work and if he continues to remain in his present health I would not be surprised any time to hear him at work—the flesh is still willing, ay Pop!

He reflects back to the days of our now passed super experimenter,

Trevor Watkins, 7DX (originally 7AA), and recounts their years of experimenting spent closely associated, how they mapped out circuits and built them up solely to see them work and how they tested equipment one with the other.

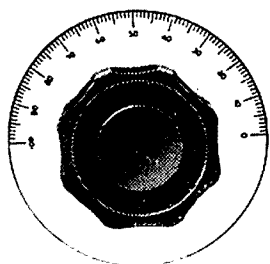
His experimenting dates back to before such things as licences were needed and he has been a member of the W.I.A. since soon after its inception, was elected a life member in 1925, and has stuck by through thick and thin. For years he was president of this division until ill health some three years ago forced a curtailment of activities, but he is now much recovered and again occupies this position which we hope he will retain for years get.

Prominent among Pop's activities is his Medhurst Patent Field Telephone, which has found a very wide use in military activities and is used extensively to the present time.

A peep into his den and shack makes one's eyes open, for he has there a collection of innumerable relics of the past and without hoping to enumerate them here is a few of the articles seen:—An original Western Electric valve receiver beautifully built in stage units, each with a polished wood cabinet all "bread-board mounted, purchase price was £150. Another receiver was an original De Forest of about the same age. (Pop says Crystal Sets in those days were priced up to £13 each.) One of Edison's original Talking Machines built up on a lyre shaped base with record drum mounted across its extremities was viewed, reproduction apparently was made through the base vibrating and passing them in turn to a horn magnifier set on the opposite end of base to the drum. Fidelity! A second Edison machine of the electric variety with automatic record changing, 5 drums being mounted around a com- (Continued on Page 11.)

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## Contest Section

(By R. F. Cohen, VK2TF, Federal Contest Manager.)

### 160 METRE VK-ZL C.W. CONT EST, 1938.

This contest proved quite a success. Although conditions were not the best, the contest refuted the assumption that this band is obsolete and dead. Consistent contacts over distances up to 1,500 miles, with very simple equipment, dispelled any doubt that this band may have closed up whilst the sun spot cycle is at its maximum.

Two of the small rigs used were those of VK3ZC and ZL3CP. The former did well with a 45 T.N.T. crystal locked from an 80 metre crystal, whilst the latter used only a single F443 in a series fed Hartley circuit.

Whilst on the subject of rigs, I would like to remind you that we cannot give a resume of the rigs used unless you mention what they are. This applies particularly to the Field Day. I think in this contest every competitor is interested in how the other fellow is deriving his watts and how he is dissipating them, so a few lines about the rig with your N.F.D. log will be appreciated.

Returning to the 160 metre contest, a few competitors enjoyed this so much that they have requested two similar contests next year. This might be arranged, but at the moment we are a little short of week-ends in the winter months. Really the All Band C.W. Trophy should be run in the winter months instead of this month. This contest will have first preference for the winter in future so the possibility of fitting two 160 metre contests in seems remote. However, we will see what can be done.

Now for the results. Congratulations are extended to VK3HG, the outright winner. Neil put up a great performance in scoring 1035 points. 19 contacts in 9 districts on 160 metres is something to be proud of. Congratulations also to ZL2NJ, who was second with 630 points, derived from 15 contacts in 9 districts.

#### Detailed Results:—

	Contacts	Districts	Pts.
VK3HG . . .	19	9	1035
ZL2NJ . . .	15	9	630
VK7AB . . .	13	8	464
ZL4CP . . .	10	7	378
ZL3IP . . .	13	7	364
VK5KL . . .	10	5	357
VK2NY . . .	12	7	315
VK4AP . . .	10	6	312
VK5JT . . .	10	6	288
VK4HR . . .	8	6	276
VK3ZC . . .	9	7	259
VK4AW . . .	5	4	80
VK6SA . . .	3	3	78
ZL1LX . . .	8	4	72
VK2VN . . .	6	3	51
ZL3CP . . .	6	4	44
VK6MN . . .	3	2	38
VK3NB . . .	1	1	7
VK3AH . . .	1	1	7

---

#### U.S.A. RUNNING OUT OF CALLS.

So great has been the increase in Amateur licences in U.S.A. of recent months that W9 district has reached the end of its three letter calls and has started again at WA9.

---

#### THE 1939 EDDYSTONE MANUAL.

The success of the earlier Eddystone Short Wave Manuals has induced the manufacturers of these components, Messrs. Stratton Ltd., Birmingham, to produce a new and enlarged edition. Manual No. 4 is on its way to Australia now and supplies will be available soon. We understand that this issue will carry constructional details for the most modern equipment, including cathode ray oscilloscopes, etc. The first shipment is limited in number and we suggest that you place your order with VK3ML immediately for a copy, which will cost approximately 2/-.

## Amateur Radio

(Continued from page 9)

mon centre, drive was from a 2 volt motor with ring type armature and designed to operate from a Bichromate Cell. Gavanometers and microphones of various shapes and sizes dating right back, the workmanship of which in most cases was noteworthy.

On the operating bench stands two T.N.T. rigs, single tube Q.R.P. jobs both of them, one for 40 metres and the other 20. The old and once very popular glass rod or tube method of coil supporting is employed; an additional feature of these rigs is the grid leaks, these constitute small glass jars with platinum wire electrodes suspended in the now almost dried up electrolyte—water grid leaks I'm told.

These rigs have not called C.Q. for a long time now, but the rest of the equipment presents many vivid pictures of, and bear testimony to, their owner's past activities and one never knows when they may be given a new lease of life. Further on we see an French Barthon Ader field exchange and a two station, i.e., complete, heliograph in perfect order and other incidentals that tell of his active military career. This is not all, for Mr. Medhurst, with Mrs. Medhurst, who has now passed on,

had during their life together con-a most creditable family. After read-ducted a happy home life and reared ing this far one could be forgiven for wondering just how with such an active commercial life, but the fact remains.

Recently as the outcome of the development of the "Radio-phone," Pop was able to converse with his aged mother in England who, though declining in health, enjoyed a talk which was most delighting, it containing, among other topics, a 91st birthday greeting. This must have been to him a grand climax to his own part played in, and his earlier experiences with radio.

His daughter, Miss Medhurst, conducts the old home on Beach road and stands by Pop, ruling, when necessary, with an iron hand, particularly when he sets out to over-tax that ever willing active frame that seldom tires, thus he is protected from himself.

Since compiling this article news has come to hand, it is regretted to state, of the death of Mrs. Medhurst Sen. in England at the grand old age of 92 years, and I'm sure the feelings of one and all are with Pop. "A grand old mother leaves a G.O.M. of inspiring character.)



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## 28 and 56 M.C. Notes

Ten metres has been excellent this last month with activity at its best for DX from all continents. The phones from Europe have more volume than ever heard before, making contacts easy between 9 and 10.30 p.m., and on cw from as early as 7 p.m. From India VU2FZ and VU2AN are constant cw stations. PK1VY is a new station for ten and has good quality phone, with good English! He is situated between mountains 6,000 feet high and his 175 watts to a pair of 35T's modulated by a pair of similar tubes in Class B, gives us remarkably good strength.

W6LWN is yet another phone from the States who relies on the director-dipole-reflector combination. I.e. mentioned many well known consistently heard phones who have used the following formulae for the dimensions of their beams without need of pruning for good results:— a 1/10th wave refl. spacing and 15/100th wave director spacing being used. The measurements are obtained as follows:—Length of antenna dipole, 477000 over freq.; length of reflector 492000 over freq.; length of director 458000 over freq. Judging by results these beams are well worth trying, especially considering their small overall size. The band is open from 6 a.m. till 2.30 p.m. for the States with all districts having good strength up till app. 11 a.m., then mostly W6-7 and VE5 till the later hour. W1ADM was contacted here at 11.15 a.m. on Cup Day with r7 phone showing the band wide open.

VK3XP and 3BD have the best contacts with Africa and can work their phones when inaudible to other VK3's. The following Europeans have been contacted by VK's in the last few weeks:—D4GXF, D3CDH, HB9DH, G2CR, ON4DI, PA0UN, G6DW, PA0KV, ON4NO, G2ZV, D4AFF, GM8MJ, G6XN, G5OV, PA0WG, G2OA, G6YL, and the old timer, G6DH, all using cw in the low freq. end of the band. G6YL has only 8 to 10 watts input, although often r8 here on cw. She has been WAC and WBE seven times and has

worked 47 countries on 10. Is this efficiency plus?

The most outstanding phone is PA0FB (who lives up to his call) and speaks excellent English. His rig has a single 800 in the final modulated by Class B 809's. The receiver is an Arc 175 with a reg. rf. stage to improve the signal to noise ratio. Five metres has some nice signals these days, the best here in Kew being VK3NB, who has r9 phone. His CC outfit has an 80 mx xtal with 6L6 and 6L6 doublers, with an 807 doubler final modulated by a pair of 6L6 tubes. The antenna has a pair of half waves in phase fed by a 500 ohm line to the stub at the centre.

I received a very interesting letter from VK5KL who intends to keep us informed with S.A. conditions and news—many thanks, OM. The trend over there is also to CC on 5 metres and VK5ZU, 5HD, 5JT, 5KL and 5KO have the very necessary stable carriers. VK5HD used 40 xtal with a 53, a 6L6 from 20 mx to 5 mx, and 807 buffer driving a T20 final. VK5ZU has a 6A6 and 40 xtal 6L6 doub to 10 mx, 807 doub to 5 mx; 5JT also used a 40 metre rock, a 6A6 osc., then 837 and QB2/75. 5KL has a 6A6 and 40 xtal, push push doub to 10 mx and TZ20 doub to 5 mx. On the receiving side, 5JT uses an Ultra Sky-rider, 5HD a TRF, 5ZU a res. coupled uper and 5KL has a super under construction. It should not be long before that interstate qso has taken place with a line up like this in VK5. On 10 metres 5KO, 5IT, 5ZU, 5GF, 5FM, 5JS and 5LB, also 5JT, are the most active. The most outstanding signal there is K6LCV, who puts a solid signal in every day of the year. During a contact with 5IT, PA0FB said that VK2GU's phone was r9 every day there. 2GU has the best VK 10 mx phone into any part of the globe. W7EMP is consistently good and uses a new rotary beam, having a curtain of 4 half waves with 4 more set a 1/5th wave behind. From Japan J3FJ and J2JJ have been heard calling cq on cw but no contacts.



## VK3MR's DX NOTES

The prediction that the out of band workers during the contest were booked has borne considerable fruit, and long and loud are the moans from the offenders! The main excuse, if it can be called so, is that the xtal was ground for the HF end of the band so it should be o.k., etc. I believe there is something in the regulations about having a calibrated frequency meter, although don't take my word for it! As mentioned many times before, the average xtal is ground plus or minus about 2kc and this figure is generally pretty right, but it must be remembered that, that is 2kc on 80 mx which, when doubling to 14mc, is 8 kc out. Added to this error creeping in, is the slightly different frequency characteristics of xtals in other holders. Don't be too hard on the Vig. Com. as their job is hard enough as it is and they are doing a good job.

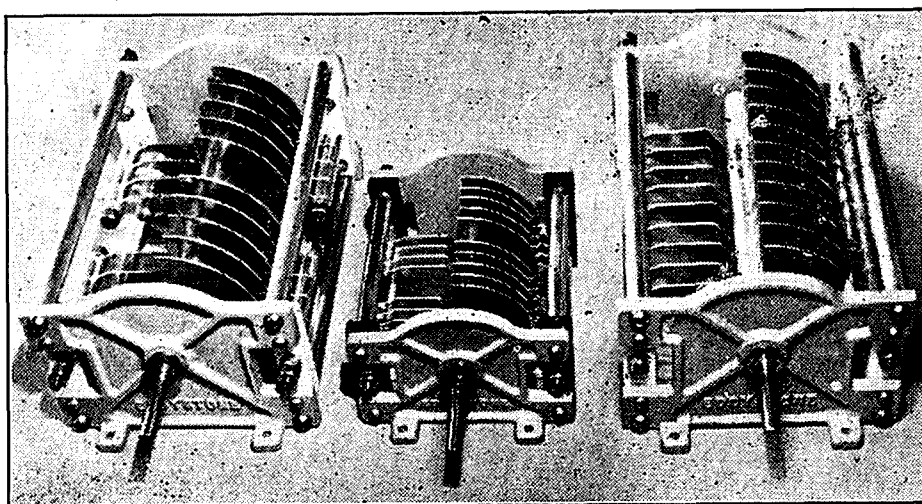
Jock, of 3FF, has broken the long silence with some interesting dope

and claims to be the first VK to work VP8AD, in fact the VP8 said it was the 1st VP8. VK qso. VP8AD has been on during the month on about 14350 kc. Jock also has been amongst the choice ones like TF3C, ZB1X and CX1FO. He also had a qso with a station signing GHO who claims to be in London. Doubtful signal although he had a commercial fist. It looks as if a VK pirate has been getting the boys excited by using calls like FO8AA, YJ1AA and ZK1AB. His gra seems to be in VK2 in the north. Sorry to dampen anybody's spirits! HI6Q is genuine; his gra is Capt. F. Yanes, Ciudad, Trujillo, Dominican Rep. 2DG does not consider LU.PY, etc., as rare. They are hard to work further down south OM! Who worked VP9K who was 60kc out at the HF end of 14mc! Don't count K5 and NY1 as different countries. They are the same. NY is the prefix for the naval stations in the canal zone. YS2LR seem ok and asks to qsl via W5FNX. Those looking for S. American sigs. are advised to keep on 14 mc from 3 p.m. to

(Continued on page 27.)

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(R. E. Jones, VK3RJ, QSL Manager)

Latest advises from Warragul indicate that Mac 3XZ has been busy lopping and scaling pine trees erecting new antennae, whilst Murray, 3HZ, contents himself by burning out the primaries of driver trannies.

Alan Brown, VK3CX, proud of his WAS certificate, is keenly seeking verifications for the Century Club diploma. Although countries now total 130, getting the 100 verifications is a different matter.

Tubby Vale, VK3MK, recently put in a few weeks in Melbourne undergoing an operation. When are you heading for Mildura again Lindsay?

Murray Orr, VK3OR, has again been bitten by the DX bug as a bunch of cards relating to 20 metre QSO's testiy.

Rumoured that Tom Lelliott,

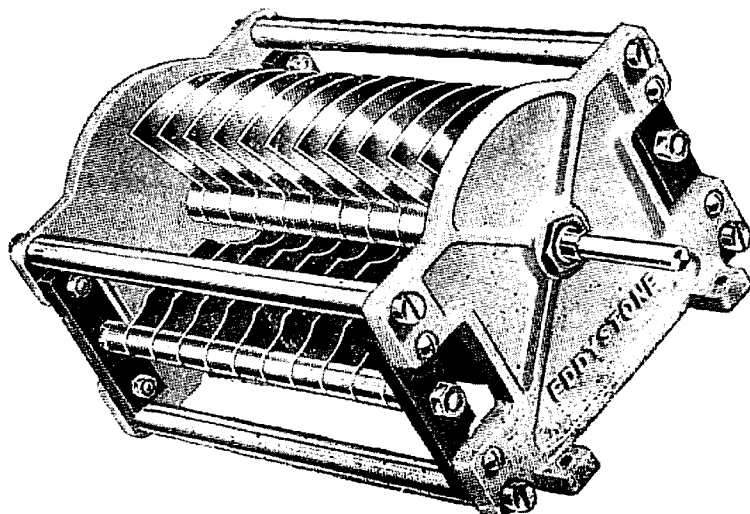
VK3ZW is busying himself with relay racks preparatory to a "come-back." If the proposed job is on a parallel with that Vauxhall with the wide open exhaust and receptacle for his gloves, cane and spats, we can expect big things.

Desirous of correspondence with hams or listeners is Viti Popescu, Str. Mirea, Anghelescu No. 14; (Bellu) Bucharest, Roumania. Will trade stamps, postcards or fotos.

Cards for numerous VK3 stations are on hand at the Bureau, 23 Landale street, Box Hill, Victoria. A stamped envelope secures them promptly.

Federal Headquarters is being asked to state a case to the Postal Department for the classification of QSL Cards as commercial papers.

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## The Amateur and Defence

---

A daily press report talks of a scheme to enrol amateurs in an "Australian Signal Corps Reserve"; mooted as an extension of the R.A.A.F.W.R. scheme to embrace other branches of the defence services, and the Federal Government is stated to be asked to make a move in the matter. Sooner or later, with mad dogs yapping around the heels of the British Empire, something of this nature seems inevitable, but the pity of it appears to be why amateur radio in Australia has not taken the helm of inauguration of such a scheme without awaiting a move from officialdom! The press report states that the R.A.A.F. has had such a large number of applications from amateurs for enrolment in the reserve, that it has not been possible to consider them all. Hence the proposed Signal Reserve for other branches of the services. The reactions of some amateurs to any suggestion of military or naval service are worth analysis. From time to time suggestions have been made at gatherings of amateurs in Sydney that something should be done in the nature of the formation of an amateur emergency network to cover the entire country in the event of the unexpected happening. Such suggestions have invariably been made by men old enough to know the ghastly horrors of warfare and all that such shambles mean.

Recently I heard the subject broached again by an old timer amateur who started punching a key thirty odd years ago in this country and the result was the usual puerile reference to "cannon-fodder." It is noticeable that vociferous opposition to any thread of suggestion of helping to make one's own country safer in case of invasion usually comes from inexperienced youth, and more so from the type that has no noticeable telegraphic backing to support his aired opinions. Any proposal for a defence network naturally revolves around a pivot which calls for first rate efficiency in key work. It is not difficult, in case of war, to imagine what will be the status or utility of amateur phone as pictured on the dials of receivers to-day. There won't be any—and the immediate cessation of ordinary amateur activities as we now know them would be a certainty. Those telegraphists who had had the good sense to take part in training schemes to familiarise themselves with service procedure in traffic handling would be of immediate and immense value to the community. The man who has lived with his mike so much that he openly admits that he is a rotten morse operator, would be in a very different category. A bank clerk with little or no radio knowledge would probably be just as useful on joining some signal service. They would both have to be trained.

---

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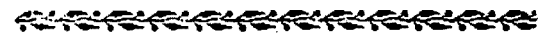
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## Divisional Notes

To ensure insertion all copy must be in the hands of the Editor not later than the 18th of the month preceding publication.

### N.S.W. Division

N.S.W. Notes received too late for publication.

(By 2IG)

Conditions in Albury were fair for the contest, but unfortunately qrm ruined things on the second week-end of the Junior. During the first week-end, VK2IG worked 20 countries in 25 contacts, but could hear practically nothing the next week-end on account of the qrm. VK2AP is still maintaining skeds in spite of difficult conditions between here and U.S.A.

2OJ—Is on occasionally, but rather busy elsewhere.

2QE—Switched his receiver on and found the tubes had blown out, so that ruined another good resolution.

2EU and 2QD—Argue about motor boats, but they're more on the water than on the air. (We'd rather be on the beer!)

2AFD—Is on leave from the Air Force (you may have heard 'em), and looks "in the pink."

2AED and 2AIB—Are on 20, getting a fair share of DX.

2AKE—Is on qrp and doing well.

2IG—Damaged an optic at work. He has been at the Eye and Ear Hospital in Melbourne, where he will have to behave for some time.

2VK—Came down with him, but is resuming his voyage to Sydney. He is sure fattening up and prattles

blithely of cheap 211 tubes to make the local lads envious.

By the way, we heard PR1VY calling 2NO! What's that mean? He wouldn't work any others!

### Victorian Division

#### PHONE SECTION.

#### NEWS AND NOTES.

October 25th saw the first meeting of the combined fone sections. There was a fair attendance of members of both groups, and henceforth the combination will be known as the Phone Section.

It was decided that the present chairman (W. Sievers) and secretary (J. C. Kerley) should shoulder the responsibilities of the combined groups. The November meeting of the section will be the last for this year as the last Tuesday of December falls during the Christmas holidays, therefore members please note that the next meeting is on the 31st January, 1939.

3JB.—Alas, a good 200 metre ham turns it in. Must be getting too old, Jack. Listen for him on S.W., chaps, and QSO.

3AM.—Besides 200 metres, also on 20, where he works Z's and G's with ease.

3PA—Just built new modulator. Now using plate mod. after a successful period of grid mod. Modulator is complete with Carrier Shift Indicator, Volume Level Indicator, Monitor, etc.

3JR.—Modulation tranny up in flames. No fire brigades by request.

Erected new beam 40ft. mast with ladder to the top. Rotable from the shack. Good for drying shirts on washday.

**3HK**—Has oscilloscope to monitor and check xmissions. Also used on rx. to check rec'd. stations. Beat Frequency Oscillator going and will make some tests on modulation with it when time permits.

**3VM**—Has been on a vacation (lucky ham) up VK4 way. Active on 14, 28, 56 m.c. Using vertical  $\frac{1}{2}$  wave broadside and endfire.

**3KK**—Very interested in methods of modulation on an 804. Experimenting with "beams" also.

**3DH**—Doing some fone on 14 mc. Active also on 56 mc. (56.064 and 56.104). Using a temporary semi-vertical  $\frac{1}{2}$  wave 20 metre ant. 27ft. high at top and 2ft. high at bottom.

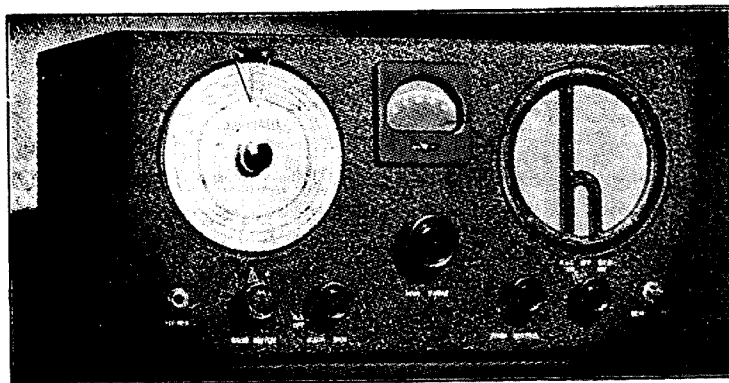
Observed down Chelsea way on a recent Saturday afternoon, our worthy Sec. apparently attempting to teach a rather easy to look at YL to handle a 16 K.W. Standard Saloon. (746 watts equals 1 H.P. hi!)

## U.H.F. SECTION.

(By 3JO)

### Wangaratta Tests.

At the last moment, after all tests had been completed, it was learned that the races had been abandoned, and our services therefore not required. Before hearing of these tests, tentative arrangements had been made for a field day to be held in November. It was realised, however, that both activities would be too much of a task to undertake in the same month, so that when the Wang. tests were first motted, the idea of the field day was dropped.



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**THE SKYRIDER 5-10**, 8 tubes, built-in speaker, RK1851 stage of pre-selection, covers 27 MC to 68 MC in two bands.

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# Amateur Radio

Unfortunately, the news of the abandonment arrived too late for us to make any arrangements to supplant them, but it is likely that a field day will be held in December, prior to the holidays. A field day will definitely be arranged for a week-end in February.

## Continuous Transmissions.

A suggestion that we should design and construct a 56 mc. c.c. 100 watt transmitter for continuous C.W. operation has aroused considerable interest, but as yet it is still in the suggestion stage. More information will appear in future notes.

The competition recently conducted here has yielded only a few logs to date, and the prize, a 6V6G, is being withheld pending the arrival of more logs or new ideas about the competition. Another competition will be held in the New Year. Watch these notes for details.

The next meeting is on December 20th at the W.I.A. Rooms, and all are invited to attend. In the meantime, seasonal greetings are in order once again, so here's wishing all the best.

## EASTERN ZONE.

(3PR-DG.)

Zone members are requested to get on 40 mx on Sunday mornings for the zone hook-up. Conditions seem very patchy at present, and are making the Sunday hook-ups very uninteresting as everybody cannot hear everybody else. However, chaps, stick to it, and we will soon be rewarded with better results.

3DI—Evan getting QRL, but manages to take a rx. with him. How about getting a Xmtr going too?

3HZ—Murray on 40 mx. occasionally.

3QB—Jack busy building a band switching exciter using 802-6N7G and 807.

3XZ—Mac has at last finished his rack and panel job, but can't get out over the back fence. Chop down a few more pine trees, om.

3ZJ—Jim heard over 3HZ during Sunday a.m. hook-ups.

3PR—A farmer by day, talkie op. by night, and a ham in spare time, which is not very often.

3XH—Stan putting out a rather decent sig. on 40 mx and 80 mx. when condx permit.

3GO—Graham only heard occasionally. Bcl troubles keep him quiet, have to advise them to purchase decent sets, Graham.

3VG—Has not been heard on fone yet. Better hurry it up, om, and be in on the Sunday a.m. hook-ups.

3SS—Keith has been very busy erecting Bcl. antennas, and usual service work keeps him engaged, hence the silence.

3DG—New modulator nearly complete, 6L6G's class AB1, so will have to now put the 809's through their paces.

We have to extend congratulations to Lindsay McGuire, of Stratford, on him getting his ticket. Has everything ready for the call to come to hand. Rig is 6L6 Tri-tet Xtal osc. and rx.2 tube Jones Super Gainer.

## WESTERN ZONE.

(By VK3HG.)

VK3II—A new ham in this district and a wartime air pilot. Congratulations, Mr. Simpson, and welcome to ham radio.

VK3TW—Rebuilt his rig again and active on 7 mc. mostly. Announcing at local B class station in his spare time.

VK3JA—Operated on for appendicitis. Has his gear for sale. Mebbe the doctor won't send in a bill—then you needn't sell out, hi!

VK3XG.—On 7 and 14 mc. phone.

VK3NQ—Busy taming his QRO rig and will be on 7 mc. soon.

VK3OW—Much more active. Getting DX with lengthened V beam. Doing in a few crystals.

**VK3KX.**—Has 56 mc. gear going, but haven't heard of any results. First Century Club member in the Zone. Congrats, Ron!

**VK3HG**—DXing on 14 and 28 mc., and has hopes of qualifying for the Century Club soon. Also losing a crystal or two.

**3WN**—Working on 40 and 80 mx. Jack has erected a new pole in his back yard, but a wind storm came along and the halyard broke. Look for a decent pole with VK3WN sign on it in the main street at Sea Lake.

**3CE**—Is missing What's happened, Roy?

**3NN**—Is not heard very frequently. On 20 mx, Herb?

**3OR**—Has not been very active of late, as Murray has been busy.

**3BG**—What's doing, Roth? You are unusually quiet.

**3TS and 3FF**—Are the two 20 mx kings. Which rig is the best, boys?

**3EC**—Has a T20 in the final, and was building a high freq. rig. Ern is anxious to go 20 mx. Say, Ern, what do T20's cost?

**3IV, ex 3EQ, ex 2AGQ**—Now of Birchip. Is so far very quiet. Step on it, Keith.

**3EF**—Still continues to make a hole in the 40 mx. band. (Hope he fits it in when he has finished!—**3RX.**)

**3KY, of Kyabram.** — Has been heard on 40 mx.

**3IH**—Is now 1st op. at one of the local theatres. Still active on 80 mx.

**NORTHERN ZONE.**

(3ZK-3HX.)

With the advancement of the summer months, static has taken possession of the 80 mx band, while 40 mx. has been nearly as bad, probably due to the unsettled weather conditions which have been experienced in this part of the State. 20 mx. seems to be the Mecca of most of the northern gang, although conditions, particularly during the evening have not been the best; nevertheless excellent DX has been reported.

**3TL**—With the erection of a four section 8JK beam has, within a fortnight, worked some very nice DX, including LU, SM, SP, HP, etc.

**3BM**—Bruce with sundry beams has been working Europe with ease, being audible when other VK's are not.

**3EP**—Has now entered a period of inactivity owing to Xmas rush (hi!) Ted has been doing some fine work on 20 mx.

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## Amateur Radio

3ZK—On 80 mx. with the same old signal, and still runs skedules with IH and HX.

3HX—Has been having a few arguments with the Doc., who tied him up in the hospital. (All right, hoys, the nurses were O.K.) Still working on 80 mx, but will probably be heard on higher frequencies soon.

### Queensland Division

The DX tests are over and the VIB gang are taking a well earned rest. The only noticeable activity is during week-ends, particularly on ten metres. 4HR, 4JP, 4RY, 4AW and 4AD all give ten a "go" on Sunday evenings, and the rivalry, although quite friendly, is keen. No European or Asian station is missed for the want of calls.

The DX worked at our QRA gives some idea of what you can do on ten if your receiver is O.K., and your aerial radiating as it should. Here are the countries contacted during the last month: W, K5, VE, CT, D4, I, OH, J, VU, VS6, XZ, F8, PA, HB, SP, YL, ON and SM. 4HR has a huge list of countries to his credit on ten. 4RY and 4AW are also doing very well. 4JP with a rotatable antenna is putting tremendous signals into K6 and W. He has the distinction of being the first VK4 to put phone into South America—CE, YV and LU being the countries worked.

Yes, get on "ten," oms. You need a little patience, but the fun is good when conditions are favourable.

#### Personal Items.

4FB is holidaying in V.I.S. Brother Tom misses him a lot — the clocks and watches seem to pile up like unacknowledged QSL's.

4UL was one of the last to build a super, but it's a 1938 model in every way.

4GK is busy with skyline problems.

4KH is now a fully-fledged fireman. Think the next move will be a rotary beam.

4UR is very busy these days. Shouldn't be surprised if Jack's enthusiasm is now being expended in something more attractive than DX.

Here's real news. 4CG is W.A.S. It's the first in VK4's, oms.

4AW and 4RY spend more of their time on "ten." Think Arthur has ideas of a 28mc. portable outfit.

We are indebted to 4JP for the following: The QSL manager for Northern Rhodesia is VQ2HC, Box 27, Ukana. Keep an eye on these frequencies: VQ2HC, 14,046 kc.; VQ2JC, 14,344 kc.

Congrats. on receiving the 'fone permit, 4KS.

4SA seems to be working his share of the DX.

4WA putting out very nice fone and certainly getting out well.

4HU is on 20. Think you'll like the band, om.

4TH, Cairns. Who hasn't heard the Doc on with PK6XX? Keep an eye on these Johnnies up there, Doc. The Dutch Officer hands out a good line of flattery, hi! How's medico partner, 4DN. We haven't heard a whisper from him.

4TK, Innisfail, puts an R9 sig. into VIB. Has some ideas about a rotary beam.

What about some news, 4MC?

One of our newest members is 4ZU. Don't overlook his calls.

### South Australian Division

(By VK5KL.)

At the Transmitters' meeting last month Mr. Walker, 5WW, resigned from the chairmanship and Mr. Wrexford, 5DW, was elected in his stead. On 16th November a good gathering of members visited 5KA, one of the local broadcast stations. On 11th December a picnic will be held at Sellick's Beach. Members and

friends are asked to meet at the W.I.A. Rooms at 8.30 a.m. and will proceed from there by cars that will be available. This is definitely a social outing and all are advised to come and make a great day of it.

Results from the 5 meter holiday held on 27th November are not to hand, but will be published next month. On 14 mc several chaps are striving to better each other in the race for new countries. Some with over 100 countries are 5WR, 5RX, 5JS and 5WK. Ten metres has not been particularly good, but on Sunday, 13th November, in the evening the band was full of European DX signals. Activity is increasing on 5 metres and a few new stations have appeared. 5AF in Glenelg has a good signal from a T20 and 30 watts input. 5RQ of Goodwood put out a nice signal with series modulation. More co-operation is needed in the way of strictly kept schedules with interstate men to take advantage of any DX opportunities that may prevail on 5.

In this issue, as is always the custom, compliments of the season are extended to all in this wonderful game of Ham Radio.

## WAKEFIELD ZONE.

(By VK5RE.)

Old man Summer is with us once again, and QRN, Summer's attendant, is also here. Conditions in this area have been definitely bad—quite the worst experienced for several months, though a few W's break through on 7 mc. at rare intervals, but, generally speaking, the ether has been as empty as a land agent's conscience.

Wakefield Zone welcomes VK5GS, a brand new station situated at Renmark, and with a very nice T9X note. Welcome, Pete, old boy, and may your adventure into the realms of Radio be happy.

5LR—Jack still punching out a hefty sig. YF and Jack did the long trek down to Murray Bridge for the

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## Amateur Radio

field day—and they both assure me they had a real bonzer time.

5RE—Busy cleaning up the shack (about time, too—5PN) in honour of a visit from VK5BF, of Murray Bridge.

Ron Green still interested in Radio but a recently acquired "Racing Car" has placed "Monopoly" back in its box.

Bert Stacey has recently bought a Weston multi-meter. Bert assures us that it will do everything but pay the income tax.

Harold Fisher with a brand spanking new! Say, Harold, what's the secret?

Merv. Tucker still busy with studies and high—very high—voltages.

Well, chaps, guess Xmas will be with us soon so here's taking the opportunity to wish you all a very happy and prosperous New Year, and wish very sincerely that the coming year will contain all the good things that you missed in 1938.

Cheerio and 73

Hobby.

---

### GREY ZONE.

(By VK5LC)

My first attempt, chaps, since being appointed. I would like to hear from you all before the 10th of each month.

5WG—My predecessor, resigned due to family ties, so I am told, Wally!

5LG—Never hear from you since some talk of QRO. Blown the place up, Leith?

5NW—Bob seems to have got disgusted with QRM on his freq., and closed down. Try E.C.

5BK—Back from holidays, but Jack's too busy at 5CK to get on the air.

5HR—Say, Bill, are you becoming a back number?

5RJ—Darce still chasing bugs in the final. Get a shot gun, Darce, or sum insecticide.

5TL—Tom, what's doing? Do you only QSO 5JT or is it DX you're working, and we don't hear you?

5MP—Len active now that the roof is on the house again. Still active on 5 mx, too.

5WJ.—Are you in this zone, Bill? Your name wasn't given to me.

5YM.—Oh, Norm! How did you manage to get on the air for skeds a week late? It was worth it to get a call from 5YL, eh?

5KJ—Is it right you are shifting to Yudnapinna, George? My! you will be able to put up plenty plurry clothes lines now!

Ex-5FB—I heard a whisper that you are organising a dinner, Frank; so you must be still over this way. What's the news?

Messrs. F. A. Trembath, L. D. Favilla and S. W. D. Wilson.—How are you going for that ticket, chaps?

Mr. Bottrall.—I know you are still trying, Col, but let's hear you have a ticket by Xmas.

5LC.—Experimenting with Veebeams, but condx very bad of late for DX. Busy season here now so have to QRT except Sundays.

Cheerio.

Les.

---

### BARKER ZONE.

(By VK5GW)

Conditions have been very patchy here on the 40 mx and 20 mx bands. QRN has been the main trouble, being very heavy almost every evening.

5TW—Tom has now put up a Zepp ant., and says that reports are very much better.

5BN—Graham is back from holidays, and is on the air again. Busy building a new modulator.

5CJ—Getting F.B. reports on his fone with only 7½ watts input. Talking 5 mx rigs with 5BN.

5XR—Cam has been quiet lately. Busy swatting for Diesel exam. Good luck, O.M.

5PB—Still out bush. Talking of portable. Wattie says he will surprise everyone one of these days with a complete new rig—a “super job.”

5GW—Heard now and again on 40 mx and 20 mx. Away from home most week-ends. Trying out various antennas. Still looking for a good all-band job.

5BF—As usual on skeds during the week-ends. F.B. fone. Recently spent a week-end at Renmark as guest of 5RE.

5BG—Haven't heard much from Bob down this way; heard plenty working him. Believe he is at present relieving at 5AD.

5YL—Still waiting for a QSO, Betty. Very seldom heard at Naracoorte. Hoping we will soon be able to hear you now that you have got away from 5MK's frequency.

Cheerio!

George.

## Western Australian Division

(By VK6WZ)

November general meeting of this Division has been postponed in same manner as last month's—except that there is no mistake this time, there being a definite reason—and therefore these notes will deal with conditions and other matters.

Every week-end seems to see new VK6 calls springing up, and that favourite stamping-ground 40 mx. gets its full share. Recent calls noted were 6EL, 6FK and 6GX. At the same time new arrivals on fone represent those who have served the necessary probation and got through and include 6GA, 6IG, 6CC and 6KW.

The November Field Day (DF Hunt) held on November 6 resulted in 6GM first and 6BW second. A total of six parties competed. The weather was reasonable, and although rain threatened, the day passed off without any falling. Some

competitors had difficulty with gear and others experienced strange (?) phenomena such as travelling away from the hidden transmitter on bearings given by their direction-finders. The event should have proved very enlightening and instructive to all.

6WI is in working order, and was on the air recently on CW on exactly 7000 kc. (marker frequency). Trouble is encountered, however, due to high local noisy level from noisy mains. Even on a “good” night there is a constant barrage of crackle from power leaks, Neon signs, etc.

6GM has been experimenting with automatic over-modulation control, and is hoping to get hold of an 879. He puts out a beautiful signal. 6CP heard recently converting others to his very own special version of two half-waves in phase. Impression gained was that end-fire, broadside, all-band, hot or cold and all mod. cons. could be obtained simply by pulling the piece of string in the shack! 6EC up in metropolis now working in P.M.G. Department. Hopes to get rig going and talk back to the boys in Albany, who will no doubt be missing Eric's cheery presence. 6LJ complaining of excessive receiver hiss, and says he's sick of ham radio; will be on holidays by time this is published, and hopes to make new start after returning.

6BW seen rushing here and there. Always busy, but has anyone heard Mick on the air? Suspect he spends most of his time building—so much so, in fact, that he can't find time to operate the gear he builds!

6MW keeping 20 and 10 mx aware of his presence when time and business worries permit; also heard on 40 talking to “the old folks.”

6FL must be getting on and getting his share of 20 mx. DX because, although skip prevents this scribe hearing him, other stations can be heard calling.

6HT of Albany is in same position.

6RW of Wagin was also heard called recently, but is likewise in the skip for Perth.

Tasmanian Division

(By 7YL)

6WL and 6AW, the country stalwarts, keep the country districts on the 40 mx. map during week-ends. Two rare signals in those of 6WG and 6ZZ were heard on a recent Sunday.

EX-6WM is said to be 5WM now. Good luck, OM, and we hope to hear you and work you often. Patience rewarded!

6YZ at last has his new m.v. rectifiers, and is on 40 and 20 once again. Having some trouble with harmonics and the second harmonic of his 7200 (and a bit) kc. rock was heard by someone in authority, and Dick received a polite note requesting him to refrain from 20 metre work outside the band! What a shock that must've been!

6WS still without a final and essential touches to that rotary beam of his. Wishes (as many others have wished, no doubt) that it could be possible to rotate two half-waves in phase plus reflectors! Tall order, but, boy, what an antenna! Skipper will content himself with W8JK or other compact beam.

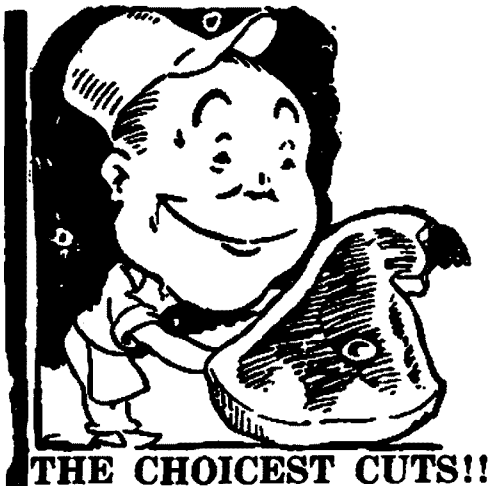
6WZ has discovered that one way of curing BCL QRM trouble is to remove the mains filter. The reverse SHOULD be the case, but isn't in this instance. Sounds like the chap whose speech amp. motor-boated until he took the decoupling out!

The monthly meeting of this division of the Institute was held at the Y.M.C.A. Rooms on the 8th November. As many members made a mistake about the date, owing to the public holiday, the attendance was not overflowing. The members who did arrive were rather indignant, but it just can't be helped. Members, especially councillors, are earnestly requested to observe the date printed on the notices in future.

The council held a special meeting to wade through reams of correspondence arising out of the recent convention.

The recent field day, or, to be more exact, picnic, held at Blackman's Bay was a jolly function. There was quite a good gathering of hams, parents, yls and yfs present. The morning was taken up by a cricket match, then followed lunch, while the energetic male members of the contingent spent the afternoon attempting to emulate the League footballers. The minor sports of wrestling and golf were also indulged in. The weather was fine and warm, and most members of the party returned home sunburnt and very stiff.

Upon reviewing the members of this division of the Institute, the Council has found that the percentage of "ham" members is not what it used to be. This is mainly because many new amateurs who have recently obtained their tickets have



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not as yet joined up. To these hams we especially make an earnest plea, "Please join our division," for it is only with the wholehearted co-operation of everyone that the greatest success can be achieved. As our President said, "Unity is strength," and upon realising this we feel sure that all will make a special effort to become members, especially those in the North and on the North-West coast.

Owing to the continued inactivity in most cases, your humble servant finds news scarce.

7DH.—Now working at local broadcasting station 7HT. Has not been to a meeting for ages. What about it, Dave?

7KV.—Lately suffered a bad attack of "absent-mindedness." Were the musical studies the cause, Keith?

7CK.—Was down in VIH during Show Week. Owing to numerous engagements was unable to do the rounds, but had several pleasant chin wags with old friends.

7HM.—Has xmtr. just about reconstructed again. Should be breaking the ether some time next week.

7CT.—Gave his little Morris Minor an airing at the field day.

7HL.—Kept the fielders busy at the cricket match; in fact, was just about unbowlable.

7AB.—Recently returned from holiday on the mainland.

7JB.—"Buck" has rebuilt his modulators and added a mixer circuit, enabling him to fade speech or music in on one another. Experiments made on 200 mx. were very successful.

7YL.—Heard muttering nasty things about equinoctial gales which caused one of the antenna masts to bite the dust.

It is with sincere regret that we record the retirement from Amateur circles of Captain A. E. T. Payne, VK3PP, one of ham radio's staunch friends and patron of the Victorian Division. Victorian members are ever mindful of the thoughtfulness of Captain Payne, whose generosity made available to this division of the Institute test equipment and meters which would otherwise have been beyond the resources of a purely amateur organisation.

(Continued from page 13)  
after 9 p.m. 3KX gives VP8AD's qra as R. McLaren, c/o Radio VPC Port Stanley, Falklands Is. He will qsl when he receives your card. VP6LN 14070 kc about 8.15 p.m. qra Barbados. Worth looking for. The W's seem to doubt the signals from VK9. but they are all o.k. Everybody seems to be talking conventions, so will be seeing you all at Colac. Listen to VK3WI transmitting on 80mx every Wednesday night, also will be down on 7mc soon. This is the last notes for the year so I wish all the best for Christmas and I wish to thank all those who have helped me by sending in notes. So 7 to all.

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# *Radiotron 902*

2-inch Cathode Tube

This new release provides at a reasonable price the ideal means for checking modulation and waveform. The 902 requires only 400-600 volts supply and the deflection sensitivity is high.

## **Special Features**

Octal base (same connections as 913).

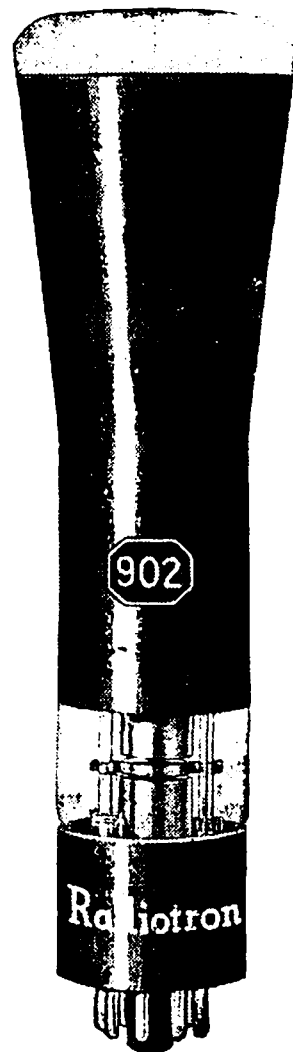
Medium Persistence Screen.

Electrostatic deflection

Maximum diameter  $2\frac{1}{16}$ ".

Maximum overall length  $7\frac{5}{8}$ ".

**Price £2/15/- nett**



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